Handbook **on** the Operation and Organization of a Statistica! Agency

Revised Edition

United Nations Statistics Division
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Foreword

In 1954, two years after sponsoring an interregional seminar to discuss tbe matter, tbe United Nations Statistical "Handbook of Statistical Organization" in tbe series Studies in Metbods, Series F, No. 6 was published.\ In 1980, geven years after convening a second interregional seminar, tbe Statistical Office published tbe fiTstrevision to tbe Handbook as SeriesF No. 28.2 In 1999, at a data quality seminar cosponsored by tbe International Monetary Fund and tbe United Nations, several countries requested tbat tbe Handbook he updated. Tbe United Nations Statistica1 Commission confirmed this request.

This version of tbe Handbook is largely based on a document prepared by Jacob Ryten under a consulting arrangement with tbe United Nations Statistics Division. Tbe initial review of tbe document was made by staff in the Statistics Division and an editorial team representing countries fiom each of tbe United Nations Regional Commissions and tbe International Monetary Fund. Subsequently individuaI Chapters were used at various seminars conducted by tbe Statistics Division.

Finally, ODemust allow that implementation of this Handbook CaDproceed in ODe of two quite different directions. On tbe ODehand, tbe measures advocated in this Handbook should not be adopted ODeat a time but rather as a package since tbey act in concert witb ODeanotber. However, it must also he recognized tbat most agencies desiring to implement tbe principles in this Handbook will not he in a position to implement that all at once. In *fact,* tbe most sensible course of action *foT* a country may he to concentrate on just ODearea, gay, fOTexample, managing tbe core functions of a statistical office. In any event, each statistical office must decide foT itself - given its situation and tbat of its country - whieh, if any, of tbe principles advocated in this Handbookare applicableto it.

Without tbe work of Jaeob Ryten tbis Handbook would not have been written. He wrote a complete fITstdraft, whieh turned out to be a Herculean error!. Only tbose who have attempted projects of this complexity CaDtruly appreciate bis efforts. The draft was reviewed by an editorial board of: Paul Cheung, Miguel Cevera, Svein Longva, Guest Charumbira, Hasan Abu Libdeh and Carol Carson who made numerous suggestions foT improvements. Jason Brody made many helpful suggestions on how tbe text could be made more easily understandabie. Several United Nations Statistics Division staff eontributed to tbe fina1 draft but three deserve special mention: Angela Me, who organized tbe production of early drafts and in addition made many valuable substantive suggestions at all stages of tbe proeess; Sabine Warschburger and lsabela Heng, who organized and produced tbe final draft. Chapter 7 on Managing Information Technology is substantially tbe work of Jack Arthur. However, responsibility foT tbe final version of tbe Handbook and any weaknesses Testswitb Hermann Habermann and Willem de Vries, who made tbe final decisions on tbe content and structure of tbe Handbook.

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I Hereinafter referred to as *Handbook.*
2 Hereinafter referred to as *Handbook* Rev. *J.*

Introduction

There are two main intended audiences foTthis Handbook: (i) the Chief statistician (or soon to he Chief statistician of a statistica1 agency) and hislher colleagues; and (ii) these charged with oversight of the official statistics function.

As the heads of agencies, they are both fonnally and emotionally committed to continuity of a tradition embodied by the Fundamental Principles of Official Statistics3. They establish public faith in the facts turned out by the agency; drive innovation in their agency; foster an ethos of professionaIism without which quality standards cannot be maintained; communicate with both government and public at large regarding the condition of their country on the basis of these aspects amenable to quantitative measurement. The Handbook then is designed foTthese who are responsibIe fOTproviding leadership to a statistical agency and for ensuring that the public trust is not misplaced.

It would be we1come indeed, if in addition, the Handbook were also useful to those who simply want to understand why a statistical agency operates in the manner that it does.

The Handbook is about national statistical offices - govemment departments of varying status, created in order to compile, interpret and make public official statistics. Such offices come in alf sizes and many different shapes. Some are general in the sense thai they compile statistics on alf thai must be known about economie and social processes in a country. Others are very specialized: they only compile statistics on transport, banking or agriculture. Some have high visibility and have their identity sharply detined by statute. Others are nested within ether organizations and were created chiefly to infonn the governing body of their organization. However, except in size, scale of operations and scope statistical offices do not differ thai much from each other in terms oftheir main function, their expected behaviour, and in tenns ofthe mIes that apply to them. They alf process raw data, convert them into statistics, apply objective standards to their operations and make it a condition of survival to be impartial, neutral, and objective.

The Handbook is organized into the following areas: general principles for a statistical agency and system, data collection and respondent policies, principles and examples of organization and management, and dissemination guidelines.

The Handbook is not supposed to be read as a story. Rather, it is designed to serve as a checklist of items a successfuI statistical agency must take into consideration; a set of examples that illustrates how principles can be put into practice in certain typical contexts; a list of factors that may persuade an agency's staff to favour ODeapplication over another; and finally as a caution that while certain solutions maybe be preferred, none are universa!. In particular it must he understood that although the Handbook provides c1ear and finn guidance in these areas, the situation in each country is unique and only these in the country can determine the usefulness of the guidance in this Handbook. For this reason, the Handbook cannot be prescriptive in a generic ferm. But the Handbook can be illustrative by mentioning examples and suggesting ways of learning fiom them and it can lay out a small number of general principles which appear to have

[3] United Nations Statistica! Commission, 11-15 A-priI1994, E/CN.3/1994/18.

stood the tests of time and location, tradition and legal context, polities and economic development, needs and expectations. If it succeeds in doing that much, its objectives will be met.

Notwithstanding its flexibility, the Handbook, like its predecessors4, is ~compromising in certain respeets. It enjoins the chief statistician and hislher staff to allow no interference by interested partjes in the war facts are assembied and combined into statistics, nor in the method and timing of their release to the public. And it underscores repeatedly that the information that statistical agencies collect is to remain confidential and inviolate. The failure to treat individual information as a trust would prevent the statistical agency fiom functioning effectively.

A new generation, with capabilities and resources heretofore unmatched, finds itself with the responsibility of heading today' s statistical offices. In fulfilling its responsibility, it may be aided by records of past practices, especially those that yielded favouraQle results. However, the environment in which official statistics are created and released bas changed, and continues to change, so profoundly that past experience is only partly applicable. Some of the changes are technology driven and proceed at an incredible pace. Others are the consequence of social, legal, and institutional innovations. Others still are the fruit of greater affluence, better education, and more sophisticated use of knowledge than ever before.

Never bas so much been expected fiom statistics, never have statisticiaQ.shad such means at their disposal, and never has there been so much willingness to learn fiom each other and standardize internationally the fruit of that learning. This does not imply that the di~tribution of these gains is even or best or that there are no tensions or even crises. There undoubtedly are. In some instances, the strong nexus that used to bind governments to their statistical agencies bas been shaken and is more fragile today than it was in the past. Some agencies are bound to l()ok back on the individual performance of their particular agency and feel that it bas not reflected the technological and economie changes referred to above.

Previously, official statistics catered mainly to Ministries of Industry and Finance, to Planning Commissions and to Ministries of Trade and of course to its most traditional supporters: the Ministries of Agriculture, Transportation and Labor. Today the body of users bas expended to include departments that look after the natural environment, housing, welfare, education and health, justice and energy. In addition, official statistics are now used by large businesses on a scale commensurate with that of govemment, and by the general public (for exarnple in measuring government accountability).

The drive to make inter-country comparisons is far more widespread than it was when the fiTstof the Handbooks was drafted. Whereas standards taken foT granted today such as the activity, commodity and occupation classifications were still in their infancy and in any case were literally handed down to national statistical offices by a tiny handfui of international experts, the participation of agencies in the drafting of today's successors to these standards bas become universa!. Fifty years ago the domain of international standard setting was left to international statistical offices. Today, it is a matter that engages all statistics agencies7

These then are the features, largely prompted by developments outside the province of statisticians that necessitate updating old standards while at the same time paring attention to past

[4] "Handbook ofStatistical Organization" in the series Studies in Methods, Series F, No. 6 and "Handbook öf Statistica! Organization" Series F No. 28. United Nations, New York respectively in 19D4and 1980.

experiences of statistical offices. Indeed, among the many difficulties that statisticians must take into account, perhaps the most noteworthy is managing an organization that thrives on continuity but must develop in an environment marked by constant change.

In this revision ofthe Handbook, the following are principal innovations:

.:. More attention is paid to the statistical process as a process and as a system, rather than as various institutions linked by coordinating devices. Accordingly, the debate between centralization and decentralization that was heavily featured in *Handbook Rev. 1* is ncw incorporated into a discussion of methods available to strengthen coordination.

.:. It is recognized that while the accessibility of up-to-date computer equipment and computer knowledgeable staff has increased greatly in the last twenty years, the management of information technology is a critical issue deserving special attention.

.:. Planning systems foTlarge statistical undertakings such as censuses are ncw better understood and more easily put into practice, and are therefore no longer in need of detailed examination.

.:. The emphasis on the relationships between statistical offices, respondents and users thai emerged in *Handbook Rev. 1* ncw occupies a prominent place in this version. There is alg~ greater emphasis placed on the coordinating power of such elements of the statistical infrastructure as common classifications, the system of economie accounts and ether integrating tools.

.:. This version of the Handbook, unlike its predecessors, attempts to deal with the concerns of the different classes of users and the statistics they wiIl require as a result of their differences.

Ultimately, the successful statistical agency recognizes that ideal solutions are elusive and that practical, robust, and workable solutions are created when the advantages and disadvantages of each approach are balanced successfully. Virtually each chapter that fellows illustrates such balances. Of course, these cannot be universal, because the way in which various factors are weighed against ene another toward workable ends differs according to location and time. It is up to each agency to gauge its particular set of circumstances sensibly.

The successful statistical agency also recognizes that measures are not to be adopted ene at a time but rather in concert. Even if initiatives are fiTst evaluated on their individual merits, they eventually must be judged in relation to ether organizational and procedural measures.

Chapter 1
FOUNDATION OF A STATISTICAL AGENCY

1.1. Introduction

1. National statistical offices exist to provide infonnation to the general public, government and the business community in the economie, demographie, social and environmental fields. This infonnation is essential for development in these areas and for mutual knowledge and trade among the States and peoples ofthe world.

2. The quality of official statistics depends largelyon the cooperation of citizens, enterprises, and ether respondents in providing appropriate and reliable data to the statistics agencies.

3. In order that the public trust official statistics, a statistical agency must have a set of fundamental values and principles that eam the respect of the public. These include, independence, relevance, credibility and treating respondents as means rather than as ends.

4. These principles have been codified in the "FundamentaI Principles of Official Statistics"s

1.2. Independence6

5. A widely acknowledged position of independen~eis necessary for a statistical agency to have credibility and to carry out its function to provide ~ unhindered flow of useful, high-quality information for the public and policy makers. Without the credibility that comes from a streng degree of independence, users may lose trust in the accqracy and objectivity of the agency' s data, and data providers may become less willing to cooperate with agency requests.

6. In essence, a statistical agency should be distinct from those parts of the government that carry out enforcement and policy-making activities. It should be impartial and avoid even the appearance that its collection, analysis, and reporting process might be manipulated for political purposes or that individually identifiable data might be turned over for administrative, regulatory, or enforcement purposes.

7. Characteristies related to independence are:

.:. Authority for professional decisions over the scope, content, and frequency of data compiled, analysed, or published.

.:. Authority foTselection and promotion of professional, technica!, and operational staff.

S United Nations Statistical Commission, Report on the Special Session (11-15 April 1994), Economic and Sodal Council, Official Records, 1994, Supplement 9. For more informatiqn see Appendix I or http://www.un.orglDepts/unsdistatcom/1994docs/eI994.htm.

6 This paragraph draws heavily trom the "Principies and Practices for a Federal Statistical Agency, Second Edition", United States National Research Council, Committee on National Statistics, November 2000.

.:. Recognition by policy officials outside the statistical agency of its authority to release statistical information without prior clearance.

.:. Authority for the chief statistician and qualified staff to speak about the agency's statistics before the Government and the public bodies.

.:. Adherence to predetermined schedules in public release of important economie or other indicator data to prevent even the appearance of manipulation of release dates for politica! purposes.

.:. Maintenance of a clear distinction between the release of statistica! information and policy interpretations of such information by the senior members of the Government.

.:. Dissemination policies that foster regular, frequent release of major findings from and agency's statistical programmes to the public via the media, the Internet, and other means.

8. In 2000 the United States National Research Council in writing the Principles and Practices for a Federal Statistical Agency', recognized as fundamental goals of a statistical system the following:

.:. to proteet confidentiality of responses

.:. to minimize the burden of the people who provide the responses

.:. to assure accuracy which requires proper concern foT consistency across geographic areas and across the time, as weB as statistical measures of errors in the data;

.:. to assure timeliness which requires concern foT issuing data as frequently as is needed to reflect important changes in what is being studied, as weB as disseminating data as soon as practicabie after they are coUected;

.:. to assure relevanee which requires concern for improving data that help users meet their current needs fOTdecision making and analysis, as weU as anticipating future data needs;

.:. to establish credibility which requires concern for both the reality and appearance of impartiality, and ofindependence from political control.

9. If a statistical agency operates from a strong position of independence, then how are its objectives and priorities fixed? The answer is that its objectives are fixed by law,8 and its priorities must be decided by the chief statistician. The objectives are often seemingly very simple. For example, the law goveming the Canadian statistical agency states: "...there shaII be a bureau...the duties of which shaII be to coUect, abstract, compile, and publish statistical information relative to the commercial, industrial, social, economie and general activities and condition of the people.. .". 9 However, in its Strategie Overview,1O the Canadian chief statistician states that the agency's

' "Principles and Practices for a Federal Statistical Agency, Second Edition", United States National Research Council, Committee on National Statistics, November 2000.

8 See section 2.6 for a ruller discussion on the statisticallaw.

9 Statistics Act 1918 version. Today's formula does not differ. In the Framework document ofthe UK's Office for National Statistics (ONS), the functions ofthe office are defined as "to collect economie and social statistics". Several

medium-tenn priorities are provincial statistics, the service sector, science and technology, etc. The fonner describes the agency's accountability; the latter is the chief statistician's best interpretation of what the agency should do in the medium-tenn in light of perceived demand and the conditions necessary to meet it.

10. A statistical agency is a service agency, so its independence is related to methods and results, not to ultimate objectives. For this reason, we begin the discussion of organizational matters with the topic of relevancelI. There is no question that the products of a statistical agency must be national in scope- that is to sar, they must apply to all sectors of a nation's society and economy. But what does relevance mean? And what are the constraints, both physical and psychological, that limit any attempt to be "relevant"?

1.3. Relevance

11. Statistical agencies should continually look to improve their data systems to provide infonnation that is accurate, timely, and relevant foTchanging public policy needs. A problem is, however, that policy interestsmay change at a faster pace than a statistical system can adapt. It takes little time for a concern to emerge; fiTst as curiosity, next as a subject of discussion, and lastly as a matter of substantial importance to policy makers. The question of whether there was a "new economy," not accounted foTby conventional statisticians, first surfaced in the early nineties in the press and in popular literature. Within two or three years, this issue became a political priority in a number of advanced countries, and eventually called info question whether statisticians had correctly measured the GDP of their respective countries. If this concern had justified the creation of a new research programme, leading to the possible replacement of the current system of economie accounts and supporting basic data, it would have taken years if not decades foTsuch a programme to yield useful measurements.

12. Another example concerns the service sector. It took two to three years for the issue ofthe service sector-its conflguration, productivity, and quality of jobs it offered to become a serious political concern. But it took over a decade to fonnulate, accept, and institute the basic international c1assificationsrequired to collect service sector data. Indeed, as late as the end of the nineties, most statistical agencies were still experimenting with operational frameworks that would enable them to deal in a meaningful war with the service sector.

13. From these two examples it follows that recognizing a problem takes far less time than deploying the necessary means to measure its extent, and making the measurement internationally comparabie. Given this disparity, in a world of rapidly shifting priorities, a statistical agency striving to be instantly relevant could become systematically irrelevant in the sense of dealing with matters that once were at the top of the policy agenda but are no Jonger of such great importance.

14. There is little point in attempting to deal with concerns perceived as transient. By the time a programme devised to deal with them is implemented, the policy agenda will have changed

eountries- Australia, lsrael, New Zealand, Pakistan, and South Afi"iea have similar braad formulations ofthe scope of the office.

[10] Statistics Canada, Strategie Overview, Ottawa 1989

[11] Same authors believe the term "relevanee" is misplaced because it is obvious. They would pref er ifthe matter of relevance were diseussed under the heading "priorities".

several times over. In fact, when examining priority options, the statistical agency will have to sort out transient fiom more permanent cqncems.

15. Once a priority is determined, it is difficult fOTa statistical agency to modify it as fast as policy agenda concerns appear to change. This is why it is crucial to exercise good judgment in setting priorities and to accurately foresee changes in policy direction. The chief statistician' s planning involves four important elements:

.:. devising programmes that are suffic~ently genera! to adapt easily (after a fashion) to small changes in policy direction

.:. building up a reserve and creating a state of preparedness such that unforeseen contingencies can be addressed without disturbing the regular functioning ofthe statistical agencyl2

.:. developing human resource poliçies designed to make the staff of statistical agencies adaptable and redeployable so as to track effectively changes in the agency's programmes

.:. sharing technical infonnation and ipeas with other statistical agencies. Such sharing can stimulate the development of innovative data collection, analysis, and dissemination methods

16. Ensuring these capabilities gives the statistical agency a great amount of leverage in its attempt to adapt to problems arising fiom shifts in priority.

17. In an environment of social turbulence, answering to a government using statistical information foTplanning and allocating resources, the chief statistician ~s advised to keep some flexible and adoptive capability. AIso, he/she should avoid overly detailed, very specific surveys, keeping in mind that policies may change unexpectedly, rendering such surveys of doubtful applicability. In addition, there is no substitute for gaining advance information on issues troubling policy makers themselves, so that the statistician is aware of impending changes in the priorities of the policy agenda. No matter how small an office, the chief statistician must spend a significant proportion of his/her time in the company of senior government officials in order to gain the necessary awareness of impending changes.

18. But it is not sufficient to engage only the head ofthe agency. Awareness bas to extend to the entire agency and this is why a considerable amount of space is devoted to this topic particularly in Chapter 3.

1.4. Credibility

19. A special circumstance affects statistics: the results of the activities of statistical agencies must be replicabie to he believable, but realistically the user cannot replicate them. This is why a statistical agency must work hard to bolster credibility, and why there is such extreme sensitivity to any attack on credibility or to notions of a loss of public faith in the reliability of a statistical agency's output.

[12]The latest experience in a number of statistical agencies was to help fiod out the preparedness of the business sector to deal with the millennium bug in computer sysfems. Statistics Canada has kept in a state of preparedness a group of survey takers who can deal with a moderately difficult subject in a period ofninety days trom start to finish, provided that the number of sampled businesses does not exceed some two thousand.

20. Statistical agencies must be extremely rigorous with respect to the standards that inputs must meet, methods of processing, and derivation of results, and must instil in their staff an ethos of quality on par with such rigorous high standards. In this war, the sense that what is produced is the result of quality inputs, as weU as quality methods of production and control, is constantly reinforced.[13]

21. The need to inspire an ethos of quality, and toconvince aU users of the quality of adopted production processes, bas a number of organizational consequences. For example, it is reassuring to users if periodically the methods adopted by a statistical agency are subject to an outside process of evaluation and the findings are made public and open to discussion. It is difficult to convey the notion of limited openness without giving the impression of patronizing the public. And yet, uncritical openness might end up having contrary effects to these expected. For example, no matter how high a quality involved in the compilation of the national accounts, there is an inevitable residue of estimation based on assumptions that may be plausible but are not necessarily backed by evidence. Conveying this bald fact to the public may give an impression of" arbitrariness that in turn could bring the rest of the structure into disrepute. Any sophisticated analyst would know the limits to the effects of these assumptions in the light of the system of identities imposed by the accounting framework. How to convey this to the public in a manner that is not harmful is a matter for careful thought above aH in an environment where open inspection of methods is actively encouraged.

22. The underlying issue in the discussion of credibility is how ene part of the statistical system can obtain information trom ene preceding it in the production chain with complete faith that quality bas not been compromised in the process. For this to be assured, there must be a subtle combination of subjective elements in place. The spirit of quality shared by the staff of the agency must never falter, and methods of inspection and control, of checks and balances, powerful enough to detect, correct, and prevent furore avoidabie errors must always be exercised.

23. In discussing credibility, there is the matter of statisticians interacting with respondents and ensuring that they provide the best possible answers to the questions that statistical agencies put to them. "Best possible" means that the required information should be made available to the official statistical agency without distortion caused by fear of subsequent use or by failure to comprehend survey questions, and without reluctance due to the agency's perceived disrespect for the respondents' time and privacy.

l.S. Respondent policy

24. The objectives implied in the previous paragraph are easier to list than to achieve, and there is no single method to achieve them. AH methods tried so far rely on a combination of four basic elements: legal instruments to force compliance or to dissuade disobedience; appeals to respondents' sense of morality to encourage cooperation; assurances that the information wiIl not be misused; and increasingly incentives are being used in same countries.

25. An international survey of practices and opinions would likely reveal that the confidentiality of individual information is the greatest concern among respondents. Agencies that have not yet managed to persuade respondents that the information provided to a statistical agency is absolutely confidential cannot rely on the quality ofthe infonnation they collect.

[13]Some statistica! ageocies (for example, the Australian Bureau ofStatistics, Statistics Canada and Statistics New Zealand) go so far as to place their Quality Guidelines ODtheir web site or ODtheir Intranet.

26. In alllikelihood, most statistical agencies would agree thai the power given them by law to solicit information is of little use unless aU sectors of society are willing to cooperate. Those offices that have made a strenuous effort to convince respondents that the information they provide is valuable, and that the time taken to pro vide statistical information is respected and appreciated, tend to be the ones with the highest response rates. It should be clear thai lew response rates are as much of a flaw in statistical werk as is carelessness in the editing and dissemination of numbers.

27. Persuading respondents to part with inforrnation is a difficult task. (There, is a detailed discussion ofthis matter in chapter 12). However, it may have a high fale of return in improving overall quality. In this connection, the national statistical office should be aware of the relationship between the marginal additional expense of improving cooperation and its impact on the overall quality of the resulting statistics. However, ether factors must also be taken into consideration. For example, the rate of return on the marginal expense on improving editing might be higherthan that on improvingresponserates.14

28. AU offices must have a unit dedicated to interacting with respondents. That unit may be part of the office's field organization, or the matter may be of sufficient importance to justify a higher profile unit dealing exclusively with the matter of respondents policies. The objective of a respondents policy unit is to help raise response rates, and to ensure that respondents part with information willingly. The unit's staff must be equipped to answer questions about the use of the information, the care with which it is handled, and the general attitude oftheir agency. They must avoid the appearance of harassment and of heavy-handedness in quoting fIom the law but must be fair and consistent in the way they treat businesses and households. If there is a perceived crisis in respondents' relations, the chief statistician is advised to raise the matter to rus level by placing in charge someone who bas his confidence and who reports to as high a level in the organization as possible. Reporting directly to the chief statistician may be a goed war of showing reluctant respondents the seriousness with which the agency views the matter.

Conclusions

Statistical agencies are service organizations. Their reason foT existing, growing, and making a visible contribution to the affairs of their govemment and society is rooted in their capacity to provide information foT the solution of important issues. However, priorities can change more rapidly than the agency's capacity to modify its productive effort. For this reason, it is important thai its senior officers have the intuition and contacts thai allow them to detect serious problems and distinguish them trom what may turn out to be no more than fads.

A strong position of independence is essential foT a statistical organization to establish credibility among its users and to create a relationship of mutual respect and trust. Collecting, analysing, and disseminating statistical information should always be distinct trom policy-making activities. The chief statistician should commit to impartiality when dealing with collection and release of information.

A statistical organization must assure the soundness of the statistical collection and compilation process, and its inner workings. For this soundness to be credible to the public, and inspiring to the staff of a statistical agency, a number of conditions are required:

.:. the process must be logically sound

[14] See Fellegi, I. P. and SUBieTA. 80, (1973). "Balance Between Different Sources of Survey Errors" Bulletin of the International Statistica! Institute, 39th Session ofthe ISI, Vienna.

.:. the machinery that produces it must be robust

.:. the descriptions of machinery and process must be open foT inspection and the result of inspection amenable to public debate

.:. bath process and machinery must have the capacity to grow and to adapt to new circumstances and a new environment

Unless a statistical agency is able to ensure that the information provided to it by respondents is absolutely confidential it will not be able to rely on the quality of information it collects and the credibility of the agency wiJl be in danger.

Chapter 2
THE STATISTICAL SYSTEM

2.1. Introduction

1. What is the statistical system? Who is at its head? What is the legal basis of the system? Who makes sure that the head of the system does the right thing? Who pars foTthe operation of the system? In this chapter we examine altemative institutional arrangements as an indication of possibilities rather than as suggestions foT what is recommended. Clearly, institutional arrangements are divided into those that have worked weIl and those that have not, but the relative importance of the factors are country specific.

2. While appropriate organization of the national statistical service is necessary to achieve efficiency and effectiveness, other factors also contribute to its performance. Often, it is believed that problems of statistical policy can be solved by organizational rearrangements, when, in reality, their solution requires other means, such as capable and inspiring leadership, qualified staff, application of appropriate methods and techniques, and common sense and hard work. The needs foTreorganization should be identified and satisfied; çwçwever,the effect of reorganization on improvements in statistics should not be overestimated. *J*

3. No where in the world is there a country that bas vested in a single institution the responsibility to collect all the official statistics of a nation. Rather, statistical systems exist on a continuum. At one end of the continuum stand those nations in which there exists a single institution that is responsible for most of the official statistics. Examples include Australia, Canada and Mexico. However, even on this end ofthe continuum same official statistics are the responsibility of others. These may be agricultural, labor,l>renvironmenta! statistics or statistical information based on taxes or civil registration aRd vita! statistics. The country most representative of the other end of the continuum is probably the United States of America, which bas numerous statistical agencies that are, foTthe most part, devoted to particular subject matters. When we speak of centralized or decentralized systems we are generally referring to those that are nearer the ends *pf* this continuum.

4. We begin with a detailed analysis of the different types of statistical systems, addressed primarily to those who are still working through problems of status, organization, and relationship of their agency ro the rest of govemment.

2.2. Structure of the statistical system

2.2.1. Single institutions

5. The fiTst version of the Handbook describes the single institution as one type of statistical system:

"...A system of this nature is typified by the establishment of one department within the government to organize and operate a scheme of co-ordinated socia! and economie [today we would have added *and environmentaIj* statistics pertaining to the whole country. This department collects, compiles and publishes statistical information.. ndnd, in

addition, collaborates with other departments of government in tbe compilation of administrative and specialized statistics. „

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6. The advantages it cites foTthis farm of organization are respectively:

.:. concentration of specialized and scarce manpower in one centre

.:. co-ordination of programmes within one office

.:. concentration of scarce equipment and know how to operate it

.:. easy recognition of the institution that guarantees quality, impartiality, and freedom from political interference.

7. There is a more general formulation given to this kind of system in the fiTstrevision of the Handbook:

„...A national statistical service is centralized if the management and operations of the statistical programmes are predominantly the responsibility of a single autonomous government agency, headed by the country's chief statistician. Centralization CaDinclude outposting of staff to other departments or tbe delegation of certain functions to geographically separate units, which, however TernaiRsubordinate to tbe centra! authority."

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8. The same handbook adds to the list of advantages mentioned above "...it is furthermore convenient and efficient foTusers to secure statistical materials in a variety of fields from a single source.. .[and] respondents to censuses and surveys find it convenient to deal with a single office, especially ifthey suspect duplication." The text goes on to argue that a centralized organizational arrangement makes it easier to create customized tabulations, and cross cutting arrays of data sometimes necessitated by user concerns. The text adds that protection of "incoming" confidentiality as weIl as "outgoing" confidentiality is easier and more credible if conducted by a single rather than by several agencies. Finally the text conc1udes,"...it should be easier foTsuch an office to maintain balance in the priorities assigned to different statistical fields, that is, to co-ordinate the entire service." The subsequent discussion stresses the need foTan integrated system of social and economie statistics; assuming that bath systems have sufficient funding and capable leadership, this is more easily achieved if the co-ordination problems are intemal rather than extemal.

9. Clearly, the circumstances that exist today are not the alles that existed when the Handbook Rev. 1 was developed. Same changes since then relate to:

.:. the availability of computing and printing equipment at relatively low cast and the wide diffusion of the necessary know how to operate it;

.:. the easier access to mathematicallstatistical techniques and their availability in "canned" farm foTeasier application to problems of estimation and formal data analysis

[IS] Handbook ofStatistical Organization, Studies in Methods, Series FNo. 6, United Nations, New Vork pp. 1I et-seq.
[16] Handbook ofStatistical Organization, Studies in Methods, Series F, No. 28, United Nations, pp. 14 et seq.

.:. the introduction of advanced quantitative methods in the teaching of the social sciences

.:. the globalisation of curricula

.:. the advent of universal telecommunications, including worldwide access to and use of the Internet.

.:. the sophistication ofuse and ofusers bas increased noticeably, implying that their demand foT integrated statistics has also increased

.:. the pressure on public sector resources bas increased greatly, despite the progressive relative cheapening of computing and data storage facilities

.:. increasingly, private sector enterprise carries out same functionsl7 once associated exclusively with statistical agencies, centralized or otherwise

.:. the pressures to produce internationally comparabie data have multiplied not only within new inter-country arrangements such as the European Union but also because of the greater number of Free Trade and Customs Union entities

10. Despite these changes in the environment, most of the advantages of centralization given in the Handbook Rev.l are still valid.

11. Whether or not these changes, taken together in a national context, argue foT a radical change in the institutional arrangements prevalent to date is something foT each govemment to answer, fully aWare of its own circumstances. However, today's environment has probably affirmed the following flûte of caution from *Handbook Rev. 1:*

" amamndrnents in the scope and range of activities within a national statistical service require specific high level policy decision by the central governrnent and rnay even involve speciallegislation. Such a decision is not likely to be influenced entirely by the results of an objective analysis of the alternatives. Inevitably, past practices, interdepartmental rivalries, the structure and size of government, the impact of tradition and personalities and so on corne into play. Moreover, when possible changes ofthe organization of a national statistical service are considered, short-run disruptions in service that rnay be induced by the change must he weighed against the long-run gains..."

2.2.2. More than ODe institution

12. There are two advantages that are usually given foTdecentralized systems. The fiTSt is that the statistical agency is close, both physically and intellectually to the subject matter policy office. In this case it may he more likely that the statistical agency win be responsive to policy needs and be aware of impending requirements. The second bas to do with the chief statistician. As this Handbook points out the chief statistician is enormously important in defining the culture of the institution, and in providing intellectual and ethical leadership. In a decentralized system a poOT choice for the head of ODeagency or institution will not directly affect the culture in the other agencies.

13. The fiTstedition ofthe Handbookls distinguishes three types of decentralized systems:

[17] Examples that have corne to light include printing and disseminating; document storage and retrieval; data entry; s~stems analysis; and collecting consurner prices.

[1] Op. cito p. lOet seq.

.:. a statistical system decentralized by subject with a co-ordinating authority.

.:. statistical systems decentralized by subject with no central control or co-ordination;

.:. statistical systems decentralized by subject with a minimum of control or co-ordination;

14. The fiTst of these is to be avoided if at all possible. It is the product of historical accident and rapid, disorderly rise in demand foT quantitative information by a handfui of ministries and ether government agencies.

15. The second type of system, in which there is effective coordination evep though it is not mandated by law, provides contrast to a situation in which there are *de jure,* but not *de facto,* methods foT bringing about coordination. This situation would arise in the case of indifferent leadership or if the system has become ineffectual as a result of inter-institutional jealousies and rivalries.

16. So far, the forms of decentralization that were discussed had to do with institutions outside . the central statistical agency dealing with certain subject matter areas. An entirely different ferm of decentralization that exists in many countries, in various forms, is regional decentra!ization. This ferm of decentralization toe, may imply certain coordination problems. Whether such decentralization is, on balance, efficient and effective depends very much on national circumstances. aften it is a function of either the size or the country or of the govemmental (federal) structure.

17 There are two basic forms of such decentralization, but of course there are many national situations that are a mix of the two.

18 The fiTst ferm is comprised of regional statistica! offices, sometimes in two hierarchical layers (e.g. regions and districts), but totally controlled by the centra! statistica! office. Such systems are sometimes called 'vertical'. In this ferm, the rele of the regionaI offices is usually exclusively data collection as prescribed by the central office. aften, such a system bas to do with the size of the country, in combination with developing communication systems. Coordination in such systems does not have to be a significant problem, provided the centraloffice bas sufficient resources for training and instruction of regional staff.

19 In rome cases, the regional offices are not only responsible foTdata collection, but also have an important rele to play as regional dissemination centres, e.g. in France and Canada. In the case of Australia, the regional offices act as *national* centres for certain areas of statistics. e.g. the office in Victoria (Melbourne) is responsibie foTthe compilation and dissemination of statistics about the services sector of the entire country.

20 In the other form of regional decentralization, the regiona! offices are *not* directly or not exclusively controlled by the central office, but are part of the regional administration of the country. aften, this occurs in federal systems of government. A well-known example is Germany, where cooperation between the Federal Statistica! Office and the statistical offices of the German State governments is largely based on a complex system of agreements about data collection, statistical standards etc. Switzerland is another example. Coordination in such systems need not be a major problem, but may be rather more difficult to achieve and require more effort than in

'vertical' systems. For example in Spain, the Autonomous Regions have their own statistical offices that are part of the Regional administration, but the statisticaloffices in the provinces that are part ofthe Autonomous Regions belang to the central systeml9.

2.2.3. Importance of a brand name recognition

"...A distinction must be made between legal status and status in the sense of an agency's professional and administrative standing in the eyes of ether government bodies and the public. It is in fact status in the latter geRSe that matters most fOTthe external capability of a statistica! agency or service."

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21. Usually a stand alone statistical agency is recognized as an identifiable agency within the centra! government, its director reports to a minister or equivalent; generally it occupies its own building and in the eyes of the public its activities are attributed to the agency itself, rather than associated with the goveming ministry or an equivalent governing body. Thus in countries where an Institute of Statistics compiles the CPI, the public would recognize that the CPI is compiled by the lnstitute of Statistics and not, foTexample, by the Ministry of Economic Affairs.

22. Being a recognizable agency within government goes with budgetary recognition2!. This means that in the government accounts there will be ene line mentioning the Institute and the corresponding appropriation. Virtually in all countries where the statistical system is of same size and there is a dominant agency, that agency stands alone whether or not it is called an "lnstitute". In smaller countries though (and during the period preceding WWII) the examples of Directorates or Directorates Genera! nested in a ministry are numerous.

BrantJs and no brand statistics

> Recognizing quality in statistics and using them with trust are c1osely associated with the recognition of the agency that bas compiled them. The more instinctive the recognition, the greater the chance of taking the information at face value because of the element of trust. But foT recognition to be instinctive, the agency must be visible and its visibility increases if it stands on its own as part of central government.

[19] Neither vers ion of the Handbook discusses a situation in which the Central Bank co-ordinates economie statistics because it compiles the national accounts and provides the means foT most innovative statistical activities. However, because the Central Bank does not have the legitimacy of the central statistica! agency when it comes to defining statistica I standards, adopting questionnaires and nomenclatures, and discussing internationally with statistical counterparts, its capacity to co-ordinale is limited. We win consider this further in Section 2.3.7.

[20] P. 21.

[21] Some have argued that a budgetary recognition is a mixed blessing. At times it protects the statistical system fiom arbitrary reductions imposed by Ministers with different ideas about national priorities. As a simple directorate, unmentioned in the public accounts, a system may escape fiom excessive reductions at times when the budgetary trend is strongly on the downswing.

2.3. Coordination tools

23. Regardless of where on the continuum is the particular structure of a nation's statistical system same coordination wiIl be necessary. Coordination is desirabie foT a variety of reasons, including:

- .:. T0 create a national statistica! system in which the outcomes of various data coIlec~ions are comparabie or can at least meaningfully be related to each other, harmonization of concepts, definitions, classifications and sampling frames is necessary.
- .:. To avoid duplication of effort, as weIl as undue burdening of respondents, agreements about efficient and effective data collection are required, including the use of non-statistical govemment data files.
- .:. To strengthen the position of and enhance the image of official statistics, coordination of dissemination methods and pricing is very useful.
- .:. To represent a country's interests intemationally, coordination of international policies is needed.

This section addresses effective coordination tools in both centralized and decentralized systems. We fiTst address incentives and deterrents foT effective co-ordination; issues on which co-ordination is required; tools that make co-ordination possible; and mechanisms ththt ensure the spread of information and monitor compliance. These mechanisms are applicable more or less to bath systems. We then discuss same tools specific to decentralized systems.

2.3.1. Incentives

24. If the various agencies in the system have the distinct view that they are better off by not being part of a co-coordinated system, it is unlikely that that co-ordination will succeed no matter how welliegislated. Govemments are wary of enforcing coordination with severe sanctions~ and without these, only incentives are likely to work. With respect to data collection activities, there are, in fact objective reasons why a ministry may decide to continue operating its own statistical een rather than assign the work that it bas carried out in the past to the central statistical agency. Those reasons include:

- .:. the view that users' demands can only be met accurately and on time if the work is handled within the ministry
- .:. the impression that the central statistical agency does not possess the skins and knowledge required to do a good job, largely because the ministry is in charge of a very specialized area or because its infrastructure is better suited for the particular statistical activity[22]
- .:. the view that the statistical work of the ministry is an offshoot of its administrative procedures and is therefore handled more efficiently than if taken over by third partjes

[22] This happens very fTequently with Ministries of Agriculture both because their concerns are specialized and because they may employ a network of extension agents who have the right training to undertake statistica! fieldwork.

.:. the acknowledgement by the ministry that in any case its legislation prevents the sharing of information with other statistica! agencies and that the effort to change the law would exceed the benefits derived fiom transferring fiom such sharing the responsibility

The incentives involved in taking part in a weIl co-ordinated system could include any of the foIlowing:

.:. sharing of information that would improve the ministry's capacity of statistica! response, assuming it bas the same attributes (c1assification, standards, coverage etc.) as the statistics produced centrally.

.:. access to statistica! expertise which the statistica! ceIl in the ministry might lack

.:. influence in determining priorities in a!l-purpose statistical initiatives such as the Census of Population or in relevant c1assificationsystems

.:. engaging injoint statistical activities so as to provide leverage to its own budget

25. Of course, the relative weight of any of these win vary over time, and according to the individual agency's stance on whether or not the prospects of coordination might be beneficia!, given its pro gramme, users, and budget. Chances are, it win not be moved by such abstractions as the benefit of an integrated system of socia! and economie statistics. It may not even be moved by the argument that its credibility with users wiIl rise, as wiIl the receptivity of respondents, once they are aware of the efforts made at avoiding duplication and simplifying requests. In the majority of situations, such gains will not be imrnediately evident. But a c1ear demonstration that the ministry's users feel better off if they are provided with a broader range of data may be the decisive factor.

2.3.2. Some useful mechanisms

26. Co-ordination will invariably result in the loss - rea! and perceived - of independenee by those coordinated. For example, the avoidance of duplication could meao that a particular statistica! ceIl may have to rely on the statistica! or administrative wolk of others to fiod its information. It may fiod that it is no longer free to adapt standards and nomenc1atures to its convenience but wiIl have to settle foT those adopted by the majority or imposed by the co-ordinating agency. Sooner or later, the proximity of the cell's practices and results to those of other statistical agencies wiIllead users to question their consistency, and eventually coordinated answers will be caIled foT.

27. The most frequently geen coordination tools are nomenc1atures and some combination of questionnaire and budgetary control. The application of these controls cao be formalor informa!, depending on tradition and an assessment of the most efficient war to ensure compliance. There may even be a law conceming the details of coordination. Matters are helped if there is a politica! decision or at least a decision made at the highest level of the civil service that the only legitimate standards of classification are those promulgated by the central statistica! agency. In many countries, the statistica! agency wiIl act as a mediator between international organizations and domestic statistical agencies. The former are perceived to have the legitimacy and knowledge required to determine standard classifications.

28. In the case of questionnaires, and even administrative fonns that request infonnation to be used foT statistical purposes, ene war to ensure co-ordination is to create a logo or a visa indicating that the fonn bas been inspected and approved by the relevant centra! body. It is important that in exercising control, the central statistical agency be geen as a facilitator, not as an impediment to initiatives. This is not easy. An inter-agency commission that approves data coIlection instruments; controls respondents' hUIden; and is not associated with any particular agency but is provided by the central statistical agency, might allow foT the perception of the central statistical agency as a coordinating friend rather than as a controlling enemy.

29. In general, co-ordinating mechanisms tend to be in the fonn of committees, fonnal or infonna!, but in any case sufficiently manageable to meet regularly and reach decisions that the represented partjes can put into practice.

30. For the werk of these committees to be fruitful, they must have the power to approve fonns certifying the use of certain nomenclatures used for statistical purposes; they require support fIom higher levels in the political hierarchy; and officials in each ministry or agency with a stake in the statistical system must demonstrate that they regard taking part in collective initiatives as a necessary duty.

31. The central statistical agency should remember that its concerns wiIl seldom he the highest priorities foT ether departments and agencies. Accordingly, it should shoulder the hUIden of maintaining coordination. So long as it perseveres and takes its responsibilities as ce-ordinator of the system seriously, thoughtfully, and in a spirit of co-operation, the central statistica! agency can give cohesion to the system. If the statistical agency were to show the least bit of impatience or lack of interest, the ether participants would take it as a signa! that the coordination effort should be oflittle consequence to them.

2.3.3. National Statistics Council

32. Co-ordination may be considerably helped where there is a Nationa! Statistics Council. Countries with no previous experience with such councils but convinced that their existence may be of help, should take advantage of any relevant opportunity that offers itself. For example, having a nationally visible, prestigious figure serve as chair on a sustained basis provides an opportunity to launch the council and give it substantive powers. The central statistical agency or the chief statistician should find an *ex-officio* fale in the council, thereby strengthening the office's influence in discussions about co-ordination. The National Statistics Council wiIl be discussed in detail in Session 2.5.

2.3.4. Coordinating budgets and standards

33. A powerful budgetary tooI to ensure co-ordination is to estimate a budget for total statistica! activities and to give the co-ordinators the power to a!locate it, with faimess regarding quality and response hUIden in mind. A co-ordinating agency arrned with the power to make budgetary allocations will find it a good deal easier to impose standards, although it is clearly in the best interest of users and of the statistical system to integrate, rather than to maintain sets of non-comparable statistics

34. At any time, a legislator might ask the question, "How much does it cast to produce official statistics in my country?" This can be an omineus question for statisticians. Ignorant of

the answer, a government in the process of making serious cutbacks may opt for a disproportionate share to be allocated to the central statistical agency, oblivious to the fact that it may only carry a small portion oftotal statistical activity.

35. In certain countries, the answer is relatively straightforward. The cost for a few specialized activities must be added to the initial budget of the central statistical agency, and the r~sult is the tota! amount committed to statistics. However, in manY other countries the anSweris difficult to provide with any degree of certainty. The majority of statistical activities are conduct~d in other Ministries and agencies, and in those cases where they are not explicitly noted in their department' s financial statement, there is no reliable way of estimating their expenditures. Often a literal "guess" is required, particularly in cases where statistics are a by-product rather than the focus of a department's work. Since staff members, and particularly professional staff, wiIl be engaged in a variety of overlapping activities, they certainly would not be able to accurately gauge the resources invested in statistics per se. While estimating expenditures gives a rough idea of the relative amount committed to statistics, it is unreliable in discerning year-to-year changes.

2.3.5. Placement of staff

36. The tools of co-ordination mentioned so far exclude co-ordination thro~gh the placement and intermingling of staff. Managing government statisticians is an issue thai is relevant in only a few countries. Essentially it entails placing in the hands of a capable authority, the chief statistician being the obvious choice, the power to certify thai ODeis allowed to work in the public sector as a statistician. The system can have additional attributes. For example, the school or institute thai trains statisticians may be attached to the statistical agency. If it is highly respected, it may find itself catering to private as weIl as to public sector needs. In those circumstances, the chief statistician becomes not only the effective head of public sector units conpucting statistical work, but head of the statistical profession irrespective of where its members exercise their skiIls.

37. Where co-ordination is exercised through staff members that share the same training and professional leadership, many of the coordination tools mentioned may not he required. If the Deed for such devices does arise, they wiIl be created more or less spontaneQusly, without the Deedof any great formality.

38. A number of agencies have implemented the regular exchange of staf[as a means to expose staf[members to a broader range of ideas and practices. If the centra! agency is the interlocutor with other countries' agencies, it wiIl enhance its prestige and status and serve to foster the ability to coordinate. Even though this is practiced on a small scale, and involves relatively few countries, the idea is praiseworthy, as it strengthens the sense of international community. It CaDalso be used as an incentive by a central statistical agency, particularly in the case of developing countries, if the exchange takes place between the agency and its peers abroad.

2.3.6. Coordination tools lor a decentralized organization

39. Previous paragraphs discussed different types of coordination tools thai should be considered when the statistical system is a more centralized ODe.Clearly the more decentralized a system the more important coordination becomes. Many of the tools discussed in the last Section are also applicable to a decentralized ODe.However, experience shown that the most important tools thai should be considered are the foIlowing. These coordinating functions may b~ executed by a separate body and not by ODeof the several statistics agencies.

.:. the ability to control or at least to significantly influence the budgets of the statistics agencies.

.:. the ability to control whether or not an agency is allowed to carry out a data collection activity.

.:. the ability to decide on nomenclatures for the statistica1 system.

40. Even if these three tools are employed there is one other important consideration. This bas to do with the manner of the application of the tools. More specifically the application can he doDe in an informal manner or there may he a formal process. In the first place there may be an informa! agreement hetween the several statistica! agencies and the agency that is doing the coordinating (or a separate coordinating body) that the coordinating agency will have the authority to apply the tools above. In weIl-established statistica! systems this informa! application can indeed he very powerful. If there is a lengthy tradition hehind the agreement the force to continue their use wiIl be very powerful. In new or reasonably new systems, however, this may not be the case and a more powerful application mechanism may be needed. This is the formal mechanism. The weaker form of the forma! approach is through the order of the Prime Minister or President and the stronger is through legislative action. While it may be difficult to affect either of these forma! mechanisms once they are in place it wiIl he clear what are the responsibilities of the members of the statistica1 system. The coordinating agency will also be in a much stronger position to apply these tools.

CentrllUzat;on vs. *Decentra/ization*

Tbe subject of centralization and decentralization is subject of intensive discussion in tbe statistical community. Tbis box summarizes some oftbe most important issues related to tbis subject.

.:. tbe stronger tbe powers of co-ordination at tbe centre of tbe system tbe greater tbe chances of integrating statistics effectively

.:. integrated statistics (definitionally, conceptually, through tbe use ofharmonized nomencIatures and cIassification devices) are immensely more powerful tItan statistics collected without harmonization.

.:. If tbe office in charge of co-ordination is backed by numbers, legal power to apply tbe tools of coordination, and a healtby budget its capacity to co-ordinate is correspondingly greater tItan tbat of an office bereft of these assets. See Section 2.3.6 above.

.:. in a system wbere tbe tools discussed in 2.3 are lacking, it is vital that tbe chief co-ordinator have status, access, and tbe capacity to offer career opportunities to intelligent, competent and motivated staff.

.:. physical proximity to policy analysts can be important to statisticians in detennining tbe policy needs. However, examples exist of centralized systems, whicb have found ways to be responsive to tbe requirements of policy officials.

.:. tbe ability of centralized systems to create convincing career opportunities tends to increase witb size. Small statistical institutes witb a limited nU13lber of professional posts give tbe impression of limiting career prospeets

.:. economies ofscale give tbe chiefstatistician more flexibility in efficient management ofhislher budget

.:. wbatever tbe institutional arrangements, policy analysts and decision makers particularly in tbe more specialized activities must feel tbey cao involve statisticians directly in tbeir quest foT more relevant and reliable quantitative information

Notwithstandingthese arguments, Handbook Rev. I recognizes that the practical ~ssue to address is that of"degree of centralization" about 'Yhich it says:

There seems to b~ a cqnsensus that ODeofthe statistical institutes among the several responsible foT the collection and dissemination of statis~ics, should "... be responsible foT populatfon censuses, household surveys, demographic statistics and a wide range of statistics inc1uding establishment and enterprise censuses and surveys, as weIl as prices and international trade, the national accounts and other across-the-board activities. There seems to be less of a consensus in regard tothe social sphere - education, health, crime etc. - where statistics are based to a substantial degree on adminjstrative records collected by other govemment depanments..." Handbook Rev. 1, p.14.

2.3.7. The role ofthe Çentral Bank

41. The Statistical Commission noted at its Nineteenth Session in 1976:

"...many develqping countries have experienced severe losses of professional staff in their central statistical organizations, thus reducing their contributions to planning and policy formulation processes. Those losses and the generally severe shortages of trained statistical personnel in those countries reflected in large pan the disadvantaged position of the ~tistical services with respect to par scales and related working conditions.. ."23

42. This situation bas not changed. In fact the qisparity between the working conditions of statistica! agencies and Central Banks, for example, may be increasing. This Handbook is not the place to lobby for improvement in working conditipns for the staff of statistica! agencies. But many of the remarks about organization included in this hook may seem superfluous so long as such serious imbalances persist.

43. Central baIJks have taken over a number of key statistica! açtivities in countries where in spite of a longstanding tradition of statistical production the budget of the central govemment is no langer th04ght sufficient to support it.

44. When the macroeconomie statistics and the key economie indicators are in the hands of the Centra! Bank, the latter commissions basic statistics from the statistica! agency. In addition, a number of Ministries have their own statistical budg~t and use it to compile special perfonnance statistics.

45. Often there is no co-ordinating mechanism in this type of system, only the standards required by the system of nationa! accounts and by the needs of the economie policy makers. While this situatiop may not he idea! with respect to the long-term development of the statistica! system, it is nonet4eless a workable model.

46. Existiq.g Ïnfbalances in salary and working cpnditions between the Centra! Bank and the statistica! agency may significantly limit the agency1s capacity. In light of such difficulties, it is prudent to recognize the rea!ity of the situation. Even if there are no legal provisions on which to base co-ordination, the statistica! agency should wor~ out a *de facto* arrangement with the head of the Central B~'s.research department.

[23]Official records ofthe Economie and Soeial Council, Sixty - second session, Supplement No. 2 (E/59 I0), para 138. Quoted in *Handqook Rev.* 1

2.4. The chief statistician

2.4.1. Introduction

"... The externa! capability [of a statistica! agency] is sIso much influenced by the status of the head of the statistica! service in relation to colleagues in the govemment hierarchy. There cao be no doubt that the building of a robust statistica! service js contingent on assigning top peop!e to it. In view of the great nationa! importance of many decisions which may be affected by statistics, it would appear to be in the national interest foT the statistical service to have an equal opportunity to compete with other govemment departments foT an outstanding individual of proven capability to be its leader and manager...He or she should be in a position to develop rapport with poJicy advisers of other government departments and to negotiate various proposals on statistics with authority and insight... He should have the same status as the top civil servant of a ministry.„24

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47. If there is an agency such that it can be called the central statistical agency, it is the head of that agency that is referred to here as the chief statistician. The chief statistician should be the rughest authority in the government's statistical system with respect to substantive statistical matters.

48. Not all national statistical systems have an obvious chief statistician25. In this section we pay attention to the matter of status and to the practices governing appointment and resignation; to matters of authqrity and competence; and to the underlying issue of qualifications.

2.4.2. The chief statistician's superiors

49. The te~s of reporting vary a great deal. By and large, in situations where the statistica! agency is an independent agency the head reports to a minister. However, the tenns of reporting vary a great deal among countries. In some cases, the minister is responsible foTappointment and dismissal or requesting resignation of the cruef statistician. In ether cases, the cruer statistician is appointed by Parliament and it is Parliament that delegates its supervisory functions to ene of its members, naturally the minister to whom the responsibility for the central statistical agency is assigned26.

50. More crucial than the chief statistician's formal superior is the official with whom the cruef statistician interacts on a day-to-day basis or on key occasions. For example, there are statistical agencies that are located in the Prime Minister' s Office, but it does not fellow that the cruef statistician interacts regularly with the Prime Minister. In fact, because of the Prime Minister's ether concerns, the chief statistician may find that ruslher regular liaison is of much lower rank than ifthe statistical agency were placed under the supervision of another minister.

51. There is a question relating to which minister should be placed in charge of the statistical agency (and if so with what power). The trade off is easy enough to understand. The more powerful the capinet position of the minister in charge, the more the status of that position reflects in principle on the chief statistician. Other things being equal, more status accrues to the chief

[24] Handbook Rev. 1, p. 21

[25] In fact even when there is a centralized system, it may be difficuIt to assert who the chief statistician is because of the existence of coordinating boards.

