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Topic (iii): Resource management in statistical offices and the role of the IT departments

# INTERNAL COST RECOVERY AND FUNDING OF IT

Submitted by Statistics Canada[1]

**INVITED PAPER**

## I. INTRODUCTION

1. The management of IT services in any organization should derive from the business characteristics of that organization, and IT in statistical agencies is no exception to this. However, the character of national statistical agencies differs from some other types of organization in at least these dimensions:

- IT is not just a supporting service, it is a fundamental component of the business. As the primary products are information and analysis, IT provides the manufacturing capability.

- Similarly, Information Management (IM) is not simply a tool for decision support but an integral part of managing the inventory of intellectual assets.

[1] Prepared by Mel Turner.

- Statistical agencies tend to be very project oriented, and these projects are diverse in terms of their data requirements and processing techniques. Statistical processing activities cover almost every aspect of a nation's society and economy.

2. Statistics Canada employs 5400 people, primarily at its headquarters in Ottawa. We also have regional operations in five offices at major centres across Canada and several smaller offices. We have about 800 professional systems staff, half of these in the Informatics Branch and half distributed across the program and other service divisions. The Informatics Branch is focused on providing expertise and the common services necessary for program areas to manage the IT component of their projects.

3. Support is provided for three standard computing platforms:

- A central mainframe (IBM OS/390) operated and maintained by the Informatics Branch and providing metered computing services for the whole organization;

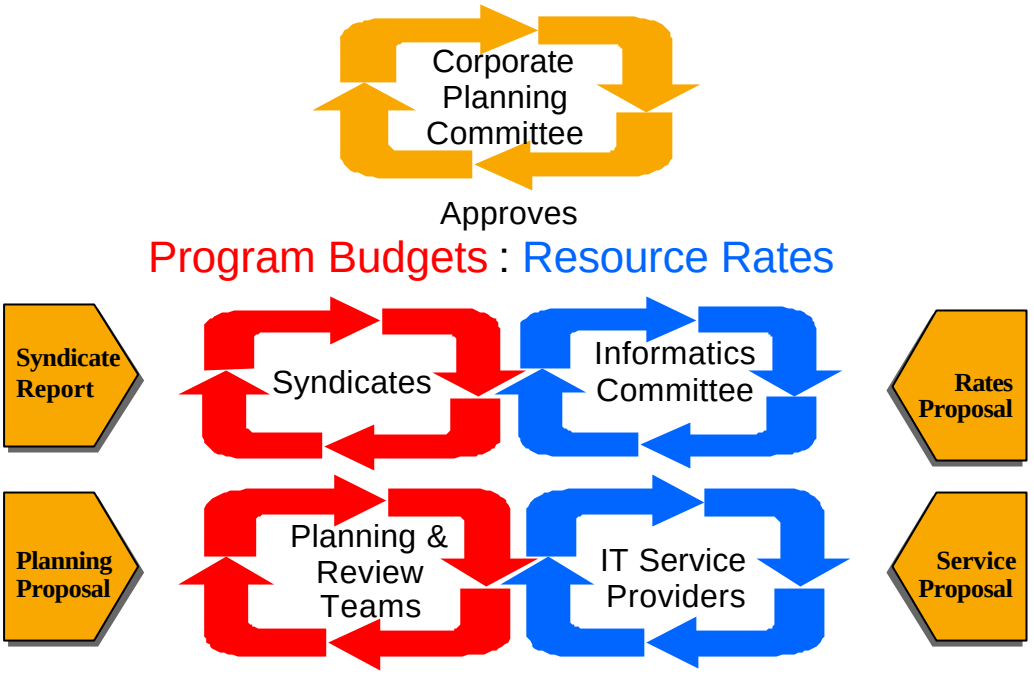
- 300 Application Servers, both UNIX-based and NT, that are located in and managed by the program areas or housed in centrally managed facilities; and

- 8000 Workstations using the NT operating system. Statistics Canada is currently making a transition towards a common minimum software configuration at the desktop based on Windows 2000.

