

V. PRINCIPLES OF ORGANIZATION AND REORGANIZATION

253. The literature on organizational theory demonstrates that organization is not a trivial matter. Most importantly, while there is no single, ideal way to structure an organization, some commonly accepted general principles can be identified.

254. This last point applies to statistical organizations as well. In theory, there are at least a dozen different, sensible ways to organize a statistical office. Remarkably, though, in spite of clear differences in detail and even in organizational philosophy and culture, a great deal of similarity can be found in the organization of statistical offices across the world. For example, a director of economic statistics from the statistical office of country A is likely to find a counterpart with very similar responsibilities in country B. The same applies to a director of social statistics or national accounts, or the director (or head of department) of price statistics, the business register, environmental statistics or dissemination. Without a doubt, common underlying principles are at work when it comes to organizing statistical agencies.

A. Theories and trends

255. There are some widely accepted, alternative approaches for structuring organizations.⁵⁹

- (a) By knowledge or skill (e.g., departments of cardiology, internal medicine and neurology in hospitals);
- (b) By work process, often based on the technology used (e.g., letterpress and offset departments in a print shop);
- (c) By business function (e.g., manufacturing, research, engineering, accounting);
- (d) By output (different product lines or services in different divisions, e.g., household appliances, machinery, maintenance);
- (e) By client (different organizational units for retail to households, big business clients, etc.);
- (f) By time (shifts in factories and hospitals);
- (g) By place (different geographical areas that are served).

⁵⁹ An entirely different distinction, which cuts across the principles mentioned below, is that between hierarchical organization structures and network organizations.

256. Approaches (a) and (b) are particularly relevant for statistical offices. Item (g) is also relevant, but was already described in Chapter III (regional decentralization). Some of the other alternatives (c), (d) and (e) may be relevant for certain parts of statistical organizations, but can hardly be seen as major guiding principles.

257. Since the 1970s, when the second (1980) edition of the *Handbook* was under preparation, new trends have emerged that have affected organizations in general. Some of these trends apply more particularly to statistical offices. Among the general trends, those of particular relevance are the following:

- A need for greater 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.

258. For statistical offices in particular, relevant trends include:

- The need to improve timeliness;
- The need to reduce the reporting burden;
- An increased focus on rapidly changing user needs and therefore on customized dissemination methods.

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

B. Organization by subject or by function

260. The relevant sections in the 1980 *Handbook* focused on two recognized ways of structuring a statistical office: by subject matter and by function. The term “subject matter” is ambiguous and has several connotations. It may apply to the institutional source of the basic information that is collected. Education statistics, for example, would be classified on the basis of the source from which the statistics are collected: all statistics collected from educational institutions, including their finance data for example, would

be the responsibility of the education division. The “knowledge base” of that division would consist of all the information pertaining to the educational system. An alternative interpretation of subject matter centres on main categories of data. This interpretation leads to such groupings as employment and unemployment, finance and investment. However, the most common interpretation of “subject matter” versus “function” leads on the one hand to the creation of divisions such as trade, industry, health and education, and on the other hand to divisions such as sample survey design, data entry and data editing, field operations, analysis and dissemination.

261. For a variety of reasons, some of which are described below, it has 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. Some functions are ideally suited to be grouped into agency wide functional units, such as sample design and field work. Other functions, such as questionnaire and publication content and analysis/interpretation generally require the direct involvement of a subject-matter specialist and should therefore be assigned to subject-matter units.

262. Two additional requirements have come to the fore more recently:

- Data collection should be organized as efficiently as possible in order to minimize the burden for both the respondents and the collecting agency and at the same time enhance timeliness;
- Statistical information should be disseminated in a manner relevant to the problems or questions that it addresses; implying that dissemination should be user-focused rather than based on statistical sources and processes.