[26] The designation "Minister" is short hand foT a variety of cabinet officers. In certain cases it is the Head of Government who ~etains responsibility for the statistica! agency. In some Latin American countries, it is the Vice-President.

statistician if he reports directly to the Minister of Finanee than to, gay, the Minister of Communications.

52. The matter of reporting to a minister and the coherence between the minister's portfolio and the service provided by the statistical agency have to be understood with a proper perspective. A relationship between chief statistician and an elected politician is required beeause the fonner must be accountable and take political guidance. Neither of these eonstraints implies a loss of independenee in the sense that in the end, it is the chief statistician who decides on methods, results, and their presentation.

53. Different benefits and drawbacks arise depending on the amount of influence (not personal, but rather formal) a minister possesses. A highly influential minister would have more of a hand in determining budgetary allocations. However, public credibility might be ehallenged (how wou1dan important minister such as the Minister of Economie Affairs legist tbe temptation of putting pressure on the chief statistician to get more acceptable results foTthe Govemment or foTthe Party?) and the many claims on tbe minister's time would heavily affect hislher genre of priorities so that his/her interest in tbe statistical budget might be lukewarm. Conversely, a less influential minister in charge of a more neutral and less demanding portfolio - or even a Cabinet member without portfolio - might preserve credibility and prove to have more time and interest, but have less influence on tbe outcome of budgetary allocations.

54. In many developing countries, a relationship was cemented between the planning body and the statistical agency. The former, because ofits nature extended its interest to virtually the entire output of the statistical agency and therefore was in a position to articulate its priorities in a balaneed way. Where Ministries of Planning changed functions, were retired, or simply renamed, the links forged tended to be transferred to the economie portfolios that took over fiom the planning body.

2.4.3. The chief statistician's colleagues

55. Perhaps the most important advantage of high status is that it affords the chief statistieian greater access to key people in government, and others who influence public opinion, the economy, and so on. Tbe critical definition is that of "user", which extends all the way fiom the senior official who proposes quantitative criteria foT an assessment of the perfonnance of the country's health system, to tbe junior professional who writes a paragraph on what the latest indicator of industrial production appears to suggest. In the structure of the statistical system, access to the latter may be useful, but access to the former is essential for the preservation of the agency's claim to relevance.

56. Accordingly, tbe chief statistician must have easy access to the highest official - tbe minister or, in many instances, someone just below tbe minister - in each of the major user departments Such access, provided it is frequent and sustained, allows a chief statistician to make infonned decisions about priorities and internal allocations of resourees. Without it, the decision-making process could lack valuable insight, particularly during times of shifting priorities.

57. Tbe chief statistician must preserve a delicate relationship, not only with potential users, but also with the suppliers of information contained in administrative records, foTtheir degree of responsiveness bas substantial effects on tbe success of a statistical program. Interaction with senior officials responsible for taxation, customs administration, social security a.'1dthe !ike is

fundamentally different fiom interaction with potential users. With users, the chief statistician inquires into concerns, priorities, and trends, with the distinet objective of providing a service. With suppliers of information, the chief statistician is vitally dependent on the goodwill of hislher counterparts, but can give little in return; hence the importaneeof high status with streng political support.

58. Ifthe chief statistician is also the chief co-ordinator ofthe statistical system, hislher status must give himlher access to the principals of departments containing statistical cells and have regular meetings with managers of these eens.

59. In the case of federations, if the statistical system is to have a truly national character the chief statistician must have frequent, unfettered access to the relevant authorities in the federated entities and be recognized as the chief statistician or at least the *primus inter pares* by hislher regional peers.

60. Finally the chief statistician must also maintain a rapport with his/her peers abroad. Heads of statistical agencies, particularly the smaller alles, who cannot maintain a body of expert economists, sociologists, demographers and the like, should consult their peers frequently and informally about problems they share, and judge whether tested solutions abroad could be implemented at home. Once a fraternal atmosphere is created and maintained, these judgements can be made more easily. Maintaining these relationships bas become incomparably easier with the relative cheapening of telecommunications and, above all, with the advent of the Internet. If new chief statisticians do not inherit this invaluabie resource from their predecessors, it should he acquired immediately and fostered.

2.4.4. Qualifications of the chief statistician

61. There are three aspects to this issue: Who should the chief statistician he? Who should do the appointment? How should the appointment processbe conducted?

62. There are several attributes a chief statistician should possess. First, he/she should be a statistician, someone proficient in statistics, or someone with a profound understanding of statistics. Second, the chief statistician should be capable of running a large professional organization; and third, the chief statistician should understand and be sensitive to the WÏshes of users whose needs willlikely have profound influence on the activities ofhis/her agency.

63. Usually, these attributes are seldom to be found with equal weight in one single person. Some chief statisticians are distinguished professionals (statisticians, quantitative economists, demographers, etc.) who bring to their post the knowiedge, prestige, and wisdom they have acquired in the course of their careers. Others have demonstrated excellent managerial instincts by successfullY directing public programmes, agencies, or private institutions, preferably with a streng professional bent. Still others bring the experience and the contacts that only long years in govemment can produce.

64. Obviously, the nominating authority win seek to maximize all three attributes, but it may have to make a choice at a very early stage. It may decide to select a chief statistician fiom within the statistical agency, or prefer to scout the outside world-it may seek the most suitable candidate in academie or research organizations in an attempt to emphasize the professional component of the ideal string of attributes, or else it may consider successful pro gramme

managers with the right disposition and academie background to assume leadersQip of a statistical agency.

Needed aUributes change over time

As the needs of the statistical agency evolve, the weights of the various attributes desired in a chief statistician wiII vary. Çlearly an agency that bas run iglo trouble over personality conflicts or budgetary difficulties; appears to be chronically late with its outputs; or bas an amorphous programme of future activities; requires a leader with high-level managerial capacity. An agency that bas allowed itself to be placed at the margin of governmental concerns or appears to be insensitive to the immediate needs of decision makers, might req~ire a leader who knows the iBs and outs of government. But once the perceived crisis bas subsided, the requirements may change again.

65. A wise nominating authority demands that the chief statistician be higWy ~ndependent. If it appears that the chief statistician bas no mind of hislher own but rather is overly influenced by an interested party in government, the credibility of key economie indicators, and ~ventually of the entire statistical programme, is jeopardized.

66. The perception of personal and institutionaI independenee is so important that the process of selection and appointment is given special attention, at least in same countries: For example, in countries that have a thriving professional society, government aften seeks its advice before making the fmal choice.

2.4.5. Term of office of the chief statistician

67. The term of office of the chief statistician is just as crucial as that of nomiJlation. There are three standard situations:

.:. the chief statistician's term of office is the same as the Executive's (this is the case with the chief statisticians in a number of Latin American countries)

.:. the chief statistician is appointed foT a term of office that can be renewed27(this is the case with the New Zealand Statistician; the Commissioner, United States Bureau of Labor Statistics; and the Director, Office foTNational Statistics, UK; and appears to be an emerging trend)

.:. the chief statistician serves an unlimited term, which ends either with his/her resignation or removal fiom office (this is the case with the chief statistician of Canada)

68 he considerations at play are fairly obvious. Short spelIs of office interfere with continuity; statistical programmes tend to extend over significant periods of time. A series of chief statisticians wou1d not share a common vision and programme commitment, and would therefore be unlikely to produce a consistent approach to statistical policy or predictably adapt to new circumstances. On the other hand, excessively long stays in office may produce stagnant programmes, lacking energy and innovation. While such a situation may keep the statistical agency out of potential confliets, it mayalso create a public sector backwater with no appeal, an inert staff, and eventually reduced budgetary support.

[27] There are many variations on this practice. For example, there might be no chance for term renewal; only oae renewal; or as many renewals as the nominating authority sees fit.

69 These situations represent the two extremes. In designing laws or regulations and establishing standard practices, one must guard against the greater of the two evils. ODe would imagine that in all or at least most cases, there is a provision that authorizes the politica! official responsible foTthe statistica! agency28to request the chief statistician's resignation.

70 It stands to reason thai requesting a resignation is less likely to be necessary if the chief statistician serves a limited, rather than an open-ended, term.

71 The existence of an effective Nationa! Statistics Council is bound to have an effect, particularly in preventing arbitrary appointrnents and disrnissals.

2.4.6. Demanding resignation and threatening resignation

72. Responsibie ministers will be very reluctant to demand the resignations of chief statisticians for reasons other than c1ear incompetente. Refusal to disc1ose confidential information or to obscure or delay the presentation of a key result should never be a reason. Most governments win understand thai credibility is an essential element of a functioning system of official statistics. If, foT example, a government is elected on the basis of commitment to fuIl employment, and in fact statistics show strongly decreasing unemployment numbers during its term, these statistics wiIl only be important if there is no doubt about the trustworthiness of the statistica! system and indeed the chief statistician. Moreover, the prospect thai a chief statistician wiIl public1yresign rather than compromise hislher integrity is a strong deterrent against such a request. Identifying confidential data and modifying data or its presentation are, as mentioned before, examples of such breaches of integrity.

73. Conversely, achief statistician should not use bis letter of resignation as a bargaining tooi, except when the integrity of the office is threatened

2.4.7. Authority ofthe chiefstatistician

74. So far we have examined the chief statistician's surroundings - who appoints, from whom he/she takes orders, and those with whom he/she associates. We now turn to the authority of the chief statistician.

75. There are operative failures thai the user community should not accept from any chief statistician. For example, it wouId be unacceptable if the CPI was published two months aftel the period of reference or if prescriptive comments were made about the adequacy of a particular Government policy. But it is acceptable fOTthe chief statistician to advise that the extent of revision of quarterly or annual GDP cannot be cut down substantially with the current budget constraint. Likewise, the chief statistician can claim thai if questions relating to ethnicity must be the object of a dedicated survey, the budget required must be increased. If the govemment lacks confidence in the chief statistician' s professional assessment, it should request a resignation.

76. Assuming that the chief statistician's overall performance is acceptable, the govemment shouId not become overly involved in the intemal affairs of the statistical office-fOT example, it is unacceptable for the govemment to suggest to the chief statistician that in presenting quarterly GDP only seasonally adjusted numbers should be shown, or thai the measure of inflation should

[28] In certain countries this could be Parliarnent. In others, the Prime Minister, the Minister responsible, or even th~ top civil servant acting with the delegated authority of, for example, the Prime Minister

exclude food (this is quite different from asking foTa CPI sub-aggregate that exc1udes food; the fermer suppresses information, whereas the latter is a modification of a standard presentation foT the convenience ofthe analyst).

77. It follows that the chief statistician must have the legal basis, and would be expected, to put forward authoritatively hislher best interpretation of users' combined wishes; the characteristics (frequency, accuracy, timeliness, detail) with which he/she believes he/she can meet those wishes; the methods used to estimate; the burden imposed on the community; and the overall cost involved. He/she should not be second-guessed or hindered unless it is to show that the government bas lost confidence. It is also understood that when the chief statistician announces hislher programme, aU available resources win have been consulted.

78. In situations where in addition to being the head of the official statistical agency the chief statistician is also the chief co-ordinator of the statistical system, he/she should be in a position to speak as a co-ordinator (as *primus inter pares).* In this capacity the chief statistician should have the authority to comrnit the system to the use of certain standards and quality characteristics, as weUas to address the social burden on behalf of all members of the system.

79. Finally, the chief statistician should be the spokesman foT hislher country in matters involving international co-ordination and exchanges29; its representative in international meetings; the person who determines standards where they require revision or updating.

2.4.8. Competence of the chief statistician

80. The detailed knowledge required to choose among different systems options foTa Census of Population or foTa survey of large and complex enterprises is what ene might commonly associate with a specialist, not with a senior executive officer. Nevertheless, such knowledge is expected from the head of a statistical agency. In addition, the chief statistician will be confronted with matters dealing with health, education, ethnicity, aggregation bias, treatrnent of outliers, leads and lags in the foreign exchange market, assets held by private non banking residents and so on. On each of these subjects he/she win be expected to provide an authoritative opinion. Gaps in the cruer statistician's expertise will diminish the professionalism that is ene of hislher claims to independence.

81. For these reasons, the chief statistician requires above all the prudenee to surround himselflherself with specialists who can propose comprehensible options and recommend these believed to be in line with the overall framework for which the chief statistician is responsibie. In hislher debriefing on various options, the chief statistician must be a quick study at times, patient at ethers, and must always demonstrate an enormous capacity to listen.

82. In the last few years, considerable attention bas been devoted to increasing the capabilities of chief statisticians through various farms of international co-operation. Without creating very

[29]Admittedly there may be a problem in situations where the head of the Research Department of the Central Bank happens to be the country's chief economie accountant, responsible for its national and govemment accounts, its balanee of payments, and the measure of the country's international investment position. International cooperation with other chief national accountants may be conducted via the International Monetary Fund and involve a different cast of characters. The position of the Chief statistician on these matters wil! have to be clarified in a manner consonant with the importanee and the dignity of the post. An unacceptable altemative would be to deal with two discrete compartments.

intensive co-operative arrangements such as these thai exist in the framework of the European Union, United Nations regional conferences appear to be growing in stature and a considerable investment bas been made in informal meetings on specialized subjects, albeit at levels lower than thai of chief statistician. The primary impetus foT these conferences is to facilitate access and promote the exchange of opinions on potential solutions to common problems.

2.5. The National Statistics Council

2.5.1. Oversight or advice

„..,IJTespective of the degree of centralization of the national statistical service a national statistical council or commission, composed of representatives of the private sector, the universities and govemment, may be established either at the top of the extemal committee structure or independently of it..., a top-level co-ordinating council may serve as a guiding and protective device - but mainly as regards the solution of problems of a general nature. Whether the benefits derived justify the cost is likely to depend, to a large degree, on national circumstances, including the political situation..."

Handbook Rev. 1,3°

83. This constitutes the only referenee made in *Handbook Rev. 1* to eouncils as advisory or governing institutions. Sinee these words were written, the growing importanee of sueh bedjes and their introduction in areas where they did not already exist, bas become a visible trend. Their roles vary31but it is possible to state the following, taking into consideration their format mission and the responsibilities they have assumed as their relationship with the statistical agency and its senior offieers bas flourished:

.:. A national statistical council can be used foTthe defence of the statistical agency. It exists to protect the statistieal agency from attacks to which it cannot properly reply due to restraints on public servants.

.:. The council ean assume the rele of guardian of fundamental values such as the protection of pnvacy.

.:. The council is the ultimate guarantor that within existing resources the statistical programme as defined by the chief statistician and instituted by hislher agency preserves the best possible balance among contending elaimants foT statistical attention - economie, environmental and social statistics; national and regional details; reliability and timeliness and 50 en;

.:. The council is the interlocutor a minister might choose if he/she wishes to have the professional opinion of the chief statistician validated by a group of impartial experts.

.:. The couneil is the body a minister cou1d turn to foTadvice and succession management in the case of a disagreement with the chief statistician.

.:. The eouneil's proceedings would constitute avenue for registering opinions about the output of the statistical agency.

[30] Pp. 12 and 13

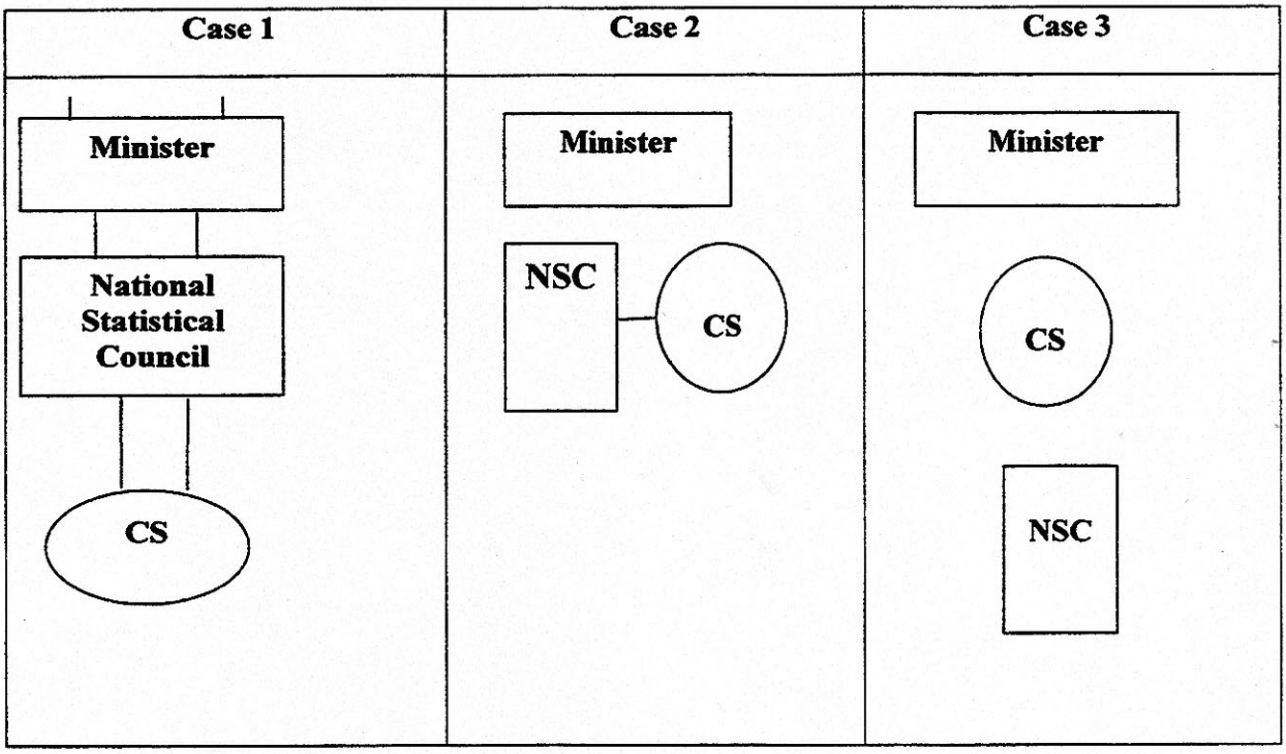
[31] The following though is an example of the constitution of a fairly typical advisory structure: "... An Advisory Committee will advise the Director on the statistical work ofthe Office, on annual corporate targets and 00 bis responsibilities as Head ofthe Govemmeot Statistical service..." ONS, Framework Document, UK.

84. The combination of these roies is much toa important for the study of a council to be left out of the Handbook. Since the various roies impIy different relationships: to the chief statistician, to the minister and to the public - we must also examine how the council mayor indeed should he inserted in the top-ievelcommunications circuit.

85. The following schematic presentation summarizes a few ofthe possible basic relationships between a statistical agency and what is referred to in *Handbook Rev.* 1 in a generic way as a "National Statistics Council".

Fig. 1

Illustration of three different sets of relationships between minister, National Statistics Council[32] *and chief statistician*



Legend

NSC	National Statistics Council
CS	Chief statistician
Minister	Elected officer (generally cabinet officer) responsible for statistical agency

Case 1

86. In this case there is no formal contact between the head of the agency and his/her minister. The chief statistician answers to, and receives broad guidance from, the council, whereas the minister instructs, and is advised and reassured, by the council.

Case 2

[32] Even though the presiding body is indicated as National Statistics Council in all three cases, in fact its role – as suggested in the Handbook ranges all the way from a Board of Directors to that of an Advisory Board.

87. While the chief statistician takes direction from the minister3, the latter communicates with bath the chief statistician and the coun~il. It is alg~ the minister who appoints the members of the council, and it is to himlher that they are ultimately accountable.

Case 3

88. The chief statistician appoints the council, and while he/she is free to share the advice received with the minister, the chief statistician alone is ultimately aceountable to the minister.

89. The texts of statistics acts of many countries are erowded with referenees to a statistical eouncil or commission with real and imagipary powers. Often it is said that the council bas ei1her never met or bas only had its initial ceremonial meeting. It is aetually a loss of credibility to specify in detail what a council should do but not to be able to fellow through with constituting it and seeing that it bas documented meetings out of which is generated a flow of advice. It fellows that in approaching this matter, the chief st~tistician (or hislher minister or bath) should:

.:. choose from the available list which of the roles they feel are the most important in the medium term and which wiIl therefore establish the powers assigned to the Couneil;

.:. identify these individuals who possess the knowledge and prestige to git on the council; ensure their availability; and assess the likelihood pftheir being active and interested members;

2.5.2. Membership

90. The couneil's body of members should neither be too big, nor toa small (probably somewhere between 10 and 40 members). Too small a council removes legitimaey, because s9me perspectives and points of view win not berepresented. Too large a council will make meetings and debates unwieldy, difficult to schedule and to summarize, and altogether too costly. Clearly the sca1e win be a function of the usual variables: size of the country, size of the office, income per head, social interest in statistics, etc.

91. The members must be selected on the basis that a variety of opinion and perspective is sought, but by and large they must share an understanding and interest in quanûtative analys~sof the economy, of society, and of the envirQnment. Thus, academies, business people, govern.rp.ent officials, and the trade unions should be represented. In addition, aetive and permanent media partieipation is very important, the media are a mean of disseminaûng data to the public.

92. In large countries, countries with federal constitutions, and countries where there are distinct communities, the council should be a means of making sure that all partjes have a voice. While the notion of a council representing diverse interests and opinions may seem contradictory to that of a council of manageable size, both factors must necessarily be taken into account.

[33]The Australian Bureau ofStatistics Act (1975) bas the Australian Statistics Advisory Council written into the Law. ft specifies that the functions ofthe Council are to "...advise the Minister and the Statistician in relation to...(a) the improvement, extension and co-ordination of statistical series provided for public purposes in Australia; (b) annual and langer term priorities and programs afwerk that should be adopted in relation to major aspects ofthe provision of these statistical services..."

2.5.3. Chairmanship

93. The personality, range of acquaintances, interest, and availability of the council's chairman are key to the success of the enterprise. If no ene is qualified to fin the position as the council is being launched, perhaps it is best to postpone the enterprise until someone with the right characteristics is found.

2.5.4. Secretariat

94. There are various schools of thought regarding the secretariat. According to ene, the chief statistician is also the Secretary *ex officio* of the Council. This view fits with the provisions of Case 1. While the chief statistician would ca11meetings, propose the agenda (under the guidance of the Chairman), and draft minutes, he/she would be in a subordinate position, surrendering some of the powers nonnally associated with being chief executive officer to the chairman. This course of action is most appropriate to situations where there is a chainnan of great renown and seniority wiUing to maintain a high level relationship with the statistica! agency but not to werk in it as a regular officer. But these are exceptional.circumstances, and do not dictate a genera! mIe.

95. The chief statistician may act as an *ex officio* member, taking active part in the discussions of the Council usually at the invitation of the Chainnan, or he/she may act as any ether member would, although the chief statistician would naturally possess more knowledge of the day-to-day activities of the statistical agency. This is a common situation, corresponding to the relationships illustrated in Case 3. This situation bas the advantage that is more acceptable because the chief statistician does not surrender any of hislher prerogatives while at the same time being engaged with ether members ofthe council in a continuing discussion on the agency's programme.

96. Another arrangement foTthe secretariat is that the secretary of the Council is a designated individual from the central statistical agency, who - as a rule- does this werk on a part-time basis. In such a construction it is important that it is somehow (e.g. in legislation) made c1ear to whom the secretary reports; either to the (chair) ofthe Council or to the chief statistician).

97. In yet another arrangement, the chief statistician may only show up when invited, and then only to answer questions from members of the council. This 'is the obvious offshoot of Case 2, which is sometimes designed deliberately so that an actively involved minister would be presented with two distinct opinions on any ene subject.

98. There are no assumptions about political interference with any of these systems. In a11 cases, things CaD go wrong, or altematively everyone CaD behave according to the best of expectations. In some instanees, the existence of a body placed in between the chief statistician and hislher minister may prove to be an essential insulator foTthe statistical agency. In ethers, ministers may try to politici se the council and use it as an additional body of influence on the behaviour of the statistical agency. In some instances, of the case 2 variety, a minister may try to dilute a hard view expressed by the chief statistician with a more nuance opinion arising from the deliberations of the council. In still ether cases, a minister may find that hislher efforts are impeded by both the chief statistician and the Council. In summary, ene cannot predict the action of these systems without placing them in their proper context.

2.5.5. Agenda

99. T0 avoid a dangerous confusion of roles and responsibilities, the chief statistician should exercise careful judgement when proposing an agenda foTthe council's discussions. For example, he/she should not involve the council in the micro-management of the statistical agency. Such matters as detailed costs of surveys, or improvement of the efficiency of projects at the operationallevel, should he handled within the statistical agency, without external interference.

100. But the agenda should include such matters as the council's view of the definition of unemployment; the worth of extending activities to the field of the environment at the expense of other statistical fields; or opinions on the most acceptable balance between quality and detail. If the chief statistician keeps on insisting that these are the issues on which he/she needs outside help, then he/she will not be overrun with superfluous advice, and over time, win see an improvement in the quality and value of the advice that either he/she or his/her minister receives fiom the counciL

2.5.6. Frequency of meetings

101. The nature of the agenda win tend to dictate the frequency of meetings but a few words of caution are in order. Ifmeetings are too frequent, most members win find them too onerous, and participation will probably lessen. If meetings occur too infrequently (for example, once every two years), the members wiIl tend not to know each other and to have forgotten whatever they learned about the statistica1 agency during their induction. If the group of participants is relatively small - ten to fifteen - frequent meetings are easier to schedule, whereas with a larger body of members logistics get more complicated. Also, it is best to work with fixed schedules (for example, setting a fixed day ofthe week) so that meeting dates are predictabie.

102. The reports should be publicly available, even if the subjects discussed are not the most engaging. Technology now makes it possible to publicize such reports at low cost. Placing on the agency's web site a copy of the agenda, a summary of the decisions made, and a list of actual participants, will help to demystify the work conducted by the statistical agency and the National Statistical CounciL

2.5.7. Advisory committeesJ4

103. In addition to the National Statistica1Committee, it bas been found in many countries to be useful to form advisory committees3SIn theory, these advisory committees could meet regarding a multitude of matters, but in practice they are most orten adept at dealing with technica! issues. Thus, such committees tend to he specifically oriented toward key problems of measurement (e.g., replacing an outmoded way of measuring the flows into the labor market; estimating the productivity of sectors which have no priced output; dealing with the production of the informal sector; determining whether the CPI bas a bias and so on). The difference between these committees and the ODes described in the paragraphs below is that while their opinion is authoritative they seldom deal with issues that are key to the survival of the statistica! agency.

[34]The use ofthe tenn Committee here should not be confused with the prevalent use ofthe word Committee in CIS countries to devote the central statistical agency.

[35]Sometimes such committees report to the statistica! agency, in other cases to the Statistics Council. E.g. in The Netherlands the Central Commission for Statistics bas about 25 standing advisory committees for a wide range of subject matter areas.

Whereas certain *ad hoc* committees or commissions are convened in response to a crisis, advisory committees of the nature described here are designed mostly to avoid crises rather than to manage them.

104. Many countries have more than ene such committee. The number of advisory committees depends much on each country's capacity to support them; on the size of the comrnunity of experts sufficiently interested to take part in such discussions; and on the capacity ofthe agency to take notice of expert opinion and to institute recommendations where these are found to be appropriate. ODe benefit of such committees is that they help narrow the distance between academie and research statisticians on the ene hand and practising government statisticians on the ether, since many of the participants in such committees come from academie circ1es.Academie interest and participation in solving key problems of measurement narrows the gap between the two communities, and keeps official statisticians in close contact with inteIlectual advances that might contribute to their various branches of specialization.

105. Advisory committees have ether advantages. If their membership inc1udes interested government officials, they improve the sense of policy relevance of current statistics. If official data are criticized because oftheir conceptual or methodological inadequacy, advisory committees serve as sources of respected advice, as weU as protection in the face of unfair criticism. Moreover, as additional friends of the statistical agency, they contribute to its reputation as weIl as to its capacity to reach out.

2.5.8. Ad hoc bodies

106. The creation of an *ad hoc* body should be reserved foT crisis situations. It would be pointless to convene an authoritative body chaired by someone with a great deal of prestige, whose opinion would have to be taken into consideration by govemment, if the problem under review were not of appropriate importanee. For example, if users were concemed that calculation of the GDP accounts is biased or plainly wrong, the very essence of economie measurement would be affected. If not promptly addressed by a dispassionate group of experts at the highest level, such doubts could profoundly threaten the credibility of all economic figures published by the statistical agency. There are two general points to mention in relation to these advisory bodies:

.:. the membership needs to come from outside the centra! statistical agency

.:. the report relationship of advisory and ad hoc committees varies considerably among countries and depends upon the circumstances of each individual country

2.6. The law

2.6.1. Introduction

"... The subject of statistical legislation caD be reduced to two major issues: the compuJsory aspect, that is, the power the govemment asserts through the statistica! agency to coIIect data; and the guarantees it provides for safeguarding the confidentiality ofthe information coUected trom individual respondents..."

Handbook Rev. I J6.

[36] Pp. 36 et seq

107. Laws regarding statistical agencies have largely sim~lar connotations, though the wording may differ: The state (or the government, or the people's ~sembly etc.) grants certain rights to a body hereinafter designated as a statistical agency. This body's organic structure is explicitly laid out, inc1uding the requirements foT the person ~t its head; the constraints under which it is supposed to operate; and the accountability that prevents it fiom abusing its rights or acting arbitrarily. The law dictates what the statistical agency is expected to do with the information respondents submit to it, and foTwhich it is acco~table. The community of respondents is asked to comply with the statistical agency's demands for informa~ion so long as they can be justified in the name of the objectives set by the law. In exchange (or intrusion upon privacy rights, the statistical agency is required to safeguard respoqdents' information. If the agency breaks this commitment, its officers are subject to certain sanctions. If respondents do not comply, they too are subject to certain sanctions. While laws differ fiom each other in length, style, detail, and scope, ifthey do not cover the fundamental points outlined above, they are incomplete.

108. The *Handbook* incIudes an exhaustive list of subjects that may be covered by the law. Consuiting the Handbook in this regard is worthwftile, partly as a matter of historical interest and partIy because some heads of agency may still find it useful as a checklist if they entertain any wishes to get their own law changed. Appendix 11contains a "model" statisticallaw.

2.6.2. Man. Actors

109. Usually the law defines the main actors and their rigpts and accountabilities. In the case of the legal provisions foTan official statistical actiyity, to be referred to as a *Statistics Act,* those actors are:

.:. the minister;

.:. the chief statistician;

.:. the statistical agency and its staff; and

.:. the agency responsible for the coordination of the statist~calsystem

.:. the respondents.

110. The Statistics Act will also define a set of relationships with other bodies that could include:

.:. other government offices;

.:. international or supranational[37] institutions;

.:. professional societies; and

.:. trade and other associations incidental statistical activity.

111. And in the case of countries with Federal c<;mstitutions:

[37] In the case of European Union member countries, the law pelps to define how their werk is impacted by Cou..'lcil regulations, Directives, and Decisions.

.:. statistica! agencies located in the governrnents of members of the federation; and

.:. other offices of governments of members of the federation.

2.6.3. The law: short or long

112. The length ofthe law is initially a matter of taste, but its implications are real and subtle. A lengthy law sterns from the desire to provide it with sufficient detail to avoid political arbitrariness once it bas been implemented and is acted upon. For example, specifying in detail the membership of the co-ordinating agency or of the national Statistics Council guards against its manipulation foTpolitical favours or nepotism. But the more detail is added to the law, the less it is able to adjust to changing circumstances. Naturally, environmental changes and other unforeseen circumstances would then require lega! changes; there is always great difficulty in finding politica! interest for modifications to a Statistics Act.

113. There are benefits to both cursory and detailed laws. In same situations, a very generally formulatedlaw that gives agreat deal of flexibility to the statistica1agency bas worked weIl. Conversely, lengthy and painstakingly detailed laws have afforded key actors a great deal of protection. Of course, there are drawbacks in bath cases as weIl. What this suggests is that a workable compromise between these two considerations shouid be found and that the success of the lawmaker lies in getting the compromise right. Nothing concrete Canbe said on the subject in a genenc way.

2.6.4. The law: deterrence and enforcement

114. Legal power to demand response, accompanied by legal sanction foTfailure to respond, can do much to ensure high response rates that in turn are essential foTthe overall quality of statistics. But the matter is not as simple as that. In fact, the existence of legal powers to ensure compliance inherently serves as a forma! deterrent. In most countries where such powers are weU defined in law, the statistical agency bas never used them or else bas used them very, very occasionaIly.

115. Today the usual pattem is to operate a mixed system - tacitly or openly. There are various farms of mixing options. ODe is to regard all inquiries fiom enterprises as compulsory and the law mayasweIl be unambiguous on this matter. At the same time, alt surveys of persons or households are regarded as voluntary. Whether this is openly stated or only if challenged depends much on the political and legal environment and the way the public looks upon invasions of privacy. If there is an official protector of privacy - an ombudsman for example - the chief statistician may be unwilling to risk all household inquiries for the sake of a Pyrrhic victory in any ODeof them. For there is no known way of legally countering a campaign of civil disobedience in matters of statistica! surveying.

116. Whatever the system, cooperative relations will play a preponderant roie in explaining response rates. But the law may be a necessary condition upon which to build such relations.

2.6.5. Access to information protected by other laws

117. It is best if the Statistics Act makes c1ear provision for the statistical agency's right of access to other governrnent data holdings. This should be doDe partly in the interest of

streamlining govemment operations but, more importantly, to alleviate excessive paperwork on the part of respondents.

118. The right of access by the statistical agency to administrative holdings of information useful foT statistical purposes should be explicitly recognized as an exception in the legislation that protects such holdings or in general, administrative registers. An ideal state of affairs is ene of reciprocity, where the statisticallegislation lays down the rights and conditions of access ands the specific legislationthat protects administrative holdings wherever they may be within government recognizes as an exception the right of access by the statistical agency foTstatistical purposes.

2.6.6. Legal advice

119. Even though the structure and content of a Statistics Act should be straightforward, a chief statistician should have access to legal advice, preferably a specialized legal adviser, expert in the interpretation of the Statistics Act and in the treatment of its various exceptions. The legal adviser wiIl be of inordinate value in cases of conflict between the Statistics Act's provisions foTrights of access and the formal restrictions embodied in ether Acts.

2.6.7 Speciallegal arrangements in decentralized systems

120. In the case of decentralized systems, there is a need for the statistical act to apply to all the members of the statistical system. For example, if there is a statistica! agency or a research department within the Centra! Bank, is its lega! authority to collect data from ether banks determined by the general authority of the Central Bank or by aspecific law or regulation authorizing the responsibie department to collect supplementary information foT statistica! purposes? Ifthere are discrete statistical agencies in the Ministries ofTransportation, Agriculture, Public Works, Interior and so en, what are their lega! rights and restrictions in terms of collection, access to micro-data, and ferm in which individual records are stored and accessed? How does the central statistical agency decide whether the particular cell is or should be a bona fide member of the statistical system? In an ideal state of affairs the following are minimum legal provisions:

.:. all members of a statistical system should have a legal basis foTtheir collection operations;

.:. all members should have provisions defining their legitimacy, accountability, obligation to held individual information in trust, and sanctions if those obligations are not heeded;

.:. all members should recognize the ferm in which individual information can move fiom ene to the ether be shared foT purposes of statistica! integration and genera!ly foT effective analytica! werk;

.:. provisions acknowledging the need foT, and definition of, statistica! coordination, as weIl as guidelines on how it is carried out.

2.7. Financing the statistical system

121. In this chapter we williook at finance from a genera! perspective: who should bear the financial burden of producing statistics? The subject was glossed over in the two previous versions of the Handbook, probably because it was felt that the issue was no major concern to the international statistical community. However, things have changed. It is ncw generally feIt that adequate funding of statistics is a key issue in sustained statistica! capacity building across the

globe. Of course, there will always be debate on what 'adequate' means and even in developed countries there are ongoing budgetary pressures that make priority setting in statistical programmes an everyday fact of life. Nevertheless, few will argue that, in general terms, the funding of statistics in developed countries is inadequate. The situation is entirely different, on the other hand, in developing and so-called 'transition' countries.

122. On a philosophical level, there bas been same discussion on the financial burden and proper allocation of the cast of official statistics. Basically, there are two polar views (and of course a wide range ofpractices that mix the two extremes):

.:. Government pays for information which is either needed for decision making, is a public goed or is needed to inform the electorate and provides this information free of charge to the public (or at most at the marginal cast of dissemination), or

.:. Information should be collected (and raid for by the government) primarily because government needs it for its own business and the casts of collecting, processing and disseminating any ether information should be borne by the user.

123. Something of a watershed in this discussion bas been the Rainer Repores in the United Kingdom, but it should be noted that the latter view (which is the gist of this report) bas since fallen out of faveur, because it is incompatible with the principles of political transparency and accountability39.However, same ether views of the Rainer Report have since been adopted by same offices, for example that the introduction of payments between departrnents is ene mechanism for improving the allocation of resources. It should be recognized that these discussions are mostly relevant for countries where the use of statistics is firmly anchored in tradition, where the community of quantitative analysis bath in and outside the government is considerable, where political decisions are largely evidence based and statistics are an integral part of this evidence and where allocation of funds and transfers among parts of the community are driven by statistical measures.

2.7.1. Sou rees offmanee

124. On a more practicallevel it is useful, fiTstof all, to look at the two main sources foTthe financing of official statistics, which are:

.:. Appropriations through the government budget, bath foTthe central statistical agency (if there is any) and for 'statistical cells' in ministries.

.:. Revenue that statistical offices generate by selling products and services at market prices.

[38]Report to the Prime Minister by Sir Derek Rayner, London 1980. See also "Govemment Statistical Services", a Report to Parliament, London, 198 I, P5.5.

[39]In addition to the Rayner report there are a number of other important reports that inc1ude an examination of how statistical systems work in a number of countries. For example, the Moser Reports for Canada and ltaly; the Bonnen report for the United States; the scrutiny report ofthe UK 1990, the GAO report on the US national accounts. While the objectives and scope of these reports are very different, even a superficial review oftheir contents is an inva1uab1e source of information on comparative organizational techniques. See bibliographic references at the end of the Handbook.

125. Overwhelmingly, the fiTstsource is far more important than the second. Few statistical offices generate more than 10-20% of their 'income' from sales. In addition, in quite a few countries, the revenue that statistical offices generate, cannot be used foTtheir own operations, but goes directly to the Treasury.

126. Some ofthe main financing issues that are on today's agenda are:

.:. What infonnation is placed in the public domain free of charge or at the marginal cast of dissemination and what information wiIl be provide at a cost?

.:. If information is provided at a cost, what should the charges be based en? How does an agency guard against abusing its monopoly powers?

.:. Should charges apply to intra-govemmental purchases/sales of special infonnation?

127. These questions have been complicated by the fact that conventional publications are no langer the main vehic1e for the dissemination of statistics, but rather the CD-ROM or indeed the statistica! agency's web site on the Internet.

2.7.2. Financing through govemment budgets

128. The process of securing sufficient govemment funding foTstatistical organizations may on the ene hand be very country specific, on the ether hand there are many similarities in the procedures that are actually followed. First of all, it is important that funding is based on clear, systematic, transparent multi-annual and annual werk programs. In same countries, particularly in developing and transition countries, it is also important that a long tenn 'masterplan '[40] is developed and promulgated in the appropriate government circles. Secondly, it is of course vita! that the statistical agency (or agencies) mobilises sufficient political support from their user community. A Statistics Council may also he an important instrument to achieve such support. Thirdly, it is very helpful to secure funding if the statistical agency is seen as a well-managed organization that is proficient in planning, cost-accounting and in producing clear management reports that show progress, income and expenditure, under- and overspending etc.

2.7.3. Market Pricing of goods and services

129. There are several considerations in faveur of allowing a statistical agency to supplement its budget by the sale of goeds and services at market prices.

Two key definitions:

.:. Goods, or "information products" are self-contained arrays of quantitative information, with or without interpretation,which cao be stored for future retrieval.The medium in which these arrays are recorded is immaterial. Thus, examples of "goods" incIude a Yearbook of National Accounts; a CD-ROM with the Standard Industrial Classification; and tables on experts and imports by commodity groupings downloadable fiom a web site.

.:. Services are activities carried out by the statistical agency to create a statistical information product. Examples of "services" include providing an algorithm for the selection of a sample of small businesses fiom a shared register; testing whether a particular table contains residual discIosure; and testing whether a time

[40] In the cooperation programmes ofthe European Union, such a 'masterplan' is usually called MISP, Multi-annual Integrated Statistical Programme.

series meets a set of conditions thai makes it eligible for seasonal adjustment.

130. First of all, this gives some assuranee that the entire comrnunity is not funding a specialized commodity that is only of interest to a select number of users. Secondly, by allowing statistical agencies to keep the proceeds of its sales of services, ODœnsures that unused capacity is taken advantage of which is preferabie to leaving it unused and having the user organization develop its own survey capacity, with all the duplication of efforts this could represent. Thirdly, it may promote a user-oriented culture in statistical organizations.

Conelusions

An examination of the classitication of statistical systems favours the creation of a stand-alone Institute or Bureau. It is better 10 attach a recognizable name to the production of official statistics than to disseminate them anonymously or too discreetly. In recent years, budgetary problems affecting central govemments have necessitated structures in which the effective co-ordinating power lies in the hands of research departments of Central Banks.

There is no question thai concentration and critical mass provide opportunities and means of action thai dispersion or ftagmentation hinder. Even 50, the expense and legal impediments related to the process (as distinct fiom the state) of centraIization may be such thai its feasibility is improbable. In those cases where the head of a centra! statistical agency is thwarted in hislber attempts 10 reduce the ftagmentation of the system, but wants to gei the most fiom co-ordination, there are several tools, all of which cao be tried in same degree. They include in addition to mobilizing political support:

- the creation of a National Statistical Council
- the co-ordination of budgetary allocations foTstatistical activities
- the management of the corps of statisticians in the public sector
- the international exchange of staff
- data collection approval
- international standards

Strong leadership is key to the effective performance of a modem statistical agency. In order to attract good leadership, the job must have the right status. chief statisticians must demonstrate their objectivity and impartiality by acting independently of political controversy, but at the same time must maintain close contact with their peers in other Ministries. chief statisticians must display a rare combination of professional and managerial talents, although the proportions of each wilI vary according to the objective situation. Governments must not appear to be mvolous or arbitrary in demanding thai the chief statistician resign if Deed arises, but th~y must not allow the continuation of a state of affairs in which energy and inventiveness have long been exhausted. Lastly, the capacity of a chief statistician CaDbe augmented through intensive contacts with hislher peers abroad.

Securing stabie (and in the case of developing countries: increased) fmancing foT statistics is an important responsibility for the chief statistician. To obtain political support for stabie tinanees, setting up sound planning instruments (such as annual and long-term work programmes) are helpful, as weil as promoting the image of statistical offices as well-managed organizations.

Chapter 3
USERS AND THEIR NEEDS

"We Deed statistics not only *fOT* explaining things but also in order to know precisely whf1t there is to explain."

J. A. Sehumpeter[41]

"...Statistics is the area of political science dealing with the collection, classification, and discussion of numerical facts relating to the condition ofa State or community. "

Oxford English Didionary

1. Statistics are compiled to answer questions and, at times, to allow questions to be formulated with sufficient precision. Same inquiries are developed once and made continually (e.g., how many people who sought work this month were unsuccessful?). Other questions are asked less frequently (e.g., how many tonlmiles can the railways system deliver per week?). Same questions are modifiedas the underlying reasons foT asking them are modified by technological advances or the shilling relationship between the public and private sectors. Same questions still have not been answered (e.g., is the apparent slowdown in productivity increases merely a consequence of measurement problems or is it Teat?). By and large, statistical agentjes are accustomed to converting a genera! question into ODeto which practicabie answer can be found.

2. Statistical agency should strive foT the organization thai is most likely to produce an adequate statistical programme within the constraints of its budget, the capability of its staff, and the intrinsic difficulty of the questions with which it is faced.

3. lt is not only the demand side thai is susceptible to extemal change. Technological changes may affect the wars in which statistical agencies are organized and, cpnsequently, the war in which statistical infonnation is collected and supplied. Advances in telecommunications and computer technology have vastly increased statistical agencies' scope and power in processing raw information Taken in conjunction, these two developments constitute a reason why geographically decentralized field operations may not be needed much longer.[42] On the other hand, a geographically decentralized field operation may become a useful extension of the statistical agency's dissemination facilities, in addition to its traditional functions.

4. There are other technological changes that determine a statistical agency's constraints. Business organization is shifting rapidly fiom pan-national to pan-regional, or even pan-global, modes. Communications and transportation technologies facilitate light control and informed decision-making, which can be maintained irrespective of the geographic span of the business. However, the legal basis of a statistica! agency is still very much bound by political frontiers; it cannot act beyond its borders, regardless of the extent of its legitimacy at home and the importanee of the infonnation it solicits to its govemment constituents.

[41] History of Economic Analysis, Allen and Unwin, London 1955, p.14.

[42] Precisely how much langer they will be required wil\ of course vary fTomcountry to country. But given the speed of diffusion of modem telecommunications and computer technology, even those countries with lower per capita income should he able to apply these techno logies to their field operations in the not-too-distant future.

5. Changes in environment, equipment, and expertise create new needs, which dictate changes in the agenda, policies, and organizational structures of statistical agencies. In the following paragraphs we examine some of the typical features of the demand for statistical products by various constituencies.

3.1. The Reeds of govemment

3.1.1. Introduction

6. By its very nature, statistics is of special interest to govemments. In addition, official statistica! agencies are largely financed by central government, though there are exceptions. For example, there are instances in which the government's contribution to the statistical agency's budget is supplemented by the proceeds of sales of goods and services to all users, including the private sector. There are also instances in which statistics compiled by private sector research agencies over a long period of time acquire a semi-official status. But in the majority of countries, the largest proportion ofthe budget is supplied by the national Treasury, aided at times by grants from international agencies.

7. As the source of financing, the government may try to exert leverage on the activities of the statistical agency. Where it helps determine priority activities, this leverage can be constructive. Conversely, where it attempts to delay the release of a vita! number, tries to modify a number, or defies a change in definitions or methods, the leverage may be pemicious. We have already geen why the latter activities are harmful. In. this chapter, we wiIl examine constructive activities.

8. The needs of government, like most needs of potential users, are usually not expressed in terms that lend themselves to instant data coIlection. They are divided into two categories: needs that caU for regular observations of the same variabie and needs that require infonnation collected on an *ad hoc* basis. Examples of the farmer include the Deed to know how aveiage consumer prices change from ODeweek, month, or quarter to the next, so as to maintain a current perspective on inflationary pressures; the Deedto detennine the relationship between receipts and payments from and to abroad in case the Treasury runs out of foreign assets; and the Deedto know the expected annual school enrolment by small area within particu1ar regions, in order to ensure that c1ass space and teacher supply meet the demand. These needs are met by the regular publication of statistics with known and describable properties: the Consumer Price Index, the balanee with the rest of the world on goods and services, and the population projections by gender, age, and area. In the majority of countries, there are intennediaries[43] who interpret the current statistics in light of those compiled earlier and inform decision-makers about changes that may require attention.

9. In cases in which the govemment requires *ad hoc* statistical infonnation to explain the roots of a particular problem, the situation becomes complicated when there are no measurement conventions geared to the nature of the problem and the expected answers. Examples of such problems include whether the scale of evasion of value added tax collected appears to be growing; the size of the underground economy; whether the current policy on incarceration makes best use of resources to meet stated objectives; and whether cun-ent par scales discriminate against women. In such cases, the very nature of the evidence may be open to interpretation and

[43] FOT a discussion of where those intermediaries should be located (within or outside the statisticalagency) see ChapterlO.

discussion. Clearly, translating users' information needs into the data collection or rearrangement that win eventually take place is a complicated process.

10. Same problems persist irrespective of time, place, and method of government or structure of political system. "How many people are there of military age?" was a popular question even two thousand years ago. "What grOgStonnage is available to feed the inhabitants of the British Isles?" bas had a fairly long tradition and was until recentlya matter of concern to many cabinet ministers in the UK. Other problems are entirely new and are the result of technological innovation and of the changes in the way economic agents organize themselves in response to new techniques. They toa exert pressures on statistical agencies, not only for the compilation of new information but eventually for the reorganization ofbasic data as weIL

3.1.2. Ministries ofFinance

11. The needs of Ministries of Finance are longstanding, even though the farm in which data must be presented changes in step with advances in economics and accounting. Their needs range fiom measuring the wealth of the country to balancing the state ledgers and setting aside resources for furore generations.

12. A Ministry of Finance attempts to ascertain whether imbalances exist between uses and applications of resources, and what impact those imbalances can have. Of particular interest are those imbalances that affect the labor market-Le., they raise questions about how much is required from labor to maintain the current production level.

13. A Ministry of Finance must know how changes in quantities and prices interact to change value. By and large, a Ministry of Finance is more interested in statistics that relate to rapid1y changing variables-e.g., the demand, raIDerthan the supply, side of the overall balance. For this reason, its questions tend to be clustered around the behaviour of the major demand aggregates: consumers, the confidence with which they behave in the marketplace, and the portion of their incomes they are prone to save; investors and the structures and equipment they wish to acquire; businesses abroad and the willingness they display to purchase nationally produced goods and services. Other Ministries are more interested in looking into the supply side of the balance.

3.1.3. Other Ministries

14. These are the so-called vertical Ministries (Agriculture, Mines, Energy, Transportation, and Communications are the most frequently encountered examples), and they need to know the size of their respective constituencies. In addition to same core information about production and its structure, such as employment and rates of return on capital invested, each ministry bas a unique set of interests relevant to its sector. For example, the Ministry of Agriculture tends to be particularly concerned with improving crop production forecasts and the environmental effects of herbicides and fungicides; the Ministry of Transport, with roadsafety, the condition ofthe rolling stock, and the adequacy of airports; and so on. At times the special interests of these Ministries precipitate detailed regulation of their respective sectors[44].This certainly bas been the case in a number of countries with bath raad and air transportation, although in the last ten to twenty YearS, the motto of same of these Ministries bas been "deregulation"[45].

[44] In regulated sectors, the fonns used to ensure compliance ftequently are, or can be, used for statistica! purposes.

[45] Deregulation may have been good for ftee enterprise, but it posed a dilemma for statistica! agencies. Same

15. Ministries of Energy became very important in recent years and are to be found in both producer countries and in dependent user countries. Essential1y, their concerns are met if the statistica1 agency succeeds in compiling a current balance of energy supp1y and demand that al1ows substitutions, shortfaIls, import requirements, and so on to be detected. The ministry wiIl seek to ensure that the country's endowments are not dep1etedtODrapidly; that prospecting and drilling take place in an orderly environment; that fue1 substitutions are based on the correct rates of exchange; etcetera. As in previous cases, this is a ministry that not only wishes to keep abreast of the size and resources of its constituency but also requires specialized information of the kind that on1y specialists would possess.

16. Ministries of Labor are known by a variety of names- (e.g., Employment or Human Resources), and their interests include the condition of the labor force; the facility with which it can take part in gainful occupations; whether the workforce is equitably remunerated; whether the work-place is safe and equipped with appropriate training facilities foTemployees whose skins are no longer needed and foTthose whose skins are in short supply relative to emerging demand; and whether there are harriers to geographic mobility where geographic, rather than overall, imbalances in demand and supply exist.

17. Examples of cross-cutting ministries (or, in some cases, parts of Ministries) are Sports, Culture, and Tourism. Their primary interest is sizing up the sector foT whose promotion (or regulation) they are responsible and determining its unique characteristics so that promotional resources can be efficiently assigned.

18. Health and Education tend to be the largest of the service Ministries and their portfolios cover both the public and the private sectors. Licensing and/or regulating are onerous parts of the ministerial chores that demand a great deal of detailed quantitative information; moreover, they serve as typical cases of the authority of the central government dovetailing with that of municipal authorities46. Since these Ministries assume regulatory duties, a wealth of detailed inforrnation is generated as a result of their administrative processes. The information requirements of these Ministries have become increasingly dominated by the notion of effectiveness, which requires measuring the outcomes of their policies and actions. Adrninistrative records are insufficient to measure outcomes. So, questions about effectiveness lead to demands foT supplementing administrative records with independently generated statistical information within an analytical framework.

19. Because government is responsibie foTan overwhelming share of the provision of health and education services in many countries, questions arise regarding efficiency and public accountability. Examples of such questions include: How much does it cost society to provide tree schooling foT aH children up to the age of 15? How are the costs recouped? Are the physical facilities adequate or is there inequity in the provision ofthe service? Do the teacher-student ratios ensure effective use of the resources assigned to education? Are they likely to continue doing so in light of the age of the workforce and the growth in population? Are there enough teacher training facilities to guarantee the maintenance ofthe current teacher-student ratios? And the most

statistical agencies re lied on the regulatory information requirements of these Ministries, finding aH the information they needed in the specialized Ministries' administrative records. Not only did deregulation put an end to ibis state of affairs but in many instances the Ministerial authorities passed new legislation, asserting thai henceforth the paperwork burden they imposed would be drastically diminished. These promises compounded the problem created bl the absence of administrative records. A tew countries still have not found a way to improve ibis situation.

[4] Or, in federal countries, with regional, provincial, or state powers.

important question to which decisive answers have not yet been foood: Is the marginal publie investment in health (education, science, eteetera), in light of the observed outcomes, eommensurate with the expected return?

