**Inter-American Center of Tax Administrations – CIAT**


**43rd CIAT GENERAL ASSEMBLY**





**"A MODERN VISION OF THE TAX ADMINISTRATION"**


**Case Study 1.1**

**STRATEGIC PLANNING OF THE ICTS: DILEMMAS POSED
BY THE CURRENT ENVIRONMENT**

**Federal Administation of Public Revenues
Argentina**


**Santo Domingo, Dominican Republic
April 20 – 23, 2009**

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# Summary

For decades, Information and Communication Technologies has become an important tool in the tax administrations' day-to-day activities. In recent years, rapid changes in this field have placed in center stage the provision of IT services, demanding planning and management practices nothing like traditional ones: more efficient, more adaptable and very fast responses.

As the majority of public and private organizations, in past years ICTs have gone from being central for the traditional administrative and operational functions, to also cover the complexity of the direct relation with society. This is no small step, because to put IT services "out of the office" to be accessed by its own users as well as by external users requires a degree of criticality and sophistication higher than the traditional.

The dynamism built-in tax administrations as well as modern collection and examination strategies must also be added to this structural demand. In the case of AFIP, because of its single agency structure, we must add the growing demands of foreign trade, where technology is presented as a solution in the quest for balance between control and facilitating international trade.

The accelerated production and marketing of technology causes constant changes in costs and availability. This represents an advantage, but at the same time it makes planning significantly more complex. All these conditioning factors are also embedded in an unstable world economic context – to say the least. This context stimulates the creation of many measures with short planning processes, as well as disruptive practices in respect of the style implemented and obviously, budget reductions.

ICTs strategic planning is positioned as a fundamental aspect that must guarantee soundness, security and flexibility, to adjust to the dilemmas of the environment and potentiate response and service capabilities for the organization's objectives. Consequently the objective is to establish the correct ICT strategy in the short, medium and long-term, by continuing with timely, organized and coherent response capacities to requests which in general are uncertain, unplanned and are made in a changing context.

By analyzing AFIP's planning and actions since 2002, which is the time of substantial growth for the organization, we have set forth a series of guidelines that summarizes the strongest ideas used in IT planning. All guidelines developed here have been proven for many years and we are convinced that, although simple, have been determinant in the radical change that the provision of IT services has experienced.

As it will be seen herein, AFIP is an innovator in the planning criteria used, and in applying the same management criteria used in large and well-structured companies. Unfortunately, the solution to the planning problem stated is not attained through the simple adoption of an innovative methodology; the slow and constant application of basic and realistic rules is mandatory.

**Case Study 1.1: STRATEGIC PLANNING OF THE ICTS: DILEMMAS POSED BY THE CURRENT ENVIRONMENT** [1]

# 1  Introduction

For decades, Information and Communications Technologies has become an important tool in the daily activities of the Tax Administrations (TA).  In recent years, rapid changes in this field have placed in center stage the provision of IT services, demanding planning and management practices nothing like traditional ones: more efficient, more adaptable and very fast responses.

As well as for most public and private organizations, in recent years Information and Communications Technologies (ICT) have passed from being central to the traditional administrative and operational functions, to also cover the complexities of the direct relation with society.  This is no small step, because to put IT services "out of the office" to be accessed by its own users as well as by external users requires a degree of criticality and sophistication higher than the traditional.

The dynamism built-in tax administrations as well as modern collection and examination strategies must also be added to this structural demand.  In the case of AFIP, because of its single agency structure, we must add the growing demands of foreign trade, where technology is presented as a solution in the quest for balance between control and facilitating international trade.

The adoption of Electronic government plans in effect in every country, demanding the publication of services to be accessed by society, compliance with of One-Stop and Registry Simplification[2] principles, where the TA have had in general an emblematic role within a set of restrictions and additional burdens to the administration and planning of the ITs.

The accelerated production and marketing of technology causes constant changes in availability and in costs.  This represents an advantage but at the same time significantly complicates planning.  Processes that are further influenced by very aggressive commercial logics, especially for large consumer organizations, are overwhelmed with technological bubbles, immature products, success cases that become universal laws and arbitrary standards.

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[1] Paper prepared by Eduardo Poggi (epoggi@afip.gov.ar), in his capacity as advisor of the General Deputy Office of Information and Communications Systems of the Federal Public Revenue Administration of Argentina to be presented during 43rd CIAT General Assembly to be held in Santo Domingo, April 2009.