4. The Informatics Branch also operates and maintains the network infrastructure, providing high-bandwidth, secure connectivity across the organization accessible by all employees.

## II. PROGRAM PLANNING AND FUNDING

5. Statistics Canada's planning approach is based on the important principle that programs are funded for the *full* costs of their projects, including their IM/IT costs. There is no separate IT funding because this is just a special example of resources used to accomplish a project that might also require, for example, methodologists, interviewer capacity, mail services and telephone follow-up services. The program manager should be able to choose the mix and quantity of services needed to achieve the program objectives.




*Planning and Funding Structure*

6. IT planning is built into the corporate planning process where plans and proposals are developed by the sponsoring division for each program, within a set of priorities and strategic directions formulated at the corporate level. This process balances top-down articulation of broad directions and bottom-up filtering of project proposals.

7. For the service areas, which supply resources and service capacities to projects, there is a parallel planning activity that results in setting prices or rates for use in preparing the program proposals. In the particular case of the Informatics Branch, the Informatics Committee (a management committee comprising senior representatives from the program areas and the Informatics Branch) reviews rate proposals each year, in advance of program planning discussions by Program Review Teams and Planning Syndicates. The Corporate Planning Committee approves the recommended rates. These rates can then be used in developing full cost estimates for program plans that include development, implementation and operational aspects.

8. The availability of established rates allows the program managers to make economic choices among internal suppliers of resources where there are alternative methods of accomplishing the project. They also offer the possibility to make comparisons with external providers or contractors. To allow such decisions to be made free of artificial distortions requires the existence of a common currency for all expenses. This is the purpose of our *Internal Cost Recovery (ICR)* system. All programs wishing to use central IT services have to buy them with real money that is fully convertible both within IT uses and with non-IT uses. Essentially, an *ICR* system means that the central IT organization acts as a *business* which must earn its revenues from the program areas on the basis of specific fees for specific services.

## III. PROGRAM ACCOUNTING

9. The operational counterpart to the planning mechanism is project cost accounting. This means that as projects consume resources (whether these are people, materiel or services) costs can be captured

and associated directly with the project that benefits. Every expense is tagged with a project code *plus* a financial responsibility code for the organization incurring the expense. This provides for an accounting *matrix* that has the functional organization structure on one axis, and the project structure on the other axis. Thus costs may be aggregated independently by program and function.

10. The linkage of costs to specific projects is especially important in tracking human resource expenses. Employees record their time in one-hour units for each project they contribute to, and report this weekly. Staff that cannot be associated with a specific project (including functional managers) code their time to overhead accounts that will ultimately be apportioned to programs at the corporate level, or to service accounts that are cost recovered through the ICR system.

11. Statistics Canada has had project cost accounting in place for almost 30 years and it has had a fundamental effect on the culture and behaviour of the organization:

- Interdisciplinary teams are the norm for development projects with contributions from subject matter, methodology, systems and operations. Individuals can contribute to multiple projects, located anywhere in the organization, and costs are properly associated and accounted for.