20. Similar questions arise in the health sector. Are marginal expenditures on additional hospita! beds more ~ffective than expe~ditures on improved home care if the objeetive is to minimize pain? In general, statistical agencies must resist the temptation to compile infonnation that is ooderstandable and amenable to ~ count but uninteresting ITomthe point of view of the policy- and decision-makers. Rather, they must devise methods and techniques that wiIl allow them to tackle the more difficult problem of measuring outcomes (in the case of health, education, and seienee, there is no designated lengtq foTthe period of observation before an outcome can be assessed).

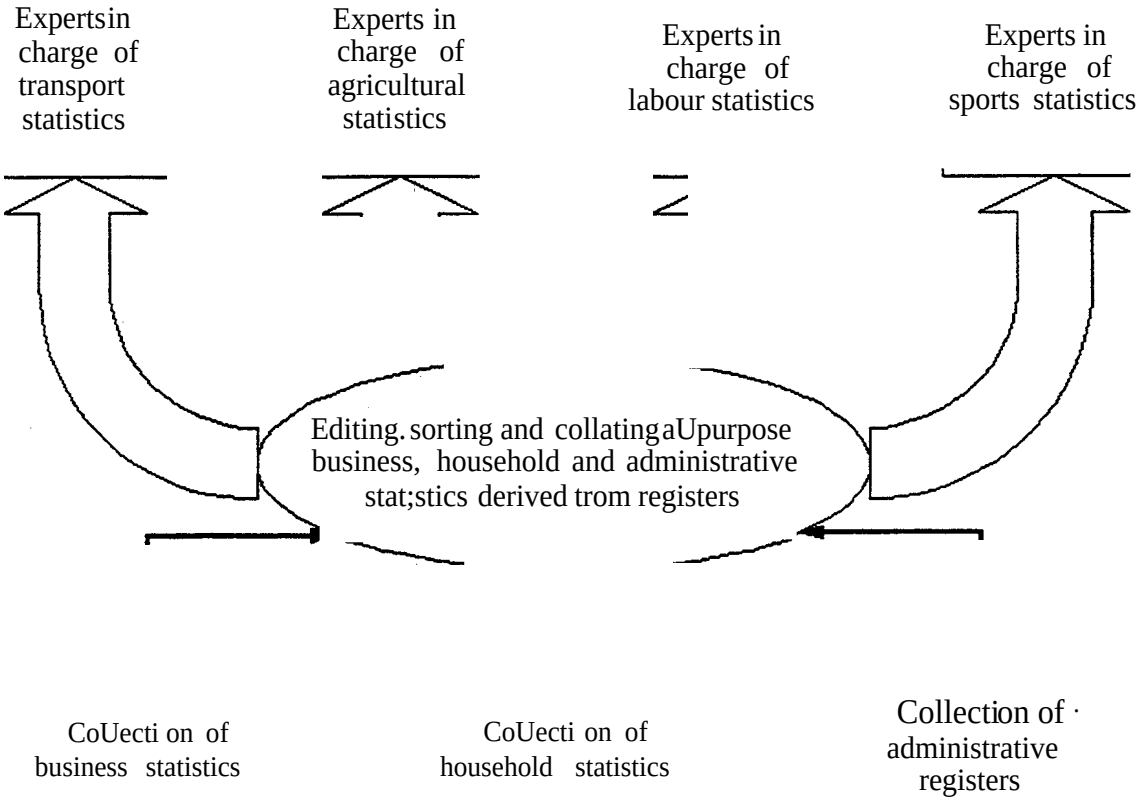
21. If it becomes c1ear to rol that the question of effectiveness drives the need for infonnation-and taking into account the difficulties in measuring effectiveness without making very controversial assumptions-the national statistical office should establish a close partnership with health economists, school administrators, crimino~ogists, and natural scientists. Such a partnership should be designed to help clarify the limits of the infonnation available in these domains and the possible progress that a ~tatistica1 agency can make.

3.1.4. OrganizPlg and establishing contacts

22. There is a care of genera! information that is of great interest to each of the sectoral economie Ministries, however smalt ~eir portfolios. That core eontrasts with a number of specialized questions that are more efficiently answered by specialists. A statistical agency should ensure that the most efficient arrange~ents are in place to gather core infonnation and that Ministries have aecess to specialists so that dialogue on what is of particular interest to the ministrymay proceed unhindered by ignoranee ofthe subject under discussion (see Figure 2).

Fig. 2

Schematic representat;on of a statistical agency organized to col/eet, process, and disseminate data in selected specialized jields



23. An essential point is how to be sufficiently linked to the policy analysts in the specialized Ministries to (a) foresee what kinds of problems are likely to arise several years from ncw; (b) foresee which part of the current demand already met by *ad hoc* information from the statistical agency is likely to become a fixture in the near future; (c) conduct an dialogue with the relevant ministry experts; and (d) supplement all-purpose statistics with more specialized information.

24. The diagram is genera! enough to guit both a decentralized and a centralized system. In the case of the former, each "expert" box might correspond to a statistical cell (or bureau) in a separate ministry. Moreover, each of those cells might carry out its activities in any ODeof four possible ways: by having its own collection capability; by commissioning the centra! statistical agency to carry out the collection on its behalf; by adding statistica1 requirements to the ministry' s collection of administrative records and separating the statistical from the genera! information when the records are collected; and by contracting a third party to take charge of the collection operations.47

25. In the case of a centralized system, each of the "expert" boxes corresponds to an

47 The underlying assumption is that the statistical cells have unimpeded access to the collective database.

organizational unit within the central statistical agency charged with liaison, dialogue, advisory function, or another objective corresponding to a particular ministry or complex of institutions sharing the same concern. The essential properties of each cen are:

.:. the ability te foresee requirements and understand their nature and statistical implications;

.:. knowledge of available information and wars to supplement it, so that a database capable of satisfying current and future needs can be created;

.:. access to existing information-individual records if necessary-in order to ensure correct matching and record linkage; and

.:. the direct or indirect collection capability required to add specialized information to the existing database.

26. We know from experience that meeting the third requirement can present delicate; although not necessarily insuperable, problems of intrusion info the privacy of individual citizens. Same of these problems are strictly connected to the legality of access to individual records. Others, assuming the legal harriers are overcome, are thornier because they concern actual intrusions info privacy, which may require special institutions foTcontrol and regulation.

3.1.5. Regional and local govemment

27. Problems relating to the interaction between statistical agencies and regional authorities are similar to these relating to interaction with Ministries; the latter cut across subjects, while the fonner cut across geography. This is a simplistic description of the problem of assessing and satisfying the information needs of ether levels of government. Underlying this description are the problems of access to officials who werk foT different levels of government; issues related to central versus regional polities; and constitutional issues that may pose formidable harriers to communication and access.

28. aften, these responsible foT regional government wiIl ask for a small-scale version of what is clone at the national level. Thus, if the national agency compiles national accounts, a consumer price index, etcetera, it is likely that all of these, limited to the scope of the region but as comprehensive as possible, will be required to satisfy regional authorities.

29. More realistically, the needs ofregional and local authorities wiIl be subordinate to these of the government apparatus. Thus, all of them, irrespective of size, will be interested in the number of people (or families or households) who live under their jurisdiction; the demographic and income characteristics of this population; employment status; housing conditions; and possiblyhealth and education attributes. Such information makes planning at a local level possible. [48]

30. In most countries with a Federal constitution, each State (Province, autonomous region) bas a govemment with certain well-defined interests, as weIl as a residual set of concerns that, by consensus, are left to the Federallevel-e.g., foreign trade and payments can only be managed at the nationallevel.

[48] See Regional Statistics, Proceedings of a Meeting, Office Federal de la Statistique, Neuchatel March 2000.

31. The problem posed to the central statistical agency is how to meet the requirements for information, without compromising reliability or thoroughness, for areas tOOtare substantially smaller than the nation. Different countries respond to this challenge in various wars. For example, in some countries the national statistic is essentially the gum of the statistics estimated by the offices of each of its politically defmed regions, except of course in matters explicitly of Federal concern. In other countries, an understanding is reached whereby the national statistica! agency agrees to supply local offices with core statistics of equal merit[49] foTeach subject area, to be supplemented with infonnation collected byeach local statistical agency.

32. Whereas discussion with specialized Ministries is often a discussion of experts, discussion with loca! or regional authorities is more likely to be policy oriented and to involve the cbief statistician. The reason foTthis is simple. Most statistical agencies are equipped to make effective use of censuses at the locallevel (their usual purpose), but they are not positioned to provide a wide range of reliable non-census data at the locallevel. Widespread over sampling of businesses and households intended to meet particular requirements of regional authorities would deplete both the budgets of centra! agencies and, perhaps more important, the goodwill of respondents.

33. Part of the dialogue between centra! statistical agencies and regional and local governments assesses what useful statistica1 information can be squeezed out of existing administrative records, as weIl as wars to persuade the collectors of administrative records to take into account possible regional requirements. In those situations where there is access to these records, usually their coverage is adequate foT small areas. The outcome of this dialogue, if successful, is a mixture of national and regional statistical estimates with local area information derived fiom administrative records.

34. Managing the requirements of govemment agencies-Ioca1, regional, specialized-is a matter that requires great delicacy. The chief statistician can erf by being too far removed fiom the centres where the requirements are formulated, too quick to create precedents that the budget of bis agency win not allow to he generalized, or insufficiently forthcoming. The gum total of these errors may lead to the creation of alternative data coIlection agencies, making overall coordination much more difficult.

35. With this in Q1ind,a chief statistician is weIl advised to create permanent contacts with prospective public-sector users to keep abreast of the war requirements are evolving and of the quality of the service that the agency provides. The form those contacts wiIl take and the level of the designated liaisons win he dictated by efficiency concerns. Ultimately, the chief statistician will have to articulate a policy with a numher of necessary elements:

.:. statistics that are compiled nationally but accompanied by regional breakdowns

.:. reliability of regional statisticssO

.:. conditions of access to the regional database

[49] The word "ment," used here, is roemt to encompass both equal detail and equal reliability for those details that are Ereserved at tbe locallevel.

It is best to negotiate these attributes so tbat interlocutors cao become aware of the difficulties invoJved in providing geographic breakdowns. The reliability features referred to wouJd include timeliness, the best measure of error possible, and supplementary detail.

.:. SUpport for regional agencies that wish to supplement their own databases with resources available at the nationallevel

.:. consultation on geographic classifications

36. The chief statistician should keep lines of communication open to localand regional hodies at all times and bestow authority upon someone in whom he or she bas total confidence. Few situations can escalate as rapidly as a centre-periphery misunderstanding, with mutual recriminations arising from failure to communicate openly.

37. In general, allowing representatives from peripheral hodies to see a statistica1agency from the inside is the best possible war of demonstrating its inherent limitations. Thus, it might be advisable for the centra! agency to accommodate trainees from the regional organizations. Where no group ethos of statisticians exists, ene might institute surrogate measures to develop one. In the end, the creation of a national community of statisticians hound by common professional interests' (e.g., through a professional association that recognizes professional standing irrespective of level of government), may turn out to be a more potent device to preserve harmony between the centre and the regions than the introduction of purely organizational measures.

3. 2. The needs of the public

3.2.1. The community at large

38. The public keeps a watchful ere on regular statistics such as the CPI, the unemployment rate, and on overall economie performance. The statistica1 agency should be able to address these concerns. At the same time, it should capitalize on the public's ongoing interest and ensure that its name is automatically associated with the publication of data with which the public is most concerned. The statistical agency should also strive to inspire confidence in its efforts to maximize the quality of these key measurements.

39. The public also has requirements that are not so substantial, permanent, or weIl defined. The difficulty lies in their inchoate condition and in the fact that a particular interest may flare up at any moment in response to a particular situation, most orten an unforeseen event of a threatening nature (e.g., What was the value of the housing destroyed by last week's hurricane? How much in savings bas been wiped out by the latest bout of inflation? How many illegal immigrants are there in a particular city? How large is the underground economy?). ODewar to address these concerns directly is to maintain a small *ad hoc* survey capacity characterized by very quick turnaround.

3.2.2. Schools and high schools

40. The introduction of statistics in school curricula is a means of instilling respect for quantitative information and analysis. Both primary schools and high schools offer a variety of courses in which statistics play a visible rele. The following are examples of basic questions that appear in the curricula of many schools at both the primary and secondary level: How many people live within the country's borders? What is the population density? How wealthy are they? What do they do in their leisure time? How are they employed? How many of them are poor and Deedhelp? Do they have access toeducational and health facilities?

41. The Dames of the relevant courses vary from country to country but the subject matter is more consistent than the terminology suggests. Several statistical agencies have a special programme to support initiatives by the educational system to promotethe use of quantitative data at an early age.S1In Poland, there is an active high school competition foTthe best essay in which extensive use is made of official statistics. In other countries, schools are granted premium access to the national database ofthe.statistical agency.

3.2.3. The press

42. The press and other means of mass news dissemination play a special intermediary role in the relay of statistical information, whether it is the subject of headline or local news interest. For this reason, the statistical agency is responsible for ensuring not only that the right information gets into the right hands at the right time, but also that it is properly described and imparted in the appropriate form to those who most Deedit.

43. No statistical agency bas the power to ensure, foT example, that all those whose lives are affected by a change in themeasured level of consumer prices become aware of the fact exclusively by consuiting a statistical bulletin. Even in countries where the population is measured in tens of millions statistical bulletins are seldom published in quantities of more than a few thousand (with the possible exception of the occasional prestige publication, which may be issued in quantities of two or three times the average circulation).

44. For these reasons, the agency will have to rely on the press to ensure that statistical news reaches all interested parties. This creates severa! challenges, which will have to he dealt with through a liaison organization:

.:. ensuring that newspapers, television, radio, and magazines all become aware of the latest statistical information at the right time;

.:. ensuring that the statistica! office is responsive, even during non normal office hours, to the deadlines of the press;

.:. providing, along with the latest numbers, the necessary amount of explanation so that the press does not put an unbalanced spin on the news;

.:. periodically reviewing with the press the arrangements made to ensure efficient dissemination;

.:. making all possible efforts to present statistical news in manner that minimizes misinterpretation and enhances clarity;

.:. holding seminars for members of the press to higWight simple analytical techniques for interpreting and assessing current data.

A number of offices have made permanent arrangementsto ensure that these chaIlenges are met and that the value ofthe press to the statistical agency is maximized.

[51] More ambitieus courses CaDeasily be envisaged to prepare young people for a university education. For example, an introductory program me in macroeconomics for high school children might use nationa! accounting data and programmes in app!ied mathematics or statistics might use live statistica! series to illustrate techniquesof time series analysis.

Colouring statistica. news

This heading is not meant to suggest impropriety. Ensuring that the news gets interpreted properly does not imply manipulation of tbe subjective views of tbe press. Ratber, it implies tbat everyone should be aware of tbe pitfalls of interpretation. For example, if tbe imports of toys escalate significantly in tbe montb of November (in a country where a large proportion of tbe population celebrates Christmas), this is not necessarily a harbinger of disastrous news for tbe national balance of payments. Ratber, it may meao tbat the domestic toyshops are preparing for Christmas, and the relevant comparison is not with tbe previous month but with tbe same month ene year earlier. Such is the situation with unique events-e.g., the leasing of three jumbo jets for the national airline or the effects of a strike or a natural disaster-which may distort tbe expected figures and play a major rele in their interpretation.

Recognition

The statistical agency should get recognition when statistical headlines are broadcast. Often, mass media make referentes such as tbis: "Govemment officials claim that this month's production of cement is weil above expectations, leading to an optimistic outlook for the construction industry " Correcting the failure to single out the statistical agency responsibie for the estimation should be a matter of priority. Giving the agency credit not only reminds the population of its existente, rele, and responsibilities, but siso reinforces its imprimatur on the release ofkey figures and impresses upon users tbat those figures have a special character ofreliability.

45. In most countries and in most political systems, governments can be elected or their tenure of power can be ratified on the basis of promises made to the electorate. Promises range fiom the general ("we shall make this country secure for our children") to the very specific ("we shall keep the rate of unemployment below 5 percent"). Politica! accountability in the latter example can only take place in light of an objective measure (official statistics) that informs public opinion about whether or not the government bas kept its promise. In this instance, opinion is formed in two ways: the public may decide that the govemment was or was not faithful to its electoral platform or it may decide that the standard of measurement-the official statistic-was unreliable and therefore of no consequence in its ultimate judgement of the government's performance. The press can play a constructive role in ensuring that the judgement of performance does not get mixed up with the reliability of the statistics.

46. A number of agencies have achieved public confidence in their word and institutional guarantee. Clearly, this situation is desirabie for every statistica! institution. Since the press can be a valuable ally in this task, investing in a press liaison is worthwhile.

3.3. The needs of business

47. Ultimately, all business users' interests in quantitative information are similar. The fundamental questions are: How many businesses like OUTSexist? How do they compare to us? What are the prospects for OUTbusiness and for those with similar attributes? Other interests are merely variations on these fundamental questions.

48. To provide an answer, the statistical agency must [lTst define "us." From the statistical agency's point of view, the definition should be as wide as possible, so that sampling techniques CaD be used effectively and the seemingly insoluble problems of accurate coding can be overcome. From the point of view of the potential user, "us" should be as narrowly defined as possible, to account foTthe large number of idiosyncrasies of what is being compared.

49. Once the scope of "us" bas been defined, the next challenge is to select the attributes that must be compared to satisfy the interests of business. In principle, aH economie variables are potential subjects of comparison. Thus, the number of employed per unit of revenue and per unit of profit; the structure of casts; the size of the market measured in number of customers and in grOgSrevenue; the composition of the market in terms of purchasers at home and abroad; the return on capita! invested; the rate of product innovation; and the prices quoted are all examples of important attributes.

50. Of aH these variables, and in most lines of business, the two that appear to be of greatest interest are the rate at which prices are adjusted to conditions of overall and specific demand and the rate at which the produets or services of a business are influenced by technica! and organizationalInnovation.[S2]

3.3.1.. Large business

51. At the limit, the interests of large businesses are very similar to these of the Ministries of Finanee, and the respective specialized sectors. Obviously, if businesses cater to nationa! markets and possess multiple lines of specialization, the only useful point of comparison is the rest of the economy. Their questions wiIl resembie those of the Ministry of Finance, with an emphasis on cast structures for activities of special interest; cast structures of competitors abroad; information on harriers to their activities abroad (both tariff and non-tariff); and financial infonnation on investment at home and abroad.

52. In many countries, large business represents a disproportionately large share ofthe GDP, and therefore neither its requirements foT information nor the accuracy and the promptness of its responses can be ignored. For this reason, a number of statistical agencies have instituted a special unit with the exclusive function of managing relations with large business. Not surprisingly, the first agencies to institute such units were in those countries with the highest concentration of large businesses. However, the payoff bas been so significant that ethers have foHowed guit. Today, there are examples of large business units in large and small statistica! offices, in industria!ly advanced and in emerging industrialized countries.

53. The rele of a large business unit is manifold. Therefore, it stands out as an exception to the simple rules of organization along the statistical production process. lts responsibilities include:

.:. keeping a current record of the boundaries and structure of large businesses (these businesses change configuration very quickly, so what is reported in one period may not be significantly comparabie with the previous period)

.:. keeping track of the businesses' accounting practices to distinguish between intemal transfer pricing and arm' s length market pricing

.:. deciding, in cornmunication with designated business contacts, what statistica! questions can be answered directly, using account information, and what questions require estimation

[S2]The timeliness constraints on these data are usually not as stringent as those on general-purpose data such as the CPI or the GDP.

.:. making gure that each business is required to answer each question only once and that the answer is used in aU databases foTwhich that information is required

.:. communicating with the business' research department regarding its needs foTinformation and the most convenient medium in which to provide the data

.:. gathering, from discussions with the research department, information as to the intentions of the business regarding innovation; investment; acquisitions abroad; and general confideftCe in the domestic market.

The larger the business, the more explicit and articulated each of these responsibilities. [S3]

3.3.2. Small business

54. Satisfying the information needs of small business is the greatest challenge foT business statistics foT a number of reasons: The ratio of effort deployed in answering requests foT information - regulatory and statistical fifim the government to the economie size of businesses is much higher foT small than foTmedium-size and large businesses..The ratio is almost as high as that foT households. In addition, even when the need foT information is weU formulated, the specifications tend to be so detailed-in terms of what the business does, where it is located, and with whom it wishes to be compared-that the statistical agency finds it difficult to comply with any professionally acceptable degree of reliability. The third reason bas to do with the nature of small business needs foTinformation-even though they tend to require highly specific statistics, small businesses may be reluctant to comply with aH of government' s demands foT detailed information because devoting the necessary time and resources would significantly add to overall costs. The statistical agency win find it very difficult to accommodate small business needs if it does not have access to key administrative records and the ability to use them for statistical purposes.

Examples of administrative records of use ror small business statistics

Under most circumstances, the high level of corporale income tax infonnation limits its usefulness in deriving small business statistics. In addition, the apparatus required for collecting direct taxes is unevenly developed, so income tax records are of little help in many of the countries where the activities of small business and their relationships to tbe informal sector are of special interest, even where access is granted. Conversely, indirect taxation is a virtually universal source of information. In recent years, the govemments in many countries have made special efforts to ensure that such taxes, particularly value added taxes, are levied and faithfully reported to the proper autborities. They have aIso made special efforts to ensure that social security records are complete and accessible. While access to and use of these records is only useful to measure and describe the organized sectors ofthe economy-at times leaving a large swathe ofinfonnal economie activities nearly untouched-nevertheless, the infonnation tbat cao be gathered fiom the records is more substantial than any infonnation the statistical agency could collect unaided. If it relies on indirect tax records, the agency is free to eoncentrate its efforts on household, and related, aetivities that may for a time resist the effeets of taxation and social security refonns.

56. Despite all these difficulties, smal1 businesses are of undeniable importance. They are numerous54; play a key role in the service sector; are given a large share of credit for innovation,

[S3]There is at least ene example of a publication of "large business statistics". The Argentine lnstituto Nacional de Estadistiea y Censos (INDEC) not only bas a unit in charge of large businesses, but siso uses a separate survey and publishes a statistical bulletin reporting the results for the principal economie variables.

particularly in the dynamic activities that characterize a modem economy; and, according to some, play a key role in job creation, particularly in the early phases of a cyclical upswing. For these reasons, their wishes must factor into the dissemination programme of a statistical agency.

57. There are two aspects to meeting the information needs of small businesses, both of which affect organization-the information itself and training small-business employees to use the information to their advantagess. One of the most significant harriers to the survival of small businesses is gaining access to credit on affordable terms, and to do gO,they must demonstrate how their costs and grOgSprofits compare with those of their competitors. Thus, what is of prime interest to them is not averages and totals but rather the distribution of key ratios and where they fit in. Examples of such ratios are advertising costs to total cost; equity to credit; and accounts receivable to total revenue.

58. Using a table with distributions of key ratios may be intimidating at first, particularly for some entrepreneurs who areapt to trust their intuition or salesmanship more than unfamiliar arrays of numbers. For this reason, the statistical agency may wish to offer seminars for small-business managers and take advantage of trade fairs and similar events to display its relevant products.

59. The demographic characteristics of markets are also of interest to businesses of any size, particularly those who cater to the final consumers or to freelancers who work from home. The age, gender, family, and income attributes ofthe population in very smalt areas are ofthe utmost importance to them, but they may not have the knowledge or the confidence to approach a statistical agency and request cross-tabulations derived from the census of population. In order to cater to those wishes, statistical agencies may have to utilize specialized consultants who can estimate potential sales of a wide range of articles on the basis of a combination of small-area census variables and the results of the latest survey of family expenditure.

60. In any case, maintaining a unit within the statistical agency that specializes in small-business concerns is valuable. lts responsibilities should include the following:

.:. maintaining expertise in the handling of administrative records so as to satisfy current demands either exclusively or primarily with the information they contain

.:. organizing events of interest to small business and using them as opportunities to disseminate extracts of existing databases and to assist smalt businesses in the effective use of statistical publications

.:. championing small-business claims for limitations on the paperwork burden generated by government in general

.:. serving as permanent liaison between the statistical agency and such agencles as social security, indirect taxation, and customs.

[54] According te Statistics Canada's Business Register, smal! businesses (defined conservatively) accounted for 95 percent of the number of aU businesses with ODeor more employees. Taking into account zero-employee businesses, the proportion should rise to approximately 98 percent Countries of comparabie size and development have a similar makeup-

[ss] Some imaginative approaches along these lines cao be used to establish a dialogue with business enterprises in the informal sector-for example, showing them, free of charge and of commitment, how they CaD analyze their performance by using statistical tables.

3. 4. Research and other needs

3.4.1. Academic world

61. The academie world can plaee burdensome demands on a statistical ageney but it can also be the most important ally in defining research and aetion programmes, in evaluating the quality of the statistics produced, and in helping explain to laymen the underlying strengths and weaknesses of official statistics. Sa, contacts with members of academie institutions are a strategic resource and should be as extensive as possible.

62. The needs of the academie world cannot be summarized as easily as those of other sectors. In theory, they encompass all activities of a statistical agency. Any research in the social sciences[56]that is eonducted in an academie institution and requires testing places demands on statistical agencies. Academic needs may differ fiom the needs of other sectors in at least ODe fundamental respect. All other sectors require statistics foTformulating policy, examining options, and ultimately making decisions, and are therefore less prone to worry about how the data are generated. The reverse is true foTthe academie community. For example, in testing a particular economie theorem, it may he crucial to distinguish between data as they are observed and data altered by standard editing processes. In addition, academie researehers are faT more likely to dispense with the statistical agencies' analyses, in favour of their own. For these reasons, the statistical agency should establish a liaison with academie researchers, but a distinct unit is not required.

63. Agencies that have a special methodological unit in charge of survey design and estimation may be tempted to locate the liaison with universities in such a unit, at eseast foT researchers in applied sociology, demography, criminology, and microeconomics. This should not preclude contacts with other parts ofthe agency.

64. Naturally, macroeconomists prefer to establish their liaison with the agency's national accountants and are less interested in the sampling aspects of the underlying statistics. However, much of the communication between the statistical agency and academia will be the result of individual circumstances and same trial and error. The essential point is to capitalize on the contribution to the statistical process that CaDbe made by academie institutions. Many statistical agencies have programmes that allow foTan interchange between university researchers and the more research-inclined members of the statistical agency. To carry out such an interchange, the university and statistica! agency may each assign researchers to the other' s institution, or they may collaborateon projectsof mutualinterest.[57]

3.4.2. International institutions

65. In many countries with advanced statistica! systems, the programme requirements of international agencies[58]represent no more than a marginal addition to the statistical agencies' domestic programmes and can be treated as a by-product of current activities, but this is not

[56]Increasingly, the state ofthe environment and the condition of a country's natural resources have become subjects of statistical activities and, of course, are of interest to academie researchers.

[57] Several papers address the subject of "blue-collar" and "white-collar" statisticians. See, for example, Martin B. Wilk, "Blue and White Collar Statisticians." Proceedings of the Royal Statistical Society of Canada, 1985.

[58]This refers to international agencies only. The demands placed by supranational agencies on member countries are of a different nature and magnitude, depending on the closeness of the relationship.

always the case. Indeed, in same statistical agencies, apart fiom speciallarge-scale initiatives such as the census of population, the requirements of international organizations dominate the current programme.

66. For many statistical agencies, international agencies remain the most important source of conceptual and methodological guidance, not only in improving their capacity for inter-country comparisons but also in structuring domestic programmes. The demands of international organizations impose a discipline without which inter-country comparisons would quickly become either unachievable or meaningless. Comparisons are possible largely due to the use of international c1assifications and standard accounting systems such as the SNA.

67. In addition to the benefits the international agencies boog their intervention also aften brings significant problems. Since an international agency brings with it extremely needed resources it is difficult, if not impossible, for many developing countries to approach the offer fiom an international agency as an arms-Iength transaction. Moreover, the intervention of the agency may cause significant disruptions in the program of the national statistical office. Situations have also arisen where the data collected by the agency is published without any review by the county. Finally, too often, international agency programs have not been accompanied by a transfer oftechnology fiom the agency to the country. Thus, while, valuable information bas been collected there bas not aften been a corresponding improvement in the statistical capacity of the country. Fortunately, this situation bas been changing and international agencies are increasingly committed to capacity building. One of the important responsibilities of the chief statistician is to ensure the maximwn amount of capacity building while continuing the cooperation with the international agencies.

68. Throughout this chapter, the need to create a specialized unit charged with particular functions is discussed. This should not be taken as a panacea. A great deal depends on the size of the office, its stage of development, and the weight of the problems it faces. In many instances, it is sufficient to assign one person. In other cases, it is best to distribute responsibility throughout the agency. Where the specialized position can broaden agency employees' experience by exposing them to keen, analytically minded users, it is favourable to distribute the responsibility.

Conclusions

Statistica! agencies should create a prograrnme tbat is as versatile as possible, in order to serve users with a wide range of questions and concerns. The discussion above illustrates the variety of tbose concerns and questions. But a statistical agency cannot confidently predict tbe nature of future concerns and the types of questions that might be answered through tbe use of official statistics. Accordingly, it must invest in the ability to produce general purpose, versatile tabulations. A statistical agency cao, and should. siso invest in ensuring user access to techniques.that aHow for rearranging basic data to conform better to specific objectives. But this is only possible ifthere is a clear understanding ofthe nature ofthe questions.

However an agency is organized, consideration should be given to the assignment of specialized functions (in a distinct unit or not) with a dual mission:

.:. detecting, through close contact with all sectors, upcoming matters of concern tbat may require statisticaI support

following upwith re resentatives ofthe various sectors to determine the ade uac of the service provided by

the statistical agency

Same functions would benefit trom the cooperation ofthe relevant subject-matter experts. In a tew special cases, specialized units may be created to address each function. Sueh cases include relations with large business; small business and its associations; and the press. In all instances it is imperative thai the findings of these units be incorporated info the formulation of priorities and the corresponding plan of action.

Chapter 4
SETTING PRIORITIES

4.1. Analysis of user requirement

1. The previous chapter underscored the fact that meeting the demand from same users requires a specialized understanding of the corresponding sectors (for example, health and education). It also showed the Deed to maintain a special relationship with businesses (multi-location, multi-activity, multi-national) that in many instances account for a disproportionate share of a country's GDP. These considerations have a number of consequences for statistical agency. In the sections that follow, we examine how various requirements give rise to a plan of action to ensure a balanee between the supply of and the demand for information.

"Ideally, priorities should be detennined on the basis of analyses ofthe casts and benefits ofvarious alternative ways of using scarce resources Although, with the exception noted, the cast of statistical projects cao, in principle, be identified and measured, this is rarely the case with benefits... [because] statistics are intennediate produets, not end products. The benefit of a statistical series is a function of its impact on policy decisions and their importante; it is generally very difficult to pin it down and attach a meaningful value to it. Secondly, the process of identirying benefits is all the more difficult both to the extent that the series are part of a system in which the diverse elements are interdependent and the value of each is enhanced by the availability of the others Thus priority setting and allocation of resources among competing possibilities in statistics cannot be calculated precisely but must be determined...on the basis of judgements and insights based on past experience...in order to render priorities and related resource allocation as rational and balanced as possible."

Handbook Rev.]59

2. This quote describes a circular process. While there have been several attemptS to establish a "calculus of priorities," none of them bas gained wide acceptanee. The idea behind some of these attempts is to weigh several attributes-e.g., importanee ofthe request (using same arbitrary unit of measurement); cost of answering it fully; cost of a partial, short-term answer; effects it might have on other activities within the statistical agency; consequences of denying a request for statistical information on the relevant decision or policy (again using some arbitrary unit of measurement); and so on. The scores derived from these attributes would be used to compile a table ranking each priority. But that is not the way things are doDe, and while such a method introduces a consistent and explicit set of factors, the conclusions are no less arbitrary.

3. A chief statistician cannot avoid prioritising the activities to which an agency is committed.

4. Fortunately, priorities do not change from ODeday to the next. The activities of a statistical agency possess a constancy. Indeed, from ene yearto the next, a statistical agency wilI not change its agenda by more than a small fraction of its total resources (5 percent is probably a genereus estimate), with the exception of large-geIDe initiatives such as the censuses of population,

[59] P. 61. The text in Handbook Rev. I is largely based on C. A. Moser, "Planning and integrating statistica! programmes in a centralized system," Bulletin of the International Statistical lnstitute, vol. XLIV Book 1, pp. 132-135.

agriculture, and economie aetivities. In addition to these endeavours, the statistical agency is likely to continue measuring from ene period to the next the variation in consumer prices, the rate of industrial production, the amount of international trade in goeds, the size and condition of the labor force, and so en. ance these aetivities are taken into account, the allocation of additional resourees should be at the discretion of the chief statistician, who can initiate subtie changes in direction by placing a somewhat heavier accent on ene activity or another.

5. That is not gay that every single ene of the activities carried out regularly by a statistical agency is statie. In fact, as part of the standard werk of an ageney, produets are added or removed from the CPI, new nomenclatures replace old alles in the compilation of trade statisties, and changes in the population are ultimately refleeted in the sample on which a labor force survey, foT example, is based. Moreover, in many offices there is a systematie drive to carry out habitual tasks in a more productive and effective manner. The success of such drives frees up resources, which in turn can be allocated to alternative activities. Accordingly, setting priorities turns out to be not so much an exercise in the evaluation of discrete subjects but rather a series of marginal changes in an ongoing programme to which additions and subtraetions are made at regular, and sometimes even predictabie, intervals.

6. In order to preside over this process, the chief statistician, to a greater or lesser degree, requires the following:

.:. authoritative information about what various constituencies perceive as gaps in the range of statistical products and an understanding of why these gaps are awkward foTpolicy formulation

.:. infonnation about emergent issues of public concern that may require statistical infonnation

.:. infonnation about the cast of alterations to the existing program, including possible additions in light ofthe two elements noted above

.:. a mechanism to sart out possible requirements.

7. These four elements underlie the planning process, which can be handled fonnally or infonnally. The advantage of fonnality is not so much the intrinsic value of the ceremony but rather that it impresses on aU participants that the planning of a statistical program is ene of the most important, if not the most important, statistical aetivity that an ageney's management can undertake.

8. Priorities should be detennined within a framework. Nowadays, frameworks are referred to as strategie overviews, strategie frameworks, or corporate strategies. Mostly, these headings apply to the same thing: a medium-tenn plan that allows the agency to acquire, maintain, or change existing capabilities while continuing to meet new requests.

9. Priorities ought to be selected fIom within a framework not because it is fashionable to do gO, but rather because it is the most effective way to ensure that the priorities are clearly articulated and that the priorities are considered as a whole rather than in piecemeal fashion, which could result in inconsistent and duplicative activities. The alternative is distinct deseriptions of activities with no eoherence.

Balancing of requirements

"…[l]a balanee must be aehieved between servicing users needing detailed data in specifie fields and those needing aeross-the-board aggregative data tor macro-economie and social analysis...[2] there is the balance between different subject matter fields [this balance should ensure] that some resources are assigned (a) to projects that are in their early stages of development, (b) to strengthening weak areas and (c) to carrying out at least a minimum of research and analysis...[3] within each subject matter field there is a balanee between different projects bath across the board and in time. The importanee of covering the entire field must be balanced against the Deed for detailed tables in parts of the field...[4] there is the balance between timeliness, accuracy, and publieation of detail...[5] there is the balanee between satisfying user Reeds and avoiding undue burden on the suppliers of primary data..."

Handbook Rev. 1 [60]

10. It is generally accepted that ODe CaD precisely define the costs but not the benefits of statistical undertakings. There is no way to devise a program to answer the question of how many people win benefit directly or indirectly from the publication of a particular number and to what extent. Nevertheless, a chief statistician's decisions regarding the allocation of resources implies that the balance of costs relative to benefits is more favourable in ODe direction than another.

11. The issue is to assess needs and concerns-as a source of information on how a statistic CaD be beneficial to its potential users. And since its usefulness cannot be quantified, ODe should have at least a general impression of what that use might beo

12. Clearly, the fonnulation described above is rather äbs~act. In practice, there is no substitute for an inquiring attitude, ODe that seeks to relate systematically proposed new statistics to the questions they are deemed to be helpful in answering. Furthermore, those questions should relate to the concerns of the general public or the govemment.

13. On the supply side it is important to track costs and to leep a history of costs of different kinds of statistical activity. A chief statistician should at leasti,e able to argue in relative terIng about COSts and benefits-for example, ifx were spent on activity A, y should (or not) be spent on activity B given the apparent (albeit non-quantifiable) benefits of A relative to B. The tracking of costs for planning purposes should be the object of considerable attention and respect within a statistical agency and should incIude the following:

.:. the ability to assess the value of a statistical activity (e.g., a survey, the compilation of an account, the editing of an administrative file, the publication of a statistical bulletin) with a degree of accuracy adequate for planning purposes

.:. the ability to archive and retrieve the results so that they CaD be used to price future activities

.:. the ability to reveal altemative uses foT the same resources

.:. a mechanism to record decisions and assign accountability.

[60] P.61.

4.2. Developing a progress plan

4.2.1. Introduction

14. Notwithstanding the limitations of planning, experience shows that embarking on any complex initiative (conducting a family income and expenditure survey, launching a quarterly labor force survey, compiling an input-output table) without a plan is a prescription for unmanageable turbulence and very uncertain outcomes. This uncertainty is worsened by the interdependency of a statistical agency's undertakings. For example, the input-output table cannot be compiled without the survey of inter-industry purchases and sales; the latter cannot be conducted without the new commodity nomenc1ature, which in turn requires a production survey; and so en. Planning foT all the interdependencies and expecting them to function precisely, though, is not realistie. Rather, in addition to careful planning, considerable flexibility, local diseretion, and fallback positions are neeessary. The art of planning statistical operations is finding a war to manage all of this in a timely and rea1istic fashion.

15. In the next section we look at the various purposes and elements of a plan; the difference between a multi-year exercise and a single-year plan (which is more akin to a traditional budget); the significance of "aecountability"; and lastly, the plan as a teaching device onee its results are evaluated.

4.2.2. The annual plan and its constituents

16. Essentially a plan consists of the following elements:

.:. a c1earset of objectives to be met by the end of the planning period

.:. a description of the steps to be taken

.:. a list of the requirements--environment and resources-to ensure the practicality of the objectives

.:. a diseussion of fallback options should the outcomes not meet theobjectives

Additional elements inc1ude the mechanisms for monitoring and evaluation.

17. *Handbook Rev.* 1 devotes a great deal of space to describing in detail a three-tiered planning strueture:

"...a system of overall planning is described, based on a long-term plan ofa "strategie" nature, ...a medium-term plan of a more "taeticai" nature and a short-term "operative" plan."

Handbook Rev.]61

In this edition, we focus primarily on "operative" plans.

18. The reason why an operative plan must be annual-in addition to the fact that the standard budgetary cyc1e is annual-is that if it were devised less frequently, it would be forgotten, and if it were devised more frequently, the activity of planning would consume available resources and

61p.70

impart a sense of instability. The annual plan must also fit into a longer-term framework, thereby preventing the creation of a series of disjointed annual plans and ensuring that the statistical system, while maintaining its flexibility, will not be faced with changes in direction that it cannot accommodate.62

4.2.3. Making allowances tor size and uncertainties

19. Many offices are small-l00 staff members or fewer-and have unpredictable budgets, either because of political circumstances or because much of their resources come from international initiatives over which the office limited influence. Thus, if there is a concerted push to measure poverty on an international scale or to examine the factors that affect fertility, the scale of operations required might account for a very large component of the office's tota! activity. Conversely the existence of a multi-year plan can help ensure that international programmes reflect national needs. Notwithstanding, the principle of having a five-year plan and an annual set of objectives firmly anchored in that plan is as applicable to small offices as to much larger ODes, which tend to have a more predictabie budget. The difference is that in smaller offices, the actual implementation of an undertaking CaDbe much more informal, allowing for greater flexibility.

20. A plan of this kind bas multiple purposes, involving perceptions as weIl as organizational realities:

.:. impressing upon the staff that their work is part of a larger geheIDeand is not a routine continuation of some arbitrary disposition creating a basis for measuring the performance of the office and of its organizational units

.:. recording experience in order to improve furore allocation of resources, reliability in carrying out tasks, etc.

.:. increasing the efficient use of available resources

.:. documenting inadequacy of resources relative to imposed tasks

.:. improving the perception that the statistical agency uses rational criteria to organize its activities

21. These objectives are somewhat easier to attain if planning is open; if a significant proportion of the staff takes part in the establishment of the plan;63 and if there is a collective effort to learn from experience by reviewing systematically the differences between activities planned and activities carried out. But there is no avoiding the cost involved in documentation, tracking performance, recording costs, and organizing a structure that is cohesive and achievable.

62 Assuming that the annual plan is part of a five-year medium-term programme, that resources are constant, and that the maximum permissible annual shift in staff is only five percent gross, at the end of the term, one quarter of the staff might be doing very different things fiom what they were doing at the beginning.

63 "The major objectives of planning are... to involve as many staff members of the statistica! agency as possible in the priority setting and integration function..." *Handbook Rev.* 1, pp. 70 et seq.

4.2.4. Ceremony

Sbould tbere be a planning unit?

This has not been a recent matter of discussion or systematic exchange of experiences in international venues. It is nonetheless an important question of consequence to the larger and more complex statistical agencies. The general advantages and disadvantages are easily described. Having a specialized planning unit reduces the time spent planning by the substantive experts ofthe office and sHows for more control, consistency in presentation, and esse in verifYing internal consistency in execution. But it increases very substantially the risk that the planning activity wiII be treated as "someone else's responsibility" by the substantive part ofthe office and never be as internalised as it should. As a solution, same offices have adopted a mixed regime, in which the planning unit is responsible for the fonnal part of planning and for acting as a secretariat to the planning effort (or committee); the substantive part of planning rests squarely with those whose activities are to he planned. NaturaHy, in mixed organizations of this type the cost of planning increases. But so do the chances that it wiII be taken seriously.

22. On the ene hand, the expectation that detailed plans can be fulfilled with total precision is likely to cause frustration with the entire planning exercise and may lead to a premature abandonment. On the ether hand, introducing the plan in a manner that is toe lax may lead to its never being addressed with the respect that is required foTit to function effectively. This is why in a number of offices where the annual planning activity bas become formalized, the discussion and promulgation ofthe plan are subject to same ceremony.

4.2.5. Planning and budgeting

23. Contrary to a natural first reaction, the institution of sensible planning is a measure that usually leads to less, rather than more, detailed control of the various parts of an office attaining high-level objectives is only possible if local managers have the discretion to modify their approaches in light of these unforeseeabie circumstances. This means that effective planning requires the establishment of a sound budgeting approach, complete with a statement of how authority is to be delegated.

24. Conceptually, the relationship between the two activities is as fellows. A plan is created, taking into accountall the interdependencies and outlining a set of objectives, a schedule, and steps to be taken to ensure that the objectives are met.

25. The plan will appoint agents to head its various activities.. Each agent will be given a discretionary budget and the responsibility for achieving a balance between income and expenditures. Handling matters in this fashion bas the added virtue that each agent will become more conscious of casts. If the performance in meeting objectives is judged fiom the point of view of efficiency, the various agents win have the incentive of finding methods and techniques that wiIl allow them to meet objectives with the resources allocated (rather than the somewhat perverse situation that bas been known to occur, wherein managers spend as much as possible to demonstrate their authority). Essentially, planning involves controlling the resources allocated to agents, thereby requiring that they achieve their goals within the given resource constraints. This arrangement applies to offices of all sizes.

4.2.6. Planning and accountability

26. The greater the discretionary authority given to planning agents, the greater their accountability. In the framework of an open plan with a great deal of devolution of authority and responsibility, the chief statistician wiIl ask foTaccountability from the staff. If the management establishment is toD inexperienced to carry out its part of the agency-wide plan, the chief statistician wiIl not be able to comfortably delegate budgetary authority. An organization can be considered efficient if the head of the system can rely on subordinates to help formulate and carry out both a medium-term and an annual plan.

4.2.7. Evaluation ofthe plan

27. At the end of a planning exercise (annually and, on a more strategie basis, every five years) the chief statistician should receive a formal64 evaluation. This evaluation may be conducted by an outside party or by a unit within the statistical agency, depending on the political, legal, and regulatory circumstances. The evaluation serves several purposes:

.:. accounting to the govemment foTthe work of the agency

.:. conveying to the staff the seriousness of the process

.:. determining the degree of error in the process-exogenous (beyond control) and endogenous (subject to control and future improvement)-and attempting to explain the causes

.:. validating or changing the agency's strategy

.:. using the results to engage the organization' s management in a dialogue regarding accountability.

28. For the process to be credible, the evaluators should not also he the planners; in fact, the greater the organizational distance between the two, the better. It is also worth considering the possibility of using the evaluation as a training opportunity. For example, recently recruited professionals can serve as assistants to an evaluation secretariat, thereby receiving their introduction to the planning exercise. It is not critical to constitute an evaluation secretariat as a permanent organization. Indeed, it may be rather difficult to justify it, as it is unlikely thai it wiIl have work year-round. One option is to have a standing committee headed up by someone who is indisputably knowledgeable and objective. If circumstances allow, evaluation (and similar tasks, such as audit) might consistently be handled by retired senior officials ofthe agency.

64 Although for smaller offices it could be infonnal. the effort to prepare and disseminate the result of a forma! process can be helpful nevertheless.

Conclusions

There is no objective "calculus of priorities" in a statistical organization. The chief statistician must combine intuition with the experience and CUtTeRt to make decisions with confidence. ance this becomes routine, the agency will be able to fonnulate, albeit in aqualitative way, same of the benefits of a planned course of action. It is important to implement an effective mechanism to track, measure, and record casts. For a planning exercise to be effective, it must reflect the right balance of decisiveness and staff participation. It should be part of a medium-term ftamework and treated as the annual detinition of activities, their cost, and the corresponding resource requirements. The stafT, having taken part in the creation ofthe plan, should be held accountable foT its execution. The practice of evaluating the plan *ex post* should be strictly observed, as a means of enforcing accountability and learning from experience.

Chapter 5
PRINCIPLES OF ORGANIZATION AND REORGANIZATION

5.1. Introduction

1. The literature about organizationa! theory demonstrates that organization is not a trivial matter and, most importantly that, while there is no single, idea! *wtrj* to structure an organization there are same commonly accepted genera! principles.

2. This last point applies to statistica! organizations as weIl. There are in theory ~t least a dozen different, sensible ways to organize a statistica! office. Remarkably though, in spit~ of clear differences in detail and even in organizationa! philosophy and culture, there is a gre8rt deal of similarity in the organization of statistical offices across the world. For example: a director of economie statistics from the statistica! office of country A is likely to fmd a counterpart ~th very similar responsibilities in country B. The same applies to a director of socia! statistics or national accounts, or the director (or head of department) of price statistics, the business register, environment statistics or dissemination. No doubt, there are comrnon underlying priq.ciples at werk when it comes to organizing statisticaI agencies.

5.2. Theories and trends

3. There are same widely accepted, altemative principles foTstructuring organizatioq.s:

1. Knowledge or skill (e.g. departments of cardiology, intemaI medicine and neurology in hospitaIs)

11. Work process, aften based on the technology used (e.g. letterpress and offset departments in a print shop)

lll. Business function (e.g. manufacturing, research, engineering, accounting.)

IV. Output (different product lines or services in different divisions, e.g. household appliances, machinery, maintenance)

V. Client (different organization units foTretail to households, large business clients etc.)

VI. Time (shifts in factories and hospitaIs)

vii. Place (different geographical areas that are served)

4. An entirely different distinction, which cuts across the principles mentioned abov~, is that between hierarchica! organization structures and netwerk organizations.

5. Principles 1 and 2 are particularly relevant for statistical offices. Principle 7 is also relevant, but was already discussed in Chapter 3 (regional decentraIization). Same of the ether alternatives (3,4, 5) may be relevant for certain parts of statistical organizations, but can ~ardly be

geen as major guiding principles. While the distinction between 'hierarchy' and 'network', is also relevant, government mIes and bureaucratie traditions in many countries may not be 'network-friendly' .

6. Since the seventies, when *Handbook Rev. 1* was written, new trends emerged that affected organizations in genera!. Same of these trends apply more particularly to statistical offices. Among the *general* trends, those of particular relevance are:

.:. Need foTgreater flexibility to respond differently to different situations

.:. Fewer detailed rules and procedures

.:. Greater autonomy and encouragement of initiative

.:. Fewer levels of management

.:. Workers empowered to make decisions

.:. Cross unit team structures, project teams, matrix organizations, networks

.:. Outsourcing and downsizing

.:. Increased budgetary pressure

7. For statistical offices *in particular* relevant trends include:

.:. Need to improve timeliness

.:. Need to reduce the reporting burden

.:. Increased focus on (rapidly changing) user needs and therefore on customized dissemination methods

8. In addition, dramatic increases in decentralized computer power, as weIl as related developments in telecommunication have ~so affected the organization of statistical offices. Most of all these technical changes have affected the response to the trends mentioned above.

5.3. Organization by subject or by function

9. The relevant sections in *Handbook Rev. 1* focused on two recognized wars of structuring a statistical office: by subject matter and by function. The tenn 'subject matter' is ambiguous and bas several connotations. It may apply to the institutional source of the basic <information thai is coHected. Education statistics, fot example, would be classified on the basis of the source from which the statistics are coHected: aH statistics collected from educational institutions, including sar, their finance data, would be assigned to the responsibility of the education division. The 'knowledge base' of thai division would cQnsistof aHthe *ins* and *outs* of the education system. An alternative interpretation of 'subject matter' centres on main categories of data. This interpretation leads to groupings such as employment ~d unemployment, finance, investment etc. Ignoring these subtleties, the most common interpretation of 'subject matter' vs. 'function' leads to the creation of divisions such as trade, industry, health, education etc. and the second to divisions

such as sample survey design, data entry and data editing, field operations, analysis, dissemination etc.

10. For reasons, same ofwhich will are described below, it bas always been difficult to make a clear cut choice between 'subject matter' and 'function'. Accordingly, the structure of most statistical offices is a mix of the two. There are same functions that are ideally suited to be grouped into agency wide functiorial units, e.g. sample design and field werk. Other functions, such as questionnaire and publication content and analysisJinterpretatipngenerally require the direct involvement of subject matter specialist and should therefore be assigned to subject matter units.

11. There are two additional requirements that have come to the rare more r~cently, namely:

.:. the requirement that data collection should be organized as efficiently as possible in order to minimize the burden for bath the respondents and the collecting agency and at the same time tO speed up enhance timeliness

.:. the requirement that statistical information be disseminated in a manner relevant to the problems or questions that it addresses implying that dissemination should be \lSer-focused rather than based on statistical sources and processes.

12. These two requirements could give rise to two different organizational structures within an agency: ODefor data collection and ene for data disse~ation. In order to 'connect' the two structures, a bridge is required, a unit in charge of re-sorllng data after ~ey have been collected and edited, into new groupings that lend themselves better to analysis and dissemination. This aspect of organizational design applies to a statistical agency of any size. Naturally, the smaller agencies CaDadept more flexible solutions.

13. To summarize:

.:. in theory, there are many organizational principles-ürlt ene could use ~ostructure statistical offices

.:. in practice, most statistical offices have been organized according to either 'subject matter' or 'function', but usually according to same combination of these two principles

.:. new organizational trends have affected all organizations and same of them are specifically relevant for statistical offices

.:. among new developments is the realization that statistical offices may be organized in two wars: for data-input according to data-source, for data-output according to user categories, with a bridge in between where the data are re-sorted

14. The difficulties involved in finding the right organizational structure are illustrated by a brief case history.

5.4. Organization and reorganization

Before 1974 the organization chart of the Dutch Central Bureau of Statistics (CBS, now Statistics Netherlands) was simple: a Director-General, a Deputy, a director foT coordination and about 20 departments, most of them subject matter oriented but a few constituted along functional lines (including a large department for computerized data processing). Some departrnents were subdivided into divisions, same not.

15. In 1973 the government announced a plan to relocate the Bureau to a city (Heerlen) at 200 kilometres from The Hague (the administrative centre of The Netherlands), in order to create government jobs in that part of the country. This caused turmoil, not only among CBS staff, but also among ether stakeholders and in political circles. The Director-General resigned. After a while, the compromise was reached to relocate only half of the Bureau, as weil as to substantiaIly increase its resources, partly to compensate foT inefficiencies, partly to tackle new statistical werk, partly to create new employment. AIso, a new organizational structure was developed.

16. This structure regrouped statistical departments into four directorates:

Economie statistics (12 departments)	Essentially: subject matter grouping
Social statistics (9 departments)	Essentially: subject matter grouping
Methods and development (4 departments, incl. the central computer department)	Functional grouping
Office services (4 departments)	Functional grouping

AU departments were subdivided into divisions and subdivisions, and often two more layers.

17. At the same time the staff employed was substantially increased, from about 1500 to wen over 2000. During the seventies and early eighties new increases in staff were allowed. In 1982 the (budgetary) number of posts in the CBS reached the level of about 3500 (the actual number went up to just over 3000). Then came the turning point.

