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**CHALLENGES AND TRENDS IN THE MODERNIZATION OF NATIONAL
STATISTICAL SYSTEMS**

Modern management at the National Institute of Statistics in the
institutional modernization process

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A. INE MANAGEMENT BEFORE THE MODERNIZATION PROCESS

Since 1995 the Government of Chile has been committed to a process of State modernization. The management of INE is convinced of the historic importance of this initiative and, as its own contribution, has been working tirelessly to achieve the mission and objectives set.

Right at the outset, the head¹ of the National Institute of Statistics decided that if the Institute was to be modernized successfully the essential thing was to ensure the full commitment and involvement of those who worked there. Accordingly, Institute staff were set the joint task of carrying out an organizational diagnosis, supported by the specialist work of a team of professionals in this area who were engaged for the purpose in 1998. The basis for this diagnostic exercise was an assessment of critical areas of management, namely: Human Resources Quality, Management Styles and Strategic Planning, among others.

1. A key management area for analysis was Human Resources Quality. The main effort here went into ascertaining the degree to which three essential skills, regarded as the critical ones for the quality of human resources, had been assimilated and mastered in the Institute.

(a) Vocation for statistical work:

Besides the knowledge that staff bring with them from outside, the professionalism of INE is built upon accumulated institutional experience. This is an asset that was in place when the modernization process began, and it was accordingly recognized as a great institutional resource.

(b) Responsibility and commitment towards society:

There is a strong awareness that the collection, processing and production of statistics is serious, confidential work. This, then, is another value to be constantly nurtured.

(c) Vocation for public service:

The service vocation of INE staff is perceived to be oriented essentially towards the production of statistical products and services that are supplied in a traditional way to public- and private-sector users. The user-oriented service vocation needs to be greatly strengthened, as this is a critical factor in building a modern organization. It has to be better understood that the reason for producing statistics is to meet society's demand for them. This was the main failing brought to light by the Human Resources Quality analysis.

¹ National Director of the National Institute of Statistics, Sr. Máximo Aguilera Reyes, Commercial Engineer (University of Chile) and Doctor of Economics (Friedrich Schiller University, Germany).

2. Management Style was the second critical management area analysed within INE. This analysis produced information of value to the organization, as it transpired that the management style at INE was oriented more towards procedures and oversight of tasks and activities than towards processes and empowerment.² The latter need to be focused on if effective modern management is to be achieved in the medium term.

3. The third critical management area analysed was Strategic Planning. It was found that INE had developed in a way that left it lacking in the modern planning tools needed to strengthen the modernization process.

Given the importance of this issue to the development of the Institute and the attainment of its objectives, INE needs to set about constructing a strategic plan that can guide the work of its staff. The lack of planning for an integrated statistical system reflects this paucity of demand-oriented strategic thinking.

The users of INE see a need for the Institute to become more businesslike. There is potential that can be exploited in all the products currently available. The first thing that needs to be done to close the gap between the actual attainments of the Institute and what ought to be achieved is to create mechanisms that involve staff in the different areas of change.

B. THE GOAL OF INE: “TO CREATE A SHARED VISION OF THE FUTURE”

Setting out from the diagnosis and situation analysis of INE that had been carried out and from an appreciation of the challenges that public-sector management now involves, the management and leadership of INE began to develop what was conceived of as a shared vision of the future of the Institute that would guide and inform its work over the coming years. This shared vision is a clear, relevant aspiration intended to set the course for the Institute and anticipate its future and to motivate and engage its staff, its users, the State and public opinion.

The characteristics of this ideal INE centre upon the following issues:

1. Leadership and management style

The first element in this shared vision of a modern INE that is able to meet the demands placed upon it is the development of a new culture of leadership within the organization. It will be up to these new leaders to promote the vision and to take responsibility for the entire modernization process, carrying along, motivating and binding together all the members of INE in a way that furthers the individual development of each while improving the organization as a whole.