263. The above two requirements could give rise to two different organizational structures within an agency: one for data collection and one for data dissemination. In order to “connect” the two structures, a bridge is required; this would take the form of a unit in charge of re-sorting data, after they have been collected and edited, into new groupings that better lend themselves to analysis and dissemination. This aspect of organizational design applies to a statistical agency of any size. Naturally, smaller agencies can adopt more flexible solutions.

264. To summarize:

- In theory, there are many organizational approaches that one could use to structure statistical offices;
- In practice, most statistical offices have been organized according to either subject matter or function but usually according to some combination of these two;
- New organizational trends have affected all organizations, and some of them are specifically relevant for statistical offices;

- Among the new developments is the realization that statistical offices may be organized in two other ways: for data input according to data source and for data output according to user categories, with a bridge in between for re-sorting.

265. The difficulties involved in finding the right organizational structure are illustrated by the brief case history in section C. below.

C. Organization and reorganization

266. Before 1974 the organizational chart of the Central Bureau of Statistics of the Netherlands (CBS; now Statistics Netherlands) was simple: a director-general, a deputy, a director for 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 departments were subdivided into divisions. The story of the reorganization of the Bureau is presented in box 9.

Box 9. Reorganization of Statistics Netherlands

In 1973 the government announced a plan to relocate the Central Bureau of Statistics 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 other stakeholders and in political circles. The director-general resigned. After some time, a compromise was reached whereby only half of the Bureau would relocate, and its resources would be substantially increased partly to compensate for inefficiencies, partly to tackle new statistical work, and partly to create new employment. In addition, a new organizational structure was developed.

The new structure regrouped statistical departments into four directorates:

Economic statistics (12 departments)	Essentially: subject matter grouping
Social statistics (nine departments)	Essentially: subject matter grouping
Methods and development (four departments, including the central computer department)	Functional grouping
Office services (four departments)	Functional grouping

All departments were subdivided into divisions and subdivisions, and often had two additional layers.

At the same time the number of staff employed substantially increased, from about 1,500 to well over 2,000. During the 1970s and early 1980s, additional increases in staff were allowed. In 1982 the (budgetary) number of posts in the CBS reached about 3,500 (the actual number went up to just over 3,000). Then came the turning point.

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 1990s reduced the number of staff to around 2,500. Overall, the Bureau managed to keep most of its statistical output intact, thanks to effective computerization. In the early 1990s it had one of the largest and most advanced computer networks in the country: about 2,500 personal computers in local area networks, with high-speed connections between the Voorburg and Heerlen. Moreover, efficient software (including *Blaise*) for data collection, data editing and data dissemination was developed.

Despite the budgetary decreases, the demand for statistics increased, largely propelled by demand from the European Communities. Around 1992 the situation reached the point at which the increases in efficiency could no longer offset budgetary cuts. This created tension. The Central Commission for Statistics, which decided on the Bureau's programme of work, had great difficulty in establishing priorities. Several important users (e.g., ministries) became dissatisfied.

In this situation, CBS management tried a "pre-emptive strike" and launched "Operation TEMPO", which stood for:

TIMELY – EFFICIENT - MODERN - PROFESSIONAL - INDEPENDENT

The main focus of TEMPO was external: input coordination to minimize response burden and output coordination to maximize user satisfaction.

An analysis of the situation made it clear that the problems consisted in the following:

1. Problems that were created by external factors, including: increasing demand for statistics; decreasing budget; consequent need to improve efficiency; tension between European and national requirements; pressure to reduce the response burden; the need to improve presentation and public image; the need to improve timeliness; the need to improve public image;
2. Problems that were caused by internal factors, including: too much compartmentalization and specialization; too many layers and poor internal communication; unclear responsibilities; complex internal rules and procedures; excessively inward-looking culture; low self-esteem; and bureaucratic management attitudes.