[2] The principle of "Registry Simplification" states that the data required from an organization be informed once and cannot be requested again from any of its branches except to be updated and complemented, the "One-Stop" principle requires the administration to present itself to its users as a single unit, avoiding the need of knowing the internal structure.

The instability of the global economic environment which stimulates the generation of measures with little planning, the adoption of disruptive practices in regards to the style implemented and obviously, budgetary reductions must be added to all these conditioning factors.

ICT strategic planning is positioned as a fundamental aspect that must guarantee soundness, security and flexibility, adjust to the environment's dilemmas, potentiate response capacities and service the organization's objectives. The challenge is to establish the correct ICT strategy in the short, medium and long-term, maintaining timely, organized and coherent response capacities against requests which in general are uncertain, cannot be planned and in a changing environment.

There are many strategic planning methodologies that may be a great support to carry this process ahead. The advantages of one over the other are in general subjective and circumstantial, more based on commercial than professional practices. There are also countless quality documents as well as an enormous consulting offer for their ownership, therefore, the intent of this paper is not to contribute one more.

By analyzing the planning process and the actions carried out in AFIP from 2002 to 2008, during this period the organization grew substantially, we defined a series of guidelines which summarize the most robust ideas used in IT planning. These guidelines are mainly focused on recognizing the reality, that is, to know it, understand it and act consequently, as a starting point for planning, instead of leaving the weight thereof in the use of general methodologies.

Restrictions and opportunities posed by acquisition processes are analyzed under this vision, as well as rigid human resources guidelines, the complexity of the relation between the business and IT areas and the function of IT goods and services vendors. Furthermore, the application of a series of IT planning guidelines are proposed in order to generate a response capacity to the unplanned demand for services, one of the most enrooted characteristics of this context.

As implied by this paper, AFIP has not been innovative in the planning criteria used; the same management criteria applied in any large and structured company have been used. The solution to the aforementioned planning problem is not obtained by the simple adoption of an innovative methodology, a slow and constant application of basic and realistic rules is necessary.

Under the experience analyzed, IT strategic planning in complex organizations in changing environments can be summarized as follows:

- To know the reality and act consequently.
- To establish a very basic set of long-term guidelines.
- To carry out permanent maintenance, with mid-term cyclic reviews, to assure available capacity to face unplanned, but solvable IT service requests with known technology.

- To have an agile but traditional short-term activities program.
- To incorporate institutional practices to mitigate unplanned requirements, that needs unsuitable technologies.