If this management style is to be put in place at INE, some obstacles within the organization need to be overcome. These are directly related to the need to train and develop leaders who are able to move on from traditional management methods to more participatory and efficient ones and help members of the

² By empowerment is meant the delegation not just of functions but, essentially, of powers and authority (capacity for independent execution).

organization to embrace change and cooperate and involve themselves with these new forms of management.

2. Staff development

A second key element in the development of this shared vision is the need to have motivated staff who identify with INE, have a service vocation and are trained for and fulfilled by the work they do in the organization.

This means that the Institute needs to be staffed by highly skilled technical and managerial personnel who are continually specializing in new technologies and state-of-the-art methodologies so that they can meet the demands placed on them, and who have the infrastructure they need to carry out their work to the highest standards.

Again, if they are to develop, staff need to have the opportunity of making a career in the organization, and there needs to be a clear, transparent rating system for all employees. It is also important for staff to be properly paid, in terms not just of salaries but also of incentives for efficient work.

Another important element in the ideal INE is the development of team-working capabilities and cooperation between different units. This means breaking down the system of fiefs or compartmentalization that now exists and generating a way of working that capitalizes on all the resources and intellectual capital available in the organization, eliminates duplication and reduces unproductive activity.

For this element in the shared vision to be achieved it will be necessary to overcome resistance to changing old ways of working and fear of training in new skills and working methods.

3. Organizational redesign: emphasizing processes

The shared vision of INE includes an organizational redesign to give the Institute the ideal characteristics referred to.

This organizational redesign is oriented towards clear objectives that are shared by the whole organization. It emphasizes processes, aiming to do away with bureaucratic inertia and attachment to rigid, inefficient procedures. The redesign models the structure and objectives to be attained and incorporates integrated planning of the processes and operational strategies that will be used to achieve them. These include developing a flexible, participatory style of leadership, enhancing staff skills, introducing team working and encouraging the exchange of information between people at different levels in the organization, including the interregional level.

In turn, it is important to implement management controls that feed back into the redesign by way of *ex post facto* evaluation of the objectives using the management indicators developed. The culture of bureaucratic inertia needs to be changed so that the management control instruments do not become rigid, and the system needs to take users into account in the evaluation. It should work on the feedback principle, prioritizing by results as roles and resources dictate, rather than by procedures.

The thrust of this redesign should be towards organizational decentralization, so that decisions can be taken in regional offices independently of the head office, something that would give regional INEs greater freedom to respond to the specific demands of each area. Again, the head office should give its backing to initiatives taken in the regions, supporting the development of professional potential and valuing the networks that are created.

One of the greatest obstacles in the way of this organizational redesign is the limited room for manoeuvre provided by the legal and regulatory framework in force. This needs to be updated to allow for implementation of the measures that are required if the organizational dynamic is to be improved.

Another obstacle is the tendency for the existing organizational inertia to perpetuate itself. This may be due primarily to fear of change and to ossified working methods, which develop more slowly than organizational redesigns.

C. STRATEGIC DIRECTION: WHAT ROUTE SHOULD BE TAKEN TO ACHIEVE THE VISION?

The objective of INE is to produce and disseminate statistics in all areas of national life. The task of the organization is to respond to the demand for more and better statistics. These should become more rapidly accessible to users, there should be fewer formalities for providers of data, and the financial cost should be reduced.

More than ever before, the competitive situation and positioning of Chile depend on the speed with which the country can capitalize on its opportunities. This in turn is determined to an ever greater extent by how flexibly information can be drawn upon. There can be friction when the institutional and administrative framework within which official statistics are produced and the organizational culture of the body managing them are incompatible with the requirements of economic, political and social actors, particular interest groups and/or society.

To address this tension between the growing demands made on official statistics and the organizational and administrative constraints within which the Institute has to operate, teams of INE managers have worked hard to develop strategic guidelines.

Implementation of these strategic guidelines is tantamount to a statement of intent regarding the change that the Institute wants to bring about. They are indispensable if the organization is to adapt to the changes and challenges it now faces. In the specific area of management, mention may be made of the following:

1. Personal development: “Consolidating cultural change”

“By changing as individuals, modifying their working practices and acquiring new and supplementary management skills, people can transform quality standards and achieve the increased output of statistics that the Institute requires.” This is now the declared aspiration of the National Institute of Statistics. As previous paragraphs have suggested, the modernization process chiefly depends upon the great cultural shift that INE is trying to bring about.