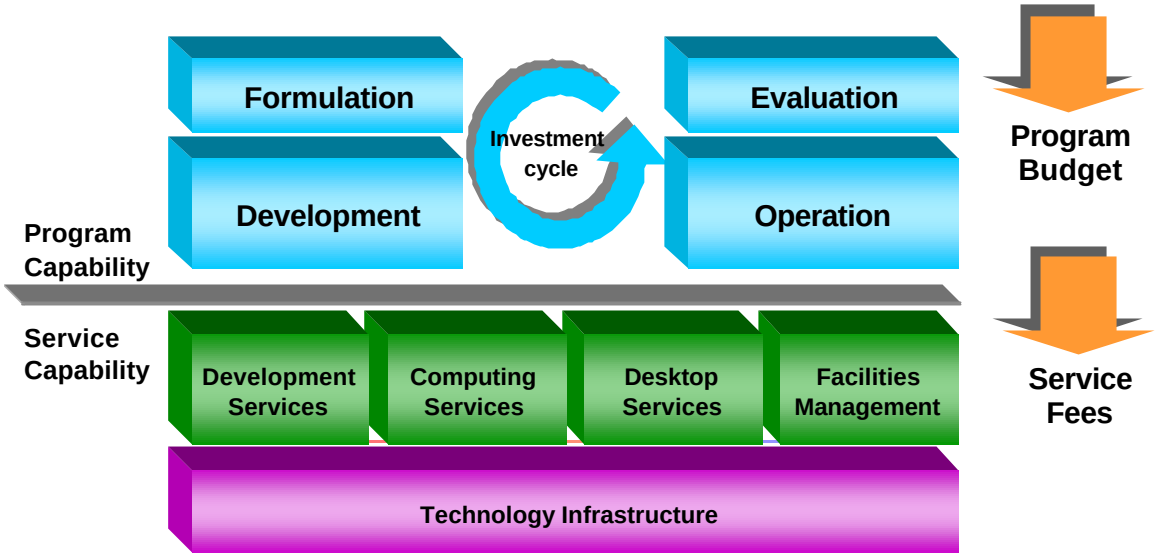
- Because we have knowledge of the full costs of programs we are in a position to make strategic choices when budget cuts are imposed on us or reallocation is called for.

- We have the necessary infrastructure to undertake survey work for other organizations and to receive payment for our full costs. This *external cost recovery* is a simple extension of the internal process.

- There is a clear linkage for employees to their internal clients. This helps engender a customer service orientation throughout the organization.

12. Although a project cost accounting system does not necessarily imply internal cost recovery, it is a prerequisite for making ICR work effectively. It not only provides the mechanics for transferring expenses to the programs that benefit, but together with the planning process it establishes a regime of *transparency* that engenders trust between the service areas and the programs.

## IV. INTERNAL COST RECOVERY




*Program and Service Accountability*

13. For the remainder of the paper we will focus on the internal cost recovery mechanisms we have in place for the Informatics Branch and the IM/IT services provided. However, the same cost recovery principles can be applied in any service area.

14. Program managers are directly accountable for delivering a program within the budget allocated. This encompasses the full program cycle from formulation through development to operations and program evaluation. To accomplish this they use services provided by the Informatics Branch, as well as other functional services. A sample of their interactions with the Informatics Branch might be as follows:

- During *formulation* (planning and feasibility determination) of a new project, advice may be provided on anticipated costs for development, IT equipment acquisition and central computing services. This advice is based on a good track record of actual costs of similar projects and accurate forecasts of rates to be charged for needed services. This in turn allows the program manager to make rational choices among alternatives. For example, the choice between different mixes of mainframe, server and desktop technology should be based on real and total costs of supporting each of these technologies. The choice between purchasing and adapting commercial software and developing software in-house should take account of the real costs of each option.

- A *development service* is offered at rates that include the full cost of delivering that service. The program manager has the option to employ local staff to perform the development, contract it out to a commercial service or to use the Development Services of the Informatics Branch. In other words, we must compete for this business.

- If IT equipment is acquired for the project, the manager may choose to house and operate it in their own area, or avail themselves of the *facilities management* services that we provide.

- All workstations and servers are likely to use the communications and connectivity services provided by the common network infrastructure. Therefore, a non-discretionary monthly fee is charged for each device. This fee covers the cost, collectively, of maintaining the infrastructure and providing the

standard *desktop services*. Although the workstation service fee is non-discretionary, the manager does decide the number of devices required so there is an incentive to keep this to a minimum.

- Users have access to *computing services* on the mainframe on a *pay-as-you-go* basis. The charging mechanism is based on CPU usage, storage demands and printing resources used; metered for each resource and charged back to the project.

- There are several other *for fee* services, usually offered over the network, which are discretionary. For example we provide an *enterprise backup service* that is secure, replicated off-site, and efficient. Although entirely optional, it has attracted broad subscription across the agency.