## *1.1  The role of IT in TAs*

The role of the CIO in public and private organizations has been discussed in countless papers and meetings.  The case of the tax administrations poses some variables, but at a certain aggregation level, it follows the general rules.  The following graph is only for introduction purposes and the same summarizes the position of the CIO in a TA in regards to the external and internal forces that they must face when planning the organization's IT strategy. These elements are considered explicitly and implicitly in all the planning guidelines presented in this paper.
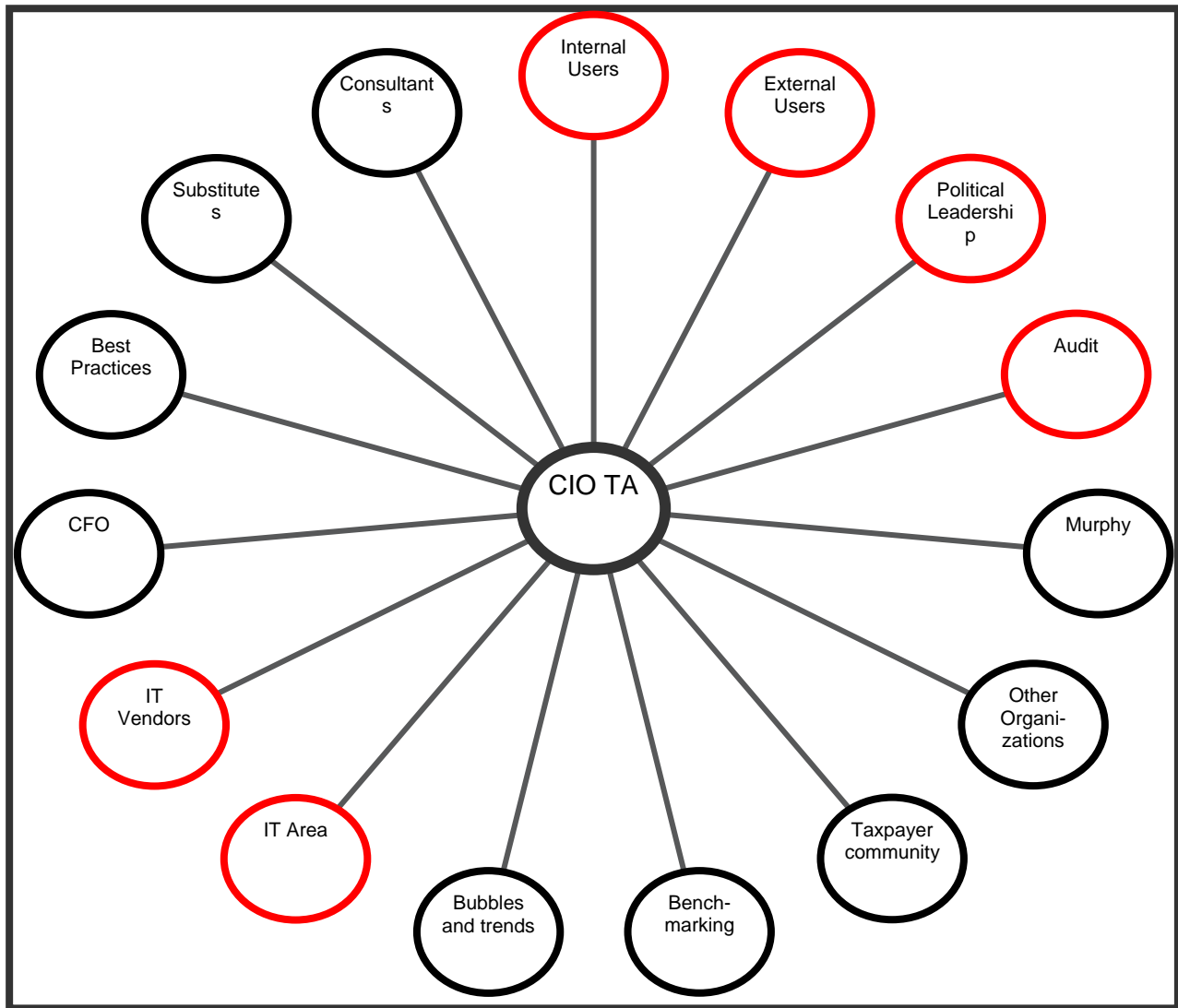
These elements are well-known by all CIOs; however, some differences can be identified in the case of the TA. First the CEO has been changed for "Political Leadership" in the broad sense, because by nature the function is usually under the influence of the government's political Leadership in a broad sense, with all its consequences.

Second, the influence of external organizations of the Administration are highlighted, those belonging to the "taxpayer community" as well as those that do not belong to the Administration. TA are often progressive organizations in every sense, and specially in technological issues, in general they have the largest amount of resources and often have a key role in the public administration, which mandates they provide services that are not strictly related to their substantive functions.

## 1.2  AFIP's experience in IT planning

In 1997 the merger of the Internal Revenue Service (DGI, in Spanish) and the National Customs Administration (ANA, in Spanish) and later the Social Security Fund Administration (INARS) created the Federal Public Revenue Administration (AFIP, in Spanish). One of its priorities was to analyze the business and information technology (IT) plans of the organizations that were merging, adopting as strategic objectives information technology integration and the recovery of its independence. The general objective that in the organization IT [department] should endeavor the modernization of tax and customs' management, with the ensuing increase in the levels of efficiency and transparency was established.

Since its creation, AFIP performs an important role in Argentina's economic and social context, because of the nature of the activities it performs in the tax, customs and social security fields, because of its geographical coverage and the responsibility implied when intervening in the collection of resources representing one fourth of the GDP, significantly contributes to the country's strengthening.