Once these problems had been identified, the organizational structure was completely transformed. The top management of the Bureau would consist of the director-general and two policy directors (including the deputy). There would be eight directorates: four for statistical production and four for support. The first of the supporting directorates was for input coordination and was responsible for such activities as the business register, data collection from households and the development of electronic data interchange (EDI). The second was for output coordination, including the development of a central database for overall dissemination purposes, integration of information (including national accounts), general publications and marketing, and public relations activities. The third supporting directorate was responsible for basic statistical infrastructure (including methodology and computer services) and the fourth for general office services. Financial and human resource management were placed in a staff directorate directly under the director-general, who in addition was assisted by a small cabinet responsible for international relations and legal and policy matters, as well as for providing the secretariat of the Central Commission for Statistics.

The four directorates for statistical production were organized 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 for the following areas:

- (a) Agriculture, manufacturing, environment, energy and technology;
- (b) Trade, transport and commercial services;
- (c) The public sector and well-being of the population;
- (d) Demography, labour, income and consumption.

In terms of management, statistical divisions would be fairly autonomous; their performance was monitored by a contract management system. Within each directorate there were 8 to 10 statistical departments. Their internal organization was such that production teams were responsible for the complete statistical process.

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

This meant another fundamental reorganization, although one with a quite different perspective: while TEMPO was induced by the need to strengthen the Bureau's orientation towards clients and respondents, the new reorganization was pushed by the task to further reduce cost and improve efficiency. Hence, this time the focus was on the streamlining and standardization of processes.

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 their stage in the statistical process. The movement towards integration led to the reduction of the number of statistical directorates from four to two: one for business statistics, and one for social and spatial statistics. Within each of these directorates, separate departments were established, for data collection and administrative editing on the one hand, and for statistical editing and analysis on the other hand. As a result of the geographical separation between Voorburg and Heerlen, there is one department of each type in both locations.

In this design, a separate input directorate was no longer necessary and in any case external data sources for persons and for businesses have little in common. Conversely, the output directorate (macroeconomic statistics and dissemination publication) was maintained, and its responsibility with respect to publication and dissemination was even strengthened: all data produced by the statistical divisions would be published by the output division, which also accommodated the central information service.

The directorate technology and facilities completed the division structure. To ensure close cooperation between technology, methodology and production, a substantial part of its information technology (IT) and methodology staff was operationally assigned to the statistical directorates.

Supervision of the four directorates and twenty departments was placed in the hands of the executive board, consisting of the director general and his deputy, who would be in charge of statistical policy and processing. Together with the directors of the four directorates, they would form the management committee.

This new process-oriented structure is heavily supported by advanced information technology tools. In fact, large databases account for a clear demarcation between the various stages in the statistical 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 for statistical editing and analysis;

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

Finally, it should be stressed that the integration of processes, in addition to leading to more efficiency, represents a major step towards the long-cherished goal of presenting a coherent picture of society in the form of consistent figures.

Postscript

It is difficult to assess the necessity or indeed the costs and benefits of the organizational changes that Statistics Netherlands has implemented over the years. Clearly, any major reorganization may generate fresh ideas and gains in efficiency, and lead to a better focus on strategic objectives. The process, however, is also energy consuming and jeopardizes continuity. Many statistical agencies innovate, improve their efficiency and rethink their strategies without major organizational changes.

The last reorganization of Statistics Netherlands, however, intended fundamentally to restructure the primary process and thus to produce substantial efficiency gains as well as integration, doing away with existing stovepipes for separate statistics. It is difficult to see how this could have been achieved without a major organizational change.

267. 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 some point in time realize that the circumstances have changed so much over time that there is reason to consider a possible reorganization.