To this end, the Institute has developed a set of training programmes designed to strengthen two key elements in the modernization process.

One of these is the PROGRAMA DE DESARROLLO DIRECTIVO or EXECUTIVE DEVELOPMENT PROGRAMME. It is aimed at the team of top management professionals who act as permanent advisors to the National Director on management and service development policies. This training programme has brought progress in knitting these professionals into a working team, identifying common standards among them and dealing efficiently with difficulties and concerns, all with a view to making results easier to achieve and strengthening relationships within the team.

Another skill-building programme, followed by 3 professionals within the organization, is the PROGRAMA DE DESARROLLO GERENCIAL or MANAGEMENT DEVELOPMENT PROGRAMME. What the participants have in common is their considerable decision-making role within the organization. They include INE product heads, strategic and joint project heads and members of working teams regarded as crucial to the modernization process. These are professionals who have a distinguished track record in the organization and identify themselves as important members of it.

These professionals have taken on great challenges, one of them being the task of coming to terms with this modernization effort by attaining a thorough understanding of the requirements that will have to be met and then preparing to deal with them successfully.

New training programmes are being prepared for 2001, the objective of these being to take those employees who have begun the training process to the next stage in the development of their executive and managerial skills and to begin this learning process with new teams.

Another objective for this year is to use personalized coaching to focus the work carried out at management level, centring this training on the daily work done in the different parts of the organization. This coaching will be organized around different categories of work that have been identified for this purpose, so that working teams can be brought together around relevant subject areas.

The last objective is to ensure that the knowledge acquired so far by the two working groups is spread to the executive teams of INE.

To ensure that work is timely and relevant to the requirements of the organization, measurements will be produced and there will be dedicated management oversight, specifically in strategic projects of particular importance and impact for INE.

2. Technological development and improvements to management

Technological development has been identified as an important element in the process of change and it is the declared position of the organization that the obstacles to modernization and modern management cannot be overcome unless changes are made to the working practices and production processes associated with each service and with each piece of information delivered.

The new information technologies are an indispensable tool for achieving improvements in the quantity and cross-referencing of data, which in turn make it easier and quicker to obtain statistics and reduce margins of error. For these improvements to come about, the new technologies have to be operated by

people who are trained in their use and are capable of continuous learning so that they can identify the new possibilities that open up so rapidly in the world of technology.

INE has explored this world of possibilities, seeking and obtaining tools that can facilitate and speed up the work which the production of statistics involves. INE now has state-of-the-art technology for gathering information on the ground and for codifying and validating the data obtained.

Another major step forward in this area has been the creation of the INE Internet platform, which has opened up great opportunities for facilitating the daily work of the organization, speeding up information flows and improving delivery of INE products.

The Institute has also developed a variety of strategic projects that, taken together, have enabled it to make a qualitative leap in working practices, in product quality improvements and in average time on task.

3. Developing the vocation and improving service quality for users

One of the focal points of the INE modernization process is the objective of making the Institute's work user-oriented. This entails a radical change from the practice followed until just a few years ago, when the supply of statistics was determined solely by what the experts and technical staff producing them thought users required. The new approach, i.e., "demand-led" production of statistics, is a key part of the process of improving the service to users and focusing statistical needs. For this reason, constant feedback between the Institute and those who use its statistics or may do so in future has taken on great importance.

Thus it is that INE, as it concentrates on improving supply, is opening up to the requirements of society so that, in turn, the different sections of it—and not just the Government—are provided with the information they need to attain a better understanding of the country and its people and, ultimately, to take informed decisions in both the public and the private spheres.

Exploring user requirements by means of surveys is something to which attention has been given in this period. Considering that the mission of INE is not just to produce statistical information but also to disseminate it, the Institute would not be doing its job properly if it confined itself to making better products without taking steps to apprise users of their existence. The measures that INE can take to publicize the statistical information produced on different aspects of national life and make users aware of it are a very important part of the quest to improve the service that the Institute provides.