Because of the single agency organization structure and its emblematic role in Argentina's public administration, AFIP has incorporated into its day-to-day activities many objectives which transcend the distinctly collection function. This situation is often necessary to respond to the demands and challenges that arise as a result of context changes. Consequently, some functions have gradually increased in importance such as, foreign trade control to protect national industry, the control of non-economic prohibitions, such as drug trafficking and brand counterfeiting, the search for greater social inclusion of all citizens, the promotion of transparency in the public administration, the development of national and international cooperation networks and the undertaking of the role of leading institution in electronic government and IT service provider.

Since 1997 AFIP has been promoting an active and explicit policy of potentiating the relation with society (specifically, but not exclusively, with its direct users: taxpayers, customs officials and social security resources) through the incorporation and intensive

use of ICT.  This service policy is explicitly stated in the organization's management plans, and it is a strategic objective: "*Improve taxpayer and customs' user services to promote voluntary compliance with its obligations … increase the quality of the service [and] … promote the use of new technological tools.*"  Ten years after its creation, the complexity of the services provided the volume of the transactions, processing capacity, IT network and the processes established thanks to integration with other organizations; turn it into one of the country's main technological leaders of the country and a point of reference in Electronic Government development. (AR/AFIP, 2007)

The massive opening to society through Internet continues being a premise in all the actions carried out by this Administration, with the purpose of providing all services through the institution's portal or through interaction between IT systems for the relation with companies and other organizations.  But it is not limited to promote access through the Internet but it seeks a more profound transformation of the management, which increases efficiency levels and grants transparency to public acts, to respond quickly to the needs of the population assuring its rights.   This transformation requires the articulation of a complex relation between technology management, process reengineering, organizational restructuring, regulatory adjustments and cultural change. These changes directly impact the organization and drive and promote similar changes in its scope of influence, in other institutions as well as in society itself.

## *1.3  Plans and actions*

The aspects mentioned in the strategic plan were possible in 2007 thanks to the maturity reached by the organization – and by IT area – since 2002. This situation is supported in the work developed between 1997 and 2001 marked by the merger process and the proliferation of strengthening projects financed by external resources. The situation at 2001 may be described in the following manner:

- Until then, not many tax services were offered through Internet.
- Return filing as well as social security filing was computerized, but received at banks.
- The customs system operated electronically, but not through the Internet.
- The organization did not show citizens the contents of its databases.
- In there organization there were 6 central and autonomous development and Systems operations areas, over 130 small computer centers throughout the country, all hierarchically dependant of the different areas.
- Multiple system architectures, methodologies and development and operation platforms, almost one different per system and computer center.
- Systems operators worked completely independently, each with its own central databases.

Towards the end of 2001 – during a profound economic crisis in Argentina – the guiding principles that would mark the organization's strategic plan as well as the activities carried out by IT were outlined; these are summarized as follows:

- Massively steer the organization towards the Internet, in a short period of time, all tax, administrative and customs services could be provided through the Internet.
- Massively implement G2B and G2G services for the relation between AFIP and the companies and other State agencies.
- Deliver all services with high levels of reliability: 24/7 with zero maintenance and 99.9% availability commitment.
- Implement the principle of transparency regarding the display of the contents of the organization's databases.
- Implement mechanisms that facilitate economic activities such as one-stop transactions, Electronic invoicing, electronic certificates, etc.
- Real time integration of the organization's customs, tax, social security and administrative systems from its databases.

And finally an institutional policy that must be taken much into consideration, since it determined a very particular management style: "Total IT reform must be done with the organization's current human resources," leaving aside the possibility of outsourcing or the contracting of consultants to perform tasks. Many actions carried out could have been done completely different if this guiding doctrine would have not been established.

These guiding ideas were materialized in medium and long-term plans that achieved the following:

- Develop new services under the direct interaction system with citizens through the Internet and real time integration between applications.
- Develop a new highly integrated, stable and reliable system that allows to sensibly improve the organization's operational and control functions.
- Achieve total integration of existing systems and databases are updated in real time.
- Implement a single user authentication and authorization system following the e-authentication model applicable to all Systems and fit to support several million identifications.
- Implement a unique architecture system, homogeneous, stable and controllable for all the organization's systems.
- Standardized systems development platforms.
- Apply uniform development methodologies.
- Unify and strengthen the telecommunications network.
- Implement tools and monitoring practices for all services provided.
- Define and develop the Web Services standard for the provision of G2B and G2G services through a single technology.
- Increase detection, diagnostic and problem and incident solving speeds.
- Potentiate the IT and telecommunications structure to measure and meet committed services levels.
- Carry out the reengineering of pre-existing systems to adapt them to new architectures.