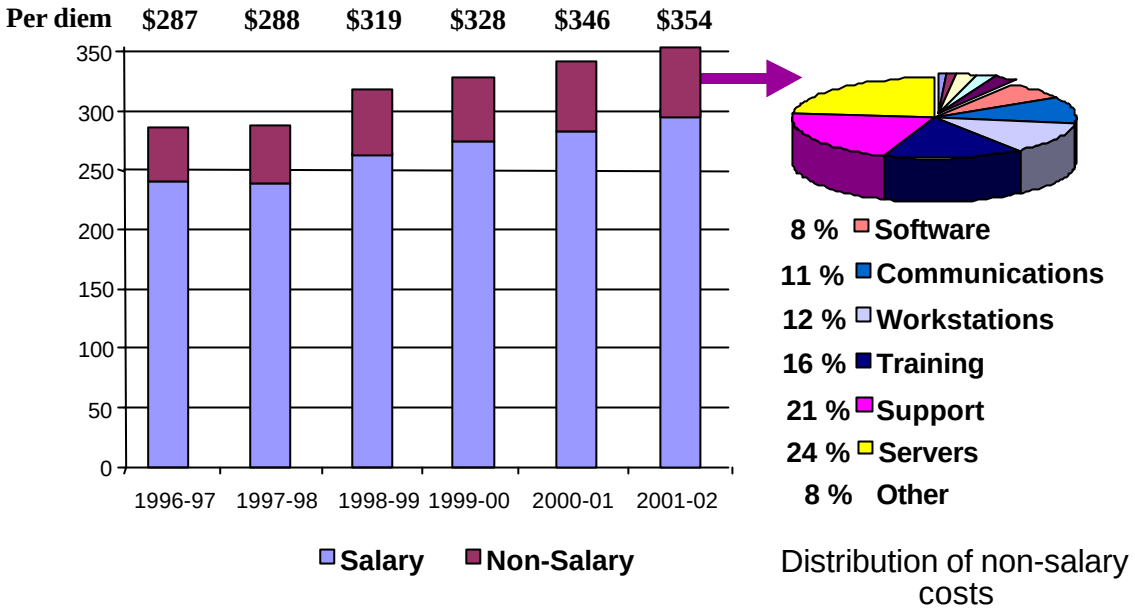
15. From time to time we propose new services to meet the demands of our clients. If we can offer these services at a competitive price, or at lower risk for the manager, an internal market will develop. If we are unable to offer a cost-effective service, our clients let us know by their actions.

16. Let's look at this activity from the Informatics Branch side of the service boundary; how do we manage the activity of more than 400 professional IM/IT workers and ensure our client needs are met?

## V. DEVELOPMENT SERVICES

17. For application development services, a daily rate is charged for each person assigned to a project. The individual is required to indicate weekly the hours worked on each project. The rate charged is blended over all levels of employee, from trainee to section chief, and includes their non-salary expenses. The reasons for using a blended rate are first that it is *simple*, and secondly it underscores the fact that the composition of development teams is part of the service rather than the choice of the client (this emphasizes choice on the basis of skill rather than price).

18. In the case of development services not all costs are recovered. The management component (about 7% of the total cost), involving administration and staff functions, are funded directly by the corporation and not part of the daily rate. However, all other direct and indirect, salary and non-salary costs are included as shown overleaf.




*Development Rates Profile*

19. As can be seen, the costs for equipment, training and tools, required by developers to do their job, are factored into the per-diem rate. The rate is also based on an average availability of 210 days in a year because clients do not pay directly if the individual is training or on leave. The rate represents the cost of adding each additional person to the service area.

20. Development services recover about $14 million annually for a professional staff of 200. About 40% of this amount is from budgets pre-allocated to continuing programs; the remaining 60% is transferred from client areas who are purchasing services on a competitive basis. Some funds are also available for internal research and development, funded by the corporation. For approval of these funds, the development area must compete with other proposals during the annual planning process.