The progress made in this area over recent years has been due to the creation of a Distribution and User Services Department (Departamento de Atención al Usuario y Difusión), which has enabled the manifold requirements of the different users of INE official statistics to be addressed promptly and efficiently, and the creation of a Communications Department, which has designed and implemented a proactive communications strategy to make society aware of the multifaceted variety of the statistical information that INE produces.

As a result of the initiatives undertaken, the Web page of the organization now receives over 1,000 visits a day. A total of 36 INE titles are available in almost 30 bookshops in the Metropolitan, Fifth and Seventh regions. Trials have been carried out with different methods of disseminating statistics and providing statistical information in places that are accessible to the general public, and the time taken for economic indicators to be released has been cut by 24 hours.

The Institute has brought out publications designed to bring statistics closer to citizens, examples being the book “Estadísticas de Chile en el Siglo XX” and the “Enfoques” series which has dealt with issues such as marriages and annulments, fertility at early ages, culture and the environment.

4. Continuous improvements in the quality of statistical output

(a) Improving the quality of statistics

The year 2000 was a time of great progress in the INE modernization process. The bulk of the effort went into carrying forward the main strategic projects, and among these a central place was given to the project to improve the quality and variety of the statistics produced by the Institute. At the same time significant progress was made with a set of projects to apply up-to-date methodologies to the design of indicators, sample surveys and censuses.

- (i) In this area, mention may be made of a wide range of indicators based on the new consumer price index (CPI). INE now provides users who so request with calculations of the underlying CPI (the CPI excluding fruit and vegetables and fuels), the underlying CPI for tradable goods and services, the underlying CPI for non-tradables, the regulated services CPI and the CPI for specific taxes.
- (ii) Great progress has also been made with manufacturing industry indices —production and sales— which began to be calculated on a new basis in the first quarter of 2001.
- (iii) Recognizing that timeliness is a vital aspect of quality, the Institute has succeeded in reducing processing times considerably, and this has led to improvements in the delivery of various products. Among these, mention may be made of the yearly nationwide industrial survey (the Encuesta Nacional de Industria Anual or ENIA) and the Encuesta de Capacitación or training survey.
- (iv) The project to improve the quality of agricultural statistics. In this case, the quality of results will be positively influenced not only by methodological improvements but also by the implementation of a computer-assisted personal interviewing (CAPI) system. This is a significant step forward that will enable survey results to be obtained with a much lower margin of error and in half the time that has been required hitherto.

(b) Creating new surveys

A great deal of work has also gone into planning and designing new surveys on important topics. In several cases the results will be announced in the early months of this year. The surveys concerned include:

- (i) First Quality of Life Survey, the draft version of which was prepared in agreement with the Ministry of Health.
- (ii) Surveys on trading conditions for SMEs (small and medium-sized enterprises). A trial was carried out in conjunction with CORFO (Production Development Corporation).
- (iii) First Internet Connectivity Survey. INE carried out this survey in homes and businesses and the results will be released in the near future.

- (iv) Combined questionnaire for the construction industry, in coordination with the Ministry of Housing and Town Planning and the Chilean Chamber of Construction. Use of this combined questionnaire will enable the quality of construction sector statistics to be improved.
- (v) Planning and design of the first Environmental Survey, the purpose of which is to ascertain the state of environmental management in the country. This is currently at the fieldwork stage.
- (vi) Development of social statistics. In addition to improving economic statistics, INE has identified a need to develop social statistics. To this end the Institute has been revising the Culture and Media surveys, which will yield results that are useful and relevant to an understanding of these areas. A book giving an overall survey of the cultural sphere will be produced and published over the coming months. This in turn will provide the basis for redesigned publications that will provide more and better information on what has happened over the last decade and on current developments in these areas.

5. Strengthening regional offices to maximize their contribution to the country's decentralization process

One of the most important new developments in 2000 was the formulation of the programme for the development of territorial statistics. Not only was the Indicators of Regional Economic Activity (INACER) index produced for the Sixth and Eleventh Regions, bringing the number of regions for which these indicators are available up to twelve, but at the same time design work went ahead on a National System of Territorial Statistics, implementation of which will be one of the Strategic Projects for 2001.