## 1.4  AFIP today

The purpose of this section is to present, by using indicators, the results obtained by AFIP thanks to AFIP's IT plan deployed between 2002 and 2008.  The graphs hereinafter are a sample and the data of the same have been taken from the Management Systems or the datacenter's monitoring system (AR/AFIP, 2008).

First, to dimension the visits to the AFIP's virtual face, the following graph shows the average daily hits at www.afip.gov.ar.  During the last months of 2008 there were almost 10 million hits:
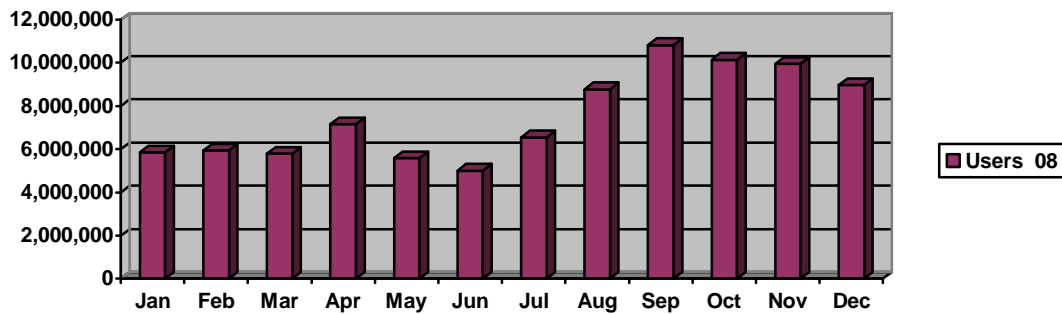


The following graph displays the amount of single and active fiscal passwords during 2008; this allows perceiving continuous growth in spite of the maturity taxpayer's identification system, reaching 7.5 million in December 2008[3].
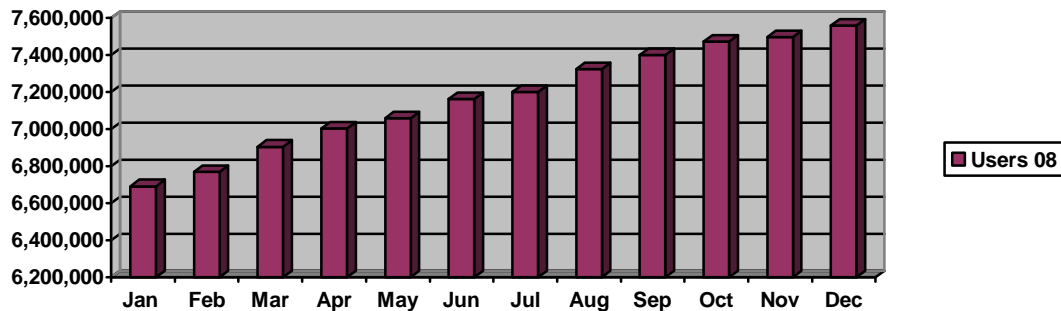


Only as an example of the direct services provided to facilitate economic activities, the following graph shows the growth of the authorization to issue electronic invoices since their implementation in April 2007.  Durante 2008 growth was 420%.