268. Before any major reorganization is initiated, it is wise to think at least twice, because of the risks and costs involved. There are also some general considerations to be borne in mind. They are expressed below as maxims:

- Don't make 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 perform well 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;⁶⁰
- Undue changes in top management personnel may antagonize staff and create factions;
- While efficiency is an important concern, some 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;
- The organizational chart should be simple and easy to explain to insiders and outsiders; if it looks complicated on paper, it will probably also be complicated in practice;
- It is advisable to limit the number of hierarchical levels (four is widely seen as the maximum) because messages tend to get distorted as they are transferred from one 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 for production staff the number is appreciably higher);

⁶⁰ See the 1980 *Handbook*, p. 7: "It is worth recalling ...that organizational structures are but shells...In the last analysis what is really decisive in the life and growth of an institution is ... the calibre and suitability of the people that comprise it".

- If a reorganization is unavoidable, keep the reorganization process as brief as possible;
- Make sure that the views of all staff members are heard;
- The reasons for any reorganization should be made perfectly clear, because people resent working within a framework that is not fully understood.

269. While these considerations apply to most organizations, there are also some 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 work flow. For example, for annual 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 mailing of questionnaires for the next survey round may happen in the fourth quarter. To even out the work flow it may be a good solution to combine this work with tasks that have another seasonal pattern, such as short-term data collections, in order to form a single organizational unit. A more drastic approach is, of course, to look for an agency-wide solution;
- For certain activities, particularly those that affect corporate identity, it is important to aim at strict agency uniformity, and these activities should be placed under unified control in one organizational unit. The agency stamp of approval 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;
- In times of decreasing budgets, statistical offices are sometimes confronted with the question of whether or not it is financially efficient to outsource certain functions and, if so, which services can responsibly be bought outside. Catering, janitorial services and security; in many cases, printing; and sometimes part of the dissemination activities are likely candidates for successful outsourcing. Some more general (e.g., basic computer skills) as well as some highly specialized types of training (e.g., management training) can often be easily bought. Much more controversial is the outsourcing of interviewing; apart from the quality issues that have to be considered, few commercial interviewing agencies seem to be able to compete, price-wise, with the agency's own fieldwork staff. Finally, a very controversial issue concerns the extent to which certain computer services should be bought or self-produced.⁶¹

⁶¹ One example of successful outsourcing of routine computer network maintenance is to be found at Statistics Sweden. See chap. VIII for a fuller discussion of outsourcing of information technology.

D. Coordination mechanisms and corporate culture

270. In all organizations, a sufficient degree of coordination (and not only statistical coordination in a narrow sense, as described in chapter II is a must. While in smaller statistical offices, coordination may be achieved through mutual adjustment, and in larger offices through direct supervision, there will also be a need for standardization, agency-wide, of processes, outputs and skills.

271. Even more important, although it is a difficult topic, is the creation of a strong corporate culture: shared beliefs, values and norms. A strong system of internal communication, through such mechanisms as newsletters, the Intranet, periodic meetings of the chief statistician with senior and middle-level managers and even rotating selections of all staff), may help to achieve this. A seemingly trivial but in principle very functional technique in creating a corporate culture is for senior managers to visit the work floor regularly.

272. Among the more formal mechanisms to coordinate and promote corporate culture, a well functioning system of committees is perhaps the most important and effective. The following sections review the role and workings of such committees. A distinction must be made here between committees and task forces 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.

273. The 1980 *Handbook* identifies the following as sufficient justification for the creation of a committee:

- Improving across-the-board communications and increasing the sense of participation in collective initiatives;⁶²
- Mobilizing agency-wide support for new and high-priority tasks;
- Ensuring multidisciplinary contributions to a new and complex undertaking;
- Maintaining a balance of different interests and perspectives when new methods, standards or concepts are introduced.

274. On the subject of structuring a committee required for effective management of a statistical agency, chapter I, Section D of the 1980 *Handbook* states:

“Indeed, it is, or it should be, one of the constant challenges of top management in a statistical agency, irrespective of its pattern or organization, to keep the horizontal dimension alive, visible and effective”.⁶³

275. It is safe to assume that a sizable agency (i.e., over 500 employees) will reflect in its organizational structure both subject-matter and functional units. As a result, there will

⁶² See 1980 *Handbook*, p. 11.