- (i) INE presented the National Statistics Commission with the Programme for the Development of Regional Statistics Systems, which includes improvements at the regional and communal levels. A proposal was prepared for the two programmes (regional and communal). This will provide greater knowledge of economic and social conditions in the regions, the benefits of which will be felt in the form of improvements in the decision-making processes of regional actors in both the public and private sectors.
- (ii) Considerable progress has been made in diversifying and improving the supply of statistics that incorporate geographical breakdowns.
- (iii) In 2001 the Institute will begin work on a project to produce a system of regional accounts. This project is bound to have a great impact both nationally and regionally.
- (iv) The Panorama Comunal was published. As its name suggests, this is a compilation that provides a statistical overview of the country's 342 communes, including population projections, housing approvals, poverty conditions, business characteristics, the number of public events, etc. This was a major undertaking whose scale reflects the joint efforts of many INE professionals and officials.

D. THE MANAGEMENT LEAP: A LOOK BACK AT THE FIRST THREE YEARS OF THE PROJECT

Setting out from the earlier diagnosis, INE determined to achieve a qualitative leap in its internal management. This had to take place if the changes planned in other areas were to be possible.

The main changes implemented in this area can be summarized as follows:

1. Participatory development of a wide-ranging strategic planning process

This process entailed executives, professionals and administrative staff carrying out a diagnosis of critical areas, on the basis of which they were able to forge a common vision of development. The first result of this exercise was the construction of a strategic consensus that clearly mapped out the future course of the Institute. The mission of the Institute, its objectives and its strategic direction and institutional priorities were established at this time.

2. Changing the management style

In conjunction with the strategic planning process, a start was made on forging a fresh management style based on a new form of leadership by the highest authorities in the Institute. This new brand of management is characterized by application of the values of quality, transparency, teamwork and respect for individuals in each and every project undertaken. It is a style that values creativity, responsibility, innovation and criticism in a context where users and their requirements are accorded the highest priority.

3. Redesigning processes

Core and secondary processes were redesigned in accordance with the concept of “full management”. This means that each working team takes charge of the entire production and management process, so that a clear and coherent result is obtained. This redesign has brought logic and consistency to transactions, and this has obviously led to greater efficiency in work coordination and segmentation mechanisms as well as making work clearly results-oriented.

4. Structural changes

Strategic planning, the introduction of a new management style and process redesign ultimately led to a radical transformation of the Institute’s structure. The objectives behind this structural change were a flatter hierarchy, division of areas of responsibility by process design and the creation of effective coordination mechanisms.

5. Changes in budgetary management

The changes described above obviously need to be properly reflected in the financial management of the Institute. To this end, measures have been set in train with the objective of decentralizing budget

administration through the use of cost centres and responsibility centres. This will not only enable the origin of expenditure to be accurately identified, but will establish a learning process within the organization whereby people are made aware of their responsibility to administer the resources allocated to them efficiently. In this way it is hoped to increase the marginal yield of public resources.

The achievements listed have been underpinned by a deep and far-reaching process of change in the Institute's management style, transaction processes, organizational structure and technological platform. This last is the factor that will be reviewed next.

6. Changes to the technological platform

INE has developed a programme that is intended to take it to the forefront of technology where information management is concerned. The main developments so far are:

1. Incorporation of the Intranet into working practices. This has unquestionably been an important step in improving management as it means that information flows rapidly, speeding up processes and enabling communications and financial administration to be carried out more quickly and cheaply. This network is expected to be operational in regional offices within a few months, which will go a long way towards closing the communications gap between head office and regional staff, improving management and raising the quality of decision-making at these different centres.
2. Provision of latest generation microcomputers. The Institute has gone to great lengths to replace personal computers and at the same time regularize the user-machine interface in almost all work positions that require this.
3. Purchase of servers. This will enable INE to make headway with the projects and challenges described above, as they involve electronic data storage, transfer, processing and distribution. It will also enable different projects to be integrated into a common technological platform.
4. Decentralization of operations. Central and regional operating units have been provided with automated systems that enable them to take full responsibility for the processes involved in the production of statistics. This has led to a striking increase in the quality of the data collected and a reduction in the time it takes to create products. The national employment survey, industrial survey, price index and construction survey systems are notable examples.
5. Improvements to publication-related processes. The introduction of leading-edge technology for producing publications has greatly lowered costs and raised productivity.
6. Increased use of magnetic storage media for distributing information. There has been a drive to distribute more information on magnetic media, particularly compact disks. A first step in this direction was the compact disk of the sixth National Agricultural Census, containing numerous statistical tables that are easy to view and use.
7. The most notable example to date, though, is the compact disk of the National Industrial Survey, which was released in April this year. It contains several hundred thousand pre-prepared statistical tables and the corresponding databases for 1995, 1996 and 1997, and the access and

user options it offers mean that those using the data can design and obtain whatever statistical tables best meet their information needs.

8. To supplement this, information has begun to be distributed over the Internet. In addition, self-service terminals providing current and historical information have begun to be installed in institutional premises.
9. Improved communications via electronic mail. This tool has not only improved internal coordination but has made it quicker and cheaper to dispatch statistical information collected in the regions.

These improvements have been made possible by a major internal saving effort and more productive use of the budget. We are sure that this is just the beginning of a great development plan that will take the Institute to the forefront of technology.

E. THE TECHNOLOGICAL DEVELOPMENT AND MANAGEMENT IMPROVEMENT PROGRAMMES: WHAT STILL REMAINS TO BE DONE

As has already been pointed out, the process of changing the organization and modernizing the technological platform is only just beginning. The challenges and prospects are tremendous, and the work that still lies ahead may be summarized as follows:

1. Optimize administrative and statistical production processes in order to increase efficiency and effectiveness and ensure product quality.
2. Meet the growing demand for sophisticated information by making thematic databases available to the country and providing the facilities needed for this information to be used via the Internet platform. This will enable users to access INE databases when they wish to carry out structured searches, drastically reducing response times for the most frequent requests for unstructured information. They will also be able to carry out on-line viewing of the monthly statistical reports and bulletins now produced by INE, store data from them on their computers and print them out.
3. Facilitate interaction with the companies that provide INE with information by using electronic forms, reducing current production times and substantially improving the quality of the data collected.
4. Gradually replace the current survey system (based on printed forms) with data storage devices, thereby reducing interview and information processing times and improving data quality.
5. Integrate the technology that is spread around the Institute and optimize communications by incorporating a local area network or Intranet into the system. This technology will also optimize internal coordination, thereby making the processing of ongoing statistics more productive.
6. Integrate the statistical output of the regions by setting up a wide area network that is able to provide the best possible level of consolidation for information of national scope and provide easier access to the different statistical series by the various decision-making hierarchies at the regional level.

Lastly, it should be stressed that the process of modernizing the National Institute of Statistics is heavily dependent on the successful introduction of a new management style. While this is a necessary condition, though, it is not a sufficient one. Structural changes also have to be made to turn INE into a flexible organization with an efficient process- and results-oriented management style. For this to happen, the Institute's administrative organization needs to be properly charted. Administration needs to be organized with a view to breaking down the compartmentalization that is the rule at INE. To this end, it is considered essential for administrative formalities to be cut down so that efficient teamwork can be achieved.

INE also needs to be in a position to adapt its supply structure to demand, for example by creating ad hoc project structures. Introducing market mechanisms and competition within the organization will provide a test bed and will facilitate learning and training in service relationships that can then be replicated when outside demand is dealt with.

The information given here provides a clear picture of the situation as it currently stands at the National Institute of Statistics. Great strides have been made towards the ultimate objective of contributing in a significant and concrete way to the economic and social development of the country and creating a solid, responsible organization that works thoughtfully and independently to deliver all the statistical information the Chilean State and the private sector require to take informed decisions that meet the needs of the country's population.