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[3] Argentina's population is around 40 million habitants.
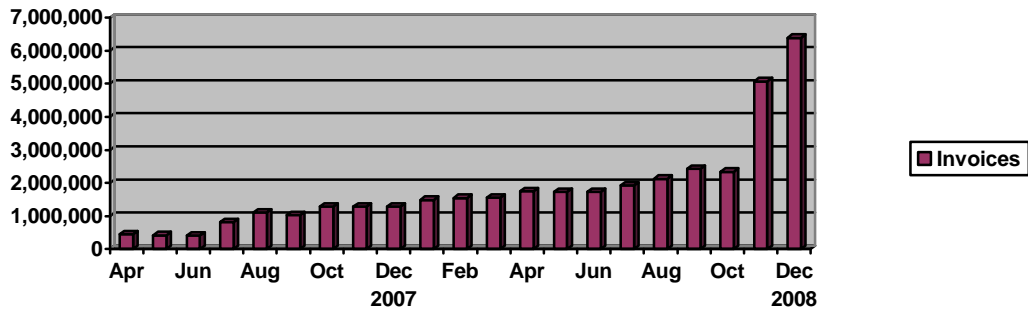
As an indicator of the activity in systems' development, the following graph shows the amount of services put into production at the servers of our datacenter, and collected by the Production Operation System:
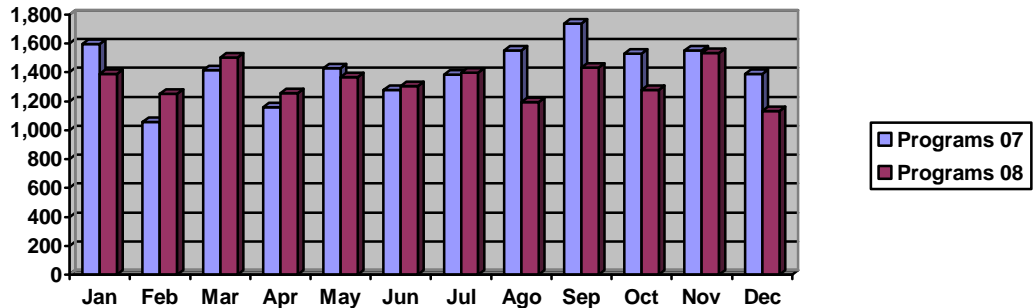


The amount of data managed at the datacenter grows continuously, the following graph shows growth in the number of rows persisting in the central databases, which in 2008 denote an almost 50% growth. Data is expressed in thousands of millions.
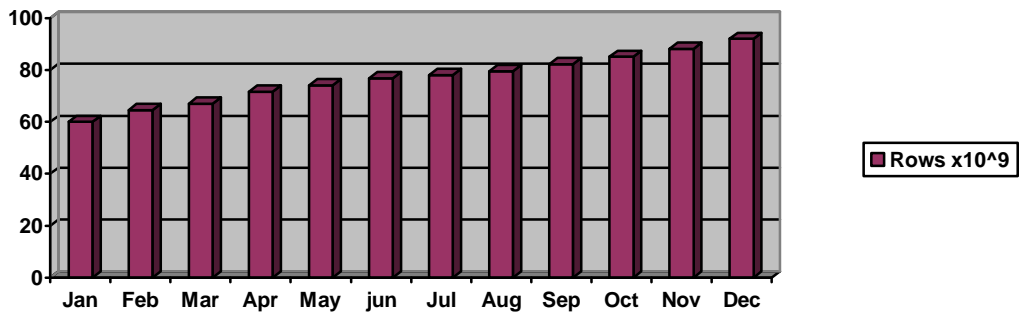


Obviously storage accompanies this growth, as it can be seen in the following graph which shows the growth of the space occupied by the databases of the different servers in production. In 2008, 60% growth is seen:
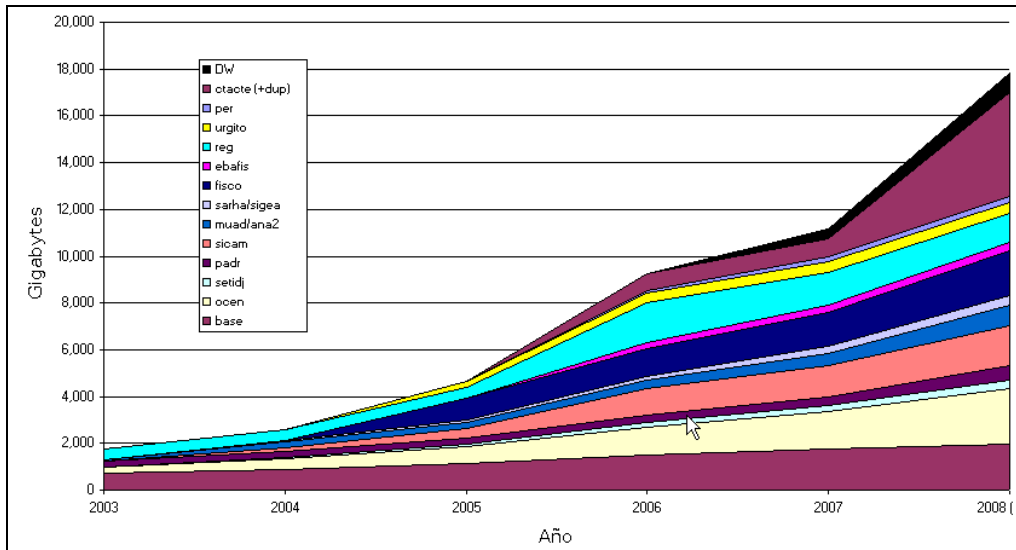
The following graph shows the availability of the services offered through AFIP's datacenter.
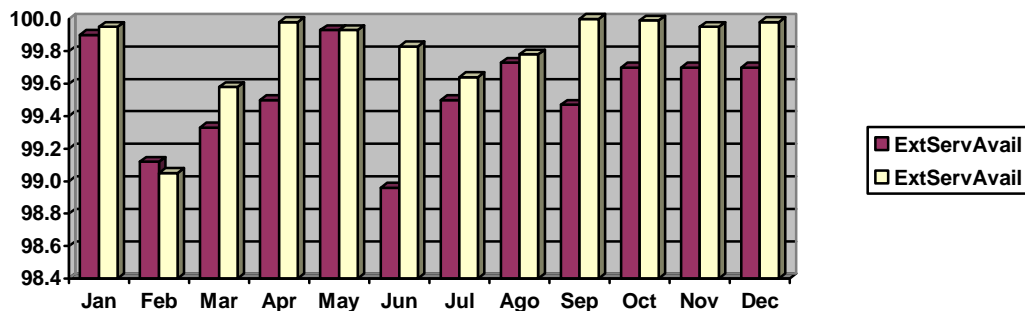