18. From 1982 to 1992 the CBS (and most other government agencies) was forced to cut down its budget and staff-numbers. Cuts in the early nineties brought the staff down to around 2500. Overall, the Bureau managed to keep most of its statistical output intact, thanks to effective computerisation. In the early nineties it had one of the largest and most advanced computer networks in the country: about 2500 PCs in local area networks and with high-speed connections between the two locations. Moreover, efficient software (including Blaise) foT data coUection, data editing and data dissemination was developed.

19. Regardless of budgetary decreases, demand foT statistics increased, largely propelled by demand from the European Communities. Around 1992 the point was reached where the increases in efficiency could no longer offset budgetary cuts. This created tension. The Central Commission foT Statistics, which decides on the CBS' program of work, had great difficulties to establish priorities. Several important users (e.g. ministries) became dissatisfied.

20. In this situation, the CBS management tried a 'pre-emptive strike' and launched the so-called Operation TEMPO, which stood ier:

TlMEL Y - EFFICIENT -MODERN -PROFESSIONAL -INDEPENDENT

The main focus of TEMPO was extemal: input-co-ordination to minimise response burden and output-co-ordination to maximise user-satisfaction.

21. Analysis made clear that the problems were the following:

22. Problems created by extemal factors included: increasing demand for statistics, decreasing budget, consequent Deedto improve efficiency, tension between European and national requirements, pressure to reduce the response burden, Deed to improve presentation and public image, Deedto improve timeliness, Deedto improve public image.

23. Problems caused by intemal factors included: toa much compartmentalization and specialization, toa many layers and poer internal communication, unclear responsibilities, complex internal mIes and procedures, excessively inward-Iooking culture, lew self-esteem, bureaucratie management attitudes

24. Tbe organizational structure was completely transformed. Top management of the CBS would consist of the Director-General and two policy directors (including the Deputy). There would be 8 directorates: 4 for statistical production and 4 for support. Tbe first of these supporting directorates was for input-co-ordination, responsible for the business register, data collection from households, development of EOI (Electronic Data Interchange), etc. The second was for qutput-co-ordination, including the development of a central database for overall dissemination purposes, integration of information (incl. national accounts), general publications and marketing and public relations activities. The third supporting directorate was responsible for basic sta~istical infrastructure (incl. methodology and computer services) and the foufth for generaloffice services. Financial and human resource management were placed in a staff directorate, directly under the Director-General, who in addition was assisted by a smalI cabinet, responsible for international relations, legal and policy matters and for providing the secretariat of the Central Commission for Statistics.

25. Tbe four directorates for statistical production were organised on the basis of a combination of principles, of which subject matter coherence and relations with 'market segments' (both in terms of users of information and of suppliers of basic information) were the most important. These four directorates were responsible ier:

1. Agriculture, manufacturing, environment, energy and technology

11. Trade, transport and commercial services

111. Public sector and well-being of the population

IV. Demography, labor, income and consumption.

26. In terms of management, statistical divisions would be fairly autonomous; their performance was monitored by a system of so called contract management. Within each

directorate there were 8-10 statistical departments. Their intemal organization was such thai production teams were responsibie for the complete statistical process.

27. In 1999, the government announced plans to close down the office in Heerlen, as weU as to once again drastically reduce budget and staff numbers. Another turbulent period followed. Again, a compromise was reached. The Heerlen office remained open, but the CBS was asked to implement a plan to further reduce staf[numbers.

28. This meant another fundamental reorganization, be it with a quite different perspective: while TEMPO was induced by the need to strengthen the orientation towards clients and respondents, the new reorganization was pushed by the task to further reduce cast and improve efficiency. Hence, this time the focus was on the streamlining and standardisation ofprocesses.

29. The organization of statistical processes was, therefore, restructured from a subject-matter to a process orientation: production units were integrated and subsequently segregated according to stage in the statistical process. The movement towards integration led to the reduction of the number of Statistical Directorates from four to two: one foTBusiness statistics, and one foTSocia! and Spatia! statistics. Within each of these Directorates, separate Departments were established foT data collection and administrative editing on the one hand, and foT statistical editing and analysis on the other. Because of the geographical VoorburgIHeerlen separation, there is one Department of each type in bath locations.

30. In this design, there was no langer need foTa separate Input Directorate, also considering thai extemal data sources foTpersons and foTbusinesses have little in common. Conversely, the Output Directorate (Macro-economie statistics and Publication) was maintained, and its responsibility with respect to publication and dissemination was even strengthened: all data produced by the statistical divisions are published by the Output Division, which also accommodates the central Information Service.

31. The Directorate Technology and Facilities completes the Division structure. To ensure close co-operation between technology/methodology and production, a substantial part of its IT and methodology staff is operationally assigned to the statistical Directorates.

32. The supervision over the four Directorates and twenty Departments is in the hands of the Executive Board, consisting of the Director General and his Deputy, who is in charge of statistical policy and processing. Together with the Directors of the four Directorates, they farm the Management Committee.

33. The process-oriented new structure is heavily supported by advanced IT-tools. Actually, large databases account for a dear demarcation between the various stages in the statistica! process:

.:. Data collection departments and data analysis departments are delimited by a database containing consistent source data at the micro-level; these data are the inputs foT statistical editing and analysis;

.:. Data analysis departments on the one hand and the publication and integration departments on the other are delimited by a data base containing consistent statistical data at the micro- and aggregate level; these data are the inputs for the integration and tabulation processes.

34. Finally, it should be stressed that integration of processes not only leads to more efficiency. It is also a major step towards t4e long cherished goal of presenting a coherent picture of society in the form of consistent figures.

35. *Postscript:*

ft is difjicult to assess the necessity or indeed the costs and benefits of the organizational changes that SN (Statistics Netherlands) hos implemented over the years. Clearly, any major reorganization may generale innovation (fresh ideas), gains in efficiency and better locus on strategie objectives. ft is, however, also energy consuming and jeopardises continuity. Many statistica! agencies innovate, improve their efficiency and rethink their strategies without major organizational changes.

The last reorganization of SN, however, intends to fundamentally restructure the primary process and thus to produce substantial efficiency gains as weil as integration, doing away with existing stovepipes lor separate statistics. ft is difjicult to see how this con be achieved without a major organizational change.

36. Newly appointed heads of statistical agencies may wonder whether the organization that they have taken over is the most efficient and effective one and whether changes in structure ought to be made. Likewise, long serving chief statisticians may at same point in time realize that the circumstances have changed so much over time that there is reason to consider a possible reorganization.

37. Before any major reorganization is initiated, it is wise to think at least twice, because of the risks and costs involved. There are also same genera! considerations to he borne in mind. They are expressed below as maxims:

.:. make no changes to accommodate every valuable new idea; this creates confusion and uncertainty

.:. organizations are not mechanical structures that can be simply re-engineered to meet new sets of circumstances; instead, they are living organisms and tend not to perfonn weIl when they are restructured along totally unfamiliar lines

.:. organizations are not ends in themselves; they serve to facilitate and they must accommodate traditions and most of all talented people[65]

.:. undue changes in top management personnel may antagonize staff and create factions

.:. while efficiency is an important concern, some overlap in responsibilities and even same redundancy cannot always be completely avoided without running the risk of overlooking important matters; obviously the overlap should be minimized

[65] See S. A. Goldberg (1973) op. cito P. 7 "It is worth recalling ththat organizational structures are but shells...In the last analysis what is really decisive in the lire and death of an institution is the calibre and suitability of the people that comprise it."

.:. the organization chart should be simple and easy to explain to insiders and outsiders; if it looks complicated on paper, it wiIl probably also be complicated in practice

.:. it is advisable to limit the number ofhierarchicallevels (four is widely seen as the maximum), because messages tend to get distorted as they are transferred from ene level to the next; at the same time, however, the span of control of supervisors should remain manageable (ten professionals is probably the maximum number to manage although foT production staff the number is, of course, much higher)

.:. if a reorganization is unavoidable, keep the reorganization process as brief as possible

.:. make gurethat the views of all staff members are heard

.:. the reasons foT any re-organization should be made perfectly c1ear, because people regent werking within a framework that is not fully understood

38. While these considerations apply to most organizations, there are also same points that should be borne in mind as they apply to statistical agencies in particular:

.:. Much of what statistical offices do is marked by sharp fluctuations in the workflow. For example foTannual business surveys most of the basic data may be received in the second quarter of the year, most of the data editing may happen in the third quarter, and the mail-out of questionnaires foT the next survey round may happen in the fourth quarter. To even out the workflow it may be a goed solution to combine this werk with tasks thai have another 'seasonal pattern', e.g. short-tenn data coIlections, into ene organizational unit. The extreme approach is, of course, to look for an agency-wide solution.

.:. For certain activities, particularly these that affect the corpora te identity, it is important to aim at strict agency unifonnity, and these activities should be placed under unified control, in ene organizational unit. The agency 'stamp' is important because it assigns quality and conveys integration. Therefore, products (including questionnaires and electronic products on the Internet) should have a common look and feel; control of their design should preferably be centralized. Other examples of the importance of conveying a unified corporate identity are organizational units for international relations and press offices.

.:. In times of decreasing budgets, statistical offices are sometimes confronted with the question whether or not it is financially efficient to outsource certain functions, and which services can responsibly be bought outside. Catering, janitor services, security, in many cases printing and sometimes part ofthe dissemination activities are likely candidates foTsuccessful outsourcing. Same more general (e.g. basic computer skilIs) or on the ether hand highly specialized types of training (e.g. management training) can often be bought easily. Much more controversial is outsourcing of interviewing; apart from quality issues that have to be considered, few commercial interviewing agencies seem to be able to compete isi-e-wise- with the agency's own fieldwork staff. And finally, a very controversial issue is to what extent certain computer services should be bought or self-produced.66

66ODe example of successful outsourcing of routine computer network maintenance is to be found in Statisrics Sweden. See chapter 7 tor a fiJner discussion of outsourcing of information technolo<::'".

5.5. Coordination mechanisms and corporate culture

39. In aIl organizations, a sufficient degree of coordination (and not only statistica! coordination in a narrow sense, as described in chapter 2) is a must. While in smaller statistical offices, coordination may be achieved through 'mutual adjustment', and coordination in units of larger offices through direct supervision, there will also be a need foT standardization gegency-wide- of processes, outputs and skiIls.

40. Even more importantly, though this is a difficult topic, is the creation of a streng corporate culture: shared beliefs, values and norms. A streng system of interna! communication (newsletters, Intranet, periodic meetings of the chief statistician with senior and middle-Ievel managers and indeed rotating selections of all staff) may help to achieve this. A seemingly trivial, but in principle very functional technique of creating a corporate culture is foTsenior managers to regularly visit the werk floer.

41. Among the more formal mechanisms to coordinate and to promote corporate culture, a weIl functioning system of committees is perhaps the most important and effective. In the. following sections the rele and workings of such committees are discussed. A distinction must be made here between committees and task farces or project teams. The latter serve to deal with specific, finite problems. Committees usually have a more permanent character and serve to address long term or recurring issues.

42. *Handbook Rev. 1* distinguishes the following as sufficient justification for the creation of a committee:

.:. Improving across-the-board communications and increasing the sense of participation in coIlective initiatives

.:. Mobilizing agency-wide support for new and high-priority tasks

.:. Ensuring multi-disciplinary contributions to a new and complex undertaking

.:. Maintaining a balance of different interests and perspectives when new methods, standards or concepts are introduced.

40. On the subject of structuring a committee required foT effective management of a statistica1 agency, *Handbook Rev. 1* states:

"Indeed, it is, or it should he, ene of the constant challenges of top management in a statistica! agency, irrespective of its pattern or organization, to keep the horizontal dimension alive, visible, and effective."

Handbook Rev.]67

41 We may safely assume that a sizable agency (i.e., 500+ employees) will reflect in its organizational structure bath subject matter and functionaI units. As aresult, there wiIl be points of internal tension for which same ferm of mediation is required. For example, bath the department in charge of industry statistics and that in charge of health statistics have the required

67P. 10

funds to pay for the computer processing oftheir latest data. Monthly, conflict arises over which department takes priority, as does the threat of ODeor the other missing scheduled release dates. The chains of command of the two departments only meet at the very top. A system that reduces tension, forecasts events, and standardizes the manner in which future conflicts arising from this kind of situation are resolved, becomes necessary. *Handbook Rev. 1* points out that horizontal mechanisms must be put in place to resolve conflict and promote integration in any organization with separate units that must agree on an integrated programme. Such mechanisms are known as horizontal committees. Some statistical agencies have a complex network of committees, some standing and some *ad hoc,* aH created to promote an overriding objective and to minimize inevitable tensions.

42. The influence of a horizontal committee depends on whether the statistical agency wants to maintain its established hierarchical flow of information, or wishes to introduce a second source of advice and information specialized in corporate rather than single organization problems. In the case of the Jatter, committees may become as powerful as the regular units listed on an agency's organization chart.

43. There are essentially two kinds of internal committees68,those that deal with managerial and those that deal with technical issues. Certain statistical problems exist irrespective of the good win of participants, the soundness of the agreements reached by them, and the quality of basic statistics. For instance, in those countries where there are estimates of quarterly national accounts, issues inevitably arise from the nature of the basic statistics and resulting inconsistencies when the accounts are fITst compiled. Where a central register of businesses, classified according to their economie activity exists, subject matter experts should take part in agency-wide discussions to ensure that different surveys do not end up with overlapping populations.

44. Situations requiring periodic discussions that cut across several organizations extend beyond those concerning subject matter. Issues such as the recruitment of professionals; the provision of genera! training for all classes of staff; and the standards of dissemination where different parts of the organization contribute to the same publication, aH require open discussion and review of intemal protocols. These matters are of consequence to both large and small organizations, but in the case of smaller organizations, the formality and size of committees decreases substantiall y.[69]

45. ODe important committee, essential in instances where the statistical agency's staff is unionised, deals with matters of labor-management relations. There are many situations in which the chief statistician needs a direct conduit to the staff, just as staff members Deeddirect access to the agency's executive. The nature of such a committee's agenda depends partlyon which elements are handled on a govemment-wide basis and which are left for each agency head to solve.

46. In the foHowing discussion we address those concerns requiring regular attention. Issues resulting from a temporary increase in interest justify the creation of a Task Force and are not geen as crucial to the agency's organization. The elements required for a Task Force to operate successfully, though, are much the same as those necessary for the functioning of a standing committee.

[68] There is a discussion of externalor advisory committees included in chapter 2 above.

[69] In the case of Switzerland-a medium sized statistical agency-there are standing committees covering such subjects as the consumer price index (CPI) and ad hoc committees formed to deal with unique problems as theyarise.

47. Typically, committees do not have a budget. Their power is aresuIt ofthe respect they are given by the rest of the organization and the established practice of resolving cross cutting issues by committee. Still, committees have minimum requirements - a chairman, a secretary, an agenda, and rules on membership. The chairman should be a capable and impartial leader, and hislher judgement should be respected, even though it is not an official decree. The committee's purpose is to advise the chief statistician on what it believes. While the latter bas the power to ignore the committee's advice, in practice, and possibly with slight modifications, the committee's voice will he heard.

48. The Committee's recommendations should he recorded. These decisions, together with a short account of the reasoning behind them, should he open to inspection by the rest of the staff. For large offices with a comprehensive intemal system of communications, all ofthe committee's agenda, deliherations, and records of decision should he posted on the agency' s Intranet. As an organizational rule, while the comrnittee' s recommendations are not reached by consensus, stafL members should always be privy to the committee's decisions.

49. Committee membership is an opportunity to contribute to agency-wide policies, as weIl as a training ground foTfuture senior managers in the sense that it provides members with a broader perspective than they could acquire fiom their regular jobs, and makes them aware of the wide range of considerations important to the agency. Committees must not grow toa large, or else they become cumbersome and incapable of Teaching closure on the issues they debate. Generally, committee meetings lasting over two hours represent a heavy t~ on their members' time. In order to maximize the training benefits that such committees confer_~eir members, same system of membership rotation should be adopted. One possibility is that meffibers serve on a committee foT amandatory period oftwo years, extensible by one year, after which they move on. Inevitably, an informal league table ranking committees by their perceived influence or prestige wiIl be established. Determination of membership should acknowledge prestige and ensure that those managers who show promise serve on committees with th~ most critica1 agendas.

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Conclusions

Organizationally, there is no 'ideal' model. In practice most statistical offices have been organized according to either subject matter or function, but usually according to some combination of these. Moreover, there bas been a realization that one might organize statisticaloffices in two wars: according to data source or foT data output according to user categories.

Before any major reorganization is initiated it is wise to think at least twice. Some of the general considerations to be borne in mind include:

.:. make no changes to accommodate every valuable new idea; this creates confusion and uncertainty

.:. organizations are not ends in themselves; they serve to facilitate and they must accommodate traditions and most of a1ltalented people

.:. while efficiency is an important concern, same overlap in responsibilities and even some redundancy cannot always be completely avoided without running the risk of overlooking important matters; obviously the overlap should be minimized.

Chapter 6
MANAGING ST AFF

6.1. Introduction

1. Nothing is as important to a statistical agency as its staff. For the difference between a well-organized, strongly motivated and technically competent staff, and one that only displays these attributes to a very modest extent is the difference between a goop and crepible office and one which is second rare. Expenditure on staff accounts for a dominant fraction of a statistical agency's budget. In a sample of offices representinga broad array of size~ and stages of development, salaries account for approximately 70 per cent or more of the ~0ta1 budget. In addition, heads of agency tend to devote more time to staff problems than to any o~er issue.

2. Improvements have been made in "people management" in bureaucracies in genera! and in statistical agencies in particular. People management is acknowledged in discussions in international venues as having been taken for granted in earlier times, and is now perceived as critical. Also addressed in such discussions are the various stages of training and the need to retain and develop staff' as weIl as the considerations that determine how specialized rqe agency's staff should beo

Haodbook Rev. 1 00 the subject of staff and skins -c-

„ A decisive factor in tbe internal capability of a statistical agency is tbe calibre of its staff. An agency can only function weIl if good people are available to make it work. Organizational arrangements may contribute to enabling good people to do tbeir best; but it is essential to give utmost attention to building up tbe right kind of staff in organizing and managing a statistical ageney."

"To acquire tbe kind ofskills needed, a statistica! agency must have a welI-planned policy and a~tive programme of recruitment, career development, education and training."

"In addition to tbe personnel unit, otber units of tbe administrative branch should be involved in carrying out tbe personne! policy. Tbe acquisition and maintenance of adequate office space and equipment cao eontribute not only to efficiency but siso to tbe welI-being and satisfaction of tbe staff. Moreover, suitable accommodation, facilitating ready communication between people working in related fJelds, is conducive to tbe integration of statistics because, in a real sense, tbe "successful integration of statistica! end-products is contingent upon tbe 'integration oftbe statisticians' ."

"After same time, when a minimum of experience bas been gained, every employee should be pbliged to attend an orientation course where further explanation is provided."

"Officials ofthe personnel unit should teach tbe introductory course foT employees at lower levels [management should teach professionals]; tbe establishment of goodpersonal relations between this unit and tbe ncw employees is ofgreat importance."

"The in-service education and training described above requires not only teaching but alsq quite extensive administrative efforts. Therefore permanent machinery should be established in tbe farm of an in-service training school. In a small or medium-sized agency, a part time head ofthe school may be selected fto~ among tbe best qualified professionals of the agency. In a large agency, a full time head may be needed. Sneh maehinery is

necessary to ensure the proper design of courses, recruitment of teachers, selection of students, etc."

Handbook Rev. 1, *Chap. VIII*

6.2. Staff composition

3. The share ofthe professional and technica1 components bas increased substantially even in cases where actual numbers have dropped and relative resource endowments have not kept up with changes elsewhere in the civil service. It happens in some statistica! agencies (at least in countries in the OECD area) that professionals account for ODein two staff members. Statistica1 surveys have become more sophisticated, at least in terms of planning, and general expectations regarding the quality of the estimates produced by statistical agencies have risen. The computer and communications revolutions and the resultant gains in labor productivity have surel}' contributed to these trends. ODe of the many results of these changes is the impact on the human resource policies adopted by, or imposed on, statistical agencies. These policies, which were still in the developmental stage 20 years ago, appear to have fully evolved in many agencies and should therefore, be open for study by statistical offices that are still undergoing structura1 changes.

4. The staff of a statistical ageney is not solely made uP..9~statisticians. But it is a common practice-although by no means a rule-to appoint someone witI}strong credentials in statistics.

5. Irrespective of the incumbent's other virtues, the demo~nstration to the public that the government's chief statistician bas a profound understanding of statistics tends to inspire confidence. Due to the range of subjeets covered by a modern statistica1agency, the staff tends to possess a variety of skills and academie backgrounds. Even agencies that only conduct moderately complex and specific statistical undertaking find themselves in~need of a wide range of talents. Statistical operations require a mix of eeonomists, sociologistsJdemographers, econometricians, model builders, geographers, anthropologists, criminologists, engineers, computer experts and so OB.

6. Some of these skilIs are not required for day-to-day statistical operations,70but they prove essential when new operations are being planned and launched. Naturally there is a certain amount oflearning and technology transfer that makes the staffof statistical agencies more versatile but in the end, medium and large offices will find that there are limits to what can be borrowed from other countries and other institutions and will therefore ehoose to enhance their own capabilities.

7. There are important reasons to build a multi talented staff with a good mix of academie and wolk experienee backgrounds. The following is a discussion of the factors that dictate the balanee of skills required from the staff in an effective statistical agency. As in many other situations, the question arises whether eertain capabilities are used so orten that they should be available to the agency on a permanent basis or whether given the expected usage it is sufficient if

[70] Even gO,there are well-establishedstatistica! operations that do require the almost daily interventionof very specialized knowiedge. Nothing could be better established in the majority of Government statistical agencies than the Consumer Price Index (CPI). And yet maintaining detailed specifications of goods and services priced every month or every quarter in the face of technical and institutional changes demands a knowledge usually possessed by a wide variety of specialists. Thus, offices may require at least the ftequent ad vice of civil engineers, telecommunications, radio, and television specialists, banking and insurance operators, etc.

they are acquired if and when their use demands it. This holds for people as much as for equipment. For example, when adapting an international c1assificationto snit national purposes, there will be an inevitable growth in demand for very specialized knowiedge, such as chemicals, electronics, pharmaceuticals, computing, the audio-visual industry, and financial services. Likewise, international trade statistics require specialized commodity knowledge as weIl as knowledge of national customs administration processes. These are exarnples of requirements that tend to be in demand when new methods are introduced or new classifications are instituted. In such cases, an agency may choose to employ the services of a specialist, through a consulting contract or some other non-permanent association.

8. The more genera! the capabilities sought, the easier it is to administer and maintain them. Moreover, genera! capabilities have a versatility that agencies, particularly the smaller ones and those that have not yet fixed a medium-term agenda, find attractive. General training can be provided formally; creates the basis for a shared culture and predictabIe performance; and can more easily be supplemented by specialized training as staff members move from one job to another.

9. Professional staff can orten he divided into two categories:

.:. General personnel capable of performing at lower and intermediate levels of sophistication in the areas of computing, statistical design and analysis, national, public sector or enterprise accounting, and economie, social or demographic analysis

.:. Specialized personnel capable of performing at a substantially higher level in an area such as non-response analysis or in a filed such as analysis of geographic information, criminology, or health statistics.

10. This structure can be augmented by the occasional purchase of services provided by national or international consultants who are highly specialized or concerned with matters of policy and public perception to contribute to some major undertaking.

11. Once a determination bas been made as to what is acquired as permanent staff and what is acquired through short-term contracts, the chief statistician win evaluate supply and demand and attemptto correct any imbalancesthrough recruitmentpolicies.[71]

6.3. A human resources policy

12. Irrespective of its composition, the wolk force of a statistical agency is its most precious resource and as such it must be treasured. An effective statistical agency will manage its staff with the help of an explicit set of policies. The most important elements of a personnel (human resources) policy are:

.:. ability to ascertain personnel needs

.:. standards and techniques for recruitment

[71] Some ofthe larger statistical agencies have an explicit personnel forecasting model, designed primarily to consider the hierarchical level of the incumbents and match it to their demographic characteristics. The model is used to avoid the rise ofundesirable imbalances in the hierarchical (more than in the professional) structure

.:. deployment of personne!

.:. introductory training

.:. monitoring equity in recruitment and in career advancement

.:. intennediate training

.:. career development and job rotation

.:. training for managerial functions

.:. staff motivation and retention

13. These elements are listed in the approximate order in which they naturally arise. Certainly, ether features could he added, but these are sufficient to support a policy with common objectives. The following is an example of a set of coherent objectives, which the elements listed above are designed to help attain:

.:. increase the proportions of professional staf[by expanding the annual intake of young professionally qualified staff

.:. ensure that once recruited, qualified people are assigned suitable jobs, and everyone is treated fairly

.:. devise a proper mixture of deterrents and incentives, to he made explicit to the staff

.:. administer sufficient training to staff members at key points in their careers, so as to maximize versatility and motivation

.:. ensure that key jobs are staffed and have a possible successor ready to step in to the incumbent's shoes should the Deedarise

14. To facilitate adiscussion ofways in which these policies can he administered, four intemal institutions should he examined:

.:. office of personnel

.:. personnel committee

.:. in-service training facility

.:. evaluation machinery

15. The office ofpersonnel and the personnel committee assess needs, recruit and deploy staff, formulate retention policies and ensure equitable treatment. The in-service training facility, as its name suggests, oversees training. Finally, the evaluation machinery fields questions regarding the adequacy of these mechanisms.

16. *Handbook Rev. 1* suggests that when a statistical agency reaches a certain size, it should inve!t in a professional Office of Personne!. But experience shows that while such an office is

essential in dealing witb tbe *administration* of all or most personnel policies and with advising on the development of personnel policies and instruments, it seldom plays a decisive role in detection, evaluation, or persuasion, all of which help ensure that talented people come to work for a statistical agency, that the agency's stock of people gets renewed as often as required, and that there are incentives to retain the best employees. This finding, while seemingly critical, merely recognizes a simple fact: a professional Office of Personnel primarily will administer public service acts, enforced in most countries, that regulate the conditions of recruitment and employment in the public sector.

17. Cases in several countries have also shown that the most successful formula foT the management of personnel issues is ODein which tbe subject matter staff is intimately involved with such personnel processes as recruitment, training, and retention. Heads of personnel units are the advisers best qualified to validate suggested personnel approaches and policies. They are also the right choice for the execution of policies once the choices are made and the policies in question defined.

6.4. Reeruitment

18. Often Ministries snch as Planning, Treasury, Industry, Employment, Agriculture, and Transport as weIl as agencies snch as Centra! banks, Stock Exchange Commissions and Comptrollers Offices will draw recruits from the same pool as the statistica1 agency. In most countries, initial, and subsequent, salaries in the statistica! agency are relatively low compared to Centra! Banks. Moreover, in some developing countries this inequality a!so holds between the statistica1 agency and other ministerial agencies. For this reason the statistical agency should develop a recruitment plan, inc1uding attractive items such as:

.:. impressing upon them that professional work tends to he more rewarding in a non-political environment such as that maintained by the statistica! agency.

.:. appealing to the competitive instinct of recruits by promising them that merit win be used to militate against the more onerous aspects of seniority mies in their promotion prospects; and

.:. giving recruits intensive and marketabie training of a practica! nature either directly or by agreement with a teaching institution;

.:. striving to send young people to acquire training abroad as soon as they prove themselves ready;

19. AU this is subject to the constraint that the statistical agency should rather not recruit than deliberately recruit the mediocre. The persona! involvement of the chief statistician in these matters can help transform a mechanica! and not very fruitful approach to young people into one filled with prospects and enthusiasm.

20. Young people who decide to go into public service are often seduced by the prospect of working on policy analysis. The opportunity to he in the proximity of those whom they perceive as the makers of the Nation's destiny is an unriva!led attraction. This creates a problem for a statistica! agency. Not only does it add to the difficulty of enticing top graduates, it also makes it more likely that if recruited and given specialized training, these graduates wiIl move on to more prestigious centres of govemment. Furthermore, once economists and social scientists start working foTother govemment agencies, tbe possibility of getting tbe brightest back to a statistical

agency is not high. For this reason, statistical agencies must accept the cost and the risk of recruiting young people with no experience, forge suitable training policies, and stick to them in the knowledge that they face inevitable high rates of attrition particularly among the non-statisticians.

21. There are a great number of careers open to young people with ability foT quantitative analysis that promise greater incomes and a faster rise to even higher monetary rewards than anything the chief statistician can held out for them. It is very difficult for a statistical agency to compete with the private sector on initialor prospective salary. However, statistical agencies should be looking for who are searching for more then salary. Those who may be more successful in the government in general and in the statistical agency in particular, would join the organization because they wish to have a job with higher moraI purpose that is public interest. Still, as we have mentioned previously, it is orten difficult for the statistical agency to compete with other govemmentaI agencies on the lookout for the same kinds of taIents. Mitigating this situation is the fact that these who have graduated in mathematics with special reference to statistics, and who do not wish to teach or to be an actuary, but are interested in mathematical applications to sampling, statistical design of experiments, hypothesis testing and so on, the statistical system presents the most interesting challenges. The statistical agency should make it a priority to find professionally interesting werk foT such employees as SOefias they join the agency. In addition it is probably easier as a matter of practice to get young statisticians to broaden their interest so that they extend to economics and social organization and stay with the statistical agency rather than expect economists and sociologists to extend their stay foT the sake of interesting issues in the theory of measurement.

6.5. The first dar

22. In official texts on organization, little if anything bas been said about a new employee's fiTStday in the office. And yet thefirst day (or the fiTStfew days or the fiTStweek) can have a pronounced effect on the recruit's attachment, respect, and dedication. If the statistical agency is just another government agency, it wiIl not be able to compete with more prestigieus areas within govemment. It will have neither the cohesive and elite forces that bind together Foreign Service officers nor the high profile werk that characterizes the business of analysts working on macroeconomic policy. The strengths of a statistical agency are that it win allow long term pursuits to be entertained in an atmosphere relatively free from political turmoil and totally free, ene hopes, from successful political pressures. Those strengths can be cemented in a recruit's fiTst few days and converted into loyalty to the office.

23. An effective statistical agency wiIl ensure that the foIlowing takes place on the first day:

.:. the new recruit fmds an agreeable place in which to gitand something definable to do

.:. an accessible persen is identified to whom to address questions and get doubts resolved[72]

[72] There are agentjes in which there are two such persons: ene is an immediateJy defined supervisor who is responsible tor the day-to-day administration of the recruit's work and performance. The other-acting as a "mentor"- is responsibJe tor the recruit's adjustment to the new workpJace, tor the resolution of Jonger-term questions and doubts, and for the discussion of supplementary skiIls that the candidate may wish to acquire as a means of career development.

.:. the organization conveys its willingness to consider the individual' s career in addition to the immediate job

.:. an explanation is given of what the individual's activities will be in the immediate and the near future, how they fit in with the organization of the office and what specific objectives they are designed to serve

.:. a training plan is presented

.:. orientation. Some(larger) offices have developed the tradition of organizing, at regular intervals, e.g. every month or every second month, an orientation day, which is meant to give new recruits a quick overview of how the organization is structured and operates.

Intranet and tbc first day

Tbe fust day bas become an iocomparably casier affair to manage witb tbe institution of tbe Intranet. In several offices, recruits are equipped witb a PC and a modem and fiod a personal greeting fTomtbe chief statistician; the text of the law tbat TUlestbeir agency; tbe structure of tbe organization, complete witb the Damesand telephone numbers of key people; extracts fTom major publications; and usually a thriving exchange of messages among staff members that range fTom private sales of cars or audio equipment to serious discussions of methodological problems. Even if a PC and a Modem are not available, a printed guide witb the above material would still be of value.

6.6. Training

24. Training should be regarded as an ongoing activity. In fact without going so far as the Armed Forces where a promotion to a new rank is viewed as the beginning of a training process that williead to the next promotion, training should be a continuing activity.

"Tbe supply of professionals witb the skins required in a statistical agency is as a TUle scarce Frequently tbe progress made by ncw staff members is slow because tbey do not know tbe characteristics of tbe agency sufficiently weIl... ftfter some time, when a minimum of experience bas been gained, every employee should be obliged to attend an orientation course where further explanation is provided..."

"In many countries, tbe knowledge acquired in universities, bath in subject-matter field and in statistics, is often too general and abstract to be immediately weil adapted to tbe Reeds of statistical agencies Developing countries have access to regional institutes of statistics, sponsored by several countries, which a statistical agency should take advantage of."

Handbook Rev. 1 [73]

25. There is no denying that the demand foT training bas increased. Generally speaking, the statistical process bas become increasingly complex. Traditional on-the-job training methods, while indispensable, are not the most effective way to ensure versatility of skills and standardization of methods. And on the ether hand, training facilities foT developing countries seem to have diminished by insufficient budgets and lack of available trainers. In addition, the demand on statistics in terms of accuracy and timeliness bas increased. This makes the choice of training methods, particularly foTmore experienced, specialized statisticians a crucial issue.

[73] Pp. 42 and 43

26. While there are different ways to provide career-Iong training, ODe way that bas proved to work in many countries is to consider general-purpose training as having three distinct cyc1es:

.:. the introductory cyc1e: This is primarily designed for newly recruited staff, and its purpose is to ensure their speedy integration into the organization, which implies both becoming farniliar with the traditions of the statistical agency and being able to make a contribution in any of the domains or functions within its scope. Virtually all agencies administer such training, even if they do so in the most informal manner. [74]

.:. the intermediate cycle: This training cyc1eis designed prirnarily foTthose who have worked in a statistica1agency foTa period of five to ten years and who have not had an opportunity to refresh their skills

.:. adrninistrative cycle: Over the course of a staff member's career, its direction eventually becomes foreseeable. Those who have the potential to fin policy making positions within their' respective agencies, should be trained in the subjects that will demand their energies once they reach management levels. These subjects include fmancial administration and control, large project management, marketing, the govemrnent institutional set-up, and other features of the environment extemal to the statistical agency.

27. Moreover, ODeshould make the corresponding cost part of the agency's regular budget; and administer training to all targeted staff members as a matter of course. Because such training is regarded as general purpose, it is not sufficient and should be complemented by more narrowly defined courses to meet specific short-term needs. Many offices are not in a position to provide courses at all or at any of these levels. This is why altematives and special arrangements are so important. In general, training CaDrange from the very formal, given in a separate school by qualified trainers and lasting for several months at the end of which course graduates are awarded a diploma, to an informal series of discussions with senior officers, possibly including the head of the agency.

28. For those offices, which are very small, newly formed and where tradition is still being created, the altemative solution may be to benefit fiom what is available in the offices of better-endowed neighbours; or in more advanced statistical agencies in which training modules for visitors from abroad are featured regularly. There are numerous variations on this practice, and the possibility of offering additional courses largely depends on the overall resources of the statistical agency as well as on the time and money it wishes to devote to initial training. Generally, the size of the agency and its endowrnent win determine the formality and specialization of the courses it offers.

29. The idea of an in-service training institute is almost as old as that of creating a stand-alone statistical agency dedicated to the improvement of statistical methods and compilation and dissemination of social and economie statistics.

[74] In the United States Bureau ofthe Census, newly recruited staffwere expected to attend a lengthy course, which involved taking a small-scale survey after designing it literally trom scratch. The survey was conducted by a group of recruits, each member assuming a specialized fale (computer analyst, questionnaire designer, sampling error estimator etc.). lts primary purpose was to instil at an early stage the habit of working in multidisciplinary teams. The idea was adopted by a number of other countries. In some countries, recruits must complete a range of compulsory courses lasting two to three months, followed by a couple of years of assignments in various parts of the agency, 50 that they gain a more general perspective on statistical work and the way it is handled while simultaneously contributing to it.

"... [The] education and training described above requires not only teaching but siso quite extensive administrative efforts. Therefore permanent machinery should be established in the form of an in-service training school. In a smaIl or medium-sized agency, a part time head ofthe school may be selected fiom among the best qualified professionals ofthe agency. In a large agency, a fuIl time head may be needed. Such machinery is necessary to ensure the proper design of course, recruitment of teachers, selection of students, etc."

Hllndbook Rev.]75

30. Some countries have such a facility and run it very much in accordance with these recommendations. Other countries have different arrangements with local universities, in which they share the hUlden of administering at least the more formal aspects of training. Others still adopt *ad hoc* solutions and ensure that their junior and intermediate staff are trained abroad, preferably in neighbouring countries or else in a regional training facility.

6.7. Job rotation

31. An agency's "staff model" may faIl. anywhere between two extremes. At ene end of the spectrum is the "no ene moves" model. lts objective is to maximize specialized human capital by allowing staff members to leam more and more about their respective areas of responsibility (e.g., industry; health; education; retailing; balance ofpayments). Staffmembers would be expected to have a purely vertical career and would only leave their areas when called upon to discharge agency-wide responsibilities.

32. At the ether extreme, the driving principle is versatility. Staffmembers are encouraged (or required) to acquire the widest possible experience in the shortest possible time by moving fiom ene job to another. Where this movement is directed by the office of personnel, it would likely be in keeping with an optimal pattem so that the acquired experience would provide the most versatility.

33. It is virtually impossible to quantify the many factors that affect how an agency will balance the need for specialized knowledge and versatility. For example, staff morale is an important consideration, and if the idea of permanent rotation goes against habits and expectations, its introduction in an extreme farm may create negative reactions that outweigh its benefits. Conversely, in a culture where the staff are used to and expect tochange jobs every so many years, the absence of opportunities to try different assignments might welllead to frustration and atrophy.

34. Somewhere in-between is a point that makes possible to find a balance, capitalizing on the inherent strengths of the two extremes. For example, an institution may require that at a certain level no one is allowed to remain on the same job for more than five years; if ene opts to keep the same job for an indefinite period of time, it would he with the knowledge that one's chances of advancement are correspondingly reduced, even ifjob performance is entirely satisfactory.

6.8. Staff retention

"Despite the contributions of national, regional and international institutes to the trained statistical work force, critical shortages exist in developing countries. In a more fundamental sense, the shortages reflect the disadvantaged position of the statistical service in many developing countries with respect to pay scales and related working conditions as weIl as the low or moderate status ofthe national statistical services within the govemment hierarchy. Thus the most promising young people do not enter the statistical service as a first choice..."

7S pp. 43

35. Start retention is ODeof the major challenges for every office, large or small, weIl or poody endowed. The smaller and less weIl endowed the office, the greater the loss sustained when a taIented individual leaves. Several methods of retaining staff are worth exploring but none is foolproof Ultimately, losses of employees to other offices and to the private sector must be included as part of the expected cost of running a statistical agency.

36. ODe war to deal with staff retention is simply to accept that no statistical agency CaDkeep its most talented people forever. Accordingly, the best it can do is to procure the services of capable staff foTa limited period. It is better to be explicit about it foTin this war there are no surprises at the end of the period for which these services are contracted. ODetactic is to convince departrnents of govemment that attract talented professionals with abilities in quantitative analysis that it is in their interest to place such people in the statistical agency foTa while, so that they CaD learn all about the limitations of data and the possibilities of statistical inference. Moreover,. such ·~ sharing of staff will help the statistica! agency sort out its priorities, connect the agentjes, and creating a better basis for ongoing dialogue. Since these features are always valuable, the initial stationing of people in the statistica! agency or the ongoing exchange policy could become permanent features of a government-wide personnel management program.

37. Another war to improve retention is to provide positions of increased responsibility to young and taIented people as soon as they have demonstrated their capability. There is a risk, but it is preferabie to retaining staff members of mediocre-~nt while losing those who se taIents are exceptional.

38. Another option is to form a contractual relationship with recruits that will deter them fiom leaving the statistical agency foT frivolous reasons. For example, in offices with structured introductory training programmes, recruits could spend their fiTstyear on a particular assignment, after which they would participate in the training programme, provided they have signed up foTa star of at least three to five years in the statistical agen~

39. There are also special programmes that CaDbe developed to assure that qualified persons are recruited such as the 'cadet programme' of the Australian Bureau of Statistics (where the statistical office pars foTthe education of talented furore statisticians), and internships.

40. Traditionally the problem of staff retention bas been sharpest foT experts in information technology (IT). As the speed of deployment of IT bas increased so did the demand foT trained personnel; however, the supply of qualified people did not increase as quickly. In such circumstances, it became virtually impossible foTa govemment institution to compete with the private sector, the banking sector, or companies owned and operated fiom abroad. Govemment institutions could not offer competitive salaries, and what they could offer-job security-was not an overriding concern foT the young and mobile professional with those skills. The standard response to this situation, which bas shown no great variation in the recent past, was to recruit ever younger, less-experienced technicians and administer training. But this policy, in addition to consuming resources, converted statistical agencies into an unrecognised training centre foT the private sector. As soon as recruits were trained, same ether enterprise stepped in, offering to double or triple their salaries.

[76] P.43

41. Next chapter wiIl consider in more detail how to manage IT in a statistical agency.

6.9. Options for a new chief statistician

42. No recently appointed chief statistician-witb tbe possible exception of one in a newly created office-can make more than minor staff changes. Annual recruitment represents only a small share of tbe total number of employees and is unlikely to make a profound difference in the short term. Most agency heads wiIl inherit a complete team; same will inherit a ready-made team from which tbe top Jayer bas been removed, as when tbere is a change of governmenf7. Whether or not tbe existing team is ideal, it is prudent to keep it intact (to do so may also be tbe only option under tbe law), and to make improvements through gradual additions and by taking advantage of voluntary departuresand retirements.78

43. Occasionally, tota! resources are increased appreciably because of a special project (e.g., a Census or a very complex and costly survey) foT which supplementary staff members must be recruited. In such cases, significant staff changes may be made; this is not tbe rule but when it does happen experience shows that tbe risks involved in hurried recruitment outweigh tbe bad impression created by a sluggish response to an urgent need.

44. A chief statistician newly appointed to run an existing agency may worry about being overly dependent on tbe existing staff foT advice, and may be concemed tbat tbe staff win take advantage ofthe situation, perhaps to carry out a pet project, exaggerate atechnical difficulty, or add to resources in a less than unbiased fashion. Accordingly, a chief statistician joining an agency may wish to bring in someone he bas worked witb, whose judgement he trusts and witb whom he can discuss options as an alternative to bis own immediate subalterns. While this practice may provide a certain cushioning, it may weIl have tbe unintended effect of widening the gap between the head of tbe agency and tbe regular staff. In fact, tbe greater tbe access and tbe level of tbe newcomer tbe greater tbe danger of internal rivalry. One device, which bas been used to signal tbe transient nature of tbe appointment, is to bring in tbe newcomers but not as part of tbe established hierarchy.

6.10. Human resource management: a package

45. So far we have described the elements of a human resource policy and the factors that affect them. But makers of policies-Chief statisticians, Heads of Personnel, Committees on Human Resources-are not simply free to pick and choose those measures tbey believe are required to solve a current problem without concern foT the coherence of tbe resulting set. Policies, in this domain perhaps more than in any other, must reinforce each otber in order to be effective. For example, a strong impetus assigned to job rotation can only make sense if versatility

[77] It is typical in some countries to have the top layer of management of a statistical agency tender their resignation when there is a change in govemment. In same of these countries, the President, by constitution serves only one term, so this practice might create a change in direction as often as once every fouT or five years. Moreover, the management being called up to tender its resignation bas just mastered the mechanisms of the system, whereas its successors are unfamiliar with them. The result is that the second levelofthe staff, or perhaps a lower level still, must take charge of day-to-day operations.

[78] There is little advice that cao be given to Chief statisticians in a generic way on what to do with the people who are generally perceived to be a liability to the organization. Of course, if they are very disruptive there may be no choice but to engage all the means available by law. regulation, and tradition to free the organization from their services. Such cases, however, tends to be the exception. More often, people are on the margin and the Chief statistician receives conflicting advice about their value to the organization.

is favoured over specialization and general training over on-the-job training. The list below details a possible set of measures and policies applicable to small to medium sized offices:

.:. a steady influx of recruits, weighted in favour of those with post-secondary training, with insistence on computer proficiency and flair for quantitative analysis

.:. as heavy an investment in the beginner's initial training as resources permit, laced if at al1 possible with out of the institution or even out of the country training opportunities for the most talented

.:. an agreement with other public sector institutions in which talented young people remain in the statistical agency for areasonabie period of time

.:. promotions based on merit as opposed to seniority, in order to minimize the 10ss of able staff members

.:. semi-compulsory job rotation in order to avoid excessive specialization, supported by ongoing training to ensure versatility and acquired familiarity with a variety of jobs within the statistical agency

Conclusioos

Staff are the most important asset of a statistical agency. It therefore deserves a policy especially designed to ensure that:

.:. the most talented and promising people are recruited

.:. the selection process is as thorough and as professional as possible

.:. newly recruited staff are properly assimilated into tbe statistical agency

.:. werking conditions are satisfactol)' and designed to facilitate communications between newcomers and tbe rest ofthe organization

.:. personnel administration is a necessal)' activity within a statistical agency and is better handled in a centralized mode by professionals but not exclusively by them

.:. training Reeds may justify a special training centre with its own staff and a dedicated (part time or ruIl time) professional director

.:. human resource policies should constitute a coherent set. (small and medium sized offices should be encouraged to choose policies tbat faveur versatility and maximize career opportunities witbin the office)

Chapter 7
MANAGING INFORMATION TECHNOLOGV

7.1. Introduction

1. Much bas changed in the twenty years since the matter of capita! flSsetswas addressed in *Handbook Rev.* 1. Four advances, familiar to all, have greatly expanded the capabilities of a statistical agency:

1. Powerful, relatively inexpensive computer equipment bas been m~e available to aH staff members in many statistical offices.

ii. User-friendly applications software bas given staff members controiover a number of key statistica1 functions ranging fiom questionnaire design to coHection, editing, tabulating, mapping and publishing. Readily available off-the-shelf components have made in-house application programming easier and component reuse within the ofganization bas become more commODo

Hi. Computer networking bas facilitated internal access to data and metadata through established tiered c1ient/server environments.

ivo Internet technology bas made timely access to the outside world feasible for staff members, thereby making it possible to conduct research, gather general information, etc., at alilevels of an organization, rather than solely through top management.

2. These and related changes have given rise to new concerns regarding how to manage the information technology (IT) environment. We include in the IT frarnework hardware, software, staff resources, and commercial services.

7.2. fT management models

3. Our focus, here, is not with the management of particular technologies but rather to investigate if there are broader themes that will withstand the inevitabie - and fast paced - changes in technology to ~ome. Thus, for example, we will not try to examine the pros and cons of a client server model or optimal network structure within an agency. Even if such competency were within the province of this handbook the opinions would be out of date even before the handbook was published. Rather we win first consider two organizational models which we believe have a reasonable chance of being valid over the next ten or so years and then consider same general prescriptions which should be valid independent of particular technological winners and losers.

3. Model 1. In this model the agency makes detailed and comprehensive decisions about its informaties infrastructure. This goes far beyond hardware decisions and also includes a common software architecture. By this we mean not only the underlying data base management software and consequent standardized definition throughout the agency but also standard user interface,

group ware (e.g. Lotus Notes type produets and again standard narning conventions and archiving conventions), personal software such as spreadsheets and the integrating tools to "glue" the software together. Some agencies have gene so far as to prohibit private personal file storage to be attached to werkstations to ensure that no other software -- except that approved by the central informaties area - is foood on individual machines. Maintenance, updates and decisions on new software are all determined by the centra! organization.

4. Since there is ene common infrastructure in the organization this approach serves to bind together the organization and prevent information anarchy. As weIl it makes it much easier to integrate different functions of the agency such as registers and cognitive research. On the ether hand it may stifle creativity and parts of the organization may not have the tools they Deed to perform their functions properly. The success of this model is clearly dependent on the effeetiveness of policies and personnel in the central informaties division.

5. Model 2. This model also recognizes the Deed to avoid information anarchy. This approach relies on standards - hardware, software, and telecommunications - to provide for a coherent informaties environment in the organization rather than a standard and ooyielding inftastructure. At first glance it may seem that this is easier to implement. Certainly most staff outside the informaties organization wiIl embrace it because it provides foTmore local flexibility and decision-making. From a centra! management view it is harder to implement. In practice, it bas proved exceedingly difficult to ensure that new software - even if it meets the standards - wiIl transparently integrate with existing software and changes to the existing software may cause unforeseen problems in the local new software produets. This approach does aIlow some flexibility and potential adaptation of new software even if the centra! informaties staff makes decisions, which turn out to be short-sighted.

6. In either of these two models there is genera! agreement today that software applications should be developed as closely as possible to the substantive user. In the fiTstmodel aH the software tools would be defined, provided and maintained by the central informaties organization. In the second model the basic tools would be defined and a set of standards that would have to be met are also defined by the centra! organization. Both models have shown that they CaDbe successful. The choice is aften made on the culture of the organization as much as on technical grounds.

7.3. Review of some concerns prevalent at the end of the 70's

7. In the 1970's and early 1980's, as statistical agencies tried to integrate mainframe computers into their operations, concerns were very different. A number of prescriptions emerged, regarding not only the way the systems analysis workforce should be managed, but alg~ relations with ether govemment computing establishments, as weIl as what software to implement and what to avoid. These are summarized below:

.:. Do not squander specialized human resources; they are scarce and must be kept together ooder central supervision.

.:. Document all systems extensively.

.:. Organize the werk force creatively so as to provide both functional and subject matter experience i.e. balanee versatility and specialization.

.:. Promote training activities where on-tbe-job training is built in.

8. With respect to tbe fiTst recommendation, it is still truc tbat specialized informaties expertise is scarce. However, depending on tbe size of the organization and its levels of decentralization it may he more sensible to locate same of these resources witb tbe functional areas of tbe statistical office. Training and staff development should be elaborated and updated on a regular basis. Tbe importanee of documentation cannot be underestimated although tbe difficulties in achieving this objective are as great today as they ever were. Finally, exchange of experience and know-how between area specialists and application developers should be encouraged.

9. Whiie these recommendations generally still hold we submit that several of tbe recommendations trom tbe *Handbook Rev.l* have been bypassed by the changes in tbe IT industry:

.:. Do not subcontract any systems walk and programming, other than certain anc-time applications, to outside agencies.

.:. Do not assign systems analysts and programmers to ncw projects until they have compieted c1eardocumentation of data and programs foTongoing projects.

.:. Do not leave administration of hardware to otber partjes unless it is guaranteed tbat statistical processing will get tbe highest priority.

10. Witb respect to tbe first two recommendations, instead of asking how it should be developing software applications tbe correct question foT tbe statistical agency might better he: "Should a statistical agency be engaged in any customized software development - regardless if it is developed by its own staff or subcontracted?" Tbe evidence to date says that an agency does tbis at its peri!. The history of customized software projects is replete with projects that were never completed, or partially completed and over budget. Tbe comprehensive off-the-shelf software products now availabie reinforce tbis admonition. A TUlethat same have used is tbat if seventy to eighty percent ofan agency's requirements can be met by a product that actually works tben tbe agency should consider changing or dropping the remaining twenty percent of its requirements. Witb respect to tbe last recommendation it is worth Roting that many companies are increasingly looking to find otbers to operate tbeir hardware infiastructure. This practice, of concentrating on tbe care functions of an organization and contracting out - or outsourcing - otbers tbat can be better cloneby specialized organizations is ODeof tbe greatest opportunities, and challenges, to statistical agencies in tbe IT area.

7.4. Workingwith the commercial sector- outsourcing

11. Organizations generally receive best value using commercial products and services, if tbey CaDbe adapted to tbe mission requirements. Tbe common reasons foTconsidering outsourcing are:

.:. Proven, commercially viabie technologies are available only in the marketplace,

.:. "Standard" or "commodity" products are less expensive due to competition,

.:. Vendors often have specialized skills tbat are difficult to maintain "in-house",

.:. The agency can concentrate on the care mission (which is not IT project development),

.:. Competition can bring innovation to beaT on amission requirement,

.:. Risks can be shared with a vendor if the rewards are great enough, and

.:. Proprietary, or unique software or systems may only be available from a vendor.

12. Standard IT products are these having high market penetration, such as the personal computer, which have industry standard characteristics, and are available as commodities from a variety of sources. This category also includes some classes of software and netwerk service products such as computer operating systems, office software suites, same statistical packages, network portal services, and web hosting. These are the most likely candidates foToutsourcing not only the product itself, but aften the maintenance, update, and replacement.

13. Commercial sources are often used to do IT project development and implementation, or provide specialized skills (such as netwerk management, proprietary database knowiedge, etc.). This is clone where cost-effective and the designated tasks fit an organizational strategy for in-house versus out-house skins and responsibilities. The requirements fOTthis category are the most diverse, and vary not only fiom country to country, but also from organization to organization. Past performance and the experience of ether similar organizations can be the most effective aid in deciding the level, source and scope of outsourcing IT project development and support.

14. The accomplishment of amission requirement itself can often he competed through outsourcing, rather than simply competing various pieces. With careful construction of "proper government function" and protection of the information being handled, vendors can be given the incentive to accomplish an end result by innovative methods. Recent examples inc1ude the collection of delinquent taxes by commercial vendors, using a foTprofit business model to govern the contract. It is becoming more feasible to outsource or contract larger individual segments of government functions. See also Section 9.1.8.