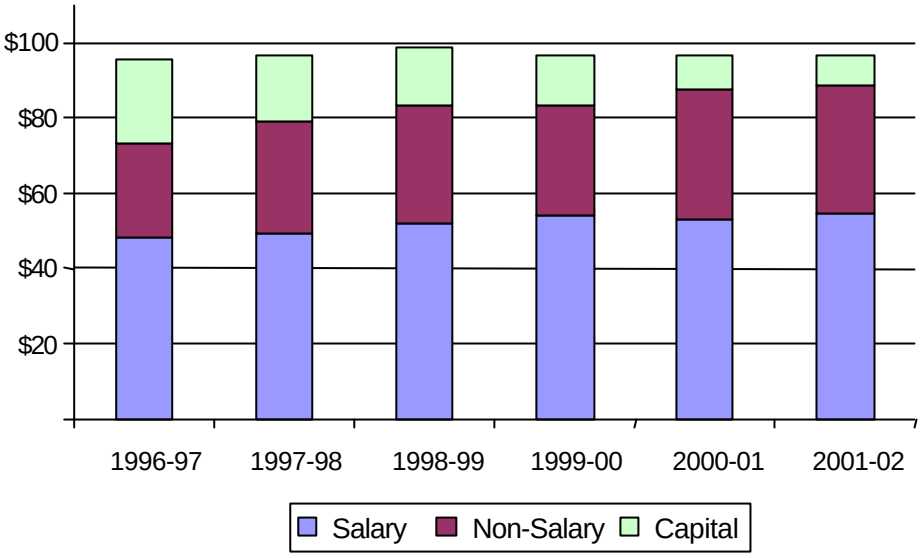
## VI. INFRASTRUCTURE SERVICES

21. The shared infrastructure services are *fully* cost recovered, meaning that this area has a *zero* base budget and must plan its fees and forecast its revenue stream to fully cover the staff and equipment costs of providing the services. This accounts for an annual cash inflow of some $22 million.

22. The standard services include a mainframe computing service, the common communications network infrastructure, the licensing and support of our common desktop software and a hardware maintenance service. In addition, other services are offered on a *fee per service* basis such as training, procurement and facility management. The Informatics Committee approves new services, or changes to existing services, that will affect rates.

23. About $9 million of recovery comes from a *workstation service charge* of roughly $100 per month levied for each client device. This charge is for a bundled set of services and software made available at the desktop, including the communications infrastructure. The manager has no discretion about paying this rate except in managing the number of client workstations acquired. That is, the rate encourages effective inventory management. Because of these characteristics, the rate is commonly

regarded as a *screen tax* but is accepted as a fair approach to distributing costs of the common infrastructure and services.




*Workstation Service Rate*

## VII. IT CAPITAL MANAGEMENT

24. All fees charged for infrastructure services include an allowance for capital replacement of equipment used to provide the service. All equipment under the management of IT Services has a life-cycle plan in which the expected replacement timeframe and cost are identified. The planned capital replacement portion of revenue is then accumulated in an IT Capital Account in order to have the funds required for system renewal, replacement and growth. The *Capital Plan* is presented to clients annually showing forecasted accrual and expenditures for 5 years. This plan is adjusted annually based on actual revenues and a revised forecast of future capital expenses, then used to determine the level of future capital contribution. This mechanism has the effect of stabilizing the rates in two ways. First, funds for capital replacement are recovered evenly over the life of equipment and the actual expenditures are made by using the accrued capital in the capital account. Second, it is self-adjusting. That is, if our actual revenue exceeds the forecast the surplus revenue is deposited in the capital account, leading to reduced future cash requirements and therefore lower rates; the reverse is also true.

25. It can be observed in the previous diagram that workstation rates have been quite stable over the past 6 years, despite the fact that several new services have been added to the infrastructure and are included in this rate. Although salary costs have increased during this period, this has been offset by reduced capital costs and other economies of scale resulting from an increase in the number of units supported.