⁶³ See 1980 *Handbook*, p. 10.

be points of internal tension for which some form of mediation is required. An example of this would be an agency in which both the department in charge of industry statistics and that in charge of health statistics have the required funds to pay for the computer processing of their latest data. Monthly, conflict arises over which department takes priority, as does the risk that one or the other will miss a scheduled release date. The chains of command of the two departments meet only at the very top. It becomes necessary to devise a system that reduces tension, forecasts events and standardizes the manner in which future conflicts arising from this kind of situation are resolved. The 1980 *Handbook* points out that horizontal mechanisms must be put in place to resolve conflict and promote integration in any organization with separate units. Such mechanisms are known as horizontal committees. Some statistical agencies have a complex network of committees, some standing and some ad hoc, all created to promote an overriding objective and to minimize inevitable tensions.

276. 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 issues that are agency-wide rather than limited to a single organizational unit. In the case of the latter, the committees may become as powerful as the regular units listed on an agency's organizational chart.

277. There are essentially two kinds of internal committees,⁶⁴ those that deal with managerial issues and those that deal with technical ones. Certain statistical problems exist irrespective of the good will 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 first compiled. Where there exists a central register of businesses, classified according to their economic activity, subject-matter experts should take part in agency-wide discussions to ensure that different surveys do not end up with overlapping populations.

278. Management issues such as the recruitment of professionals; the provision of general training for all classes of staff; and the standards for dissemination when different parts of an organization contribute to the same publication all require open discussion and review of internal 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 decrease substantially.⁶⁵

279. One important committee, essential in instances in which the statistical agency's staff is unionized, concerns labour-management relations. In many situations, the chief statistician needs a direct conduit to the staff, just as staff members need direct access to the agency executive. The nature of such a committee's agenda depends partly on which elements are handled on a government-wide basis and which are left for each agency head to solve.

⁶⁴ An explanation of external or advisory committees can be found in chap. II above.

⁶⁵ In the case of Statistics Switzerland - a medium-sized statistical agency - there are standing committees covering such subjects as the consumer price index as well as ad hoc committees formed to deal with unique problems as they arise.

280. The following remarks address those concerns requiring regular attention. Issues resulting from a temporary increase in interest justify the creation of a task force rather than a committee and are not seen as crucial to the organization of the agency. The elements required for a task force to operate successfully, however, are much the same as those necessary for the functioning of a standing committee.

281. Typically, committees do not have a budget. Their power is a result of the 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 chair should be a capable and impartial leader whose judgement should be respected, even though his/her statements do not carry the weight of an official decree. The committee's purpose is to advise the chief statistician. While the chief statistician has the power to ignore the committee's advice, in practice, and possibly with slight modifications, the committee's voice will be heard.

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

283. Committee membership offers an opportunity to contribute to agency-wide policies. Such activity also serves as a training ground for future senior managers in the sense that it provides members with a broader perspective than they could acquire from their regular jobs, and makes them aware of the wide range of considerations important to the agency. Committees must not grow too large, or else they become cumbersome and incapable of reaching closure on the issues they debate. Generally, committee meetings lasting over two hours represent a heavy burden on their members' time. In order to maximize the training benefits that such committees confer on their members, some system of membership rotation should be adopted. One possibility is for members to serve on a committee for a mandatory period of two years, extensible by one year, after which they move on. Inevitably, an informal ranking of committees by their perceived influence or prestige will be established. Determination of membership should acknowledge prestige and ensure that those managers who show promise serve on committees with the most critical agendas.

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, it is possible to organize statistical offices in two other ways: for data input according to data source or for data output according to user categories.

Before initiating any major reorganization, it is wise to exercise caution. Some of the general considerations to bear in mind include:

- Don’t make 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 all, talented people;
- While efficiency is an important concern, some 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.