15. Outsourcing can often allow the risks to be shared with a vendor, along with the rewards. Often a vendor can share in the benefits fiom implementing a project, either through rights to data andlor products developed, or receiving revenues fiom services provided, such as dissemination. This arrangemènt can give a significant incentive to a vendor to be successful and receive a return on bis investment in the project.

16. A vendor can offer a unique product, such as market leading software thai is effective enough to outstrip the competition. Careful market analysis is needed to be gure the acquisition of the product is justified and does not present excessive risks in its' application. In more specialized fields, such as Geographic Information Systems, this is often a requirement because of the dominance of single or a few vendors. This type of situation requires care not to invent something thai is much more cost-effectively available in the market, recognizing thai the commercial products may be unique andlor proprietary. Attempts at government specification of formats and standards thai these products must meet, bas often met with failure. Care must be taken not to create a sub-optimal solution to a problem best left to the creativity and competition of the private sector.

17. Finally, ene of the most vexing problems in outsourcing is maintaining a healthy, productive, and ethical business relationship with a commercial supplier. Too often, government

contracts provide significant penalties and "protections" foTthe governrnent to impose, but fail to recognize how to provide significant incentives for the vendor. Good practice is to decide in advance what success should be for a vendor, and then include that consideration in the design of the contract. Managing the business relationship in an adversarial way almost always leads to project failure at some point in larger IT projects. Conversely, most reputable vendors are in business for the long run, and understand that the overall success of a project is the most important objective. Finding or recruiting managers in the statistical agency with the skin and experience to effectively manage an outsourced function cao be almost as difficult as finding specialized technical skins to carry out the work intemally.

18. Regardless of whether outsourcing is used the likelihood of success of IT projects is greatly increased if it follows sound management practices. In the next section we win exarnine the extent to which such practices have been identified.

7.5. Sound IT project management practices

19. Because of the importance of IT and because the results of toD many IT projects have been so poor, a great deal of effort bas been applied lately in identifying good project management practices[79].These cao be summarized as:

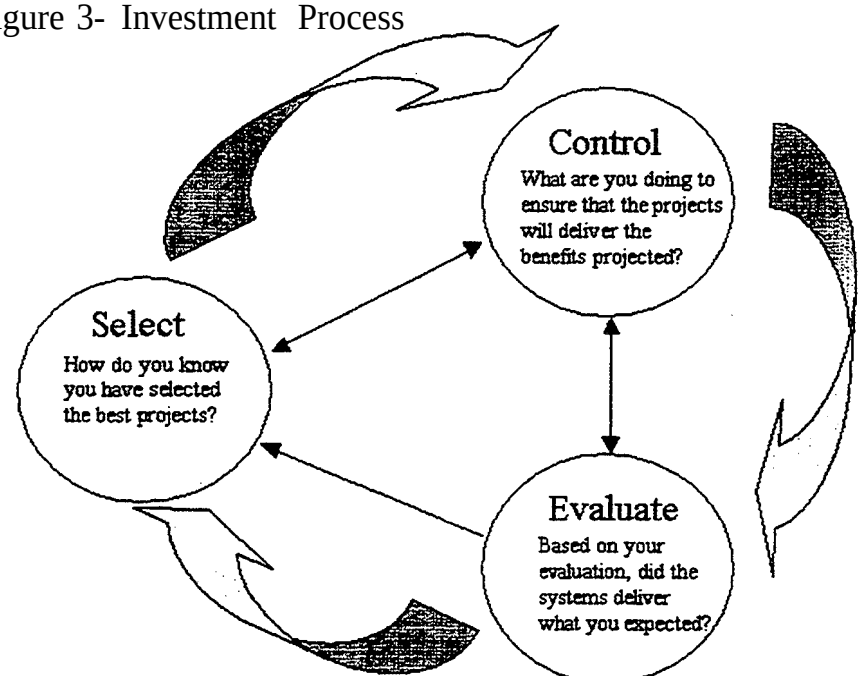
- Involving top-level management,
- Employing effective risk analysis in guiding direction,
- Avoiding leading edge technologies, opting for small projects, and
- Involving end users in project formulation and management.

20. The preparation of a detailed IT project plan is now common practice for invoking the necessary discipline to ensure that these practices are followed. The project plan is designed to analyse return on investment, identify risks and mitigation strategies, ensure modular development to avoid large-scale failures, and provide for oversight and review at crucial steps along the war. No sizeabie IT project should be undertaken without this management process being utilized - in the United States for exarnfole, the process is specified in detail in several laws governing IT budgeting and procurement [80]. This direction describes three major phases of the investment and control process for IT projects[81]:

- Selecting (screening, evaluating risks and return, and assessing how the project will help accomplish agency mission),
- Controlling (monitoring against costs, schedule and performance), and
- Evaluating (post implementation reviews, adjustrnents, and lessons).

[79] Management of Large Public Information Technology Projects, OECD Country Report, United States, October 2000.
[80] United States Public Laws 103-62, 104-13, and 104-106.
[81] United States Office of Management and Budget Memorandum M-97-02 and additional guidance.

Figure 3- Investment Process



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21. This management discipline bas, foTexample, been largely responsible for improving the success of larger IT projects in the United States Government over the past five years.

While this management discipline bas been found by others to be useful the only "certainty" that the cruer statistician can rely on is the changing Ir environment characterized by:

.:. Continua! availability of new and different IT capabilities and products,

.:. Claims by marketing organizations of amazing results in applying their products,

.:. Lobbying by internal staff who have become advocates of a product or specific technology in which they have become skilled and knowledgeable, and

.:. Continua! pressure to reduce costs and improve delivery of products.

22. Keeping an eye on how weIl commercial products are faring in the marketplace is critical to avoid ending up in a "blind alley" with an orphaned product. The larger vendors generally provide more stability and support of products over the long term, while many of the smaller vendors, who rely on a narrow product line, generally have more volatile business prospects.

When you have asolid technology management process in place in your organization, it is still a challenge to choose appropriate technologies to leverage the mission. Generally, it is best to:

.:. Avoid new or "immature" technologies,

.:. Assess results of others, who have already applied the product,

.:. Decide if tbe product is compatible with tbe existing infonnationltechnology architecture of tbe organization, and

.:. Assess tbe risks and price/perfonnance of tbe product.

23. Newand emerging technologies are notoriously difficult to assess in terms ofwh~n, or if, they wiIl mature and become mainstream products. In the 1980's it appeared that imaging technology for document storage and retrieval was just around tbe corner, and several large IT companies bet tbeir business furore on their emergence. They all lost, and thai market still struggles below most of the market projections for tbe technology. On the other hand, tbe worldwide computer access provided by tbe Internet, and tbe associated explosion of tbe technology beraad any projections made before 1995, is potent testimony to the power of a technology whose time bas come.

24. Learning from tbe experience of otbers witb similar business issues is also a powerful tooi - visiting other countries thai have adapted technology foTsimilar functions, and comparing their results can be very helpful. lt is aften difficult, however, to account foT differences in application and operating environment from organization to another. lt is critical to assure that when applied successfully in oae organization, tbe technology CaDbe similarly applied in another. Carefully inspecting the adaptations necessary to operate in anotber environment CaDmake the difference between success and failure during implementation.

25. Finally, before choosing to adopt a ncw technology, it is critical to assess the risks and determine, conservatively, tbe projected price/perfonnance. Remembering that the track record for such implementations is notoriously poor, it is crucial that managers be convinced that tbe IT project plan is complete and solidly demonstrates a successful implementation strategy.

Conclusions

The effective management of information technology in a Statistical Office is a careful balance of management discipline coupled with innovative application ofnew and progressive techno logies. Experience with the qigh rate offailure of these projects bas shown tbat the foUowingpractices cao significantly reduce the risk:

.:. Involving top-level management,
.:. Employing effective risk analysis in guiding direction,
.:. Avoiding leading edge techno logies, opting for smalI projects, and
.:. Involving end users in project formulation and management.

Additionally, a deliberate organizational strategy and management model for managing in-house versus out-house technical skiIs can best guide the long-term direction foTaccomplisbing the Statistical Office mission.

Chapter 8
INT ANGIBLES ASSETS

8.1. DermitioD

1. In this section we look at an agency's non-staff assets - its laws, policies, traditions, prestige, credibility in the eyes of the public as weU as its policies, registers, fi'ameworks, and nomenclatures.

8.2. The stamp of quality

2. A statistical agency must attach the stamp of quality to what it does. For this to happen, its stamp must be recognized. See also 2.2.3. The situation is similar to that faced by the producer of a marketabie product that wishes to differentiate itself nom competitors by instant recognition, assuming that the instant recognition is associated with sound construction, attentive service, and durability. The difference is that with few exceptions statistical agencies are monopolistic producersoffigures; the figures (at least the general aggregates) are neely accessible to the public and the statistical production process cannot he replicated by the majority of users.

3. A statistical agency's stock in trade is the recognition ofits name and the unimpeachability of the attributes associated with that name. Thus, the agency must be perceived to have the legal basis to intrude into the privacy of individuals, enterprises, and institutions; the integrity not to part under any circumstances with the individual information it collects in the course of its activities; the competence to use that information in order to derive the best possible estimates of aggregate measures; and the sense of responsibility to ensure that these measures are useful to the government and to the public at large. These attributes stem nom pride and respect for the agency's image, and sufficient legal competence to ensure that the agency works weIl within lawful boundaries.

4. In its adrninistration, the statistical agency shouId strive to make this posture universal among its staff. Larger agencies may even wish to devote a department to liaising with media and reviewing its reports, to ensure the maintenance of its public image.

8.3. The force of law

5. A favourable image is necessary to the functioning of a statistical agency, but insufficient by itself. Oftentimes, a statistical agency demands, not merely once, but on an ongoing basis, that respondents tolerate intrusions into their privacy and comply with its requests foT infonnation. When the same is desired by private agencies (e.g., those engaged in marketing), the cooperation of respondents is purchased or otherwise remunerated, and in any case is typicaIly infenor to what statistical agencies judge to be acceptable. Government agencies tend to operate invoking the efficient working of government and of the community as reasons to elicit information, but this presupposes legal basis.

6. The law has to define clearly why certain classes of information are required, what guarantees are offered by the statistical agency regarding how individual records are protected, and what penalties might be incurred by respondents who fail to provide truthful and timely

infonnation (see chapter 12 foTa broader discussion on what protection is typieally afforded to respondents).

7. A statistical agency will Deed to ensure that it bas bath a sound legal basis and the right image wiwithrespondents and users alike.

8.4. Policies

8. Who in a statistica! ageney answers a telephone eaU from the Prime Minister's Office? Who is responsibie foTmeeting the press the dar the CPI is released? Should an academie doing research on the premises be allowed aeeess to microdata, provided it is anonymous?

9. Such questions, while frequently posed, are not always answered consistently, or else consistency is more a matter ofhabit than any actua1poliey. There have been instances, however, where various practices and traditions are codified and brought together in ODepolicy manual. Usually such an exercise bas two objectives: to provide a standard of practices, thereby increasing consistency, and to question the wisdom and propriety of such practices in the process.

10. Maintaining policies, making staff aware oftheir existence, and ensuring compliance is a thankless job, which usually earns the incumbent (ifthere is one) frosty relations with the rest of the organization. However, if policies are not enforced, individual agencies will levert to old habits, weakening any possibility of continuity or consistency. It follows that this responsibility should be assigned to a trusted official who ensures that at appropriate intervals the matter is diseussed with senior officers so that they are kept abreast of goings-on within the agency and policies are revised if necessary.

Effects of codified policies

The existence of a code of policies bas several beneficial effects. In situations where tbere is a high tumover of staff, tbere will be ongoing pressure from outside organizations for special concessions, sucb as waiving of rees for services, early access to new statistical information, or access to material tbat onder normal circumstances would be regarded as confidential. If tbere is no relevant documentation to bolster tbe refusal of such requests, aod tbere exists a precedent of inconsistent reactions, institutional resistance to improper requests is weakened overall. Furthennore, the discomfort involved in appearing to he negative is considerably lessened iftbe agency cao show tbat it reviewed a particular situation, decided on a course of action, and stood firm on tbe matter by ensuring tbat all its staff are aware of tbe recommended guidelines. The position of an agency is strengthened even further if it CaD show not onJy tbst tbe stated poJicy is adbered to but also tbat it bappens to be a matter on wbich otber agencies worldwide have come to similar conclusions. Lastly, pubJic image is considerabJy strengthened if a spokesperson for tbe agency CaD show tbat tbere are written poJicies covering tbe particular matter being cballenged.

11. Because interests and concerns evolve in an unpredietable fashion, a statistical agency should maintain a store of available infonnation on a wide variety of topics. It is incomparably better to ensure that infonnation is interrelated and,. where it eneompasses different attributes of what is, hypothetically, the same population, the population in question is defined and measured in the same war. For example, it is far better to analyse net business fonnation with the knowledge that industry statistics apply to the same population than to make tentative adjustments for a different scope. Whereas in ODecase, energies are dissipated in trying to explain what the data show or fail to show in spite of statistical diserepancies, in the other case, analysis may proceed at once. However, it should be kept in mind that the design and upkeep of the special

tools required for this kind of integration constitute Jet another element in the statistical production process, with its own set of organizational implications. In the remainder of this section we consider a class of tools that serve to as integrating tools. That is, they serve either to integrate information and/or to integrate the functions ofthe agency itself.

8.5. Registers

12. *Handbook Rev.*]82bas a special section on registers, with particular emphasis on business registers, but there is little discussion about the appropriate location for these in the organization ofthe statistical agency.

13. The reasons are not difficult to fathom; at the time, the introduction of business registers in the production process was a novelty. It was made possible by two sets of circumstances: (a) some statistical agentjes were granted access to a computerized store of administrative information (in this case, information derived fiom tax records), and (b) 1argely as a result of the introduction of. database techniques, statistical agencies discovered that the computer could be used for massive processingjobs ether than international trade statistics or the census ofpopulation.

14. Today, the notion that a statistica1 agency must have a business register, a register of household addresses, a catalogue of location codes, and possibly a number of specialized registers (e.g., a farm register or a register of ocean-going vessels) is commonplaee. Therefore, there is little Deed to deseribe the eontents of such registers or why they are required. It is, however, necessary to discuss how they should be managed and where they should be located.

15. There are various points of view. One is that the business register should be located with the division of the ageney in charge of economie statistics, and the household address register should rest with the part of the agency in charge of soeial statistics. The speeialized registers should be managed by these who make the most use of them (the farm register with agricultural statistics, vessel register with maritime transport and foreign trade statistics, and so en). Another view places registers in a central organization within the statistical ageney, where it can be shown that their maintenance is an agency-wide service. Each method bas its advantages and disadvantages, and these should be known in advance.

16. Assume that the organization in charge of business or economie statistics consists of half a dozen units, each in charge of either an industry (manufacturing, mining, construction, business services, etc.) or a type of expenditure (exports, capita! formation, consumer outlays, etc.). Whether the register is placed at the very eentre of the organization as a corporale asset, or within the economie statistics organization, will depend a great deal on personalities and is therefore outside the scope of this bock. If they are to serve as integrating devices, it is important to keep in mind that:

.:. registers must be placed in a service unit;

.:. no single user organization is entitled to modify th~ eontents of the register; and

.:. the custodian of the register is ultimately responsibie for its integrity, the c1assifications assignments, and the definition of the statistical unit.

[82] p. 65

17. Where registers are looked upon as agency-wide assets, it usually best if their respective custodians are dependent on an intemal board, rather than exclusively on their hierarchical superiors. The composition of the board would include supplier organizations (e.g., those responsible foT the acquisition and deployment of tax and social security infonnation) and user organizations (all whose surveys are based on the agency register files).

8.6. System of National Accounts

"The system of national accounts and balances represents an [integrated set) of standard concepts and classifications applicable to the most important macro-data of economie statistics and characterized by the fact that aH concepts are inter-related within a system of definitional relations They represent a useful iTame foT developing statistics, facilitating the identification of gaps, and the setting ofpriorities in quantitative perspective .I is a great advantage for these integrating fiameworks to be developed in the central statistica! agency of a centralized national statistical service or in the co-ordinating body of a decentralized statistical service The unit responsible for elaborating the national accounts and balanees and similar integrating fiameworks should be assigned a particularly important duty in regard to data improvement and integration."

Handbook Rev.]83

18. The central role of the national accounts has become even more critical in today's statistical agencies, and its use in identifying weaknesses and gaps in basic statistics bas grown c1earer with the publication of the 1993 United Nations version of the system. There is no such widely accepted and powerful integrating tooI foTsocial and demographic statistics.

19. The management of the national accounts requires specialized skins and the c1osest of liaisons with its key users. Moreover, the fale of the economie accounts extends beyond the production of data on the condition of the eeonomy at regular intervals. Part and parcel of the task of estimating the braad macroeconomie aggregates is the related task of taking inventory and organizing the corresponding basic economie statistics. In those cases where a specialized agency is exclusively responsibie for the economie accounts-the Research Department of the Centra! Bank, foTexample-it wiIl have a central roie in guiding the statistical system.

20. In some organizational models the unit responsibie for the compilation of the national accounts is separate from its counterpart in charge of basic economie statistics. In this situation, it CaDbe far more difficult to signal gaps, point out weaknesses, and generally exercise leadership when reporting to different supervisors.

8.7. Central review and control of questionnaires

"[These two functions are] essential to integration. The subject matter divisions of a statistical agency should as a mIe be responsible foT the content of questionnaires and should werk in co-operation with the functional units, especially those responsible for methodology, survey design, and data processing Before a questionnaire is put to use, a central authority should ensure thai certain requirements are satisfied as regards integration, efficient data processing, editing requirements, and obligations towards the data suppliers. First and foremost, it must be determined that the concepts and cIassifications applied conform with the standards established 50 thai integration is facilitated..."

Handbook Rev.]84

[83] P. 68

21. These words are as relevant today as when they were fiTstwritten. Moreover, to facilitate integration, the statistical agency should ensure that questionnaires are written in a language that respondents can easily understand, and which accordingly minimizes response error. In larger agencies a specialized unit may be established as an agency-wide service, devoted to cognitive research and to efficient questionnaire layout. Moreover, a unit devoted to these matters is ideally suited to conduct studies of equitable response burden.

8.8. Nomenclatures and classifications

"Unless concepts and classifications applying to severaJ subject-matter areas of statistics are standardized within a coherent logical system, statistical data cannot he structured to meet the needs of users for aggregated data or for compatible information trom various fields .stadard definitions are needed for various items, for example, urban population, iIIiteracy, wages received, industry, agricuJtural holdings, etc The general use ofstandard definitions is essential for compatibility of different data referring to the same subject Standards that are to enjoy general acceptance should be formulated in consultation with specialists in the respective fields. Technical committees are the most appropriate instruments for this work. IHowever,) the responsibility for imp)ementation should rest with the chiefs of the subject matter divisions; a separate central unit... must monitor the implementation. IThe] uniform implementation... and the maintenance "of coherence among them, require continuous attention and negotiation with the suppliers and users of the data. This is particularly important in countries undergoing rapid changes and economie development."

Handbook Rev.]85

22. The organizational elements specified in the earlier version of the *Handbook* are still required for effective coordination today. They consist of a centra! unit charged with the dutyof promulgating standards and monitoring their implementation to ensure coherence within the system; atechnical committee to iron out difficulties and ambiguities in implementation; and a negotiating mechanism to ensure that users and suppliers of data fully comprehend the standard. In light of today's experience, the requirement for international comparability requires further discussion. Political unions, customs unions, Free Trade areas, and the global character of foreign investment aUrequire that statistics (and particularly socio-economie statistics) be expressed in the same language. The failure to use internationally comparabie standards should be regarded as a deficiency in the organization of a statistical service. By the same token, the organizational elements required foTthe effective coordination of c1assifications, nomenclatures, and concepts must include a division in charge of ensuring that what is adopted nationally is comparabie with that adopted by other countries.

8.9. Finance

23. A unit in charge of finance is necessary to the proper functioning of a statistical agency, for obvious reasons. It should not be set up merely as a unit in charge of bookkeeping, but rather as an analytical unit (because upper management requires fmancial advice several times over the course of a year) and as a legal unit (there must be an in-house legislator capable of detennining the permissibility of expenditures).86

24. The administrative unit in charge of finance has as its natura! functions the keeping of a logbook info which it enters cash and credit receipts and expenses. Registration and annotation of

[84] P. 67
[85] Pp. 67 and 68
[86] In a number of countries there is no choice in this matter. The respective Public Service legislation demands that such a unit exist and assigns it specific financial and legal dutjes.

transactions will be conducted in compliance with locallegislation, and in a method such that the results CaDsatisfactorily pass inspection by the government auditing services.

25. ODe obvious function of the head of financial services is thai of making recommendations as to what are legally mandated expenses. In addition, the director of finance should be the most significant source of advice with respect to proposed expenses that, while they appear to be reasonable, may not meet alllegal restrictions.

26. Statistical agencies commonly run into situations where, through lack of financial foresight, expenses must be prematurely curtailed, without regard foTthe effects of such abrupt reductions. This is generally the case when, just prior to the end of a fiscal review, the head of financial administration realizes that certain obligations will not be met unless same sacrifice is made at once.

27. Sometimes, it also happens that financial administrators find that at the end of a fiscal review, the agency possesses a considerable portion of its resources. In such a case, ene might impulsively look for a way to spend them, so as not to arouse suspicion. However, arbitrary spending can be more pernicieus than hurried measures to curtail expenditure, lead to pOOT managerial decisions and to waste ofthe public treasury.

28. lt fellows that the chief statistician win require advance waming of expected gaps between expenditures and resources unless measures are taken weIl in advance and on the basis of gelid preparation. To fulfil this requirement, the financial administration unit must have the information base and the analytical capacity to provide such advance warning.

29. No matter how small the agency, it is seldom the case that the information base required to provide reliable estimates can be organized without help fiom al} those with managerial responsibilities. Accordingly, the custom of taking part in financial forecasting and calculating rough but serviceable ideas on expenditures is ODethat should permeate the agency. In a number of offices it bas been observed that that the quaIity of financial management goes up substantially if responsibilities and accountability are devolved.

Conclusions

A statistical ageDcy depends on a number of capital assets, some of which are intangible: classitications, lists of Dames and addresses, methodologies, policies determining proper procedure. Some assets are designed to achieve efficiency of the agency's operations, such as computers, others are created to promote the integration ofthe agency's products, such as the natjonal accounts and other databases. However, the most important assets of a statistical agency are its people and the knowledge base that they represent.

It is important that aIl the agency's assets are kepi in the best possible condition. Therefore, successful human resource management is probably the key factor tor any statistical agency's performance. However, other tangible and intangible assets siso Deed continuous conceptual, technical and operational maintenance and when the time comes, replacement. To achieve ibis, good management and effective organization are needed to take the necessary precautions, tinancial and intellectual, in order to renew assets when their condition demands it.

Chapter 9
MANAGING THE CORE FUNCTIONS

9.1. Essential Functions

1. An important question to ask is whether it is possible to define the essence of a national statistical office. Is there an irreducible set of functions that -- if not performed by a statistical office --would invalidate its claim to the title of a national statistical office? Which, if any, of the functions of a national statistical office CaD he performed by the private sector without compromising the credibility and integrity of government statistic? With little fear of overstatement it CaDhe said that these questions are fundamental to any consideratipns of organization and management. For these reag~nswe shall, in this section, consider these questions and provide some possible answers.

2. We begin by listing these functions that are commonly attributed to a statistical office. These include:

- Planning
- Executing and Processing
- Analysis
- Dissemination
- Coordination and Standardization

Let us consider for each of these functions the extent, if any, to which they can be outsourced.

9.1.1. Planning

3. Planning is the transformation of a policy question or ether type of request for information into a series of steps that will result in the desired information being made available within the specified parameters of time, quality and budget. It may be that the actual plan itself is dev~loped outside the government. Ibis would include decisions on models to be employed, use qf over sampling, stratification and coverage. However, there is an inherent rele of the statistics agency here. It is the national statistics agency, which must have credibility and an unbiased professional reputation so that they CaDensure that the plan is developed without faveur to any politician party or special interest group, and is only subject to choices based on the highest professional standards. In fact, in many countries the details of, for example, a survey plan is carried out by the private sector. The expertise and standing of a national statistical agency is necessary to provide public confidence in the data collection.

9.1.2. Executing and Processing

4. The execution of data collection projects is increasingly being carried out by the private sector in developed and developing countries. Of course, in many developing countries the execution and processing of data collection activities - census, survey andlor administrative records - was and is often carried out by international agencies. As with the planning function

there is nothing inherent in the execution function that would require that it be carried out by the national statistical agency. As with planning, however, there is a key rele of the statistical office, which cannot be given to these outside the government. The national statistica! office must ensure that the data coHection is carried out in an unbiased way, that confidentiality is assured and that decisions are made only on professional grounds. This is not to denigrate these outside government but rather to reinforce that aspecific rele of these within the government is to uphold public trust.

5. At this point it is important to consider foTa moment the question of confidentiality and how this can be maintained if the government statistics office is not carrying out the execution and processing of the data coIlection. ene of the most important principles of official statistics is that the privacy must be respected and confidentiality of identifiable data maintained. It is the function of the statistical office to ensure this. However, this can be accomplished even if the statistical office does not control the data. For example, when a contract is written for an organization in the private sector to coHect and process data it can be made part of the contract that the confidentiality of the data must be protected. These provisions may be very explicit and can incur severe penalties if they are violated. There are cases, in the United States foT example, where the legal provisions protecting the confidentiality of data are strenger than same of these foTgovernment statistical offices.

9.1.3. Analysis

6. Analysis is ene of these functions that should he carried out by the national statistica! office and by these outside the government. lt is important to the intellectuaI vitaIity of a statistical office that memhers of its staff critique the process and models used to produce the data as weIl as discuss the strengths and weaknesses of the data. This is important for the growth of individuaI staff members and to the office in its quest to improve the quaIity of its data. However, it is also important that these outside the government do their own analysis. This is vital to informed public policy debates and to provide critiques that the statistical office can use to make improvements.

9.1.4. Dissemination

7. As with the ether items discussed above this is an area where, in many countries, the private sector is already engaged in the dissemination of statistical data and information. In same cases the products that are disseminated are basic statistical information and in ethers the vendor provides a value added service. This may he in further analysis of the data or in integrating the data with ether information. What then is the rele of the statistica! office? While a statistical office may not disseminate all statistical information (it may not even be the primary source) it does have an obligation to ensure that fundamental statistical information is provided to alt segments of the society on an equaI basis. Depending on national practices this may result in the statistica! office providing the information itself and in ether cases assisting the private sector to provide the information. This principle holds despite differences of opinion (discussed in section 11.3) on whether statistical information is to be provided at the marginal cast of dissemination or whether it is permissible to provide same statistical products at market rates. While the private sector may be used as a vehicle foTthe dissemination of statistical information the national statistical office bas an obligation to ensure - either directly or through ethers - that statistica! information is disseminated.

9.1.5. Coordination and Standardization

8. This last area is ene in which there is general agreement that this is uniquely a government function. This is true regardless of whether coordination is among ether functional ministries or decentralized statistical agencies. It would simply not be possible for a non-governmental agency or the private sector to accomplish this kind of coordination. To do so would unalterably blUf the lines between govemmental and non-governmental activity and change the very definition of govemment. For similar reag~ns it would not be possible for anyone but the national statistical office to be able to participate with ethers in the international statistical system in the development of global standards. No ene outside the statistical agency could lar claim to an unbiased position or wouldhaveits credibility.

9.2. Survey and census

9.2.1. Introduction

9. Even when a statistical system is substantiaIly decentralized and a powerful public sector body - for example, the economie policy division of the Ministry of Finance - is in charge of the compilation of key economie statistics, the expected pattern is for the statisticaI agency to be in charge of most or all survey taking. The reason for this practice is partly historical. An office in charge of the census of population that continues to operate after the census activities are complete, bas the capability to undertake surveys. In most countries, survey-taking is regarded as a fairly technical and speciaIized activity, but it lacks the prestige that might make ether agencies want to incOIporate it into their own programs. Moreover, ether agencies would not have the appropriate infrastructure to take it over.

10. While statistically not a 'survey', the Census is obviously the flagship product of statistical offices when it comes to their capabilities in 'survey taking': a Census is complex, costly, visible, politically significant and/or sensitive and bas to he completed within strict time-frames. Therefore, good management of the Census is critically important.

11. Many documents deal with the management of a census of population, including detailed reports on actual experiences of census-taking87.

12. Census and survey data are complementary in a statisticaI system. Data from surveys are usually more complex than the basic data collected though a census. They are orten used to expand on the characteristics of census topics (plus additionaI topics) and to measure change between censuses. Census information on small area populations is used to design sample frames and selections for the survey units. While survey programmes may collect different information than the census, there are usually several topics that are common to both. Therefore, to maximize the use of the data from both sources, it is important that there is standardization of concepts and definitions for these common topics.

87 Tbe United Nations Statistics Division bas developed a series of handbooks and guidelines to assist countries in tbeir preparation for tbe 2000 and future rounds of censuses. Tbis includes tbe *Prineiples and Reeommendations lor Population and Housing* Censuses, United Nations publication, Sales No. E.98.XVII.8, tbe *Handbook on census management lor population and housing eensuses,* United Nations publication Sales No. E.00.XVII.15, tbe *Handbook on a Geographie Information System and Digital Mapping for Population and Housing Censuses. United Nations publieation,* Sales No. E.OO.XVII. 13, tbe *Handbook on Population and Housing Census Editing,* United Nations publication, forthcoming, and tbe *Guide lor the Colleetion of Economie Charaeteristics in Population Censuses,* United Nations publication, forthcoming.

13. Ofthe three kinds of data collection: ongoing recurrent routine surveys (e.g. the monthly CPI and the monthly/quarterly Labor Force Survey etc.), ad hoc new surveys of same complexity and last but not least censuses, the latter two kinds demand particularly strong management methods. The modality that is favoured these days is so-called project management.

9.2.2. Project management

14. The idea owes much to the construction industry, which adopted it long ago to carry out complex projects. Like a civil engineering or construction project, a statistical survey is carried out over a long period of time, and it requires, throughout the process, active participation on the part of representatives trom a variety of disciplines within an organization.

15. The creation of a project follows a recognizable pattem: the statistical agency recognizes a priority and decides to embark on a survey; the subject matter unit (department, division, branch) best suited to head up the initiative is given the budget and the leadership fale (and, one would hope, a schedule and limits on expenditure, content, and maximum inflictable response burden); a project leader is appointed and proceeds to subcontract with intemal, and at times extemal, providers of services required to carry out the survey.

16. The intemal providers of surveys are referred to in this chapter as the various "capabilities", which must he built info a moderately sized statistical agency. For very small offices, one officer would possess several of these capabilities.

17. The survey capabilities include several units-{)ne in charge of respondents relationship, one in charge of survey design, field operations, estimation, evaluation, etc., and one that is ultimately responsibIe foTlaunching and operating the survey once it is prepared.

18. Apart fiom common sense, an indispensabIe element of any farm of project management, there are nowadays several widely used techniques available, including supporting software, to help project managers run a project. An example is the Critical Path Method (CPM), a procedure foTusing network analysis to identify those tasks, which are on the critical path, i.e. where any delay in the completion of these tasks wiIllengthen the project time-scale, unless action is taken. For all tasks off the critical path, a degree of tolerance is possible (e.g. late start, late completion, early start, etc.). Network charts and CPM analysis used to be carried out by hand. Software is now available which requires the user only to enter the tasks, duration of each task and dependencies upon other tasks; a network chart and CPM is then automatically created. Decision trees are another excellent tooI foTmaking fmancial or number based decisions where a lot of complex infonnation needs to be taken info account. They provide an effective structure in which alternative decisions and the (quality) implications oftaking those decisions can be laid down and evaluated. They also help to farm an accurate, balanced picture of the risks and rewards thai can result fiom a particular choice.

19. If a statistical agency is big enough - and the project of sufficient duration --to support a multi-disciplinary project, formally constituted, with a proper mandate and well-defined objectives, the responsibility will probably be delegated to a Steering Committee. Such a committee is expected to include the principals of the various disciplines represented on the project team and anyone else who can assist in formulating policies foTthe project and assessing whether it requires a change in direction or in terms of reference. The Steering Committee should be able to meet as aften as the project manager requires but should not meddle in the day-to-day

operation of the project (quarterly meetings may be an acceptable norm). In the case ofvery important projects, the chief statistician may choose to git on the Steering Committee, but not necessarily as lts chairperson.

20. There is a discipline involved in the creation and operation of projects, which takes some time to acquire. One must recognize that there is a difference between the routine operation of an organization and developing an organization's functions or activities. Projects are concemed with the latter.

21. Whereas the existing hierarchy-chiefs, directors, etc.-is accountable for the ongoing management of the organization, the project manager's accountability is limited to the duration of the development of the project. Once the stage of development is over, the project manager hands over the project and project team and disappears as an organizational entity.

22. The project manager is appointed for a finite period and receives objectives fIom the chief statistician (or a delegate), including specification of the characteristics of the measuring instrument, a schedule, and a budget.

23. In theory the project manager could be selected ttom a hierarchica1level inferior to that of other members of the project. In practice, this is not clone simply because it creates a gap that might impede the freedom of action that the project manager requires.

24. For their day-to-day activities, the other members of the project wiIl work outside the authority of their usual chain of command, taking instruction and guidance fIom the project manager. If the project team members' superiors wish to intervene, or even to make inquiries, they should communicate with the project manager.

25. The list of disciplines represented on any project wiIl of course vary with lts nature, size, and complexity. The planning list for the census ofpopulation can be used as a checklist for what is required in any project. Thus, even a moderately sized project wiIl include supervisors of questionnaire design, content definition, sample design, supporting computer systems, fieldwork, respondent relations, project finanees, and intemal communications88.

26. The specialized knowledge required foT development purposes wiIl be supplied by the project team members. Their leader's primary task is to ensure that the plan to meet objectives has integrity; that adjustments to the plan take place whenever circumstances warrant; that there is no over-expenditure of resources; that members of the team keep each other properly infonned; that there is no duplication of effort; and that there is working machinery to settle conflicts and differences of opinion. While it may be helpful, it is not necessary for the project team leader to be an expert in the subject of the project. The ideal team leader of an ad hoc project team would be proficient in the subject matter, knowledgeable about management techniques such as budgeting and critical path analysis, an excellent communicator and be able to empower others and generate trust among the team members. Of course, finding anyone with all of these abilities and skills is virtually impossible. Therefore, while realizing that aHof these abilities and skills are important the decision in choosing a team leader is which are more important than others. This is

[88] Very few projects with the exception ofthe census have the Deed, time, or resources to document their own history and negative experiences. However, without a tradition of documenting experiences, a project cannot benefit trom previous successes and failures. Dra! history, though sometimes helpfuI, CaDsIso be a means of miscommunication through anecdotes and distorted recollections.

orten a matter of judgment but it is probably wiser to choose someone strong in management but weaker in substantive skills than the reverse. The team leader should be a first-rate coordinator, manager and diplomat, methodica1 and weIl organized, inventive but not excessively prone to risk taking. It is important, however, that the team leader not be devoid of substantive skills lest they become a figure of fun because of excessive ignorance of the subject covered.

27. Discipline must above all be imposed on the organization's established hierarchy. It should not interfere with the project manager either directly, or through attempts to give the project team members guidance in addition to, or in opposition to, that given by the project manager.

9.2.3. Working with project staff

28. In any project leading up to the taking of a survey, from design onward, the project manager will be required to deal with staff reflecting at least three very different perspectives. First, there is the subject matter staff, who interact with users; transform user problems into measurement projects; and are mostly in charge of evaluating the survey results and interpreting them on behalf of the user. Their perspective is driven by the notion that surveys should yield statistics that inform the user on particular problems. In fact, foT subject matter statisticians, rewards are derived from having successfully niet the expectations of users. This is true even if there is no strong dividing line between users and respondents.

29. Secondly, there are the survey statisticians[89] whose function is to ensure thai the measurement bas the right quality attributes. Their task is to ensure that if there is bias in the measurement it is understood, thai the inferences are only those, which are supported by data; that the methods used stand up to scrutiny and are properly documented and accessible. The community thai survey statisticians interact with is ODe thai is mostly interested in methods rather than in the result of any particular project. The rewards come from thai same community, mostly academie and devoted to theoretical and applied research.

30. Third, there is the field organization, the particular arm of the statistical agency that deals with contacting respondents, and promptly and courteously dealing with any complaint arising from lack of c1arityor excess burden.

31. Obviously, these three groups (in simple cases, they could be three people) win embody different points of view and have different priorities. The subject matter experts win be largely concerned with speed (as they are the ODeswho look after the budget) and with the relevance of results to the issue thai provided the impetus for the survey. The survey statisticians, acting as the statistical conscience of the agency, will be most concemed with the integrity of the selected sample and with consistency in the administration of the survey interview. And the field organization will insist thai good will must not be abused, regardless of the importance of a particular survey.

32. Usually, these three perspectives yield lively discussion in the course of any project and at times create tensions, which must be alleviated. There are a few "do's" and "don'ts" that should be made clear if the project management process is to go forward productively and efficiently:

[89] The tenn "survey statistician" mentioned here is used as synonym for mathematical statisticians. It comprises those statisticians nonnally responsible for the design of a sample, the estimation ofthe results together wîth the sampling error, etc.

.:. The project manager was chosen because he/she had the confidence of the agency's management, and should therefore be neither second-guessed nor overridden. If hislher performance does not inspire confidence, areplacement should be made.

.:. Project team members should not lobby their respective organizations to challenge the project manager's decisions. Only ODœntity can be accountable and granted decision-making authority.

.:. Coinpromise is essentia!. Most decisions wiIl reflect compromises and wiIl vary according to the relative importance of each of the different perspectives-subject matter, statistica!, respondent-at different stages in the history of a project.

.:. Vesting the power of taking decisions in the project manager does not imply that he is aIl knowing and infallible. AH members of a project should he encouraged to seek advice, particularly when arguments appear to be fmely balanced.

33. In order to make the project manager's job viabie there bas to be an on-going dialogue among all members ofthe project. Ifthere is lack ofbalance hetween the understanding brought to beaTby survey statisticians and the subject matter body with which they interact there may be a serious management problem for the project with, at times, wider and unfortunate repercussions.

Typical problems experienced by Project Teams and created by different perspectives

lnternal Perspectives: For the purpose of this example, Iet us assume tbat a project manager is in charge of an initiative designed to measure the environmental impact of the packing of consumer goods (whether recyclabie materials are used; how packing waste is disposed of; the impact of public sorting devices on tbe disposal of waste, etc.). The most efficient use ofthe statistical agency's infÏ"astructureis to have tbis new surveyaccompany the existing labor force survey, and begin the interview with survey questions on the environmental impact of packaging of consumer goods. This would be efficient as the environmental survey is shorter tban tbe labor force survey. However, the environmental survey requires the respondent to keep a diary, which may affect tbe willingness oftbe respondent to cooperate in the labor force survey. The head ofthe field organization knows tbat bis performance will be judged most of aUby bis ability to carry out tbe labor force survey, and tbat success witb tbis new survey is secondary. Accordingly, in this hypotbetical situation, he argues tbat the preferred option is to keep tbe new survey separate, and iftbere were good reasons not to proceed in tbis fashion, tben the survey would be kept only as an add-on, to be administered aftel the labor force interview is successfully concluded. Botb options, though preferabie in the eyes of the field organization, are inefficient trom the point of view of the project manager. The first is too costly; the getond runs tbe severe risk of increasing the non-response rate beyond the limits imposed. The project manager is clearly in charge of a limited initiative. But interaction with a service provider tbat takes a broader perspective is bound to produce conflict and caU foTa higher level of mediation.

External perspectives: In tbis example, a Ministry ofTourism requests tbat the statistical office conduct a survey on tbe number of arrivals and departures and on the related expenses during tbe tour. The Ministry of Finance, responsible foT the balance of payments statistics and conscious of the fTagility of the travel account in tbe balance of payments and of its importante in explaining fluctuations in the CUTTeRalance, supports the demand and offers to co-finance it. The project manager in this hypothetical situation loges many nights' sleep because the two sponsoring agencies cannot agree on the possible interpretations of the priorities listed as part of their contract with the statistical agency. The statistical agency, anxious not to forego an important opportunity, agreed to fonnulations that tumed out to be too vague and did not specify a protocol fOThow sponsors should behave during tbe execution of the project. As aresuit, and in spite of the fact that tbe statistics on tourism improved, bath tbe Ministry of Tourism and the Ministry of Finance feel that their goals have not been met; neither bas much faith in the technical competente ofthe statistical agency although both agree tbat it treated the results with moral integrity; and no party bas the energy or the resources to make another attempt, even though the survey sample was limited in size and scope. To avoid a conflict such as this one, the statistical agency should (a) attempt to lar out aUthe "don'ts" it should have leamed trom the fiTstexercise (b) it should demand an agreed-upon list of o~jectives in line with the budget; and (c) above all, it should insist that there is a commonly agreed-

upon definition of !he goals of the project

9.2.4. Working with respondents

34. Part of a survey capability is an established relationship with respondents which comprises a way of: (i) finding them; (ii) explaining to them why they should be willing and truthful respondents; (iii) persuading them to comply - without necessarily threatening them with legal actions; (iv) dealing with complaints in cases where surveys are toa lengthy, unclear and continuous. Naturally, none of tros is attainable without a survey organization that includes a respondent relations department, entrusted with the following duties:

.:. to handle the public relations required foTpotential respondents to understand why they have been selected, what is asked of them, and what is the public good that is served as a result of their co-operation

.:. to exercise special care and take all the required precautions in cases where the announced survey is either unusually long (for example, surveys offamily expenditure) or unusually intrusive (for example surveys ofharmful drug consumption and surveys offertility)

.:. to keep a register of respondents contacted and survey interviews completed so that recalcitrant respondents can be identified and persuaded to participate

.:. to share information with respondents, so that they feel not only that they have made a contribution to the public good but that there is same personal benefit as well

.:. to have the resourcefulness, presence of mind, and necessary information to find altemative respondents in cases where there is strong resistance to the survey or where the original respondent can no longer be located9O

35. Accomplishing these tasks requires tact and diplomacy, together with firmness and determination. There will always be people *in* either the household or the business sector who wiIl refuse to comply, no matter how good a case foTco-operation bas been put forward. This situation cannot be avoided and the officer in charge should not assume personal responsibility for a small percentage of such cases. However, if the rate of refusal appears to be increasing, procedures and methods should be examined, foTtros may reveal a serious inadequacy in the methods adopted91.

9.2.5. Repository of statistical expertise

36. The capabilities that a statistical agency must have if it wishes to be recognized as the repository of statistical expertise and the rightful custodian of the official national statistical infrastructure include:

[90] Strict methodological guidelines should be in place to ensure that such replacements do not compromise the propriety of the original choice.

[91] Failure to address the respondent in his/her language, or with the accent or intonation prevalent in the region or province, could ruin the chances of success for even the most unobtrusive of surveys. Excessive zeal in pursuing recalcitrant respondents in a small community can just as easily ruin a survey conducted in the area.

.:. the capability to design a comprehensive survey that takes into account sample selection; survey design; estimator choice; estimation method; and calculation of variances and sampling errors

.:. the capability to design a questionnaire with properties that minimize the respondent burden while recognizing the importance of minimizing cognitive errors that could arise from lack of clarity in the questions

.:. the capability to relate collected information to concerns that drive users to solicit information fiom the statistical agency

.:. the capability to analyse information that has been collected (and is about to be disseminated) so as to maximize its informative role

37. These capabilities must be held by some part or parts of the organization. Logically, the more technical capabilities-sample survey design, estimation techniques, and advice on drafting and questionnaire layout-should be the responsibility of one organizational unit, in order to promote coherence in the agency's survey activities. Questionnaire content and substantive processing of the information collected should be the responsibility of another part of the organization. Designating responsibility foT analysis of survey results is largely dependent upon the availability of analysts and on the way in which the statistical agency cooperates with outside specialists (if at all). Conventionally, all issues relating to content-interaction with users, detennination of the schedule foT data collection, financial arrangements to support the initiative (particularly if sponsors are involved), and tabulation and accompanying analysis-have been the domain of the subject matter staff. Finally, the field organization is charged with the responsibilities of establishing contacts with respondents and ensuring that they react favourably to the initiative and provide the right kind of information.

9.2.6. Flexible survey taking capability

38. It is commonly alleged (and there is truth behind the allegation) that statistica1 agencies are slow in reacting to requests foT vitally important information. In fact, the lags involved in responding with hard information, particularly information that includes a measure of the rate of change, are aggravated by the typica11y vague formulation of the requests. Such undertakings do take considerable time, but while the lags can be accounted foT and seem natural to fellow statistical practitioners, it can be difficult to get users to understand why it takes so long to conduct a survey and disseminate the results. To respond to such ad hoc challenges, a valuable survey taking capability of statistical offices is a unit that is able to mount a quick survey, either as a fiTst instalment on a more permanent effort, or as a one-off exercise.

39. One way of deploying such a unit is to assign to it the responsibility of all feasibility tests in a statistical agency, so that its staffbecomes accustomed to launching quick efforts designed to settle basic questions, preceding what might be a more substantial survey. The mission ofthis unit might be to survey a given number of respondents (households, businesses, or people in govemment or in public institutions) in a set amount of time (e.g., a maximum of sixty or ninety days). By developing such a capability and periodically demonstrating its power and scope, an office could greatly increase its credibility and gradually establish pre-eminence in the field of statistics

9.2.7. Administrative records

40. A statistical agency should not automatically initiate a new survey in response to every demand for information. Rather, it should systematically attempt to react to new demands by exploring how they might be satisfied using regularly col1ected data or, failing that, by examining whether the administrative records already in the hands of govemment can address the new request, at least to some degree. Whether or not, or rather to what extent administrative records can he used to replace or to supplement statistical survey information, is a very complex issue and the answer also depends very much on specific national situations. Statisticians tend to be wary of the quality of administrative infonnation, in tenns of concepts and coverage.

41. Nevertheless, the attractive features of administrative records are that they are to be collected or have been collected anyway. lt is probably true in many countries that some administrative records, e.g. tax records, have a very good coverage of parts of the population, and that the rate of response is substantially better than that achieved by a statistical agency. Moreover, there is always the possibility of improving on the information yielded by those records by supplementing them with data obtained fiom a much smaller sample of respondents.

42. If these advantages are recognized, it follows that in some part of the statistical agency, preferably ODethat is set up alongside the field organization, there be staff charged with the following responsibilities:

.:. keeping abreast of holdings of administratively collected data by other parts of government

.:. evaluating each new request to detennine the extent to which it CaDbe met without resorting to a new or expanded survey

.:. negotiating with the custodians of the relevant information to determine how it CaDbe shared within the legal framework imposed on govemment information activities

Conclusions

A statistica! system requires the ability to cany out censuses and surveys. This capability is simultaneously based on doing what is necessary to carry out regular surveys as weil as having tbe people, techniques, and organization required to develop a new survey instrument and to deploy it successfully. The chief statistician must also give careful consideration as to which, ifany, care fonctions should be outsourced.

The most effective organization for managing large incidental surveys is tbat of the inter-disciplinary project, in which, under a specially appointed project manager, the organization's service providers contribute tbeir resources proportionately.

The project manager must interact with tbe service providers; at times tbere will be obstacles, partly doe to different perceptions of what constitutes success and to various opinions on the best way to solve problems. In designing the organizational ftamework for development projects, the chief statistician wil! take those obstacles into consideration and will establish a pre-emptive conflict-golving mechanism.

Usually the project manager wil! report to a teteering Committee, an *ad hoc* organization called upon to assist in interpreting, and ifnecessary chaRging, the project's terms ofreference.

In addition to capacity for the execution of a regular survey programme, it is advisable to develop a rapid response capability in order to show sensitivity to emerging ad hoc requirements, while continuing te' use discretion before committing to costly and cumbersome surveys. Access to administrative records at all times is

desirabie, not only to promote rapid response, but also to preserve tbe good wiJl of potential respondents.

Chapter 10
FIELD ORGANIZATION

10.1. Interaeting with respondents

lO.I.I. Introduction

1. In this chapter we consider how an agency should he organized in order to deal efficiently with respondents to statistical inquiries.

2. One method is to invest in the creation and inaintenance of a working field organization. By definition, a field organization interacts with respondents to communicate the agency's Deed for information; elicit relevant information in the correct farm and at the appropriate time; maximize respondents' cooperativeness and goodwill; and adequately explain the consequences of refusal.

3. As far back as the 1952lnterregional Seminar[92], participants representing statistical offices of all sizes in bath developed and developing countries reached the conclusion that if anything was worth managing according to function, rather than subject matter, it was the field organization. AU participants shared a similar opinion regarding the census of population-the census itself cannot he managed without an effective national field organization, and once created, that organization can he put to use at low marginal cast in undertaking other surveys.

4. Two factors can alter this straightforward conclusion. Same countries have a geographically decentralized statistical system, not out of choice but out of constitutional imperative. If the central statistical oftice's fale is limited to assembling results compiled elsewhere, issuing coordinating guidelines, and perha~s surveying its immediate surroundings, the issue of a national field organization does not apply. [3] On the other hand, if the individual states, provinces, or cantons that make up the decentralized system conduct multiple surveys, same of which are carried out on a continuous basis, they will tend 10 have a field capability organized by function basis.

5. The reasons are straightforward. Economies of sca1e exist in recruiting, training interviewers, managing a large workforce, ensuring that embarrassing duplications are avoided, and preventing under-utilization of the workforce by drawing up permanent, long-term, and short-term contracts. These arguments were recognized fifty years ago and continue to hold today.

6. Suppose that the field organization is established on a permanent basis, in charge of the collection operations for all surveys (except those carried out through direct contact between subject experts and respondents). ODe of its chief assets is its location in different parts of the national territory. In asense, the field organization acts as the local eyes and ears of the central

[92] Interregional Seminar on Statistical Organization 13-3 I October 1952 Ottawa and 2-6 November 1952 New York.

[93] In several 80uth American countries, tbe scope of many statistics based on surveys is limited to tbe national capita!, and so coordination is more or less assured through cooperative initiatives witb tbe otber levels of government. Tbe custom in same of these countries is that each survey manager handles tbe survey's field force.

office.94 Many field organizations are therefore organized so as to strategically distribute resourees throughout a nation, while maintaining a eentrally loeated eeU in charge of coordination and liaison. The central ceU's responsibilities are critical. It serves as the day-to-day link between the decentralized network and the management of the statistical agency; ensures that the different offices of tbe field organization work as a system rather than as a loose eonfederation; and serves as the point of contact for various project managers to convey their wishes, doubts, and complaints to local offices.

7. Tbe field organization should be a key participant in a standing committee tbat settles differences of opinion on how to approach respondents. If the field organization believes tbat a recommended approach to a particular survey threatens respondents' goodwill, it should be able to express its concern to the agency's upper management. If the issue is to develop an approach to tbe census of population or any other major census, the field organization wiIl take part in discussions at tbe highest level.

8. Of course, the existence of a field organization is predicated on the Deed to divide the statistical process info discrete segments, and in particular, to separate col1ecting respondents' information trom other stages such as editing, estimating, or tabulating. As tbe use of the Internet in genera! and in statistical activities becomes more widespread, the role of a special field organization wiIl likely change in tbe face of technological progress95. However, current circumstances are such that these organizations are bound to continue with their traditional functions, at least over tbe next decade or two._~

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9. Large field organizations tend to be divided info two or threegroups. ODe win be in charge of interviewing households, and its talents are best put to use in household surveys conducted on a continuous basis (e.g., tbe labor force survey). There wiIl also be a group in charge of interviewing businesses, and its membership wiIl range trom those with formal or informal bookkeeping or accounting skiIls to those without a great -'k~l of experience, who wiIl be primarily responsible foTthe delivery and pickup of paperwork. A~rd group may he in charge of pricing consumer goods, and their knowledge wiIl encompass~lnde variety of products such as foodstuffs, clothing, medicine, entertainment, and so on.

10. Tbe groups tbemselves may have a two-tiered composition. They may include a small group of permanent employees who provide leadership, organization, and continuity, and a larger group of employees contracted on a renewable, short-tenn basis. These short-tenn employees afford the field organization a great deal of flexibility in the face of fluctuations in workflow.

11. A field organization deals with several classes of respondents: households, enterprises, govemments, non-commercial institutions, and at times foreign institutions. Each possesses unique attributes and may be sensitive, and even resistant, to different types of requests. In this section, we examine some of these issues and what methods a statistical agency CaDdeploy to maximize respondent participation.

[94] Irrespectiveof how unified the organization,local officeswill aften perceive their fITstloyalty to be the local constituents (respondents) and loge sight of the fact that they must also serve the interests of a national agency or slstem.

[9] Much of this bas already occurred with tabulation and at least part of publication. The desktop computer and an array of accessories, along with electronic dissemination have rendered a good deal of traditional printing paraphemaJia obsolete, except for basic tasks (collating, binding, sorting, and mailing).