Finally, the distribution of personnel in the TI department (Deputy General Directorate of Systems and Telecommunications) is as follows:

| Area | Amount of Staff | %/total |
| --- | --- | --- |
| Deputy Directorate and advisors | 14 | 2 |
| Operations | 178 | 24 |
| Security | 34 | 5 |
| Communications | 48 | 6 |
| Technology | 22 | 3 |
| Resources | 28 | 4 |
| Tax IT | 130 | 18 |
| Examination IT | 52 | 7 |
| Customs IT | 84 | 11 |
| Social Security Resources IT | 64 | 9 |
| Legal and Collaboration IT | 31 | 4 |
| Administration IT | 55 | 7 |
| Totals | 740 | 100 |

# 2  Restrictions to planning

The first step for good planning is to know the start point and the organization's current context. To attain a target situation steps cannot be planned until knowing the starting point and the conditioning factors that allow pre-establishing the steps to be taken in advance.

Many planning methodologies especially those proven in the private sector, start from structural suppositions that are not valid throughout the public sector. For example, the necessary resources can be acquired when needed, most requirements are anticipated sufficiently in advance to plan them in the medium-term; long-term guidelines are almost invariable, and decisions to carry out a project go through ROI[4].

Planning methodologies and Technology Management Reference Frameworks are highly useful tools, but are general and respond to a rational model. Their use will be determined by their adaptation and trimming pursuant to the restrictions of the context where they must be applied. The blind application of generation methodologies does not guarantee good results.

In this section an explanation of certain context characteristics that require more work will be stated. Many of these guidelines result obvious and known by all, but it is curious to see the frequency with which they are ignored when planning. When the reality is not the desired one, the adequate mechanisms must be activated to attempt to change it, but meanwhile, these are the characteristics that determine the context in which planning must be carried out.

Some of the restrictions to be analyzed are general for any IT area; others are more inherent to the TA, although they may not be for all. The structure and composition of the agencies of the different countries are very different as well as policies supporting the same. Therefore, we select and present herein those which we consider to be the most important for the AFIP in its context and during the period 2002-2007.

## 2.1  The most important technology projects are long-term

Technology ownership by organizations is a slow and costly process. Direct and indirect costs, foreseeable and unforeseeable appear, some are anticipated and others are not. Organizational reforms may be required, changes in cultural guidelines, strengthening of human resources, changes in the building and indirect acquisitions. The acquisition of a tool, for the IT area or for the business, only begins the ownership process. The complexity of the entire process will depend much of the characteristics of the tool and the context, but may require longer implementation terms until its effective ownership.

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[4] Return of Investment: calculate the financial return of an investment.