26. Note, however, that the capital replacement costs for workstations, servers and other devices used exclusively by one client are the responsibility of that client. We can use the IT Capital Account to assist our clients by providing loans for capital equipment. This is simply accomplished by book-entries in the accounts. Our capital loans to clients are interest-free and repaid through a standard financial commitment mechanism.

27. The result of this management approach to capital replacement is that the IT infrastructure is professionally planned and managed. It is rare that IT management would make a funding proposal through the regular business planning process because normal upgrades and refurbishment can be accomplished using the Capital Account and recovered over time through the rates. From the perspective of IT management this may be the most compelling reason to adopt ICR; it gives responsibility to those who manage the services to decide when capacity increases are required. Our clients will readily accept rate proposals that reduce their risk of running short of capacity but they would be less likely to support a proposal to access funds for which they also compete.We do get management direction from time to time from the Policy Committee where strategic choices are to be made but these rarely involve the explicit request for funds.

## VIII. ICR ADVANTAGES AND CHALLENGES

28. The clear advantage of an ICR mechanism, such as the one described, is that our business requirements drive the provision of central services. Our clients are integrally involved in defining the services they need to meet their business objectives and in negotiating the quality and capacity of services they receive. As our fees reflect full costs, there is a natural control on demands that might not occur if funding was independent of the demand.

29. From the service provider perspective, we aim to provide infrastructure services as a *utility*. Just like the electricity or water supply, we aim for reliability, performance and availability *on-demand*, and deliver the needed capacity to our clients trouble-free. Our control over the IT Capital Fund also allows us to act as a bank, providing credit where needed to meet unexpected capital expenses.

30. Because many services are optional, or could be provided locally by our clients rather than making use of central services, ICR leads to the development of an internal market and competitive pressures to provide *value for money*. This naturally maintains and improves the quality of the service.

31. The involvement of clients in setting rates, and the general transparency of the ICR and capital planning mechanisms, has engendered a level of *trust* between the clients and the Informatics Branch. This trust is not unconditional; like any organization, we have service shortfalls and issues that give rise to heated discussion. However, we have mechanisms to resolve these operational issues and they do not surface at strategic levels.

32. Notwithstanding these positive aspects of ICR, the mechanism itself does present a target for complaints that have to be countered. Nobody *likes* taxes, even if they agree intellectually that taxation is a rational method of distributing common costs. And naturally, the presence of fees will alter behavior, sometimes in undesirable ways, unless the service is described in terms that the end-user can relate to.

33. An example of a fee that might result in inappropriate behavior is our charge for e-mail storage. Some users might be tempted to offload messages to their own workstation and thereby incur no storage charges. However, they are less likely to do so when they realize that these messages are not backed up; that it takes time and effort on their part to store newly received mail and to prepare messages to be sent; and that they have to manage more data on their workstation.

34. When planning new services and their associated fees we try to anticipate how our clients will react and how quickly the service might be subscribed. At start-up of a new service we sometimes provide a free trial period to facilitate the planned take-up and payback of the initial investment. Our overriding goal is to keep the fee structure simple and avoid special cases. We also try and avoid cross-subsidization from one service to another so that, if a service is dropped or altered, there is no impact on other fees.

35. Finally we should remember, that despite the value of treating the Informatics Branch as a business, our clients are also our colleagues and we are working together toward the same corporate objectives. Unlike a business, we have no profit motive and every incentive to work collaboratively with our clients. To continue to be effective we must maintain the trust and confidence of our clients through service excellence.

## IX. CONCLUSION

36. This paper has described the workings and benefits of internal cost recovery practices at Statistics Canada and how these have become interwoven with the planning system and management culture. It is an approach that other agencies may wish to consider, though the foundations of project accounting and comprehensive planning are prerequisites.

37. An ICR approach has proven itself over more than a decade of use at Statistics Canada and has been shown to be flexible in accommodating new requirements and changing circumstances. From this experience has evolved an enduring set of principles that is widely appreciated by our managers and that has resolved many of the traditional difficulties associated with IT funding within the Agency.