10.1.2. Households

12. Above aU, interactions between households and the statistical agency concern the census of population; surveys of household incomes and expenses; labor force surveys; and special surveys that supplement the latter twO.96SuccessfuI field organization managers dealing with households should possess:

.:. a cqmprehensive list ofthe respondents in scope97;

.:. thOl'oughknowledge of the ethnic and socio-economic characteristics of the population, so as to maximize cooperation and minimize the fi'Ïctioncaused by invasions of privacy; and

.:. a method of training interviewers that reflects the organization' s accumulated knowledge of how to successfully approach the respondent community.

13. Interviewers should not be deployed until they have thoroughly understood the difference between coercion and cooperation. In addition, a few other matters require understanding. For example, households seldom keep usabie records. The easiest questions are those based on knowledge of their status (demographic, participation in the workforce, and so on). The most difficult are those that require exact recollection or access to detailed records (e.g., when and at what cast was a particular household item purchased).

14. Households may react poorly to certain questions on the basis of their cultural and demographic characteristics. In same households, respondents may prefer to keep the nature of their expenses bidden, and certain expenses are considered to be morally wrong (alcohol, tobacco, and so on). Controversial topics such as abortion may elicit diverse, possibly even violent, reactions.

Two communities

In ODe country, the population was almost evenly divided between the coast and highlands. While there was no strife between the communities, they were still far from integrated and showed pronounced differences in their attitudes toward finanees and fàmily matters. Certain types of statistical inquiry were easiest if the interviewer belonged to the other community, since ibis was considered less intrusive than sharing answers with peers. For other types of questions, the opposite was true. Successful administration of surveys requires detailed knowledge of such attitudes.

15. The effectiveness of a field organization depends on:

.:. the depth of its knowledge of what works and what does not in household interviews;

.:. an interviewer training program that raster respondent/interviewer relations; and

.:. the capacity to support an interviewer faced with overwhelming resistance to parting with information.

96 Occasionally there are highly specialized large-seRIe surveys thai require a devoted organization to be handled correctly.

97 These lilists ean be derived from the census of population, from other household surveys thai are updated on a continuous basis, or from a list enumerated by the field organization itself.

16. These capabilities are more easily found in a functional organization than in an organization fragmented by subject matter.

17 Whatever the legal basis foT dealing with households (see charter 12), the field organization win want to deal with them gently. In some countries, there are legal and political measures in place that proteet respondents' privacy. Because statistics are generally not as high a priority for government as more pressing issues, when friction arises fIom the nature of household surveys the government is more likely to side with the respondents, without taking the time to fully 'appreciate the toss of information and its consequences. The field organization should consider this possibility when dealing with households and make gure interviewers do not overstep their bounds.

10.1.3. Enterprises

18. Dealing with enterprises is quite different fiom dealing with households. Enterprises find it much easier to respond to questions on the basis of records than fiom memory or opinion. One obvious reason is that once the decision to part with information bas been made, a junior officer CaDbe authorized to provide record-based data; the same officer wouId npt be authorized to express opinions on behalf of the firm or to provide facts fIom memory. In short, record-based responses are the most predictabIe and time-efficient ftom the point of view of business management. In the case of households, the head of the household normally speaks on behalf of all household members.

19. Note that the distinction made above applies mostly to properly oI:ganized-andconstituted enterprises (generally medium and large-sized enterprises). Smaller and/or informal enterprises are best treated as households, and the emphasis on records is considerably less, since answers may not be based on a proper bookkeeping system. Also note that the latitude given to interviewers in the survey process is quite different in each case. Whereas intervie.wersCaDbe safely trusted (once they have received proper training) to fol1owthe proeëàures to~replaceene household or small fmn in the informal sector with another, the same is not true for mger firms. For this reason, ene way of deploying the field force is to assign to the more experienced and more tactfuI interviewers the task of dealing with households, and to deal with situations where tact and persuasion are of paramount importanee. Less experienced interviewers could take on regular contacts with properly constituted enterprises. Whereas initial contact with an enterprise should be made at the highest level that the agency can afford, the follow-up should be left to someone whose functions are principally those of a messenger. In situations where the same matter can be handled by mail, telephone, or e-mail, these are preferabie, of course. Where e-mail (or fax) is chosen, the field organization should ensure that proper technical support is provided.

10.1.4. Tbe consumer price index: a special case

20. Whether the workforce charged with taking prices every month should be an integral part of the field organization or should be plaçed directly under the control of the CPI management is a matter of preference, efficiency, and public relations. Clearly, the CPI management wiIl want to be certain that its instructions-particularly on quality and replacement mIes-are followed scrupulously, and may fear that the divided attention of the field organization may dilute the seriousness of these instructions. Moreover, it mayalso fear that the public's confidence in the CPI could be shaken if it were under the impression that insufficiently trained personnel teek information on prices. Because the CPI conforms to neither household nor enterprise interviewing

protocol (the bulk. of it is carried out by requesting access to public information displayed by retailers, or, in certain cases, in advertisements of catalogues), CPI interviewers require special training. These arguments faveur placing the CPI field force directly under the CPI management, rather than within the field organization. Cn the ether hand, in countries where size and geographic layout necessitate local administration, an independent CPI interview force would likely be inefficient. In such cases, it wou1d be preferabie to make use of the local field organizations, under the supervision of experienced CPI interviewers.

10.1.5. Govemment

21. Information is collected trom governrnent in a farm different trom that applied to households and enterprises:

.:. The governrnent agencies may have field organizations of their own; therefore, a combined effort is required.

.:. With respect to disclosing information, the law that rules these agencies may oppose that of the statistica! agency, requiring that a legal conflict be resolved.

.:. The collection of information may require governrnent agencies to adhere to a coding standard developed by the statistical agency, even though the agency bas no jurisdiction to enforce it.

22. The fiTst situation is aften the case with Ministries of Agriculture in countries where agriculture is dominant and where there is a tradition of intensive use of quantitative information in the rninistry.98Rather than debate issues of control, the statistical agency should make use of the existing results and the existing workforce, and engage the ministry in more productive discussions, such as whether or not the collection should be modified (as may be required foT an integrating fTarneworksuch as the Nationa! Accounts).

23. The Ministry of Transport is another institution where there is a tradition of using quantitative information and where the work of the ministry generates adrninistrative records that can be used foTstatistical purposes at a sufficiently lew marginal cast. Again, the wisest policy is to reach an agreement with the ministry so as to make the best possible use of the existing information. Sometimes the administrative information does not conform to international standards, but usually it is easier to make the necessary adjustrnents than to embark on an independent data collection effort.

24. The main harriers in making use of data collected by ether ministries (especially the govemrnent agencies in charge of tax collection and administration of social security) are legal and regulatory. Tax collectors tend to be as protective of individual records as statisticians. The very notion that sharing occurs could deeply offend taxpayers and tarnish the ministry's reputation, no matter how powerful its detection and collection capacity. Furthermore, if knowledge that the statistical agency receives information from ether government agencies creates the perception (no matter how ill-founded) that it provides complementary inforrnation, the agency's reputation may be tarnished. In section 12.1.5, there is an attempt to show that in spite of these difficu1ties, one-way sharing oftax information is the most powerful method of substantially reducing statistical paperwork for enterprises.

[98] In a number of countries, agricultural statistics were among the first statistics developed, and prior to the existence of a statistical office, the workforce required to collect them was headed by the Ministry of Agriculture.

25. Generally, it is advisable that the statistical agency held off on creating permanent arrangements in which ether ministries collect the data, and that they use existing resources and political pressure to reach a constructive and collaborative agreement. Perhaps the best way to proceed is to establish a tradition of informal inter-ministerial committees. It is possible that the agency will encounter much frustration along the way, as non-statisticians rarely perceive collaborating in data collection to he an urgent task. On the ether hand, non-statisticians may be seduced by the prospect of taking credit foT an important service rendered to respondents, especially where the respondent community is braad.

26. Lastly, there is the matter of enforcing a common standard in the collection of statistical data. This aften arises in the context of specialized public finance compilations, particularly for the national accounts. Assuring that ministries use the same definition of current and capital expenditure at the micro level is an arduous and at times thankless task, but ene that cannot be avoided.

10.1.6. Special case of provincial and local govemment

27. In many instances, provincial or state governments have highly developed statistical offices of their own. This is not only the case with federal countries such as Brazil or Germany; even in non-federal countries such as Spain, so-called autonomous communities have offices with the capacity to collect, compile, and disseminate data of special interest to the public.

28. In these situations, it is important to prevent different field organizations from overlapping and exhausting respondents' goodwill. Where there are legal devices in place that allow information to be shared between statistical agencies, and where working arrangements are sufficiently intimate to support such devices, a balance can be achieved.

29. Dealing with ether government institutions does not automatically involve the field organization. In principle, these matters are worked out between the heads of statistical agencies and their legal advisors, where possible. If different levels of government are involved, the political heads responsible foT inter-governmental affairs on bath sides may be brought in. Of course, if the agreement results in a delegation of tasks to field organizations then they will play a role in data collection. In federal countries or in situations where local government is involved, cooperation will tend to be country-wide. In such cases, the field force operates nationally and bas an agreement with the statistical agency as a whole, rather than a coordinated set of understandings with each subject matter unit.

10.1.7. Non-profit institutions

30. These types of institutions are becoming more important in almost all countries of the world. In recognition of this, guidelines have been developed explaining how to account foT the economie impact of non-profit institutions.[99] Most non-profit organizations and voluntary badjes that engage in any monetary transaction with the public have same rudimentary bookkeeping system, and the survey demands fiom them tend to be relatively limited. However, non-profit health and education institutions may require more attention trom the field organization.

31. The cases of non-profit health and education constitute a separate issue largely because their relative size measured as a share of GDP and their social importance in the development of a

[99] *Handbook on non.profit institutions in the Systems ofNational Account,* United Nations publication, forthcoming.

country demand special. consideration. In many countries, there is a tradition of specialized surveys of health and education. But there is also a trend to break away from the traditional surveys of these two services and in addition to measuring material and human inputs,[100] attempting to measure outcomes. ODe framework that bas gained same acceptanee shifts the emphasis on to longitudinal surveys ("films rather than photos..."). However, the statistical complexity of such attempts places them beyond what the administrative staff of non-profit hospitals, clinics, schools and universities can do as a by-product oftheir regular activities. To the extent a statistical system is still involved with the use of traditional indicators of health and education there bas to be an understanding between the providers of the registers and the data collectors.

32. As a fmal comment on this matter, the specialized nature of these two fields - Health and Education - is such that in the majority of those countries that compile regular statistics on them, the statistical or analytical units in charge of compilation are located in the responsibIe ministry itself. For smalt and even medium sized statistical agencies that are still sorting out their mandate it may be prudent to leave matters as they are rather than attempting full centralization with few chances of succeeding.

33. For offices that are better established, they may wish to experiment with the creation of dedicated lnstitutes or statistical satelIites. Since bodies come in a variety of forms. In addition to having their own chief executive officer, they can answer to a board made up of representatives of the education (or health) sector and ofthe statistical agency.

10.2. Interacting with a subject matter organization

10.2.1. Perspectives

34. Each major organizational unit within a statistical office should possess a perspective braad enough to see how its actions may interseet with the rest ofthe office or, in a decentralized system, with the rest of the system. Such broad views are mostIy required when agencies reach important crossroads, which fortunately does not happen too often. In everyday matters, the scope of interaction is usually limited to those with whom information is exchanged. Thus, the management of a field organization win bear in mind first and foremost its respondent policies (see chapter 12) and communication with that part of.the agency in charge of processing currently collected data.

35. Invariably, a narrow perspective win produce tension. For example, when requesting detailed information on consumer expenditure, those responsible for economie statistics may consider minimizing errors in the CPI weights as their overriding objective, because of the harm such errors are bound to cause. They win therefore wish to add aU possible precautions to the relevant inquiry. This stance may be countered by those in charge of field operations, whose experience tells them that the shorter the interview, the more attentive the respondent.

36. The tension itself is a healthy manifestation of a commitment to quality motivating bath organizations. If neither organization exprèssed its point of view on how to avoid pitfalls, tensions might escalate even further. But, given the possibility of conflict, there should be an organizational device in place that farces agreement without having to call upon senior officers. In

[100] The pattem used to be to measure hospita! beds and rates of occupancy as a health indicator and desks and rates of enrolment as an indicator of education. Neither indicator paid much respect to issues of quality and effeetiveness.

the case of new initiatives, the mechanism should He with the project management, and ultimately the authority of the project managerJOl. Where the point of conflict is the result of an ongoing activity, its resolution requires the involvement of a standing committee. The reason foT a standing, rather than an ad hoc, arrangement is that problems conceming the interaction between a field organization and subject matter units are bound to arise with considerable frequency. The important thing is that differences of opinion be channelled into cooperative dialogue that yields constructive and binding resolutions foTaH partjes.

10.2.2. Censuses and surveys

37. The management of the field organization cannot treat censuses and surveys as if they were interchangeable. Censuses, particularly the censuses of population and housing require a major civilian mobilization and therefore should be considered as a national event, whereas surveys should not, because of their scale, impact, and potential repetition (though such a thing should he avoided).

38. The census of population is vastly important to any field organization foTseveral reasons. In many agencies, field organizations were in fact created in response to the needs of the census, so accordingly, the census is their prime commitment. Second, the most visible part of any census is the collection of data, since it requires a brief period of intense activity on the part of aH households.

39. In contributing to the preparation of a census, the field ~r~zation will usually call on its detailedknowledgeof the country and assist in translating it nt>nt> a data collection approach.It will also contribute its knowledge of local conditions to identify and mobilize localleaders.

10.2.3. Managing interactions

40. Whatever the arrangements, a field organizatiOB-" like any cIDer function-based organization within a statistical office must look aftel its connlctions within the rest of the office with great care. There are several points of tension arising fronYinterfaces that must be watched:

.:. the challenge from the pressure of subject matter specialists who are furthest from respondents - analysts, national accountants, specialists in marketing and dissemination providing the outstanding examples;

.:. the ambiguities about the quality with which a survey should be conducted. The field organization must be mindful to come to a sensible compromise between its standards of quality and the survey budget; and

.:. the proper balanee between those survey operations that can he effectively conducted in regional offices (in a decentralized mode) and those that must be conducted in a centralized environment or else the standards of consistency cannot be applied with guarantees of success (surveys involving complicated coding foTexample).

In addition the field organization should be watchful of technological developments that may short circuit it before its management bas had a chance to re-train the staff.

[101] This in no way precludes intervention by the management ofthe statistical agency or the field organization ifthey feel that the decision ofthe project manager affects the integrity ofthe agency's programme.

Contacting enterprises (and in a few years this may extend to households) via the Internet is undoubtedly going to get the subject matter expert in much closeTcontact to the respondent. Field organizations should find a niche in the new process where they can play a necessary and cost-effective role.

There are a number of infrastructural services that the CIDerstatistician should make gure are available to the staff employed outside the central office. They include:

.:. access to statistica1 frames;

.:. access to equal training opportunities; and

.:. access to experts in the centra! office in real time to make rulings on the application of standard concepts.

Conclusions

Tbere is genera! agreement tbat tbe field organization is a top candidate for organization by function.

Tbe effectiveness of a field organization depends ou:

.:. the depth of its knowiedge of what works and what does not in household interviews;

.:. an interviewer training program tbat foster respondent/interviewer relations; and

.:. tbe capacity to support an interviewer faced witb overwhelming resistance to parting witb information.

lethe fieJd office is dispersed throughout tbe country, tben it is critical tbat tbere be a central function responsible fot liaison and coordination.

Chapter 11
GETTING INFORMATION TG THE USERS

11.1. General dissemination issues

11.1.1. Introduction

DefinitioDs

The words *dissemination* and *publication* play crucial roles and possess braad definitions in the text that follows. They are taken to meao "making available to the public," without restrictions and without regard for the way in which the action is carried out. Thus, publication involves the action of making public, in printed form or through the Internet. *Publication* likewise extends beyond the notion of hard-copy publication to include CD-ROM's, tapes, audiocassettes, radio and TV broadcasts, and any other media that cao meet the same objectives. At certain points in the text, *publication* is used in its traditional sense; this will be made clear by the context.

„ It is probably not an exaggeration to say that in most countries the statistics available, in published and other forms, are by no means fully taken advantage ofby users, partly because the statistics are not enough known...the fostering of a more extensive exploitation of the statistics by active promotion based on user studies is an integral part of the dissemination effort..."

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1. In part because of the condition identified in this quotation, there is a c1ass of intermediaries in the dissemination process whose task is to seek out the users and tailor the information to guittheir needs, while simultaneously providing useful interpretation of the data.

2. The involvement of intermediaries can be helpful in the dissemination of statistical information:

.:. their knowledge of the statistica! process relieves statisticians of the difficult task of interacting with the ultimate users of information

.:. by subjecting the data to thorough analysis, they provide additional constructive criticism of quality and presentation

.:. they help statisticians assess demand foTvarious types of data

However, there are also potential problems:

.:. at times, they may misinterpret data without giving statisticians a chance to set the record straight

[102] P.2S.

.:. as a result of their own vested interests, they may unwittingly distort the information passed on to statisticians about user needs for statistical information

11.1.2. Providing users information on the properties of statistical data

3. Professional statisticians and reputable statistical institutions are obligated to describe accurately and openly the strengths and weaknesses of the data they publish and to explain how much inference the data can support. There is no international consensus on how this should be accomplished. But the statistical agency must he gure that its audience is properly infonned regarding the following:

.:. where data are to be located, according to subject and time period

.:. how the data were defined and compiled

.:. what quality is assigned to the data

.:. what related data can he used foTcomparison or to provide context

4. Very few agencies have invested the necessary resources to he able to provide this kind of information foTall of the statistics they produce.lO3 If metadata does not accompany the creation of data, creating it aftel the fact win require considerable investment. Nevertheless, goed statistical organization demands that documentation of this type be available foTthe entire range of series published.1O4

5. The hUIden associated with metadata projects may he reduced if a specific unit within the statistical agency is made responsibie for ensuring that metadata are produced, that they adhere to a standard format, and that they are properly maintained and updated. It is important to bear in mind, however, that even if the responsibility is given to a specialized unit, the knowledge is derived almost exclusively fiom the substantive part of the statistical agency. It is important to differentiate between the Deed to produce metadata (irrespective of medium) foTthe entire range of statistical products and the adoption of a system and protocol foT recording the infonnation. The latter is already a subject of lively international discussion but the fermer bas not yet commanded such attention.

6. Advancements in computer technology have fundamentally redefined both the demand and the supply of statistica1 information. The production and retrieval constraints that affected producers and users of data have diminished considerably. Rather than distributing summaTiesof available information and allowing users to select the data foTwhich they require supplementary details, the statistical agency can provide the full range of data, to be stored by users, many of whom ncw possess the software and technological skills necessary to create their own summaTies and analytical extracts.

[103] Ofte outstanding model ofmetadata documentation is that ofthe Australian Bureau ofStatistics (ABS). lts official description states: "... the data management component aims to improve dient service through better catalogued, more visible and more accessible output data, integrated concepts and procedures... These goals are bejAg apprO'ached thrO'ugh the develO'pment, loading and use of a corporate infonnation "warehouse"... [the warehO'use] bas facilities tO' store, catalO'gue, and access aU the output data produced by the ABS tO'gether with the 'metadata' describing the underlying concepts and procedures."

[104] See apprO'priate references to the principles of gO'O'dsurvey taking in Statistics New Zealand's Protocols for Official Statistics (See http://www.stats.govt.nz).

7. Technological advancement bas also resulted in a profusion of self-service data warehouses that are nearly impossible to navigate without a reliable guide, thus making the provision of high-quality metadata all the more crucial. Therefore, the statistical agency cannot adopt a *laissez faire* attitude, conferring upon the user the responsibilities of searching for, summarizing, and analysing data, but rather must fmd an acceptable compromise that allows both parties to share in the work of "consuming" the data. There is no genera! mIe for defining this relationship, but it is important to remember that users' appetite for metadata is limited, even if there is hardware available for storage and processing. Moreover, non-specialists' capacity to handle large bodies of data is also limited.

8. Nonetheless, steps must be taken to heighten the probability that an increasing number of users, provided with better search tools and more demanding in terms of quality, will find what they are looking foT. Even if detailed metadata go unused, the very fact that they are compiled and made available is reassuring for those who wish to see high standards of credibility upheld.

9. The balance between what *can* be physically made available and what is appropriate for users to have access to in view of the likely use is a matter to which the unit in charge of dissemination should pay close attention.

11.1.3. Dissemination policy

10. A statistical agency that lacks a well-defined dissemination policy nsks losing its credibility as an independent agent. The following elements are essential to an effective dissemination policy:

.:. a release schedule that treats all constituencies equally, defined well in advancelOS

.:. a c1earpolicy with respect to what information should be made available to the press and what is supporting detail that CaDbe disseminated through statistica! bulletins

.:. a policy regarding the cost of accessing detailed statistica! information [106]

11. Statistical agencies have become increasingly aware of the henefits of a pre-defmed schedule of statistical releases. It is better to work according to a timetable with conservative deadlines than to work too fast and be perceived as unpredictable. Or, if news is released later than usual and is more favourable than expected, the statistical agency could he perceived as under political influence.

12. For many users, the ODdine that encapsulates the entire measurement process (e.g., "last month the CPI continued to increase at the rate of ten per cent per annum") is more important than the factors that explain the news. Since it is usually the media that provides such summaries, it must be made aware ofthe significance ofthe data and ofthe relevant metadata. From the point of view of others, the statistica! intermediaries among them, the explanatory factors and supporting data play an important role in their efforts to explàin the underlying forces of change and to foresee future changes. The statistical agency should have a clear policy regarding what data CaD

[105] Fram the International Monetary Fund's Standard Data Dissemination System: "The monitorable elements ofthe SDDS foT access, integrity, and quality emphasize transparency in the compilation and dissemination ofstatistics." To suppon ready and equal access, the SDDS prescribes (a) advance dissemination of release calendars and (b) simultaneous release to aH interested partjes. See website http://dsbb.imforg.

[106] See section 11.3

he distributed to the press foT mass consumption and the body of data that, because it is more detailed and results from a finer cross classification, appears some time later in a statistical bulletin (in electronic or conventional ferm).

13. The growth of the Internet has blurred the edges of what used to be a fairIy straightforward policy. In theory, nothing should stop a statistical agency from placing aH available information on its Web site and managing access through the Internet rather than in more traditional wars. By "drilling", users can gel to the detail they find appropriate to their concerns, with the added advantage that the technology allows them to leave a trail of what they have accessed.

14. The unit in charge of dissemination in a statistical office should be aware of the fact that technology is rapidly loosening the constraints that used to affect its activities. Tracking technological advances bas become almost as important as conducting studies of user needs and satisfaction.

11.2. Different forms of dissemination

11.2.1. Traditional means

15. Information can be disseminated using standard forms-bulletins, digests, abstracts, yearbooks, etc. There is a pattern to which most established statistical offices have adhered throughout most ofthe last half century. lt consisted in producing a yearbook (see Section 5: The Statistical Yearbook), a monthiy or quarterly digest, and the occasional specialized publication if its readershipcould be readily identified. Both the yearbook and the digest covered virtually every activity in which the statistical agency was engaged. Where it was obvious that the demand foT detail was faT more important than the demand foT selected aggregates-typically the case with foreign trade statistics-the latter would be included in a specialized volume.

16. The organization required to support this form of data dissemination was equally straightforward. Each substantive unit looked after the compilation of a special branch of statistics (e.g., price statistics), which would he featured in the "digest" and the "yearbook," respectively. Each unit was responsibie for the accuracy of its data and foT the relevance, consistency, and ferm of the accompanying footnotes. It would also be available to answer specialized queries that could not be handled by the editors of the publication.

17. At the agency level there would he a unit in charge of dissemination (identifying readers, defining the ferm of the publication, providing timetables to contributors, ensuring that the printing process worked according to schedule, handling distribution and subscriptions, etc.). This unit was also responsibie foT interacting with the subject-matter organizations to ensure that they complied with the overall schedule of dissemination.

18. A number of large offices had their own printing presses; in several countries, the facilities available to the statistical office were among the largest and most sophisticated in the public sector. This ferm of organization is still viabie, although modern forms of dissemination, and in particular the use of the Internet, have opened up new possibilities.

11.2.2. Multimedia

19. Perhaps the most important change brought about by technological advances is the significantly diminished Deed to control large printing facilities. Statistica! agencies ncw have the

means to lay out their own publications and, foT small printing runs, the tools to print everything in-house. In addition, technology bas doDe away with the Deed to print large volumes of statistical tables (typically those related to the censuses of population and to foreign trade statistics) by making it possible to provide the information in other ways.

20. Twenty years ago, the altemative to paper publications was to disseminate information using computer tapes but this was only open to the very small set of users who had access to a mainframe computer. Over the last two decades, access became far more widespread with the proliferation of PC's and floppy disks. And in the last five to ten years, the practice of disseminating massive bodies of data via CD-ROM has been almost universally adopted. CD-ROM's allow information to be conveyed in a more imaginative way-mixed with sound, accompanied by processing software, etc.-and actually invite a greater effort to analyse raw data than any means of dissemination previously available.

11.2.3. Internet

21. The advent ofthe Internet bas opened up an increasingly large number ofpossibilities for both the providers and the users of statistics. lts main advantages are that it offers interactivity, versatility, speed and cost efficiencies therefore enabling the statistical agency to greatlyenhance the service provided to users.

22. The organizational implications of intensive use of the Internet foT dissemination purposes are substantial. For example, the traditional two-tiered approach to publishing referred to above can be modified. Each substantive unit would be equipped to set up its own Web page on the agency's site and handle the interactive aspect of dissemination. A central unit would be in charge of releasing information to the press and also have the power and the expertise to define (subject to higher approval) a "code of good behaviour" with regard to the contents and appearance of material posted on the agency's Web site. The central unit would also be in charge of convening meetings to detennine how users as a community were reacting to the range of outputs produced by the agency.

23. Another important organizational consequence is that the electronic file/database used to prepare the print dissemination could be used foT the Internet version of the same publication. A close integration of content and presentation between electronic and conventional publications can also bring about substantial economies in the dissemination process. This does not mean that an office is tied to print media, as it may be suitable for an office to only offer electronic versions of its publications whether they are Internet or CD-ROM versions.

24. The delivery of time-sensitive statistics to users has been greatly enhanced by the Internet. The time lag between data collection and data dissemination by traditional print media office is greatly reduced when these data are disseminated via Internet. In practice, Internet dissemination is usually possible around the same time as the print version bas been finalised and gent oir for reproduction and distribution. This often will led to the user having access to the statistics disseminated via Internet a number weeks before they would normally receive the print version.

25. Many statistics agencies are fmding that Internet is ideal foT releasing market-sensitive statistics. The Internet allows the agency to release the statistics in an orderly fashion; that is ODe that allows equal access to the statistics to alt users at the same time. In the past, facsimile transmissions have been used for this purpose but users have been criticalof this method.

26. The set-up cost of establishing an Internet service in a statistics agency bas reduced dramatically in the past few years. This is due to both the reduction in cost of the hardware and software as weUas the availability of "off-the-shelf' software that can be used foTa basic but very satisfactorily perfonning Internet site.

27. The cost efficiencies produced by disseminating statistics and statistical metadata via Internet are substantial when the Internet dissemination is replacing established print or other physical products such as tapes or CD-ROMS.

28. The Internet enables statistics agencies to provide greater access to statistics and statistical metadata. In particular, the amount of detail that can he provided is not limited as in print media by the size of the page. Extensive statistical metadata CaDnow also be provided as a matter of course to the user. Statistics and statistical metadata that bas been archived by the statistics agency can now be made readily available to users. In addition, out-of-print statistics publications CaD also he made available to users on Internet by providing scanned or other fonnats that preserve the document structure and layout.

29. Web browser technology is very sophisticated, which allows agencies to provide users with browser ready access to databases and Internet based statistics dissemination systems. Web browsers now come with the functionality that enables the browser to recognise the file type and allow the user to download statistics in comma separated variabie fonnat (CSV), spreadsheet or other common fonnats directly to their computer.

30. The Internet bas provided statistics agencies with a very useful way to test various ways of presenting statistics or tracking the popularity of its releases, to invite comments and to get feedback on the adequacy of its data and metadata. In the development stage of a new database foT Internet, users can test the database interface foT the statistics agency and provide Teat-time response to the designers on such items as layout of the interface, functionality, response time of the Internet connections to the database and general usability. This is very valuable to the statistics agency in pre-testing of the "product" before release. Once a service bas been released the statistics agency bas the opportunity to keep in close contact with the users by providing a "feed-back" email address. By providing this function, the statistics agency CaD get very useful suggestions on ways to better serve their clients.

31. The agency can also use the Internet to coIlect statistics and related metadata via hyper text mark-up language (html) fonDs, direct access to remote databases, file transfer protocol (FTP) to remote servers or email submission. These methods are now commonly used and the choice between these depends on the complexity of the task, the security required, the frequency of submission among other requirements. Most recently, statistics agencies have been investigating the use of the Extensibie Mark-up Language (XML) to transfer statistics and metadata between statistics agencies and data suppliers and users. XML potentially offers substantial gains in efficiencies to both the statistics provider and user as it allows standard transfers of structured data and metadata. The important point here is not to promote the use of XML - in fact by the time you read this book XML might have been replaced --but rather that agencies wiIl have new tools at their disposal to more easily coUect and disseminate data and metadata.

11.3. Recovering the eost ofpublieation

11.3.1. IntroduetioD

Consistent with their governments' "user pay" policies, same offices charge market rates for at least same *of* their produets and services, whether tbe users are in govemment or in tbe private sector.

"The aims *of* tbis policy are to encourage users to identify and address tbeir real Reeds fOTstatistics, to enable tbc demand foTABS products to be used as an indicator *of* how ABS resources should he used, and to offset tbe cost *of* production *of* tbe statistics. Tbe ABS bas 'public interest' obligations to ensure that at least basic statistics are both readily available and affordable [as aresuit tbe ABS's Library Extension Program, 529 Libraries across Australia] are provided with ftee ABS publications...to meet tbe Reedsoftheir communities..."

Australian Bureau of Statistics1O7

32. The issue is whether one should treat statistica1publications in much the same way as a genera! govemment service (e.g., police force and national defenee) *or* as a government service for which users pay upon each utilization (e.g., toU roacls,packs, and museums). And, in the case *of* the latter, what is the appropriate price? The arguments vary according to a government's communications and social policy. The positions in tbe debate over user pay policies include:

.:. If a govemment needs information to pursue its own ends-make hetter decisions, show the electorate whether or not it bas delivered on its pre-electoral promises-it will request the production *of* statistica1 information. The cost will he borne by all taxpayers and is part *of* the burden *of* providing good govemment.

.:. The availability *of* information about the socia! and economie progress *of* a society is something to which any citizen in an open society is entitled and a responsibility that good govemment must honour. Since it is not possibie to Iegislate on how much infonnation should he provided free and how much should he charged for, tbe onIy practica! policy is not to charge for any.

.:. Since information bas to he produced anyway to meet govemment needs, the most that should he charged to the user is tbe marginal cost of delivering information in a requested farm and by a given date.

.:. It is manifestly unfair to place the burden *of* financing the production *of* highly specialized infonnation, which gratifies the objectives *of* tbe few (e.g., researchers, historians, professional statisticians), on the shoulders *of* the entire community of taxpayers.

.:. It would he nearly impossible to base a fee structure on marginal cost. Accordingly, the average casts *of* delivery should he charged to all users, regardless of what sector they come from. There is no other equitabie way to manage a cast recovery policy.

33. These arguments have been bandied foT some time, but no international consensus bas emerged. Perhaps what can be said at tbis stage is that foTthose agencies in developing countries where the major challenge is to gei citizens to recognize the existente and usefuiness *of* statistical infonnation, the most pressing issue is not whether and how to obtain maximum revenue from statistica1 publications. In more advanced statistical agencies, where certain users have unique

[107] Annual Report 1996-97, Canberra 1997.

(and costly) specialized requests, tbere is an increasing trend in favour of charging more than nominal costs. The implementation of a fee policy differs greatly from ODeagency to anotber.IO8

11.3.2. Commercial policies

34. In agencies that have embarked upon a dissemination programme witb commercial overtones - either heavily dominated by tbe sale of a particu1ar service or relying on tbe complete set of publications - tbe creation of a special unit involved with marketing and related activities is warranted. However, in other agencies research bas shown tbat the commercial potential of statistical publications is limited and, therefore, tbe creation of a special unit is not called for.IO9Of course, even if tbere is limited or no commercial potential and where there is no special marketing unit, agencies still have the responsibility to investigate how they CaDincrease tbe audience foTtbeir products.

35. A commercial policy requires severa1 elements and, above all, a record of costs that could justify the prices attached to each publication if they were subjected to scrutiny on the presumption of monopolistic unfairness. The elements of such a policy are as follows:

.:. an algorithm to price special tabulations and a policy regarding subsequent requests foTtbe same information by another user

.:. an algorithm to price custom-designed surveys or additional questionnaires drafted to accompany existing survey questionnaires

.:. an explicit and justifiable objective (e.g., recovering all costs associated with the production of camera-ready copy, printing, and distribution, in the case ofhard copy products, and a comparabie set of costs for distribution via tbe Internet)

.:. a marketing plan including customer identification and needs

.:. foTlarger offices a separate marketing unit may have to be identified

.:. a catalogue of all publications with their respective prices.

36. The unit in charge of marketing publications must fully comprehend these elements and objectives and be ready to deal witb criticism from tbe sectors of tbe community tbat, though tbey may be intensive users, are the most affected by any set of commercially calculated prices.

11.3.3. Using third partjes tor dissemination

37. In a number of countrles, third parties (in some instances private sector firms) have been contracted to take over tbe marketing of part or all of tbe statistical agency's dissemination programme. This measure upholds tbe objective of gauging signals from tbe market foT tbe agency's publications, eliminates tbe Deed to staff a marketing unit, and releases tbe statistical

[108] See Proceedings ofthe Conference of European Statisticians, 45111session.

[109] In faimess to those agencies that have embarked on a commercial programme, their aim is not exclusively commercial. For example, charging commercial prices for paper and electronic publications provides valuabie market feedback to the statistical agency.

office from the obligation to explain its pricing policies in the context of proad social goals. Naturally, such a program only makes sense in an environment where there is an active market.l1O

38. Before adopting solutions ofthis kind, though, senior officers in statistical agencies should be mindful that the best of statistical publications do not have mass appeal apd that many users will be quite content to share copies or to access them via libraTIesor ether public collections. Experience suggests that among the few publications with less limited appeal ~e these on foreign trade statistics and these derived fiom the census of population.

11.3.4. Copyright and royalties

39. An important objective foTan effective statistical agency is to disseminate the information it compiles as widely as possible and to make all possible efforts to get government, business researehers, and the communityat large to use that information. It therefore seems irrelevant or even contradictoryto raise the matter of copyright and royalties in connection with official statistics. In fact, what is envisaged is to ensure by moral persuasion that intermediary users cite the source of the statistical information and include the caveats to which it is subject. Moreover, for these offices that market their information commercially, copyright is a ~easure designed to prevent users of statistical information from deriving personal profit from an undertaking that was collectively funded by the taxpayers.

40. A number of statistical agencies make use of the copyright mark and instruct all users to properly attribute statistical information.1II It is not likely that any agency bas taken legal measures to address improper use or attribution. Moral suasion is usually effect~ve enough.

41. In the cases where it is obvious that intermediaries also frequently buy statistical compilations in order to support studies and analytical exercises, attribution may be insufficient and the payment of royalties may be in order.

11.4. Supplementing information with analysis

11.4.1. Should an NSO do analysis?

42. There is no international consensus on how far a statistical agency should go in commenting on what the current figures mean and even less on how a set pf figures recently compiled may relate to another set of figures compiled independently. To a ceI1ain extent, there is convergence of opinion in the social and demographic field, and several agencies prepare monographs on demography and various social issues. But there is considerabie diffidence toward doing something similar with economie statistics. Arguably, nothing moves very fast demographically and, therefore, the commentators Deed not worry that what he/she gays will change population trends. However, in the case of economie data, same ill-chosen turn of phrase could affect behaviour in the financial markets, raise serieus questions about an economie policy adopted by the government, and altogether bring about what a statistical offic~ sets out never to

[110] Where alliances with private sector firms are tolerated or even encouraged, there must be a proper procedure to allow book dealers and publishers to take part in the process, and short term contracts should be the norm so that the arrangements do not become obsolete with the passage of time and the availability ofnew techno logies.

[111] A standard note to Ibis effect reads: "...No pan ofthis publication may be reproduced, stored in a retrieval system or transmitted in any form..." (Statistics Canada).

do-to affe~t the real world with its apparent opinions rather than with objectively estimated figures.

11.4.2. Facts and interpretation

43. There is not much controversy around the fact that, at a minimum, a statistical agency should comment on salient facts and q.seits inside knowledge to influence the impression created by aggregate figures ifthat impression is not supported by facto For example, hours worked in an industry felI precipitously in one of th~ summer months when it was not habitual foTthem to fall. It turns out that the dominant firm in the industry decided to close down its plants earlier than usual foT same technical reason and t9 send its workers on paid holiday. In a case like this, it is proper foT the statistical agency to remove the alarm fiom the aggregates by commenting-without divulging who was responsibl~-on what caused the precipitous fall.

44. It is improper foT a statistical agency to make normative judgments. For example, in commenting on recent measures of income distribution, aresponsibie statistical agency should not attach editqrial comments about the latest changes in the tax structure and their regressive effect on the shape ofthe distribution curve. Nor would it be proper to couch the normative judgments in controversial assumptions and shaky evidence of causality. But readers would probably benefit greatly if the statistical agency, in reviewing the condition of the housing market, foT example, were to remind readers that the number of starts had fallen and that this fall coincided with a dramatic rise in interest rates, inc1uding mortgage rates. These examples are not prescriptive; rather they illustrate the posture of a statistical agency that is consistent with its vocation of objectivity and neutrality.112

11.4.3. Ana~tical functions and information

45. If the chief statistician decides to routinely add analytical comment to the release of figures-social or economie-same unit within the agency must be put in charge. If the efforts of the agency are at all effective, the media win get into the habit of reproducing the official comments and keep them separate from evaluations of the figures produced by other makers of public opinion. In order to ensure that it is in a position to explain what the agency's comments mean, the ~edia is likely to seek a contact within the agency. If the chief statistician decides not to take on the additional burden of peing the media's regular interlocutor (although in smaller offices this might be advisable) he/she should designate very c1early who is the official spokesperson. This win prevent any confusion that might result fiom different opinions being given by various professionals within the same agency.

46. a survey or re1atedbadjes of data-responsibility might be assigned not to one person but to an entire analytical unit.

11.4.4. Review of publications

47. In spite of precautions and training administered to the official spokespersons, errors in judgment may occur. In order to avoid embarrassment, the statistical agency should take additional precautions. For releases that require swift publication to be useful, a process of collective review that engages the more senior officials of the organization and fosters cross-subject review and criticism should be put in place. For example, a release of statistics on

112 See section 9.2 tor additional remarks on the nature and functioos of"analysis" in a statistica! agency.

employment and unemployment can be effectively reviewed by those responsible foTindustry and trade statistics, the national accountants, and so on. These are the types of reviews that, although perfonned on a regular basis should not incur excessive amounts of time foTany one of the reviews.

48. A second process would be reserved foT longer-lived efforts-for example, those connected with the series of analyses generated by a new survey of family incomes and expenditure, a new economie census, or a new census of population. Given the time scales used foTsuch exercises, it is appropriate to institute a fonnal process of review. Persuading members of the academie profession to take part in the process would be of added benefit. The mission of the review process would be exc1usively to judge whether the statements made are fully supported by evidence; whether the most important inferences on the basis of the new data available were taken into account; and whether the methods used stand up to scrutiny in the face of current knowiedge. There is, however, a component of this review that should not be overlooked. This consists in making certain that nothing improper is said in the analysis, given the statistica! agency's political and legal context. This latter qualification is important. For example, some statistica1offices are responsibie both foT the compilation of statistics and foT economie studies (or analytical exercises). Other offices do not have this extended responsibility. It folIows that what would constitute. administrative "trespassing" of responsibilities in one country would be the expected duty of the organization in another. The judgment of what can be said is one that must rest squarely with the chief statistician or someone directly delegated by him/her.

11.5.The Statistical Yearbook

"In view of the approaching [creation of a great many new provinces], and the prospect of their extending their commercial relations with each other and with foTeignparts, a hand-book of common information respecting them seems to be required."

Year-Book and A/manac of British North America for 1867[113]

49. The physical entity called a Yearbook may turn out to be a twentieth-century relic, made obsolete by the possibilities opened up by modem computer and telecommunications technology. But the two different approaches conveyed by quotations above are as much of an issue today as when they were fust stated a century ago.

50. For many decades, the statistical picture of a single country was available fiom its Yearbook and the corresponding picture of the concert of nations was available fIom the set of United Nations Yearbooks. [114] If one wished to learn all that is important about a country in a quantitative sense, one could consult these yearbooks, the value of which lay in the breadth of infonnation and variety of points of view presented.

51. The opposing point of view is that the activity of an office should consist not in speculation but rather in providing relevant answers to pointed questions.

52. Leaving aside the matter of whether the statistical agency publishes a volume of statistics called the "Yearbook" or creates a well-designed Web site in which all relevant infonnation describing the country can be found, the merits of producing a Yearbook inc1udethe following:

[113] Arthur Harvey ed., Montreal 1867

[114] FOTexample, the Demographic Yearbook, Energy Statistics Yearbook, Industrial Statistics Yearbook, International Trade Statistics Yearbook, and the National Accounts Statistics Yearbook.

.:. It provides an occasion for a review ofthe relevant infonnation that describes a country.

.:. It clarifies the need for integration in the statistics that wiIl be selected fOTthe Yearbook.

.:. It reveals gaps in the available infonnation, thereby suggesting what new initiatives should be taken to complete the description of the country' s socia! and economie fabric.

.:. In the case of decentralized systems, it is yet another means of promoting coordination among statistica! units in different government departments.

.:. It is an ideal pedagogie device to introduce children to the physical, political, and human geography of their country.

53. Against these considerations, there are the fears that the Yearbook wiIl become an end in itself, of little value to the constituency for whom it is intended, and that its contents are bound to be excessive foTthese in a hurry and insufficient for these who wish to deepen their knowledge of a particular subject.

54. To a great extent, the development ofthe Internet bas changed the basis for many of these fears. The economics of producing a Yearbook (the daunting aspect of the initiative for many years) have changed radically. The greatest innovation is that in many instanees it is no longer necessary to print the Yearbook or it can be printed on demand. Other considerations are almost as important. The pages of the Yearbook can be updated much more quickly. And the Yearbook can easily be produced in a number of modes depending on how much coverage and detail are required, as are some of the better-known dictionaries.[115]

55. Whether the statistica1 agency opts foT a Yearbook or foT an abridged volume, made available in all of the country' s embassies abroad and designed to infonn the potential foreign investor or tourist, or whether the matter is handled through the Internet, the initiative to produce a Yearbook requires an organization. The structure of the organization is not aIl that different from what was envisaged foTthe marketing of statistical publications. It consists of a coordinating body entrusted with the responsibility of defining contents, setting deadlines, handling distribution (or delegating that responsibility to a dedicated marketing unit), planning the future evolution of the Yearbook, pointing out contradictions or ambiguities in the data, and, if required, ensuring liaison with ether departments of government, where ether producers of statistics can be found.

56. Perhaps the most difficult challenge for the coordinating unit is to ensure that the contributing departments do not dismiss the exercise as someone else's responsibility for which they are not accountable. A system of links operated through the Yearbook's Web site might place users in more direct contact with contributors and stimulate their interest.

Conclusions

A statistical agency must strike a balance on two matters of relevance to its dissemination policy: (a) how much interpretation and analysis should be left to intermediaries and (b) how much metadata is important to publish. However, there should be no compromise with the obligation to treat a11users equally be giving them simultaneous access to data. lt stren hens eatl the hand of a statistical a ene if it issues and adheres to a schedule of

[115] For example, same editions of the Oxford English Dictionary are published in several formats: the Concise (l vol.), Shorter (2 vols.) and the full hook (8 vols.). In fact, same statistical agencies already fellow this model and have an abstract, an intermediate publication, and a pocket-size abridgement.

publication release dates. In addition, a dissemination policy should define the tost of accessing detailed statistical information.

A statistical agency must strike a balance between an increasingly general policy on the part of government that calls foT users to pay for certain classes of services and its duty to make official statistics as accessible to the community as the budget permits. There is a possibility of sub-contracting some or many of the functions associated with marketing but this still leaves open the matter of sales versus free distribution-there is no international consensus on where the boundary should be drawn.

The dissemination activity is not complete if it is not underpinned by an examination of "what the figures mean." This examination must be conducted in the most neutral and objective way possible but should not degenerate into a mechanical summary of facts. At a basic level, the statistical agency cao bring to beaT its knowledge of unique events that affect publishable aggregates. At a higher level, it can use its cross-subject knowledge to show the interdependendes among data and sodal processes. In doing so, particularly in the economie field, a statistical agency will take same risks. These risks consist in trespassing on the turf of other sectors of govemment that are better equipped to comment on current developments but at the same time may be somewhat less neutra!. To avoid adverse consequences, review processes should be put in place, involving the chief statistidan if necessary.

The publication of a Yearbook-in conventional or electronic form-is the best method foT selecting the most important statistics required to describe a country and its economy, society, and environment. A Yearbook is also helpful in examining existing gaps in available information.

Chapter 12
RESPECTING PRIV ACV AND PRESERVING CONFIDENTIALITY: HONOURING mE CONTRACT

12.1. Respondent polici~

12.1.1. Introduction

1. Perhaps the most important issue in developing a respondent policy is that a statistical agency earns the public confidence by treating respondents wj,threspect -- not jOgt as the means to reach its statistical goals. It is importantto remember that, even in the presence of laws which make response to one or more data collections mandatory, participation by the public in a statistical 'mency's surveys is a largely voluntary process. Even when the survey process is not voluntary an agency still bas an obligation to treat respondents in an ethica! manner - that is, minimizing the burden on their time, respecting their privacy, and maintaining the confidentiality they were promised when they providedthe information.

2. Respect foT privacy is an acknowledgement that it is the individuals who "own" informatiop about themselves. The concept of privacy is that it is the individual who decides what informatiop is made available, when it is to be released, and to whom it is released. Laws requiring the disclosure of this private infonnation foTstatistical purposes are enacted only when there is ~ overriding public need foT the information and with provisions to protect fiom disclosure the identifiability of the data. (This concept also to applies legal entities such as corporations. Public corporations, of course, agree to the regular disclosure of information such as sales, profits, etc. in order to participate in a regulated stock market. Private or closed corporations are required to make far fewer disclosures.)

3. Ensuring confidentiality is the response of the statistical agency when it obtains private data. It is a pledge to honour the contract between the respondent and the agency when the respondent provides private data. In this Chapter we consider the elements of this contract and the means to protect the data when it is obtained fiom responden~.

4. It is critical to develop policies designed to create a cooperative frame of mind on the part of the would-be respondents. Listed below are elements of such policies, followed by an interpretation of each of these elements

12.1.2. Principles of respondent relations

5. With respect to the two classes of respondents - business and individualslhouseholds - there are same principles, which apply to bath and same, which are unique to the business community. We shall first considerthose, which are applicable to bath cases:

The purpose of the data collection must be clear and meaningful to the respondent

The application of this element is particularly difficult in the case of small business. The overall

framework within which data is collected prevents the statistica1 agency from taking frequent censuses. Indeed, in the interest of efficiency, it is best to take samples no greater than what is strictly necessary to yield aggregate totaIs quickly and accurately. But small business is typically interested in the locale in which it operates and in its narrowly defined type of activity, neither of which can be adequately represented by most statisticaI undertakings, with the exception of a census or a comprehensive large-scale survey. Even gO,any explanation ofthe purpose should be as clear and convincing as possible.

The statistical agency must be perceived to hold in the strictest confidence a1I individual records, protecting them from any other party in or outside government.

This assurance bas to he delivered in a war that makes respondents reel confident[116]. The assurance itself consists of two elements: respondents must he made aware that the information held by the statistical agency cannot he accessed by someone with malicious intentll7,and that the law recognizes that confidential information held by the statistical agency cannot he shared with the political authorities ofthe country, with reguIatory agencies, or with the civil service engaged in policy development. In a numher of countries, specific reference is made to the fact that information submitted to the statistical agency cannot he subpoenaed by the judiciary.

The statistical agency must be geen as willing to accommodate respondents, either by providing additional explanations or by accepting legitimate substitutes lor a traditional questionnaire.

The statistical agency not only should be aware of how businesses keep records, but it also must he willing to go out of its war to recover the information it needs with minima! effort on the part of the business. For example, a shareholders report that includes all or most of the variables sought by the data collector should he an acceptable substitute for a completed statistica! questionnaire.

The professiona1ism and objectivity of the statistical agency, as weil as its freedom trom political interference, must be established, accepted, and continually advertised.

This is a general recommendation. In approaching respondents, a statistical agency ought to request no more information than is necessary, and only after it bas determined the least burdensome war of acquiring the information. The request is backed by the agency's reputation, specifically in the sense that the methods it employs to achieve results protect its autonomy and freedom fiom political interference.

The statistical agency should be perceived as thougbtful and concemed in matten relating to response borden; tbat is to say, it sbould be committed to fmding means that will simplify the paperwork borden.

Generally, it should he understood that the statistica1 agency will approach a respondent with a request for data only as a last resort, all alternative avenues having been reviewed and found

[116]There are recorded cases in which businesses explicitly stated that they would prefer that even routine information he collected by the national statistical agency, on the grounds that aH infonnation provided would be safe trom inspection by unauthorized parties.

[117]Of course, this assurance cao only be given within limits. But the public must be assured that it would be extraordinarily difficult to penetrate the defenses put up by a statistical agency.

insufficient. An agency tbat desires to he known for a reasonable policy on matters of response hUlden will sec to it that data collectors have understood tboroughly tbe meaning of tbis last element in tbe policy. In particular, tbe agency must demonstrate:

.:. that at aU times tbe statistical agency c1oselymonitors its information gatbering activities;

.:. that the statistical agency bas taken into account tbe intrusion and tbe violation of privacy necessarily implied by its efforts and that tbe result is a careful balance hetween respect for privacy and tbe minimum information required to enlighten public discussion

.:. that tbe infonnation collected will not be misused; and

.:. that it CaD measure the extent of the hUlden it imposes, and tbat, through the application of its policies, this hUlden will be reduced.118

6. In addition tbere are two principles, which apply only to tbe business community:

The war in which the infonnation is collected must refled the wars in which businesses keep records.

Successful collection involves tbe capacity to transform tbe records held by businesses into tbe standard records required by tbe data compiler. But it is the statistical agency that must make the effort, not the businesses. Tbe extent to which tbe information CaD be transformed without distortion can he gauged if tbe data collector understands how businesses keep records. In genera!, it is advisable tbat a $itistical agency have a sufficient numher of employees with a thorough understanding of business accounting and bookkeeping. Ultimately, effort should be made to convince businesses that it is safe to share confidential information witb tbe statistical agency, not to dictate how information such as purchases, sales, and profits should be recorded.

The information colleded should employ the same terminology used in daily business operations.

It is important to distinguish hetween tbe language used by statisticians to communicate among themselves and tbe language required to communicate witb would-be respondents. Such expressions as "kind of activity unit" and nenetprofits" have little meaning outside tbe context of a statistical agency. Tbe language to he used in order to elicit information must be tbe language that is familiar to the respondent-household or business.119

7. A statistical agency, however, is not tbe only information-collecting agency. Indeed, government collects detailed information from. tbe public in a variety of wars and for many reasons. For example, detailed balance sheet information is collected in order to levy taxes and administer subsidies; detailed commodity information is collected in order to administer laws and regulations that deal witb healtb and safety; and so on120Tbe statistical agency should be among

[118] In some agencies there is an actual annual calculation of total burden imposed on business. This calculation serves as a basis for an official report to the government on reduction of the total burden over the past year.

[119] The Australian Bureau of Statistics engaged in a comprehensive attempt to rewrite its questionnaires for business surveys in the language "used by the trade". The investment required to do this is considerabie. But even if it does not bring about a perceptible increase in response rates, it is likely to help reduce response error.

[120] Two exercises conducted at different times in two different OECD countries revealed thai the ameunt of paperwork imposed by statistical collection when compared to aH paperwork imposed by gov~,..,ment did !lot

the most vigorous pursuers of paperwork reduction, using the information collected by others whenever there is an opportunity created by law and by overlap in content. It should be able to demonstrate to the public that it communicates with othergovernment agencies regarding the means available under the law to prevent duplicate requirements, particularly fiom those business that are least equipped to fuIfil them.

12.1.3 Compulsion and voluntary response

8. The nature ofthe law differs fiom country to country. In same, compliance with statistical collection is simply obligatory. If respondents- businesses or heads of household- do not provide information in the farm in which it is requested and in a timely fashion, they are in violation of the law. In other countries, requests foTcertain classes of information are supported by legal requirements, whereas others are made on a voluntary basis. And finally, there are cases where the law is ambiguous on the subject. When this is true, the statistical agency may be fearful of dem~ding toa much information, because if it were'to be challenged, the law might rule that no information is to be demanded compulsorily (other than that sought by the Census), and the resulting publicity might adversely affect response rates.

9. The situation in most countries is probably representative of the second case, in which the law recognizes a restricted set of compulsory surveys. Whatever the legal basis, all agencies find that the most important objective is to secure a cooperative attitude on the part of the respondents - particularly smalt business and householdsl21.

10. Where there is an option, the statistical agency may adop~1:a moderate stance, wherein economie inquiries are compulsory and allothers are voluntary. Irrespective of the legal posture, it is important to remember that without a cooperative attitude, no amount of compulsion will alleviate the response problem.

12.1.4. Incentives and assurances

11. A problem, which bas been increasing in many countrie~ that of low response rates in data collections. Among the potential solutions that have been tn~d is that of providing incentives to respondents. However, incentives cannot always solve the problem. In same countries the use of financial incentives is illegal. In other cases, the budgets are toa tight to allow foTthe provision of significant incentives. Moreover, if incentives are offered to householders, foTexample, there must be same relationship between the time required of them and the nature of the compensation. For same inquiries the matter is trivial. For example, in the case of attitudinal surveys or continuous surveys, the cast to the householder is the periodic intrusion into the household's private affairs. In other cases, particularly surveys of consumer income and expenditure, the effort required from the household is considerable.l22 Finally the payment of incentives may set up expectations on the part of respondents making it difficult to conduct surveys without incentives or to require ever increasing incentives. The following are points to consider:

constitute much more than 5 percent of the total.

121Generally, big enterprises wilI comply with govemment requests and wilI not request elaborate explanations of why certain classes offinancial and economie information are sought. There are, however, examples oftransnational enterprises that are uncooperative in providing information outside the country where they are headquartered.

122There are many cases in which the survey of interne and expenditure is combined with a survey of fixed and financial assets and the details required from the household on its balance sheet and CUTTeRt and past transactions are such that not only must the household keep a detailed diary of its transactions but the interviewer, too, must spend a significant amount of time helping to complete the questionnaires.

.:. The kind of incentive chosen must he significant but not excessive, so that it is neither treated with scom by respondents nor looked upon as waste by those who determine the statistical agency's budget. The field organization must play an important role in providing advice on this matter.

.:. Whatever option is chosen, it is best to keep the householders who are surveyed infonned about the reasons why incentives were or were not provided, about the image of the statistical agency, and of course, about the civic duty involved in the provision of information to aid in the discussion of mattersof publicconcern.[123]

12. While incentives are most commonly offered to householders, they CaDalso be useful in surveys of small agricultural operators and even of small, informal businesses. The same considerations do not necessarily apply to larger businesses, for which the provision of relevant information may be a forceful incentive in itself. For example, if the business infonnation compiled in typical cases is comprehensive enough to be used in a regional breakdown, businesses operating on a regional rather than a local level will be interested in how their regional results compare to those of their competitorsworkingon the same scale. Accordingly, the incentive of being provided with special tables making those comparisons-so long as the data have the right amount of detail and are reasonably current-may be sufficient to elicit constructive cooperation between the business community and the statistica1agency.124

13. In all cases, however, the statistical agency must give uncompromising and explicit assurances that the information supplied win not disc1ose the identity of respondents. For businesses of any size, the combination of strong assurances and the recognition that the information solicited is necessary for the country to manage itself in an orderly fashion is sufficient. In other words, providing incentives in the case of business surveys is generally unnecessary Cand,for budgetary reasons, is not in the statistical agency's best interest).

12.1.5. Sharing Administrative Infonnation

14. There are many precedents of sharing detailed administrative information with statistical agencies. The most noteworthy is the case of customs administrations. But income tax collectors are also collectors of massive amounts of information and are just as mindful of integrity and confidentiality. If sharing is to take place, tax collectors must be assured that statistica! agencies are at least as scrupulous in the treatment of individual information. Sharing infonnation, particularly with tax collectors, is a delicate matter. The following are same of the factors that the statistica! agency ought to bear in mind:

.:. whatever information is shared between statisticians and tax collectors must move in only ODe direction-from the tax authorities to the statisticians

.:. in order to get the tax collectors to share information willingly and cooperatively, the statisticians should render same service to the tax authorities, one thai does not sacrifice any of the vital safe guards on confidentiality

123 In invoking civic duty, the provision of private infonnation is treated in the same manner as servingjury duty.

124 INSEE, the French statistica! agency, bas successfully pursued a policy ofmotivating business by the provision of custom-made tabulations, incIuding specific comparisons between tbe business and its peers.

.:. information collected by the tax authorities is the single most powerful resource for reducing responseburdenfor small businesses[125]

.:. tax authorities are interested in classifying the farms submitted by tax filers according to their branch of economie activity but not necessarily in the same war as statistical agencies

.:. there is a substantial strategie gain if the industry classification of tax records is aligned with that used for statistical purposes

.:. the public perception of statisticians classifying tax records might offset any assuranees given by statisticians about the confidentiality of the *infonnation* submitted to them

15. The challenge for the statistical agency is to find the best possible compromise among these factors without jeopardizing in any war statistical confidentiality. Whatever is found to work vis-à-vis the tax authorities is bound to werk, with the occasional variant, for the ether suppliers of administratively generated information.

16. In addition to the various guarantees that suppliers of administrative information require and that can be agreed upon by protocol and by verbal assurances, the statistical agency should give signs that the physical holdings of sensitive information are especially weIl guarded. In many statistical agencies, where access to the premises is controIled, the floors on which tax documents are held require special authorization for outsiders to gain access.

12.2. Data protection

12.2.1 Physical and Electronie Security

17. These days statistical agentjes have two perimeters that must be protected. The first is physical-the actuallocation of the documents, computer records, microfiches, photographs, ~d so on. In this respect, these offices who se records are housed in more than ene building not o~y face a higher cost in protecting the records but also in persuading the public that what they do is consistent with the security of individual records. The getond perimeter is virtual-the electronic perimeter traced by the agency's intemal communications system, which we must presume is connectedto its stores of individual data.

18. Both perimeters need to be protected trom malicious or unauthorized intrusion. As we have already mentioned, in many offices, access is strictly controlled (e.g., employees have to wear ID tags), and additional security measures are taken where the most sensitive records are housed.

19. The electronic perimeter must be equally defended with password clearances and ether types of security, but this is more difficult to accompIish, particularly as technology continues to demand upgraded defences. The popular media bas given great publicity to successful attempts by - hackers to penetrate the most secure communications systems and gain access to the most sensitive information, in same cases involving national security files. Since the public is more apprehensive about computer security than that of conventional documents, and this trend is likely

[125] Except of course in countries where only a minority of the population pars taxes on income, so that it is not worth considering for statistica! purposes.

to increase, a few statistical agencies have chosen to completely insulate the internal system of comrnunications from the outside world, including from its own local offices.

20. There is no direct link between the stores of data and communications to the outside world. Furthermore, whatever confidential data are transmitted from local offices to the central office are protected by the best encryption system available. Whether or not this solution wiIl provide sufficient protection in the face of rapidly evolving technologies cannot be foretold. ODe of the agency's systems analysts should be placed permanently in charge of data security, with responsibility foT such matters as encryption; removal of identifying attributes; and protection against malicious tampering with data files. In addition, someone should be assigned responsibility foTthe physical security of the premises and data holdings.

12.2.2. Sanctions

21. Some official regulation must outline the sanctions imposed foTsecurity breaches-as a deterrent and foTdemonstration to the public that the matters of confidentiality and integrity of data holdings are taken seriously. The most natural way of dealing with this is through the law itself. An ideal situation is ODein which legislation c1earlylays out the various types of infraction. These, in increasing order of severity, include:

.:. carelessness: foT example, an interviewer leaves an envelope containing identifiable completed questionnaires on the bus, where it could be discovered by a third party and picked up by the press as an example of public sector laxity

.:. improper behaviour: foTexample, a subject matter expert brags in public about the income dec1ared by a particular family when interviewed in the course of a household income and expenditure survey (the possible consequences are the same as above)

.:. behaviour with malicious intent: foT example, an employee wishing to embarrass the management of the statistica! agency sends the Prime Minister's census form to the press

.:. use of confidential information for personal profit: foT example, an employee offers to provide confidential information of ODecompany to a competitor.

22. These, of course, are merely examples; the law CaDhe more comprehensive about what constitutes a security crime. But such examples illustrate the kinds of infractions that should he listed and against which there ought to be credible penalties.

12.3. Confidentiality and disclosure

12.3.1. Principles

23. 50 far we have examined the precautions that are to be taken with incoming information, how to prevent it from falling into the wrong hands, and what disciplinary measures should be taken when there is a breach of security. In this section, we look at how the contract established with respondents must be honoured. In other words, how are we to prevent publications of aggregate data fiom disclosing information that reveals the identity of an individual, business, or institution?126The risk of doing so increases with the publication's degree of detail. For example,

126There is an interesting question as to whether these are the only categories which must he protected. If we

it is customary to publish the results of a family expenditure survey by region, demographic characteristics of the respondents, and income. Even in a survey incorporating fens of thousands of responses, the identities of those respondents whose statistical data fan into extreme ranges (e.g., persons ofaffluence and notoriety) may be easily identifiable.

24. The standard solution is to conduct initial research determining those eens in which it will be possible to identify respondents. In subsequent research, the minimum degree of aggregation required to suppress127espondents' identity is.decided. Usually, this kind of research takes place at two levels. First, there is a purely practical, rudimentary attempt to eliminate the offending cases at minimum cost, carried out by trial and error. For those agencies thai can afford it, there is also a more theoretical approach to identifying the offending cells and showing thai the solution proposed is the least costly in terms of information suppressed. Since few statistical agencies are equipped to conduct such research, an altemative solution is to commission interested academies to devise minimum data suppression modeis. Of course, research results can be applied elsewhere, and smaller agencies are encouraged to maintain communication with large statistical centres, particularlyon this subject.

12.3.2 Dominanee and residual disclosure

25. Several issues relating to confidentiality have been the objects of scrutiny over the past fifty years, and have become more prevalent with the diffusion of computer technology and the resultant expansion of the community of users. The increased capacity to store, cross-tabulate, and publish statistical data bas inadvertently created more opportunities foT accidental discIosure. Moreover, users' ability to manipulate data bas also increased, and with it their ability to uncover more information than is meant for them.128

26. For each of its tabulations, the statistical agency must track how many respondents are inc1uded in each cen and how many there are in each of the eens that can be calculated as a residual. Measures must be taken to disguise aU those thai have less than the threshold (three is generally the cut-off point). In those eens with a number of respondents equal or greater than the threshold, but with one or two respondents accounting for more than ninety percent of the value of the displayed variabie, measures should be taken to disguise their activity as weIl.

27. For those offices with a significant publishing programme, the work involved in tracking dominance and residual cases129ustifies the creation of a special unit in charge of confidentiality research. Such a unit is usually a branch of (or at least c1osely lied to) the department in charge of

disclosed the average income of cardiologists, foT instanee, or the crime rate by ethnicity of the perpetrator, would that be a breach of contract? The matter of exactly what information ought to be protected bas not yet been the object of careful examination.

127The term "suppress" is used to suggest not tbat the basic information should be excluded but rather that it should be kept anonymous.The solution is to combine cells.

128Suppose a statistical agency runs a tabulation service on demand, the object of which is to provide in machine-readable format tables derived trom a complex survey. The general principle is tbat whatever is requested by one user is available to al!. Let us also suppose that there are n users, and tbat each wants different cross-tabulatioDs. It follows tbat a statistical agency would have to track tbe impact of tbe nth demand on the number of possible residual disclosures, assuming the nth user had access to the previous n-l requests.

129For a tracking and suppression system see Gordon Sande: Automated Cell Suppression to Preserve Confidentiality of Business Statistics, in Proceedings ofthe Second International Workshop OD Statistical Database Management, Los Altos Ca., 1983.

applications of mathematical statistics.130

12.3.3 Confidentiality and household statistics

28. While ene persen or household may be much like another, large corporations like Sony, Royal Dutch Shell, IBM, De Beers, Gasprom, or Genera! Motors are quite unlike small businesses. For this reason, a number of differences between social and economie statistics factor into this discussion. In sodal statistics, the notion of dominanee is relevant only in same surveys of household assets, income, and expenditure. AIso, while in the domain of economie statistics, any survey sample will typically include a certain class of units because they make up a large proportion of the variabie, families and individuals Deed only selection with non-zero probability. Lastly, with the exception of special surveys (e.g., the financial balanee sheet of households), random perturbations can be introduced in the results of household surveys to mask individual cases without affecting the estimates of any ofthe moments of distribution. However, this is rarely the case with business surveys.

29. Recently, longitudinal surveys have raised a number of interesting issues connected with confidentiality research. These surveys, in which a selected unit (generally an individual or family) is tracked over time 50 that changes in its attributes can be observed, are becoming popular among same of the more advanced statistical agencies. The temporal aspect of this type of survey greatly increases the likelihood that the sample will be identifiable. However, minimum necessary suppression may render useless the delicate data analysis and presentation that such surveys demand. Clearly, research into confidentiality of household statistics is vastly different fiom research on the business side, and should be treated as a separate item on the research agenda.

12.3.4 Disclosure with consent

30. In tenns of public image, it is in !he best interest of the statistical agency to position itself as the guardian of response burden, continually demonstrating its desire to minimize paperwork where possible. Accordingly, the statistical agency should aggressively pursue opportunities to use the regulatory powers of ether partjes to gather infonnation, rather than duplicate queries administered by government. However, eliminating duplication may imply the sharing of information, which can werk in two ways; either the statistical agency obtains its information fiom what is collected by the government body, or vice-versa. When given a choice, respondents usually prefer to report to the statistical agency foTa variety of reagens, the most important being its reputation foTdiscretion and attention to detail. If it is possible that infonnation will be shared, respondents must give consent (preferably in writing) to have their farms reviewed by a third party, and be made to understand why such sharing might occur. Respondents should also be made aware that while their refusal is absolute, the result might be that they have to provide the same infonnation twice.

31. There are ether circumstances in which written consent for disclosure may be sought. In highly industrialized countries, industry analytical tables (the Input- Output tables for example) can loge their value if disclosure rules are interpreted to the letter. Before accepting the sacrifice in analytical value of its compilations, the statistical agency may wish to seek consent fiom the businesses that run the risk of having their operations disclosed. These businesses would be asked

130 Such a department wiJ) normally he responsibIe for encryption research, among other tasks.

to agree to a form of publication that affords imperfect disclosure protection. Of course, taking this step on any significant scale may risk the agency's reputation.

12.3.5 Forc:ed disc:losure

32. In certain instances, there is no feasible choice but to disclose the activities of a particular business enterprise. Mostly, this occurs with public utilities, state monopolies, and industries that are dominated by a single fll'IIl,as is often the situation in smaller countries. Where the situation is well-kno\VIl and in fact precedes the creation of the statistica1 agency, a special clause dea1ing with it is written info the law. In annual statistics this is less of an issue, because state enterprises and large public monopolies are usually requested to report their activities and financial circumstances in great detail, and these reports are made public.

12.3.6 Passive c:onfidentiality

33. It is not always possible to prevent all breaches of confidentiality. The most obvious case is international trade statistics. In this case, the data collected is pertinent to recorded transactions rather than the individuals or businesSesresponsibie foTthem. Because these statistics constitute a census of transactions over the period of reference, are published in extremely fine detail, and include several attributes (what is exchanged, its destination, means of transport, points of entry and departure, and so on) it is not realistic to assume that total confidentiality can be maintained without having serious effects on the timeliness and utility of. the information provided. The customary approach is to opt for a mixture of active and passive disclosure protection. For all cases where it is known that there is only ODeimporter or exporter,[131] or a case of dominance, suppression measures are devised and implemented in advance. For allother cases, suppression measures are only taken if a business or individual takes the initiative and complains to the statistical agency. If the agency is accused of failing to act on the matter in a timely fashion, the respondent should he made aware that, unlike situations in which the statistica1 agency designs and administers its own surveys With the means to detect disclosure *a priori,* international trade statistics employ records compiled through an extemal administrative process, and are not the direct responsibility of the agency. Therefore, it can only act when notified.

12.3.7 Arrangements for Research

34. Onder certain conditions, and by their own decree, statistica1 agencies mayorder the publication of the names, addresses, industrial activity (expressed in the farm of an industrial code), and size (expressed by a code denoting an employment size class or same other agreed variabie also by size class) ofselected business respondents. Genera1ly, such an exception is made for research purposes.

Increasingly, there are perfectly legitimate applications that not only employ statistical aggregates, but also depend on individual data for their success. For example, the study of complicated interactions between consumer income, expenditure, household savings, and taxation through the examination of published statistics tends to suffer greatly fIom aggregation bias. The testing of format hypotheses CaDbe more readily conducted on the basis of individual longitudinal records.

[131] This approach works asymmetrically. In most countries there are many more importers than exporters. The latter cao he more easily identified ahead of time, and preemptive measures cao he taken to suppress identitiable information. But any business can be deemed an importer, and, therefore, *a priori* decisions are more difficult to make.

Few offices are equipped to conduct this kind of research themselves. It follows that in tros situation, the common interest is best served if the statistical agency provides researchers with the infonnation they Deed and allows them to fonnulate hypotheses and to conduct the necessary research effort.

35. Nowadays, circumstances exist in which a statistical agency cannot avoid providing microdata. But an accessibie database with individual infonnation should be constructed in such a way that the probabilities of identification with certainty are extremely low or non-existent. Of course, all records must be made anonymous,and in addition, there may be grounds for introducing random perturbations so long as the moments of the original distribution are preserved.132Even aftel all these precautions, it is required that an officer oversee access to the database and work derived trom it. This means that at all times an agency official knows who is using the database and why, what they are looking for, and what results, if any, have been achieved so faro The agency must coordinate with users whose walk is dependent upon particularly detailed sets of data,so that the general public is ensured that such detail is provided only in support of meaningful advances in the social sciences.

36. It is difficult to envisage a publicly accessible database for business information, because in each industry there is genera11yan establishment or company big enough to dominate results and be recognized by the extent to which it affects the data. However, with small businesses the situation may be different and there are questions relating exclusively to smaIl business, the assembly of a publicly accessible database is justified. Note that while numerous examples of successful public-use databases exist on the household side, few have been constructed for business.

37. The research community places special demands on data, which cannot be ignored, particularly where those demands are deemed to serve the public interest. Many of these legitimately require access to individual records or to eens in tabulations where the number of respondents is 1ess than the threshold. Since such research is not carried out for persona! gain or with the intent to secure commercial intelligente that might hUlt established interests, it is difficult for the statistical agency to disallow it. Conversely, it is just as difficuIt for the agency to make exceptions for certain classes of users despite al1the assurances given to respondents. Rarely does a statistica1agency achieve an effective balance between the two pressures. The following section describes a solution that bas worked in the context of a few agentjes.

38. One method that bas met with limited success in several countries is the forma! recruitment of academic researchers who require "access to microdata, even though their remuneration is merely symbolic. This procedure ensures that the researcher agrees to abide by the rules of the statistica1 agency, and understands that failure to do so will result in official sanction. The foUowing conditions would warrant this type of format offer:

.:. The researcher bas proper credentials.

.:. The research plan concerns matters that the statistical agency considers to be in the public interest or for the advancement of social science, and there is no alternative source of data.

[132]Tbe subject ofhow to provide data tbat is non-identifiable but contains tbe same information as tbe anginal set, is onder active research. Sec forexample Rubin, D.B. (1996): "Multiple Imputation After 18+Years" Joumal ofthe American Statistica! Association, 91, 473-489.

.:. The researcher agrees to uphold the protocol and posture of the statistica! agency foT the duration ofhislher employment.

39. Prior to making an offer of employment the statistical agency should ensure that the three conditions stipulated above are met, and may wish to consult its legal adviser. It is also important not to use this practice to circumvent the rules of confidentiality. Clearly, overuse, or use foT projects that wouid appear trivial could compromise the agency's credibility. The issue of who controls the intellectual property resulting from the researcher's werk is berend the scope of this Handbook.

40. Another method, tested at the *US* Bureau of the Census, consists in creating a "sterile chamber" where researchers can werk. Whiie they do not acquire the status of employees, researchers act in full knowiedge ofthe statistical agency's confidentiality policies and accept the statutory sanctions should these be broken.

Conclusions

Statistical agencies are committed to guard infonnation that obviously reveals the operations, helongings, attitudes, or any other characteristics of individual respondents. The principles foT so doing are fairly clear, but specific applications require ongoing research in order to certify that there is no breach of confidentiality. Theoretical research, while invaluable in that it cao he shared and used repeatedly, is costly and is conducted in only a few agencies, but even where it is not possible, the more practical work of suppressing revealing infonnation without compromising the integrity of statistical aggregates shoul~o *on* at aU times. These activities shouldbe carried*out* openlyas a meansof reassuringthe public.

There do exist exceptions to the mie of absolute confidentiality; where these occur, the statistical agency should be candid with the public and explicit about the conditions thai warrant exceptional treatment. Household and business records are not treated in the same way, since the former are easier to disguise, whereas circumstances often arise in which the Jatter cannot be disguised without deleterious effects on the quality of published data. In such cases (e.g., in the case of natural monopolies *or* dominant enterprises), either aspecific provision foT disclosure is incIude~ in ~e s~tisticallegislation, or else the statistical agen(;~~ould not act without the explicit consent ofthe potentlally ldentlfiable party.

Chapter 13
PUTTING IT ALL TOGETHER

13.1 Introduction

1. AU functions required foT a statistical agency to perforrn effectively have been examined in the preceding chapters. Clearly, one of the most important points is that the activity of a statistical agency is constantly ooder conflicting pressures. Prudence and experience suggest that there is no ideal solution, but an effective model is one that seeks to minimize the impact of negative elements rather than one that assumes they can be eliminated. Another major point is that most of the features discussed so far apply to all statistica! agencies, be they centralized, in research departments of Centra! Banks, or embedded in Ministries that rely heavily on quantitative evidence. This concluding chapter brings all elements together into a schematic framework, further illuminating same of the arguments reviewed earlier on. It is also intended to strengthen the understanding that aU parts of a statistical agency are interrelated, and that the agency cannot walk effectively without a sense of interdependence among aU members of its staff.

2. The notion of organization conjures up ideas of hierarchy. In order to be effective over time, organizations must clearly and unambiguously assign responsibilities. Indeed, the very creation of an organization chart-with the limits that it imposes on each set of functions and responsibilities-suggests bath interdependence and exclusivity. These interplay of these two principles favours a certain amooot of stability and guards against excessive autonomy. And yet in the preceding chapters there bas been a great deal of discussion of why a simple hierarchy is insufficient, why it must be complemented by a non-hierarchical organization (for example an intemal committee), and why the statistical agency must be willing to sacrifice strict adherence to the hierarchical structure to adapt to extemal changes.

3. The fact of the matter is that statistical agencies must adjust to a changing environment and must do so in a timely fashion. T0 accomplish this, agencies must closely monitor technical, environmentaI, and legal changes and should engage in an ongoing discussion about how their structure should adapt to those changes over which they have no contro!. Just as change is constant, so should be the adaptation of priorities.

4. Descriptions of organization necessarily look at each component individuaIly and examine its attributes and functions, as weU as the factors that suggest that it be organized in one way or another. However, the more detailed those descriptions, the less one understands their part in an interrelated system.

13.2. Principles of organization

5. In an effective statistical system, where all activities are successfully integrated, there are bound to be groups championing different sets of priorities. For example, one group may uphold the view that the key activity is to ensure that users' needs are correctly interpreted and provided faro Another group may insist that no effective performance is possible unless the appropriate

resp.ondents are identified and sufficient care is taken te make gure they understand the questi.ons and give the best p.ossible replies. And a third gr.oup may argue that h.owever successful the activities champi.oned by the ethers, they are futile unless estimates are accurate and c.orrect mIes f.o aggregati.on are bbserved. In a truly successful agency the tensi.on generated by these three c.onflicting views gives rise t.o a system f.o checks and balances that ensures the pr.oducti.on f.o the best p.ossible data

6. This is a statie view f.o an effective rrganizatien. *In* practice, a statistical agency sh.ould be simultane.ously adaptable and stabie. Technical change seld.om pr.oceeds in a c.ontinu.ous and predictabie fashi.on. F.or this reas.on, effective statistical nsnssanzati.ons must scan the technical h.oriz.on and keep abreast f.o techn.ol.ogical advances. F.or, if fertheeming technical changes are likely t.o affect the war statistics are c.oIlected, c.ompiled, and useq, there will barely be time t.o vverhaul the system befere it is vvertaken by these changes.

7. The functiens f.o a statistical agency can be described under f.our c.omprehensive headings:

.:. these functi.ons required t.o ascertain user requirements and epsure that they are met (this implies sustained c.ommunicati.on with th.ose wh.o are, r.o wh.o c.ould he, interested in statistical inf.ormati.on)

.:. th.ose required te ensure that statistical inf.ormati.on meers quality standards (this implies the ability t.o gauge the minimum standard f.o reliability necessary te guarantee b.oth the usefulness and credibility f.o statistical data)

.:. th.ose required t.o determine, in c.onjuncti.on with resp.ondents, the least intrusive and m.ost c.onvenient ways f.o gathering basic inf.ormati.on (directly, as weIl as fr.om thther agencies when possible)

.:. these that all.ow the statistical nnganizati.on t.o review and leam fiom its wnwn practices

8. These sh.ould he supplemented with functi.ons that ensure adaptability and unif.ormity f.o the pr.oducts f.o the statistica! pr.ocess. Statisticians can use these criteria in evaluating the s.oundness f.o their nns.anzati.ons.

9. The m.ost efficient intemal nnganizati.on is net *nne* that strict~ycateg.orizes lts staff by their vari.ous backgr.ounds and appr.oaches t.o statistical activities. While s.ome gr.ouping f.o staff by functi.on and pr.ofessi.onal backgr.ound is necessary, t.ota!separati.on is inappr.opriate. When certain activities are net respected r.o careers get bl.ocked *en* the basis f.o previ.ous experience, the tensi.ons that arise can severely hinder a statistical agency's perf.ormance.

10. Review and evaluatien are crucial activities that sh.ould be undertaken by a dedicated part f.o the nn.anizati.on. The purp.ose f.o these tw.o activities is t.o learn fr.om past mistakes; te help purge the fof.oizati.of.of attributes that have bec.ome lletlete r.o undesirable; and te impress up.on users that the agency bas n.ot succumbed t.o inertia.

11. In rrder t.o increase the credibility f.o a systematic evaluati.on f.o a statistical agency's activities while intr.oducing new perspectives, it is best if uutside res.ources are c.o-.opted f.or b.oth reviewing and evaluating. This CaD be d.one thr.ough c.onsulting centracts rr, where applicable, as part f.o the regular activities f.o the netw.ork f.o advis.ory c.ommittees.

12. There is no prescription foT how many hierarchical levels there should be in any one organization. This is determined by those who design the organization and depends on the scale of operations, what is considered manageable, the specialization of the staff, and so on.

13. There is no suggestion of a hierarchical set-up in the diagrams at the end of this chapter. Uniess otherwise indicated, arrows represent the flow of information, not levels of authority. (For an examination ofhow internal committees fit into this hierarchy, see chapter 5)

14. There is no suggestion that all the facilities (substantive and service departments) mentioned must fall within a single agency. This is preferabie trom a number of points of view, but in many situations, the cast of bringing it about is not commensurate with the resulting benefits to the user community.

15. There is no mention of initiatives thai mobilize resources foT a relatively short period of time and are dissolved once their objectives are attained. It follows thai there is no mention of howone should organize the census ofpopulation beyond what is discussed in chapter 9.

13.3. Internal Functions

13.3.1. Office of the chief statistician

16. The office of the chief statistician should carry out two kinds of activity:

.:. leadership and management of the statistical agency by giving direction to its financiaI administrator, director of personnel, and those responsible foTits substantive programmes

.:. management of external relations, the most important of which are those concerning the ministry responsible foT the agency, the key government counterparts, the country's legislative authorities, the media, and the chief statistician' s peers abroad

17. Whether the chief statistician conducts these activities directly or through advisers is dependent upon personal preference and scale of operations. There are large offices where a number of authorities are delegated to the chief statistician's principal advisers, and he/she is only caIled on when the matter at hand concerns the integrity of the office or of its database, related policy issues, or the ministry in charge of the office.

18. Sometimes functions normally associated with the head of a statistical agency are put in the hands of a principal adviser. The adviser then takes on all matters related to personnel management (other than appointments at the highest levels) and matters associated with the day-to-day fmancial management ofthe agency, thereby allowing the chief statistician to tend to other concerns, such as the office's extemal relations. The chief statistician, however, remains responsibie.

19. The function of alegal adviser tends to be linked to the chief statistician, irrespective of how the office is organized. Of course, whether the legal adviser is on staff or is consulted on a regular basis depends on preference and availability. AH cases involving matters of integrity (e.g., exceptions to confidentiality provisions, or granting access to data before they are published in exceptional circumstances) where the law is ambiguous require the judgment of the cruef statistician, supported by the most reliable legal advice. Figure 3 in Appendix 3 represents a possible structure foTthe chief statistician's office.

13.3.2. Dissemination

20. Advances in computer technology and communications have affected tbe way statistica1 agencies disseminate data. Tbe statistical agency should constantly gauge market preferences regarding content, tbe medium chosen for delivery, and what explanatory detail shouId he included witb the data. T0 do gO,it must maintain relations witb principal user constituencies. Tbe needs of users must tben be communicated to tbe producer departments so tbat tbey mayassembie data in tbe form best suited to user needs. Marketing concerns must also be taken info account, including determining tbe price of publications, maximizing tbeir usefuIness, and ensuring tbe widest possible dissemination. In addition, tbere is tbe function of maintaining special relations with tbe media, which is tbe principal instrument for disseminating statistical infonnation to tbe general public.

21. There are many possible ways to divide tbe tasks of the department in charge of dissemination. Figure 4 in Appendix 3 suggests ODepossible model.

13.3.3. Tbe field organization

22. Tbe field organization is best organized on a functional basis, and should serve all tbe subject matter departments in tbe statistical agency. A sensible alternative to tbis form of organization is difficult to imagine. It is possible, and in some instances natura!, foT tbe field organization to have an intemal structure tbat manages household and business inquiries separately.

23. In cases where tbe statistical agency relies heavily on administrative data, tbe field organization may look after tbose records as weIl, in tbe interest of efficiency. Obviously, in this case tbe principles behind functional organization and subject matter organization come info partial conflict. Figure 5 in Appendix 3 incIudes collection activities based on administrative records, but shows tbem as a separate department witbin tbe area of field organization.

24. Tbe field organization performs tbe following functions:

.:. maintaining contact witb respondents

.:. explaining credibly to respondents tbe purpose of a statistical inquiry, securing cooperation, and retaining respondents' goodwill throughout

.:. providing feedback to tbe rest of tbe statistical organization regarding tbe quality of the frame after it bas been tested in tbe field and the receptivity of respondents 10 a particular statistical inquiry and tbe instruments used to conduct it

.:. taking charge of the initial editing of tbe information collected. There is no set boundary between tbe responsibility of tbe field organization and tbat of the subject matter departments. Efficiency, training, individual perceptions of tbe subject matter departments, and so on, all play info how work *is* delegated. But it should be kept in mind tbat tbe closer ODeis to tbe respondent, tbe casier it is to correct errors.

.:. researching effective metbods of data collection, including necessary adaptations of questionnaire and classification standards, techniques of persuasion, incentives and deterrents, etc.

25. A possible structure is shown in Figure 5 in Appendix 3.

13.3.4. Subject matter departments

26. Subject matter departments perfonn a number of unique functions that are difficult to delegate precisely because they are specialized, concern a well-defined set of users, and qften an equally well-defined set of respondents. In broad terms, the functions of subject matter departments are as follows:

.:. to assess user needs and the most cost-effective way to meet them, as weIl as to forecast the direction in which those needs are evolving

.:. to have an action plan on the best method foT collecting relevant information given the additional constraints imposed by limits on paperwork generated by government agencies

.:. to balance the special requirements of users with the constraints imposed by the use of standard definitions, international nonns of classifying and accounting, and the specific needs expressed by those who compile the macroeconomic accounts

.:. to document the quality attributes of the data produced and make the results accessible to both researchers and the general public

27. In practice, relations with key users in govemment shouId be considered a distinct function simply because of the disproportionate amount of contact they require. What foI1ows is a discussion of the structures necessary for the subject matter department to carry out its functions in a number of different statistical domains (see Figure 6 in Appendix 3).

28. Basic statistics constitutes the raw material a statistical agency works with. The subject matter unit can be organized in a variety of ways. ODe is by source (business, household, institutions, and public sector); this method of organization bas the merit of coinciding with the structure suggested foTthe field organization. Another alternative is to organize the subject matter area by user constituency. This possibility bas the merit of coinciding with the structure of that part ofthe agency responsible foTmarketing, anticipating users' needs, etc. Or, the subject matter unit can be structured by process. For example, it can be made up of a department that spepializes in surveys of business accounting records, another that deals with brief monthly surveys administered to businesses and households alike, and so on.

29. The most stabIe and robust structure embodies all these considerations. Accordingly, it is typical to find structures in which a distinction is made between household and business statistics (source of information) as weIl as between microeconomie and macroeconomie statistics (user constituency). The proportions of the mixtures vary but it is unlikely that any structure can be based on a single criterion.

30. There are additional altematives on how to divide each of the major substructures. For instance, ODewar of dividing basic economic statistics is by industry (with departments in charge of forestry, agriculture, mining, manufacturing, construction, transportation, distribution, communications, etc.). While such a division is appealing, it leaves some major issues unresolved. For instance, consumer prices; exports of goods and services; investment in machinery and equipment; industrial and commercial employment; and expenditure on research and development are all important to the explanation of changes in GDP; but they cut across aUindustries.

31. The difficulty in using a single criterion to create substructures exists for social statistics as weil. For example, ene might conceive of a division based on the source of information (institutions concemed with education, health, welfare). However, such a distinction would not werk well by itself. Within the category of health there is interest simultaneously in the activity and effectiveness of the health provider (hospitals, clinics, etc.); in the outcomes of health activities (patients as part of households); and in the technologies used (results of research and development expenditures). Clearly, the most effective way of dividing labor in the area of social statistics is to take into consideration several criteria.

32. Ifthe major effort, when organizing an office, is to emphasize relevance, adaptability, and demonstrabie understanding of user needs, the most effective division of labor is ODein which the departments are defined by user constituency (in this case the division can mirror the way the government is structured). Such a classification is particularly important for industries such as these involved with the production and distribution of energy, transportation, or agriculture. But in same cases there is hardly any room foTchoice. Where the information source is unique and dominates allother activities relative to the subject (e.g., international trade in goeds, where the national Customs administration is the source ofthe vast majority of documentation), there is little opportunity for combining it with ether matters. In ether cases thepossibility does exist; for example, price indexes in general, and the CPI in particular, are based on a combination of method of compilation and source of information.

33. For certain statistics that cut across all sectors and all industries there is some choice in how to best organize them. ODeexample is statistical information on the demand for labor and fixed equipment. The statistic on the demand for labor comes from business and public sector surveys, but its supply is estimated through household inquiries. If the two are split according to the source of information, much of the significance of the braad division of statistics into social and economic would depend on where the household surveys ofthe labor force were placed.

34. It is difficult to take sides on this matter since the arguments are so complex; in the end, personalities and a sense of intemal balance play deciding roles. It is possible to imagine an organization in which the heads of each department depicted in Figures 5, 6, and 7 in Appendix 3 are at the same hierarchicallevel and are all under the supervision of the chief statistician, or ODe in which the departments belang to different groups, and only the head of each group reports to upper management.

35. Figure 7 in Appendix 3 gives a more detailed view of what the department of basic economie statistics might look like. The distinctions drawn are merely put forward as an example. The following considerations underlie the suggestions:

.:. With respect to activities represented under industry statistics, what is sought is that their cost structure, account for their grogs value of production and foTthe elements that make up value added. The adjusted gum of the values added should be a subtotal (after a few conceptual adjustments) in the national accounts.

.:. Same industries are direct counterparts of a ministry, which may have its own statistical branch andlor generate information foTstatistical purposes as a by-product of its administrative or regulatory activities. Those industries are grouped as a suggestion under the heading Industry Statistics Group 1. The ethers are part of Group 2.

.:. The three activities grouped under the heading Economy- Wide Basic Economic Statistics are *suf generis.* They rely on a unique source of information (e.g., international trade) or a unique technique (e.g., price indexes), or on a wide variety of sources and special circumstances (e.g., installation of capital equipment).

36. Figures 8 and 9 in Appendix 3 indicate possible structures foT social and household statistics and foTthe department dedicated to labor. The considerations that underlie the models are similar to those stated above. In other words, there may be strategic reasons to consolidate all labor statistics into one organizational unit, not because of homogeneity of methods or sources but rather to interact more effectively with the Ministry of Labor. Similar thoughts may dominate the decision to consolidate the production of alt statistics related to health and education so as to simplify contacts with powerful Ministries that may have their own statistical branches.

37. There is no standard war to organize macroeconomic statistics. In many cases, theyare estimated by the research departments of centra! banks or by specialized departments in national Ministries of Finance. But they possess certain unique attributes that should influence how they are organized:

.:. Macroeconomie statistics are not the results of direct measurement. Rather, they are jointly derived ftom basic economie statistics, public accounts, and accounting identities.

.:. The chief concerns of the natioi1alaccountant and of the balance of payments compiler include the balancing properties of the system, differences between the various accounts, estimation procedures foTincomplete elements, and so on.

.:. Balancing supply and demand foTeach industry, required foT the estimation of total supply (GDP), will necessarily result in unexplainable differences and gaps. Review of these differences constitutes essential feedback foTthe managers of basic economie statistics.

.:. The relative strengths and weaknesses of the basic data as revealed through the balancing exercise are critical elements in the formulation of any development programme foT basic economie statistics.

38. Given the above characteristics, two propositions follow:

.:. Compiling the macroeconomic accounts is effectively a full-scale analysis ofthe quality ofthe basic economic statistics that comprise them. Accordingly, it is best managed by an independent department.

.:. The concerns of those compiling the national and international accounts are so analytical in nature that it may not be the best of use of their talents if they take part in conducting statistical surveys or negotiating with other government departments over the provision of administrative records.

39. The department in charge of macroeconomic statistics does have a number of straightforward dutjes. It is the architect of the national economie accounts in the broad sense of the term (with the scope defined in the United Nations "System of National Accounts 1993"). It should be equally responsibie for certain derived estimates, such as the index of industrial production (usually the estimate ofthe value added at constant prices ofthe sectors responsible foT

mining, manufacturing, and part of public utilities) and the level and rate of change in productivity, where such calc~lations exist.

40. Since there are many instances in which the statistical agency is not responsible for the compilation of the national accounts, the consequences of dividing the responsibility for macroeconomic statistics should. be mentioned. The producer of basic statistics is often less concerned with estimates of GDP than with loss of quality in economie statistics. Accordingly, coordinators in systems where responsibilities are split should be especially mindful of the importance of ongoing critical evaluation from the perspective ofthose who-compile the national accounts.

41. Whether or not the m~croeconomic accounts department should also be responsibie for such statistics as the flow of funds table or the national balance of payments depends on the capacity of the central statisticfU agency to access and interpret financial transactions. Because this capacity varies so much, in many cases the responsibility for the balance of payments or at least fot the capital account of the balance remains with the Central Bank.

42. In genera!, a statistical system bas much to gain fiom close contact between producers of basic statistics and compilers pf the macroeconomic accounts. Such contact should move in both directions. The system benefits if there is prompt submission of basic results and a critical review- and assessment of the quality of those results once they have been incorporated into the national accounting tables.

43. Figure 6 in Appendix 3 assumes that the responsibility fot *aU* the macroeconomic accounts lies in ODedepartment.

44. The last two decades have witnessed increased interest in a number of non-traditional statistics, the most significant pf which are those related to the environment and natural resources, the diffusion of scientific knovyledge, and the acquisition and use of new technologies. In addition, the dependence of many offic~s on tax and pension-related administrative records bas increased substantially. Tax and social s~curity-related statistics developed as a by-product ofnew statistics on consumer behaviour, which, resulted fiom linked survey and administrative records. In the near furore, as the use of the Internet for business and consumer related-matters and for research, education, etc. becomes universal, it is likely that the realm of statistics will expand even further.

45. None of these statistics fits perfectly with the traditional split between economic and social subjects. Some fall into both categories. Others-particularly those related to science and to the natura! environment-represent a new field of inquiry. Whether or not they require their own departments (particularly in smaller offices) cannot yet be determined. These statistics are still in a phase of development; there are few internationally agreed-upon standards for collection and compilation, and in rnany instapces the chief responsibility is still in the hands of other ministries, and not necessarily in the stati~tical branches within those ministries.

46. ODe possible solution is to house new statistical developments in the research department of the statistical agency, where such a department exists. Another is to create a research facility within the national accounting department. Clearly the proper solution will vary from country to country.

13.3.5. Statistica} infrastructqre

47. The departments responsible foT the statistical infrastructure have three main functions, which are reflected in the statistical agency' s organization:

.:. development of scientific methods and their application in the measurement of variables characteristic of social and economie processes

.:. drafting of codes that ensure both intemal consistency in the way variables are defined and c1assified and a certain amount of inter-country comparability (compliance throughout the national statistical system is assumed)

.:. creation and upkeep of databases required to sample b~inesses, households, and physical facilities

48. In more ways than ene, the department in charge of the development and application of scientific methods also acts as the professional conscience of the statistical system. As such, it should adhere to the strictest quality standards.

49. The department in charge of standards and classifications should possess sufficient authority to set legal standards against which there is limited appeal. In genera!, review of the correctness and soundness of a particular standard or methpd should take place prior to its implementation.

50. The department in charge ofthe statistical agency's sampling frames should maintain the records' physical and functional integrity and keep them up~to-date; provide frame extracts to these conducting sample surveys or censuses; and make sure aH parts of the statistical agency use official sampling frames rather than unauthorized surrogates.

51. These responsibilities presuppose an agency-wide conviction that it is best to have a single comprehensive sampling frame foT each major application (e.g., all business surveys) rather than separate frames for each survey, and that survey taking departments should pool their knowiedge, updating a collective frame rather than maintaining individual :q-ames.

52. Commonly, mathematical statisticians are concentrated in the department in charge of sampling and sample survey design. In addition 10 its ether responsibilities, the department should he able to substantiate the following principles:

.:. all surveys conducted by the statistical agency should be based on sound designs

.:. the infonnation necessary to gauge the reliability of the statistics produced by the agency must he intelligible and accessible 10 all users

.:. all members of the statistical agency should he thoroughly ~onvinced of the Deedto base their measurement activities on sound scientific principles as the on~y means to establish the quality of the statistics produced

53. So long as these three principles are at the forefront ofthe statistical agency's agenda, less importance is placed on whether the department in charge of statistical methods should he physically distinct from all ethers, whether its staff should be dispersed among the user

departments within the agency, or whether to adept alternative solutions. The design of the infrastructure wiIl depend largelyon country-specific circumstances.

54. In practice, two pressures should be balanced. On the pne hand, mathematical statisticians can contribute most to a healthy statisticaI agency as part of multidisciplinary project teams, in which they defend quality; advise on scientific methods; and werk toward increased efficiency in the realization of projects. Gn the ether hand, they must be part of an organization that supports the deveIopment of their technical skins and provides avenues foT their career advancement. Achieving a balanee CaDbe challenging. Figure 11 in Appendix 3 shows a possible organization for this area.

13.3.6. **Technical infrastructure**

55. Four advances, farniliar to all, have greatly expanded the capabilities of a statistical agency:

1. Powerful, relatively inexpensive computer equipment bas been made available to all staff members in many statistical offices.

ii. User-friendly applications software have given staffmembers controlover a number of key statistical functions ranging fiom questionnaire design to collection, editing, tabulating, mapping and publishing. Readily available off-the-shelf components have made in-house application programrning easier fd component reuse within the ~rganization bas become more commODo „1,

lll. Computer networking bas facilitated intemal access to data and metadata through established tiered c1ient/server environments.

IV. Internet technology bas made timely access to the outside world feasible for staff members, thereby making it possible to conduc~s..earch, gather genera! information, etc., at alilevels of an organization, rather than soJelythrough top management.

These and related changes have given rise to new concerns regarding how to manage the information technology (IT) environment.

56. In light of these changes, the department in charge of the technical infrastructure should perform the followring functions:

.:. managing the infonnation technology modelofthe organization as described in 7.2.

.:. administering ~e technical infrastructure of the agency

.:. determining the extent to which outsourcing is to be used and managing the relationship with vendors

.:. planning the replacement of capita! equipment

.:. advising on how IT can be used to advance the mission ofthe statistical agency.

13.3.7. The analytical function

57. The analytical function must be truly pervasive, occurring in all areas of a statistical ageney. However, an agency bears a heavy operational burden, and so its staff cannot engage in pure analysis all the time. An analytica1 approach to problems is a necessity, and should he omnipresent. However, analysis here bas a different connotation.

58. There are two major analytical activities to he considered. alle, which CaDbe categorized as research, seeks to improve the efficiency of operations; to refine the concepts underlying measurement activities; and to innovate with methods thai minimize error. The ether analytical activity seeks to make sense of the results obtained; to place them in meaningful social or economie contexts; to relate them to ether events and processes; and gene rally to make them more valuable to users. Naturally, feedback on any inadequacy or ambiguity of numerical results is a by-product ofthis analytica! activity.

59. This section primarily pertains to the second set of analytical activities. In terIng of organization, the agency should decide whether this activity takes place in aU subject matter departments or whether it should be concentrated in ene department or area that win serve the entire agency. An effective agency generally incorporates elements ofboth approaches.

60. A possible boundary could be conceived along the followmng lines. Explanatory material accompanying the release of new results (particularly these of ongoing surveys or more complex statistical activities) should be handled by the subject matter department. However, analytical material designed to stand on its own (e.g., a study of demand foThealth facilities in light of the latest demographic projections, or the relation between survival mies of small firms and their propensity to innovate through new production processes) should be handled by a dedicated department capable of economie, sociological, and demographic analysis.

61. ane possible location foTthe unit in charge of analysis is in a subject area such as macro-economie statistics or social statistics depending upon the analytical emphasis in the agency. Another alternative is to place this function in the office of the chief statistician.

13.3.8. Planning

62. Planning is essential to a successful statistical agency. A sound plan proposes a series objectives and offers reasonable arguments on how they are to be met and why the resources allocated are indeed adequate.

63. The planning function deals with establishing a process thai produces a plan, defines the conditions of its implementation, monitors its execution, and advises on fallbacks and altematives when necessary.

64. There are two wars to organize the planning function. One technique is to appoint a planning officer or dedicate a planning office to conduct this exercise annually and to be responsible for maintaining the plan. The other is to engage the management of the statistical agency to cooperate in a collective effort and produce a balanced plan. Clearly, an effort involving all parts of an agency will receive more acceptanee, support, and cornmitment than a specialized effort.

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65. The time frame is an especially important element in planning. Developmental statistical activities should not be limited to a single-year plan; yet, planning should be realistic and not look toa far into the future. The longer the time frame, the shakier are the planning assumptions necessary to ensure a proper allocation of resources. A possible balance between the two considerations is planning according to a three-year time frame.

13.3.9. Horizontal and vertical mechanisms

66. A detailed description of horizontal mechanisms is inc1uded in chapter 5. There are a few differences between vertical hierarchies and committee structures. The vertical (or line) structure of a statistical agency broadly follows the hierarchy of public administration; is in many instances ordained in the agency's legislation; and orten corresponds to the financial allocations made by the government to the statistica1 agency. As such it cannot be easily altered, though total inflexibility should be avoided.

67. The horizontal structure of a statistica1 agency (i.e., its *ad hoc* committee structure) exists to solve management, subject matter, and procedural problems inherent to the official structure of the agency. Because ofthe nature ofthe problems, the effectiveness with which these committees resolve conflicts, and the respect they gain as a source of dispassionate advice, they provide a sense of cohesion, which the vertical structure at times unwittingly undennines. Playing these two roles requires that the committee structure of a statistica! agency be highly flexible so that it can take full advantage of the personal attributes of its staff in responding quickly to problems as they anse.

13.4. Building extemal support

68. No statistical agency can function effectively without the systematic help of outside contacts. The more prestigieus they are, the more they will bolster the office's credibility.

69. A statistica! agency can be challenged by members ofits various constituencies on several fronts. Users may demand explanations ofhow priorities are determined; assurances regarding the quality of results (i.e., use of objective methods and the absence of political tampering); and the confidentiality of individual records.

70. These questions can be difficult to answer, particularly those regarding quality and priority ranking. The agency's position is immensely strengthened if it can demonstrate that a well-thesen, knowledgeable group of outsiders reviewed the decisions and agreed, or suggested modifications, which were taken into account in the final determination. Likewise, the agency's position on the objectivity and the timeliness of chosen methods can be strengthened if it can point to the review and approva! of the best technica! experts available.

71. For these reagens, while a senior counciI or cornmission is typically charged with a periodic review of statistica! policies and priorities, a number of agencies have built a network of supplementary advisory badjes. Their reports are made available to the public and the government authorities responsible foTthe agency.

72. Supportive measures win allow the agency to face aU the challenges that arise out of the exercise ofits mandate. Whatever mechanisms are put in place, the following are crucial:

.:. proper legal basis

.:. distinguished and interested outsiders (national and international) who serve as members of a network of commissions and committees, both formally and informally

.:. public status commensurate with the responsibilities of being chief fact finder for the government and for the nation

73. In the end, the agency should demonstrate that it bas managed its resources wisely, kept the government and the public informed, served the international statistical community, and communicated important information impartially and effectively.

APPENDIX

Appendix 1: Annotated model of a National Statistics Act

Introduction

Section 2.6 of the Handbook discusses same genera! principles of statistica1 legislation, but contains few specifics. This annex presents specific texts tbat might be useful for countries that want to introduce a genera! statistics law, or modify an existing ODe.It should he stressed that this 'model of a statistics act' is not in any way meant to he prescriptive or normative. lt is just an illustration of the issues that are dealt with in actual statistica1 legislation in various countries; . several of the texts were indeed derived ftom actual statisticallaws.

The 'model' contains two types of elements:

- Issues that should he dealt with in all statistics acts (printed in *boJd* typeface), because they are about matters of principle. In this regard, reference may also he made to the Fundamental Principles for Official Statistics, adopted by the Statistical Commission of the United Nations in 1994. These issues aften directly relate to what is said in the Principles, as will he explained in annotations to the text.
- Alternative or optional elements. 'Alternatives' relates to solutions that are different, but not necessarily inferior to the ODesdescrihed in the issues mentioned hefore. 'Optional' elements are more country specific; they may walk for same countries, but may he unacceptable for others.

Statistics Act of Numberland

Note: the Act consists of three main sections: Genera! (Handbook section 2.6.2, about the main actors of the statistical system, their roles, responsibilities and interactions), Statistical Operations and Data Collection, including same provisions for regionally decentralized systems; see Handbook section 2.6.7) and Data Confidentiality (inc1uding access to information protected by other laws, see Handbook section 2.6.5).

GENERAL

1. Defmitions (see also section 2.6.2 ofthe Handbook)

IntbisAct,

- "ChiefStatistician" means tbe ChiefStatistician of Numberland;
- "department" means any department, board, bureau, agency or other division of tbe government of Numberland or of tbe government of a region or any agency of either;

. "Minister" means a member ofthe Cabinet of Ministers ofNumberland,
. "respondent" means a naturalor legal person in respect of whom or in respect of whose activities any report or information is 80ugbtor provided pursuant to this Ad;"
. "Council" means National Statistical Council of Numberland.

2. Chief Statistician

The President of Numberland, at the recommendation of the Council of Ministers, shall appoint an officer called the Chief Statistician of Numberland to hold office for a renewabie, f"lxedterm of five years.

Note: Appointment of the CIDer Statistician for a fixed tenn helps to guarantee bis professional independenee and to prevent political interference with official statistics (see also Handbook section 2.4.5).

Altemative 1
The Prime Minister ofNumberland shall appoint an officer called the Cbief Statistician.

Alternative 2
The Parliament ofNumberland shall appoint an officer ca11edthe CIDerStatistician.

Altemative 3
At the recommendation of the National Statistics Council, the President of Numberland shall appoint an officer called the CIDerStatistician.
Option
The President of Numberland shall appoint a Minister for Statistics, who shall act as the Cbief Statistician.

2. The Chief Statistician shall,

(a) advise on matters pertaining to statistical programs of the departments of the Government of Numberland, and confer with those departments to tbat end.
(b) decide on the manner in which data for statistical purposes are collected, how they are compiled and when and how statistics are published.
(c) supervise generally the administration of this Act and control the operations and staff of Statisties Numberland.
(d) represent Numberland in international statistical meetings or designate ODeor more staff members of Statistics Numberland to do so.

Note: the provisions in this article support the coordinating role of the CIDer Statistician (a), bis professional autonomy (b, see also the Fundamental Principles of Official Statistics -appendix 2), as weIl as bis international role (articles 9 and 10 of the Fundamental Principles of Official Statistics - appendix 2).

4. Statisties Numberland

There shall be a statistics bureau, to be known as Statistics Numberland, the duties of wbich are

(a) to collect, compile, analyze and publish statistical information relating to tbe commercial, industrial, fmancial, social, economie, environmentaI and general activities and condition of tbe people;
(b) to collaborate witb departments of government in the collection, compilation and publication of statisticaI information, including statistics derived from tbe activities of tbose departments;
(c) to promote tbe avoidance of duplication in the information collected by departments of government; and
(d) generally, to promote and develop integrated social and economie statistics pertaining to the wbole of Numberland and to each of the regioos tbereof and to coordinate plans for the integration of tbose statistics.

5. Work plan, release calendar and annual report

(a) Three months before the beginning of eacb ncw fIScai year, the Chief Statistician shall submit to the Council of Ministers[133] a work plan for tbe next fiscal year, setting out all major statistical collections and planned publications, as weil as estimates of expenditure and revenues related to this.
(b) At tbe beginning of each ncw fIScai year, the Chief Statistician shaU publish a calendar of the most important releases of ncw statistics in that fIScai year.
(c) Witbin three months after each fiscal year the Chief Statistician sball present a report to the Council of Ministers[134] with regard to the activities of Statistics Numberland in tbe preceding fiscal year.

Note: this artic1e is mainly about transparency and accountability, two important aspects of the Fundamental Principles. The publication of an advance release calendar (b) prevents political interference with statistica! outcomes.

6. National Statistical Council

(a) Tbere sball be a National Statistical Council whose role is to:
- Advise the Chief Statistician on statistical work plans; its advice shall be added when tbe work plan is submitted to the Council of Ministers.
- Comment 00 tbe annual report tbat tbe Chief Statistician submits to the Council of Ministers; its comments shall be added to this report.
- Advise tbe Chief Statistician on any otber statistical issues.

(b) Tbe Council sball be chaired by the Cbief Statistician.
(c) Tbe Council shall meet at least foor times a year.
(d) The Council may set up subcommittees and ad hoc advisory groups.
(e) The Council shall have at least 15 members, representing tbe most important user groups of official statistics, in particular governmeot departments, tbe business community and academia.

[133] Or, as the case may be, the President, the Parliament or a Minister designated to be politically responsible for statistics.
[134] See footnote 133.

(t) Members of the Council shall be appointed by the Minister, at the recommendation of the Chief Statistician. They will serve tor renewable terms of foor years.
(g) The Council's Rules of Procedure shall be approved by the Minister.

Note: the principal role of a National Statistical Council is to be an interface with the users of statistics, and thereby enhance the relevance of official statistics (see the Fundamental Principles of Official Statistics - appendix 2, artic1e 1). Of course there are many different wars to set up such a council. Therefore, some altematives to the above are listed below.

Altematives:

- Minister chairs the Council, Chief Statistician is vice-chair.
- Independent chairman, Chief Statistician ex officio member.
- Council bas fewer or more members.
- Council approves statistica1 work plan (as opposed to just advise on it).
- Recommendation foTmembership through co-optation (Council itselfproposes candidates).
- Membership is specified by law (e.g. 'a representative of the Ministry of Finance, a representative of the Central bank, a representative of the Council of Economie Advisers', etc.).
- Longer or shorter terms of service.

STATISTICAL OPERA TI ONS AND DATA COLLECTION

Note: this part of the law is mainly about practical arrangements foT data collection, including access to government data sources thai may be relevant foT statistical purposes. It is important thai statistics are collected in the most efficient war and thai respondents are not unduly burdened (see also artic1e 5 of the Fundamental Principles of Official Statistics - appendix 2).

7. Statistical personnel

The Chief Statistician may employ such commissioners, enumerators, agents or other persons as are necessary to collect tor Statistics Numberland such statistics and information as the Chief Statistician deerns useful and in the public interest relating to such commercial, industrial, Ïmancial, social, economie and other activities as the Chief Statistician may determine, and the duties of the commissioners, enumerators, agents or other persons shall be those duties prescribed by the Chief Statistician.

Options

Public servants

The Minister may, foT such periods as it may determine, use the services of any employee ofthe public service of Numberland in the exercise or performance of any duty, power or function of Statistics Numberland under this Act or any other Act, and any person whose services are so used shall, foTthe purposes of this Act, be deemed to be a person employed under this Act.

Note: this implies that the Minister who is politically responsible foT official statistics bas the power to recruit civil servants outside Statistics Numberland to perform statistical duties; among

other things this may be important foTcensuses.

Contracted services

Any persons retained under contract to perform special services foTthe Chief Statistician pursuant to this Act and the employees and agents of those persons shall, foTthe purposes of this Act, be deemed 10be persons employed under this Act while performing those services.

Options

Cooperation with regional authorities

The Chief Statistician may enter into arrangements with the government of a region providing for matters necessary or convenient for the purpose of carrying out or giving effect to this Act, and in particular foTall or any of the following matters:

(a) the execution by regional officers of any power or duty conferred or imposed on any officer pursuant to this Act;
(b) the collection by any regional department or regional officer of statistical or other information required for the purpose of this Act; and
(c) the supplying of statistical information by any regional department or regional officer to the Chief Statistician.

AH regional officers executing any power or duty conferred or imposed on any officer pursuant to this Act, in pursuance of any arrangement entered into under this section, shall, foTthe purposes of the execution of that power or duty, be deemed to he employed under this Act.

The Chief Statistician may enter into an agreement with the government of a region foT the exchange with, or transmission to, a statistical agency of the region of
(a) replies to any specific statistical inquiries;
(b) replies to any specific classes of information collected under this Act; and
(c) any tabulations and analyses based on replies referred to in (a) or (b).

An agreement with a region foT the purposes of this section shall apply only in respect of a statistica! agency of the region
(a) that bas statutory authority to collect the information thai is intended to he exchanged or transmitted pursuant to the agreement from a respondent who is subject to statutory penalties for refusing or neglecting to fumish information to the agency or for falsifying information furnished by hirn to the agency;
(b) thai is prohibited by law from disclosing any information of a kind that Statistics Numberland, its officersand employeeswouldbe prohibitedfrom disclosing, if the informationwere furnished to Statistics Numberland; and
(c) whose officer's and employees are subject to statutory penalties for the disclosing of any information ofthe kind descrihed in paragraph (b).

Where any such information is coHected by Statistics Numberland from a respondent, Statistics Numberland shall, when collecting information, advise the respondent of the Dames of any statistica! agencies in respect of which the Chief Statistician has such an agreement.

Note: there are many different ways of interaction and cooperation between the national statistical agency and regional badjes. In same countries the national statistical agency bas regional offices that are fully under its control (often called the 'vertical system'), while in otpers the regional statistical offices are part ofregional govemment (the 'hqrizontal system'). Mixtures of these two systems also exist. In federally structured countries, the relationships between the regional and central govemments are different yet.

8. Sharing of information

The Chief Statistician may enter info an agreement witb any department or municipal or otber corporation for the sharing of information colleded from a respondent.
Sueh an agreement shall provide thai
(a) tbe respondent be informed by notice thai tbe information is being colle~ted on bebalf of Statistics Numberland and the department or corporation, as tbe case m=il Ybe; and
(b) wbere tbe respondent gives natief in writing to the Chief Statistician tbat tbe respondent objects to the sharing of the information by Statistics Numberland, tbe information not be shared witb the department or corporation unless the department or corporation is autborized by law to require the respondent to prQvide that information~

Note: see also article 5 ofthe Fundamental Principles of Official Statistics - appendix 2.

Option:

Access to records

A person having tbe custody or charge of any documents or records that are maintained in any department or in any municipal office, corporation, business or organization, from which information sought in respect of the objects of this Act can be obtained or that would aid in the completion or correction of that infonnation, shall grant access thereto for those purposes to a person authorized by the Chief Statistician to obtain that information or aid in the completion or correction of that information.

9. False or unlawful information

Every person who, without lawful excuse,
(a) refuses or neglects to answer, or willfully answers falsely, any question requisite lor obtaining any information sougbt in respect of tbe Qbjects of tbis Act or pertinent tbereto that bas been asked of bim by any person employed or deemed to be employed onder tbis Act, or
(b) refuses or neglects to furnish any information or to till in to tbe best of bis knowiedge. and belief any schedule or form that the person bas been required to nu in, and to return tbe same when and as required of him pursuant to tbis Act, or knowingly gives false or misleading information or practices any otber deception tbereunder is, tor every refusal or neglect, or false answer or deception, guilty of an offence and liable on summary conviction to a fine not exceeding or to imprisonment for a term not exeeeding or to botb.

10. Refusal to grant access to records

Every person
(a) who, having the custody or charge of any documents or records that are maintained in any department or in any municipal office, corporation, business or organization, erom which information sought in respect of the objects of this Act cao be obtained or that would aid in the completion or correction of the information, refuses or neglects to grant access to the information to any person authorized lor the purpose by the Chief Statistician, or
(b) who otherwise in any war willfuily obstructs or seeks to obstruct any person employed in the execution of any duty onder this Act
is guilty of an offence and liable on summary conviction to a fine not exceeding or to imprisonment lor a term not exceeding or to both.

Note: although enforcement by law may not be the idea1war to obtain basic data for statistics (see Handbook section 2.6.4), most statistics àcts contain some provisions to make data collection for statistics statutory.

Options

Coding system for goods

The Chief Statistician shall establish a coding system for goods imported info and exported from Numberland to enable the collection, compilation, analysis and publication statistics in relation to those goods.

Forms for statistica! data r~r

Instead of or in addition to using agents or employees for the col1ection of statistics under this Act, the Chief Statistician may prescribe that a ferm he gent to a person from whom information authorized to he obtained ooder this Act is sought. A persen to whom such a form is sent shall answer the inquiries thereon and return the ferm and answ~rs to Statistics Numberland properly certified as accurate, not later than the time prescribed the~re and indicated on the form or not later than such extended time as may be allowed in the dis.Jetion of the Chief Statistician.

Returns under Income Tax Act

For the purposes ofthis Act
(a) the Chief Statistician or any person authorized by the Chief Statistician to do so may inspect and have access to any returns, certificates, statements, documents or other records obtained on behalf of the Minister ofNational Revenue tor the purposes of the Income Tax Act, and
(b) the Minister of National Revenue shall cause the returns, certificates, statements, documents, or ether records to be made available to the Chief Statistician or persen authorized by the Chief Statistician to inspect the records.

Return of exports and imports trom Customs

For the purposes ofthis Act, the Minister of National Revenue shall cause to be gent to the Chief Statistician returns of imports and experts into and from Numberland and details of the means of transportation used therefore.

Additional options:

POPULATlONCENSUS

A census of population ofNumberland shall be taken by Statistics Numberland in the month of .... in the year , and every tenth yearthereafter.

The census of population shall be taken in such a manner as to ensure that counts of the population are provided foT each district of Numberland, as constituted at the time of each censusof population.

AGR/CULTURE CENSUS

A census of agriculture ofNumberlanq shall be taken by Statistics Numberland in the year and in every tenth year there~er.

Census questions

The President of Number~and shall, by order, prescribe the questions to be asked in any census taken by Statistics Numberland.

Note: in some countries regulations forcensuses are part of the general statistics law, in others censuses are ruled by separate legislatipn.

DATA CONFIDENTIALITY

Note: Clearly, confidentiality of individual data is ODeof the main concerns of the Fundamental Principles. In addition to a genera! provisiori in the Statistics Act (article 11 below), an Qath of office foTstatistical persoqnel (artic1e P below) is aften part of statisticallegislation as weIl.

11. Prohibition against divulging information

Except for the purpose of communicating information in accordance witb any conditions of an agreement made und~r tbis Act ~nd except for the purposes of a prosecution Doder this Act but subject to this section,

(a) no person, otber tha~ a person employed or deemed to be employed and swom in Doder this Act, sball be permitted to examine any i~entifiable individual return made for the purposes of tbis Act; and

(b)no person wbo bas been swom in Doder this Act shall disclose or knowingly cause to be disclosed, by any means, any inf~rmation obtained Doder this Act in sucb a manner that it is possible from tbe disclosure to relate tbe particulars obtained from any individual return to any identifiable individual person, business or organization.

12. Qath of office

The Chief Statistician and every person employed or deemed to be employed pursuant to this Act shall, before entering on hi~ dutjes, take and subscribe the following oath or solemn affirmation:

I, , do solemnly swear (or affirm) that I will faithfully and honestly fulfill my dutjes as an employee of StatistÏcs Numberland in conformity with the requirements of the StatÏstÏcs Act, and of aU rules and instructÏons thereunder and that I will not without due authority in that behalf disclose or make known any matter or thing that comes to my knowledge by reason of my employment.

Where a person retained onder contract to penorm special services for the Chief StatÏstician pursuant to this Act is a legal person, the chief executÏve officer thereof and such other officers, employees and agents thereof as are used to penorm the special services shall, before entering on any of the dutjes required ander the contract, take and subscribe the following oath or solemn affirmation:

I, , do solemnly swear (or affirm) that I will faithfully and honesdy fultlll my dutjes as an employee of (name legal person) in respect of my employment in carrying out [135] in conformity with the requirements of the StatistÏcs Act, and of aU rules and instructÏons thereunder and that I will not without duf authority in that behalf disclose or make known any matter or thing that comes to my knowledge by reason of my employment.as described herein.

Options

The ChiefStatistician may, by order, authorize the following information to be disclosed:
(a) information relating to a person or organization in respect of which disclosure is consented to in writing by the person or organization concemed;
(b) information relating to a business in respect of which disc1osure is consented to in writing by the owner for the time being of the business;
(c) information available to the public under any statutory or other law;
(d) information relating to any hospitaI, mental institution, library, educational institution, welfare institution, public utility[136] or other similar non-commercia! institution except particulars arranged in such a marmer that it is possible to relate the particulars to any individual patient, inmate or other person in the care of any such institution;
(f) information in the farm of an index or list of individual establishments, firms or businesses, showing any, same or a11ofthe following in relation to them:

1.their names and addresses,
II. the telephone numbers at which they may be reached in relation to statistica! matters,
III. the produets they produce, manufacture, process, transport, store, purchase or sen, or the services they provide, in the course of their business, or
IV. whether they are within specific ranges of numbers of employees or persons engaged by them or constituting their work force.

[135] Reference to the contract that rules the tasks to be executed.
[136] Public utility means any naturalor legal person that *owns,* operates *or* manages an undertaking for the supp!y *of* petroleum products by pipe!ine, transmission or distribution of gas, electricity, stee! *or* water, the collection and disposal of garbage *or* sewage, the transmission, emission, reception *or* conveyance of information by any te!ecommunication system, *or* the profession of pasta! services.

13. Information is privileged

Except tor the purposes of a prosecution nader this Act, any return made to Statistics Numberland pursuant to this Act and any copy of the return in the possession of the respondent is privlleged and shall not be used as evidence in any proceedings whatever.
No person sworn nader this Act shall by an order of any court, tribunal or other body be required in any proceedings whatever to give oral testimony or to produce ~ny return, document or record with respect to any information obtained in the course of administering this Act.

14. Disclosing secret information

Every person who, af ter taking the oath under this Act:
(a) willfully discloses or divulges directly or indirectly to any person not entitle4 onder this Act to receive the same any information obtained by him in the course of bis employment that might exert an inftuence on or affect the market value of any stocks, honds or other security or any product or article, or
(b) uses any information described in paragraph (a) for the purpose of speculating in any stocks, honds or other security or any product or article
is guilty of an offence and liable on summary conviction to a rme not exceeding or to imprisonment for a term not exceeding or to both.

Options

Personation ofStatistics Numberland employee

Every person who
(a) personates an employee of Statistics Numberland for the purpose of obtaining infonnation fIom any person, or
(b) represents himself to be making an inquiry under the authority of this Act when the perron is not an officer, employee or agent ofStatistics Numberland,
is guilty of an offence and liable on summary conviction to a fine not exceeding or to imprisonment for a term not exceeding six months or to both.

Application offines

AUfines imposed pursuant to this Act belong to the Government ofNumberland and shall be paid to the Receiver Genera!.

Appendix 2: The fundamental principles of official statistics

Extract trom the report ofthe Statistical Commission on its Special Session, held in New York 11-14 April 1994. Official Records of the Economic and Social Council, 1994, Supplement No. 9 *(E11994/29,* E/CN //1994/18).

Action taken by the Commission

59. The Commission adopted the fundamentaI principles of official statistics as set out in ECE decision C (47), but incorporating a revised preamble. The preamble and principles, as adopted, are set out below:

FUNDAMENT AL PRINCIPLES OF OFFICIAL STATISTICS

The Statistical Commission,

BearinfZin mind that official statistica] information is an essential basis for development in the economie, demographic, social and environmentaI fields and foT mutual knowledge and trade among the States and peoples ofthe world.

BearinfZin mind that the essential trust of the public in official statistical information depends to a large extent on respect for the fundamentaI values and principles which are the basis of any society which seeks to understand itself and to respect the Ji.ghtsof its members,

Bearing in mind that the quality of official statistics, and thus the quality of the information available to the Govemment, the economy and the public depends largelyon the cooperation of citizens. enterprises, and other respondents in providing appropriate and reliable data needed for necessary statistical compilations and on the eooperation between users and producers of statistics in order to meet users' needs.

Recalling the efforts of govemmental and non-governmeqtal organizations aetive in statistics to establish standards and concepts to allow comparisons among eountries,

Reealling also the International Statistical Institute Oec1arationof Professional Ethies,

Having expressed the opinion that resolution C (47), adopted by the Economie Commission for Europe on 15 April 1992, is of universa! significance,

Noting that, at its eighth session, held at Bangkok in November 1993, the Working Group of Statistical Experts, assigned by the Committee on Statistics of the Economie and Social Commission for Asia and the Pacific to examine the Fundamental Principles, had agreed in principle to the ECE version and had emphasized that those principles were appIicable to all nations,

Noting also tha!, at its eighth session. held at Addis Ababa in March 1994, the Joint Conference of African Planners. Statisticians and Demographers, considered that the Fundamental Principles of Official Statistics are of universal significance,

Adopts the present principles of official statistics:

1. Official statistics provide an indispensable element in the information system of a democratie society, serving the Govemment, the economy and the public with data about the economie, demographic, social and environmental situation. T0 this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honor citizens' entitlement to public infonnation.

2. To retain trust in official statistics, the statistical agencies Deed to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data.

3. To facilitate a correct interpretation of the data, the statistical agencies are to present infonnation according to scientific standards on the sources, methods and procedures of the statistics.

4. The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.

5. Data ororstatistical purposes may be drawn from alt types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents.

6. Individual data collected by statistical agencies for statistical compilation, whether they refer to natura! or legal persons, are to be strictly confidential and used exc1usivelyfoTstatistical purposes.

7. The laws, regulations and measures under which the statistical systems operate are to be made public.

8. Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system.

9. The use by statistical agencies in each country of international concepts, c1assifications and methods promotes the consistency and efficiency of statistical systems at all official levels.

10. Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in alt countries.

Appendix 3:
Figures representing possible organizations of the functions of a statistical office

This appendix shows a selection of twelve diagrams that purport to illustrate the most important functions carried out by the average centralized statistical office. The diagrams do not illustrate organizational charts. The arrows shown represent flows of information raIDerthan hierarchica1 relations. The latter are thought to be toa dependent on the circumstances of individual offices to be shown in a Handbook such as this ODe.

There is a distinction made among the various flows of information that connect ODegroup of activities to another. In same cases the flow is of directives, policies, metadata, and advice but not of data, raw or processed. Such flows are generally shown using narrow tipped arrows on braad shafts. Broad tipped arrows normally illustrate flows of data. And there are feedback flows shown by very narrow black arrows. The text appended to the bottorn of each diagram should make clear what flows and from whom to whom. There are other flows, which are not represented in the diagrarns in order not to complicate them unduly.

The diagrams bring out three key themes of the Handbook. Firstly, all viabie organizations are articulated information processing systems. Secondly, there is no viabie organization that bas no feedback loops. And thirdly there is no organization that should be constituted without an analytical and research function. Naturally, nothing is said about relative sizes or who is in control of what. Individual managers will determine how to irnplernentthe spirit of the diagrams so as to fit their circumstances

Figure 1
Outline of the functions of a statistical agency

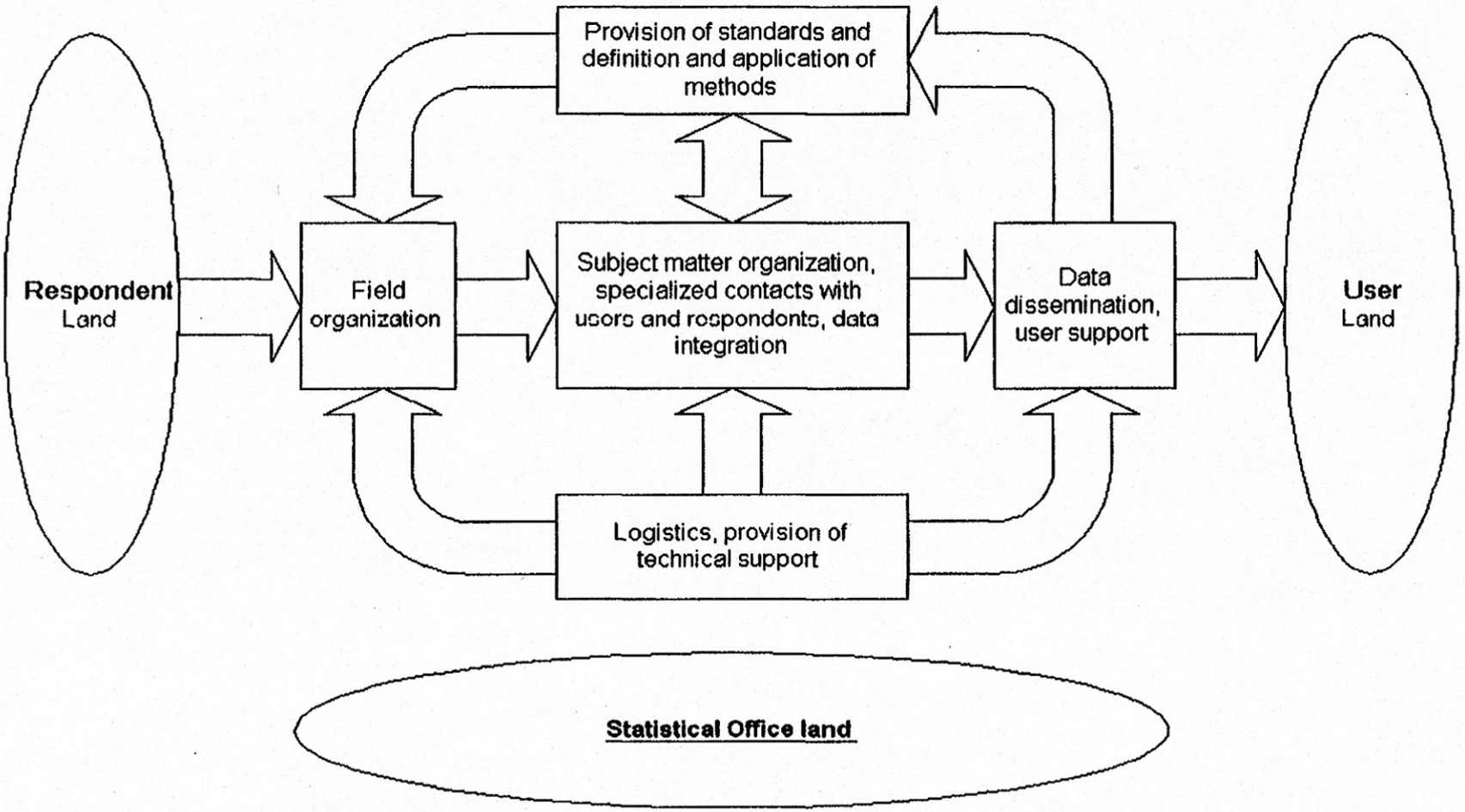
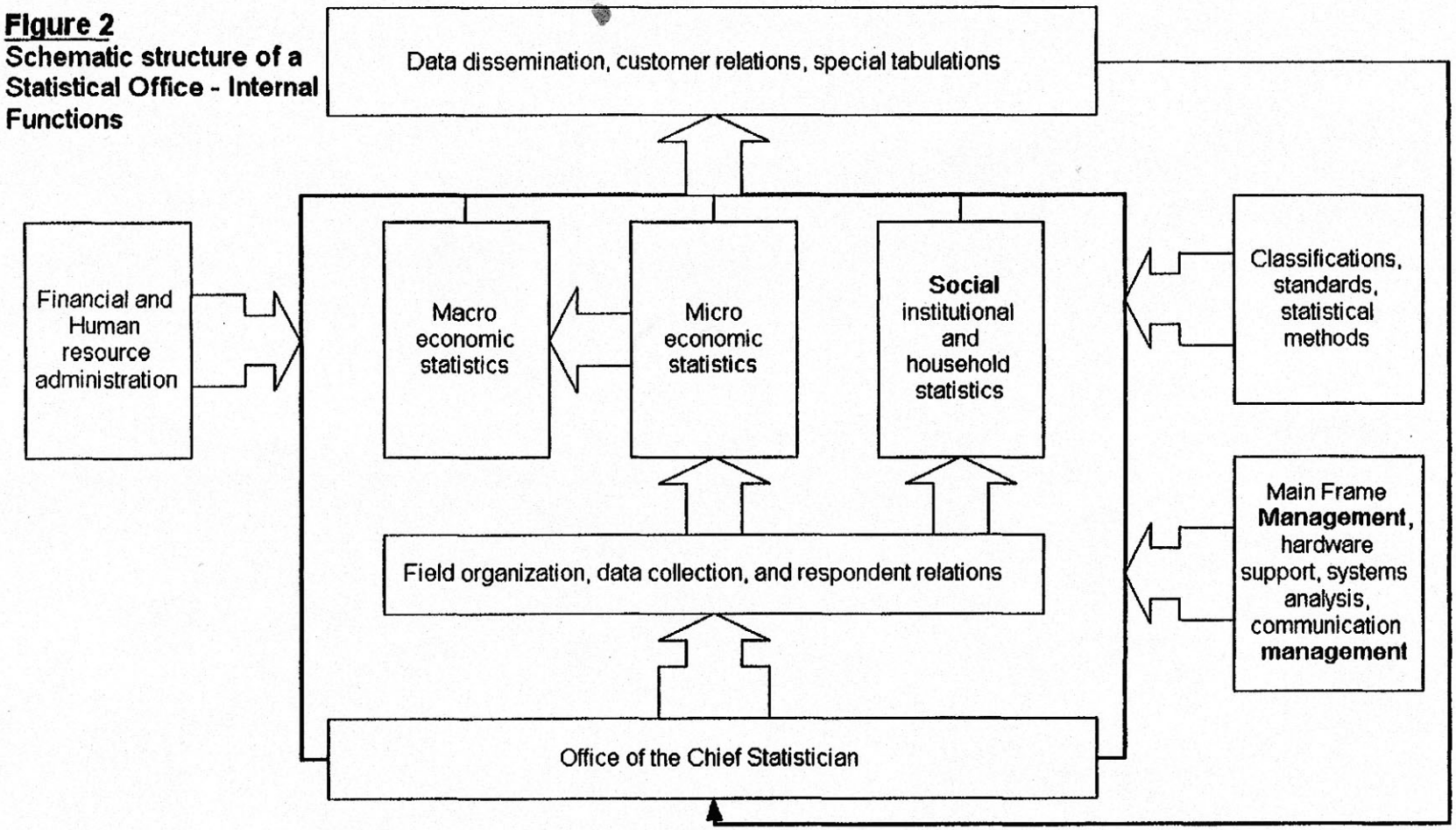
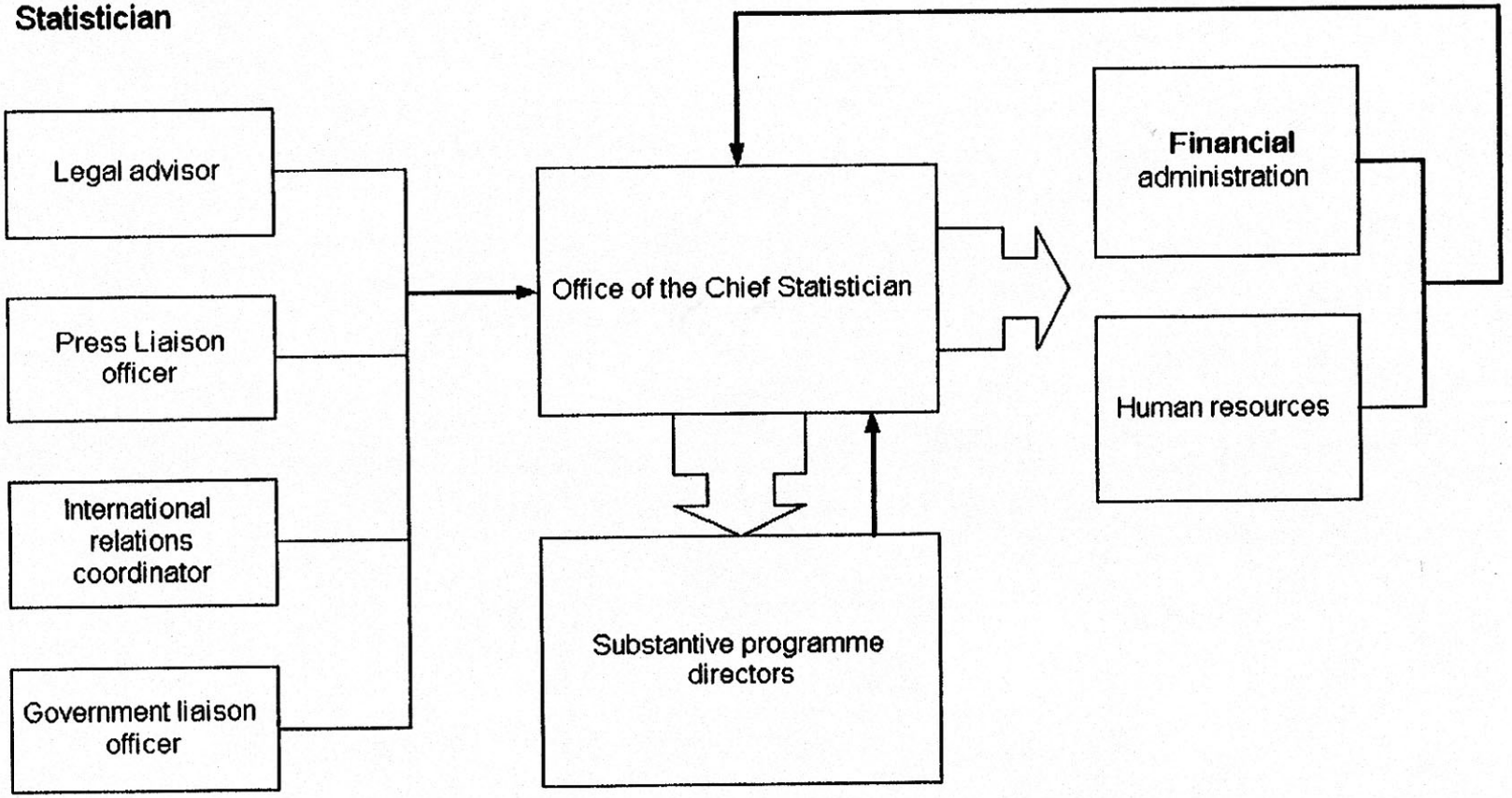


Figure 2
Schematic structure of a Statistical Office - Internal Functions



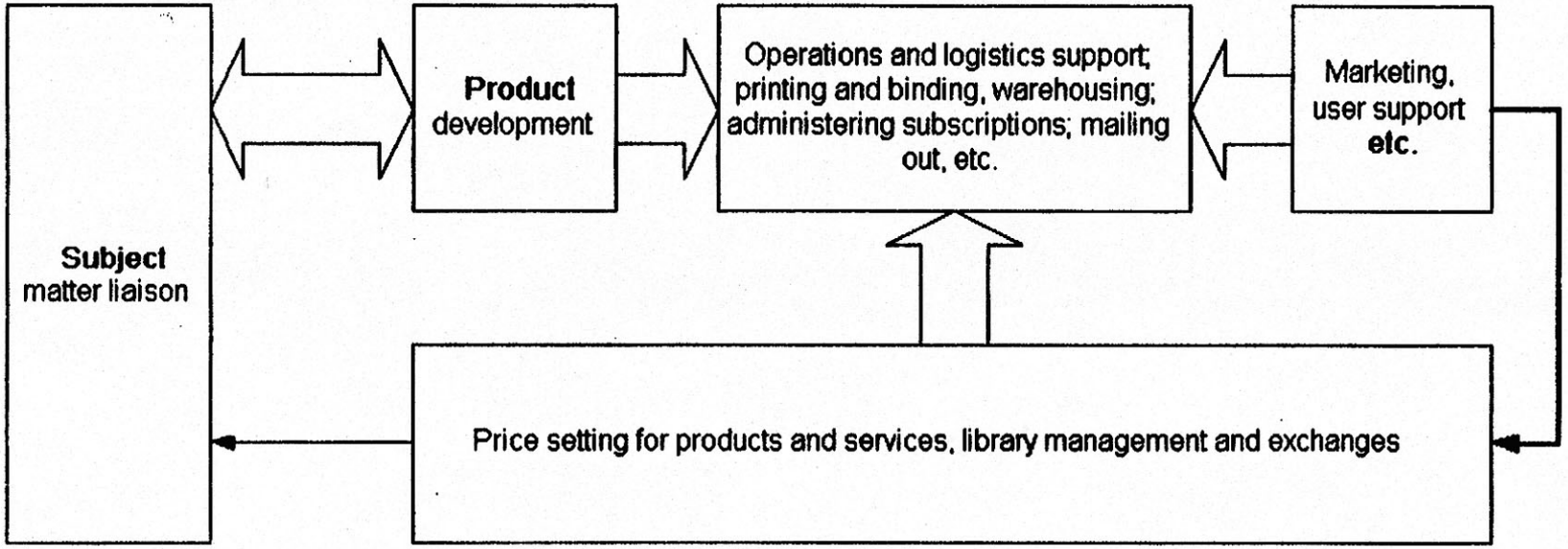
In this stylised diagram, the office of the chief statistician and the offices concerned with financial and human resource administration provide policy directives and legal frameworks to the subject matter areas. This is denoted by the arrows with a broad base. Within the subject matter areas, the field organization provides raw data to the major subject departments who in turn pass aggregated information to the area concerned with macro economic estimates. All areas provide aggregated information to dissemination - represented by wide arrows. Dissemination together with the subject areas are the main suppliers of feedback to the office of the Chief Statistician.

Figure 3
Functions of the office of the Chief Statistician



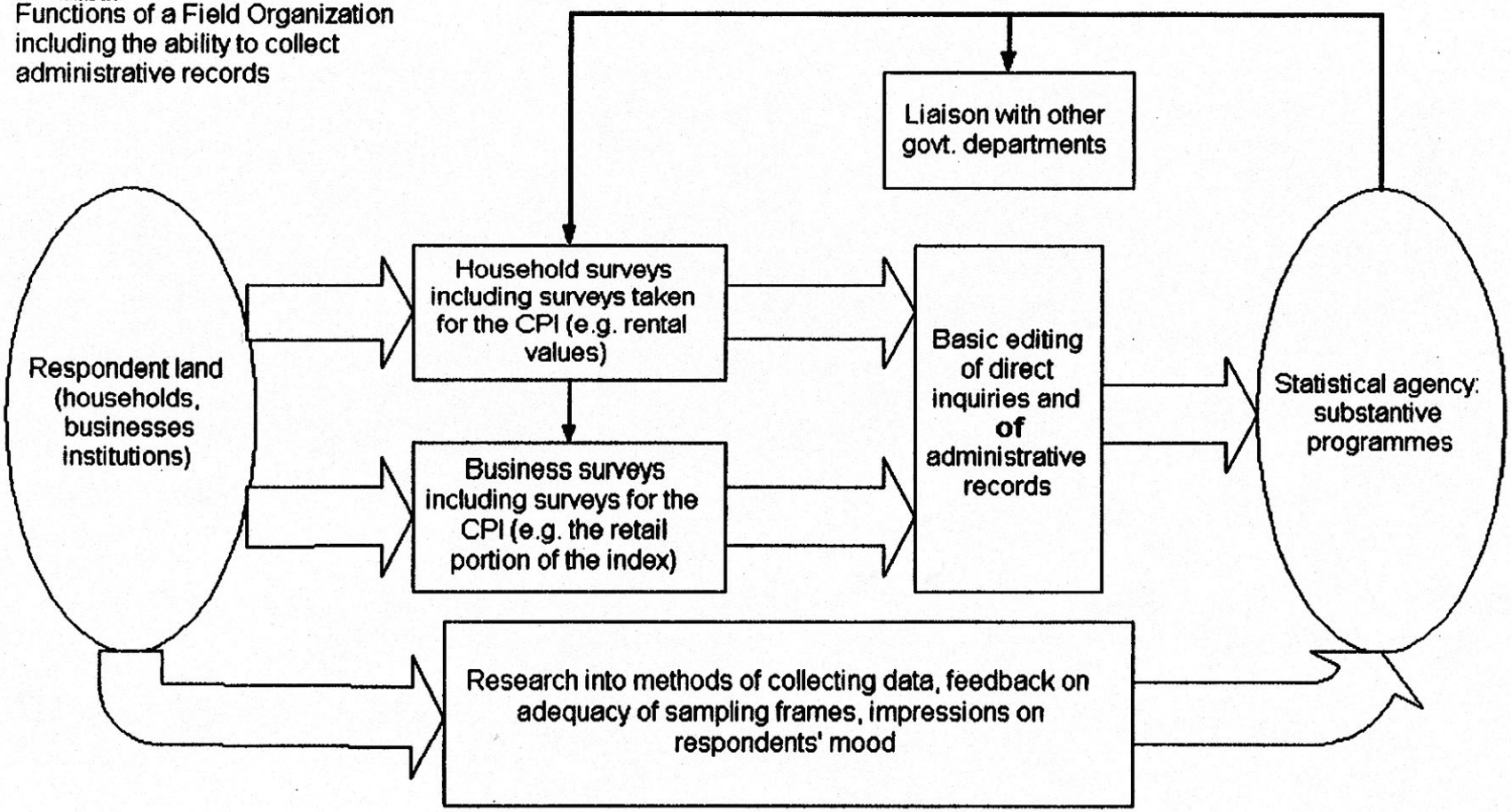
The Office of the Chief Statistician receives advice and feedback (thin arrow) from all organizations in the office and is in close and direct contact with the legal advisor, the press liaison officer, the international relations coordinator and the Govt. liaison officer. The office issues policies and directives to all parties and administers the office through his advisors on financial and human resource management.

Figure 4
Functions of a department charged with dissemination and user contacts



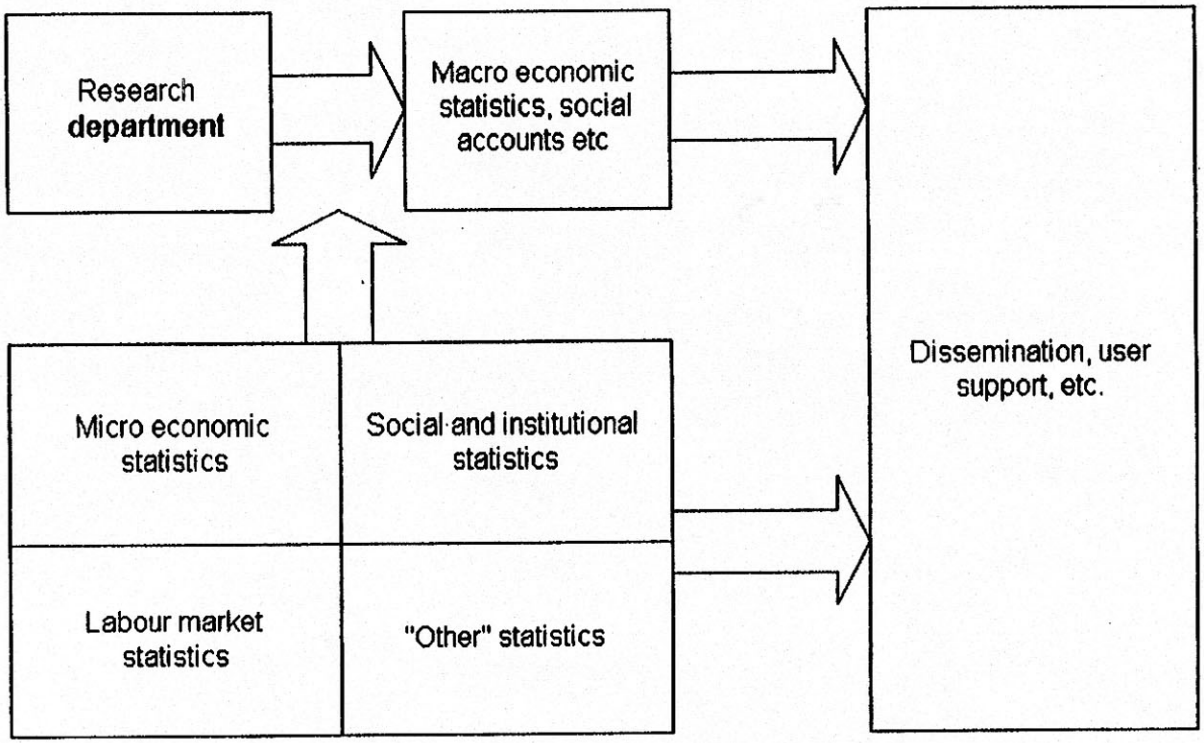
There is an iterative relationship between product development and subject matter partly described by a double headed arrow. Price setting gets feedback (thin black arrow) from distribution of publications. For the rest it is a matter of directives: operations and logistics get told by their clients what and how they should do it.

Figure 5
Functions of a Field Organization including the ability to collect administrative records



Respondents provide the field organization with raw data, which are subsequently subject to editing before being handed over to programme areas. Research is conducted into methods and the prevailing mood of respondents and communicated to programme areas for changes in survey frameworks and details.

Figure 6
Functions and subjects in the programme area of a statistical office



Side by side with the department in charge of macroeconomic (and social) accounts there is a research arm that helps in assessing basic statistics. The latter are divided into four major groups largely as a function of the source of the raw data. Feedback is derived from contacts with users and as far as the departments in charge of basic statistics are concerned, from the macro economic accounts.

Figure 7

Possible breakdown by subject of programme area concerned with economic statistics

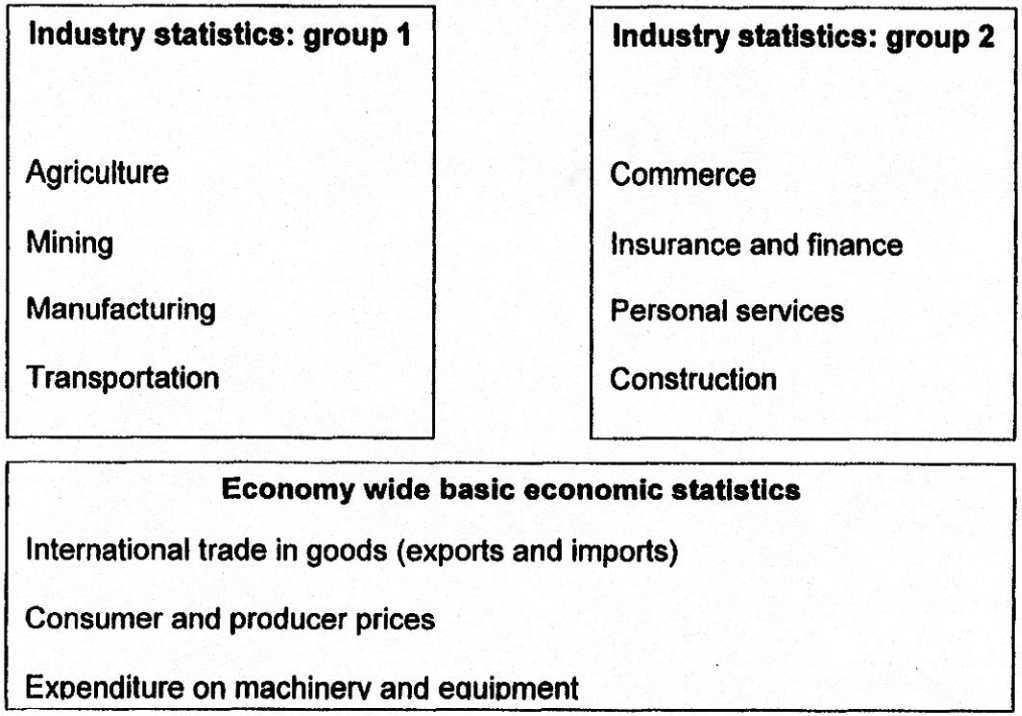
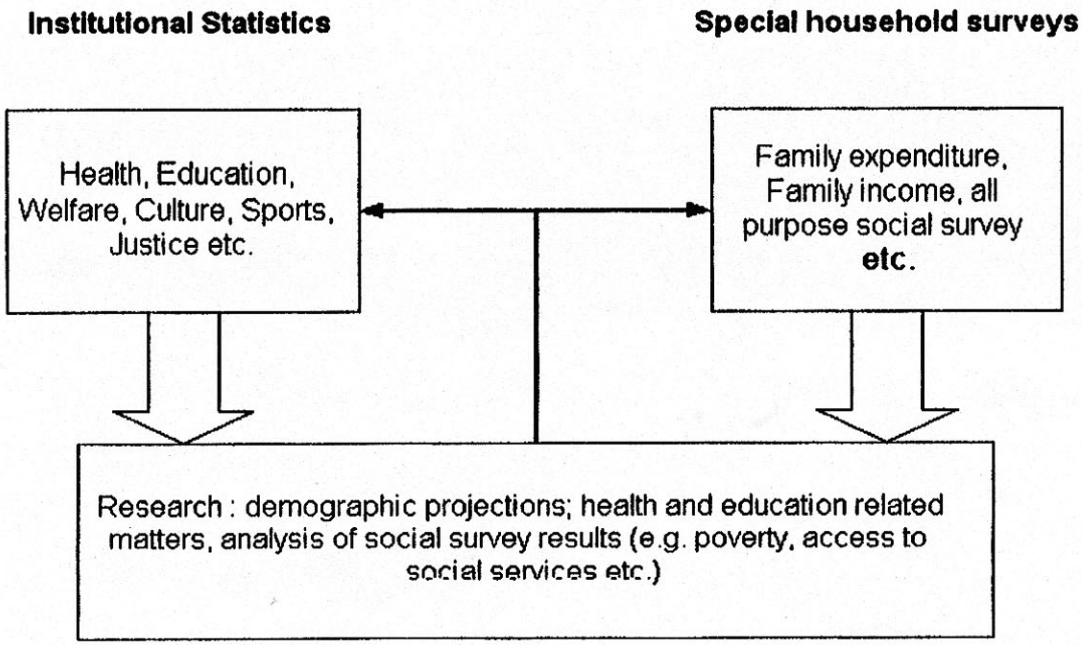


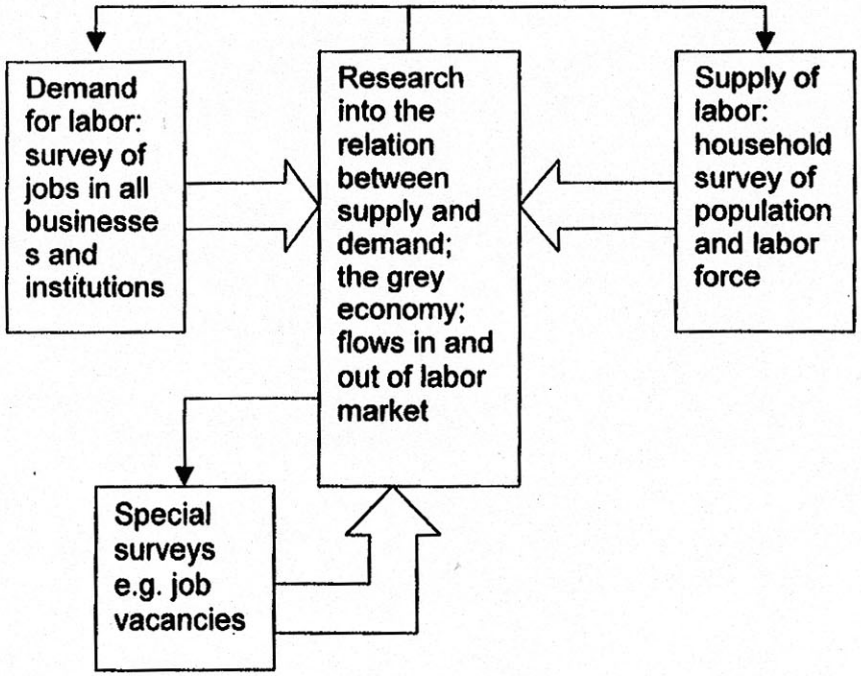
Figure 8
List of subjects in a department concerned with household and institutional statistics



In the absence of an integrating framework comparable to the national accounts, this area requires a research capability that accesses the basic statistics collected by the two departments and provides them with feedback derived from its analyses.

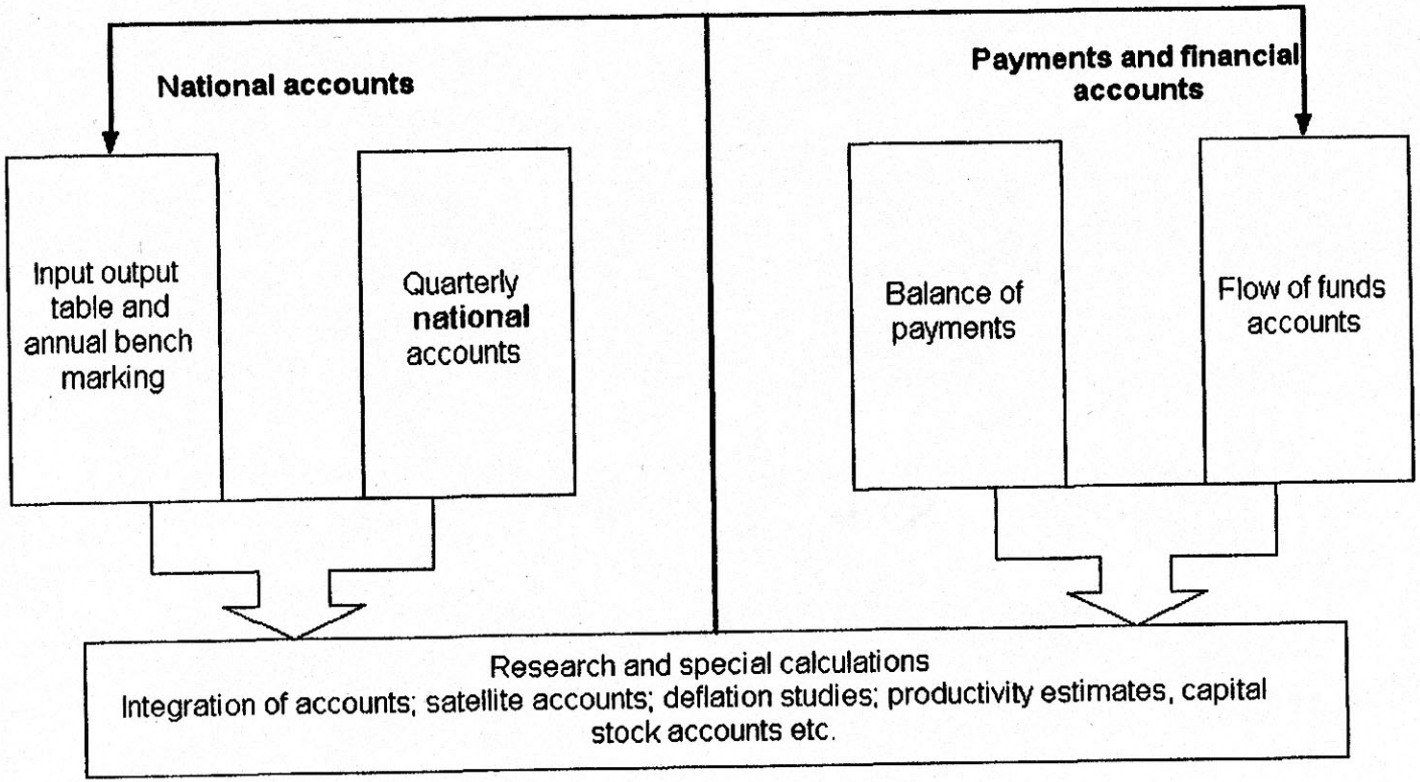
Figure 9

Possible analytical structure for the department concerned with the labor market



Independent measurements of supply and demand as well as of job vacancies lend themselves to research into the condition of the labor market. The conventions regarding arrows are the same as in previous diagrams

Figure 10
Possible structure for a department in charge of macroeconomics statistics



The same conventions as in previous diagrams hold. The research department is mostly in charge of integration and is ideally placed to provide the four participating areas with the results of its efforts to integrate financial and "real" data.