It is not always easy to accept, undertake, explain and maintain long-term projects in changing contexts, as the Latin American contexts. The continuity of the will and assignment of resources to face these projects must go beyond economic and political cycles, and the CIO and the entire institution must face this challenge. But whilst operations must continue, activities and planning cannot be suspended while the context is unstable.

Examples abound, but the construction of the datacenter stands out as an obvious case. From its conception until it was operational and stable under the control of the personnel of the administration, approximately five years elapsed, this term was beyond the normal presidential term. As another less obvious example, in the drive to organization the development process and adapt it to the best practices on the issue a solution for the quality control of the software process was purchased. In this case, from its conception until the end of 2008 three years have elapsed and its functionality has not been entirely adopted by the six software development areas.

## 2.2 The technology available changes continuously

Variations of cost structures, the quantitative increase of availability, the decline in relative costs, the demand for greater administration resources, the innovative application of known technologies; these are the coin of the realm in the daily lives of people as well as in the management of high-level technology in complex organizations.

Predict qualitative growth is difficult due to the variation in the demand and the variation in the supply. To buy much of something in short time, is often not a good investment, because in the short or medium-term relative costs change significantly. To buy in function of the demands and the planning of the expected use, often results in great variations. It seems that there is nothing else left to do than to continuously monitor supply and demand and take advantage of the opportunities. But acquisitions, as we will see, not always have the desirable speed.

For example it is enough to analyze the relative cost of storage, but in parallel the increasingly growth of the needs thereof must be analyzed, i.e. space. Four years ago the big problem was the management of physical space which was already complete. In the past two years with the shrinking of the components, space ceased to be a problem but now temperature control is the problem, since the new components generate much more heat than the previous components.

## 2.3 Acquisition terms are not predictable

Goods and services acquisition processes are – in general – unpredictable in the Public Sector. Regardless of how much institutional bureaucratic processes are adjusted, there are countless internal or external factors that may delay and even block acquisition processes. This goes against what is usually advised by best practices, which provide that the expected results must be establish, actions to be developed to obtain the same must be planned, the necessary resources must be estimated and then

the inputs missing to carry them out must be acquired.  If this is done, delivery terms of the results will be dependant of acquisition terms and if these are unpredictable, the results will also be.

The initial phase of the technology acquisition process may be more or less lengthy depending on the complexity of the solution sought.  This stage ends with the RFP evaluation by the ruling agency, which may object or observe the text in function of national policies. Then you must consider administrative times for their publication in the list of specifications for the bid, the attention to inquiries, the evaluation of the bid offers and the assignments that are known, nevertheless, there can still be surprises.  At this stage spurious or legitimate challenges often appear, as well as the commercial variations of the vendors, price variations vis-à-vis projections, technological updates, etc., can affect the times forecasted.  Once the selection process has successfully concluded, the acquisition process takes place and the same may be delayed due to budgetary problems, which in some circumstances, cause considerable time delays.

There are countless examples, but we must also consider the massive acquisition of PCs, a highly standardized asset, in some cases their acquisition was solved in less than six-months but in other cases, it took three years.

## 2.4  Human Resources are given

The Public Sector unlike the private sector has more restrictions when incorporating, renovating, training, promoting and incentive its human resources.  These restrictions limit the speed to respond to new demand or to approve new technologies.  As a counterbalance, these resources often have a know-how which is not easily replaceable and stability guarantee which in determinate economic contexts, are often advantageous.

Complaints on the unmotivated and not well-run human resources of the public sector are understandable in many IT areas.  But, the solution does not wait for the structural aspects of human resources management to change in the public sector.  It is necessary to assume existing resources, promote slow training and reconversion processes, seek stimulus that will drive good professional development and apply leadership guidelines which motivate proactive participation

In AFIP there has not be an important exodus of staff, retention rates are high.  With time personnel has incorporated often willingly and other times by an outside decision. Many times there were personnel assimilations determined by merger processes or compulsive contracting without prior requirements.  These people, incorporated in this manner, should have been assimilated by the structure, demanding large adaptation efforts from both parties.

## 2.5  It is nor possible to anticipate the entire demand

True unforeseeable events in addition to the cultural lack of prevision and the spasmodic development of projects are usual in the public administrations, especially in developing countries or in times of crisis.  Examples of public policies requiring technological support, generated or modified without measuring the impact that they may have in the areas are also common.

Many of these demands cannot be planned for the coming year and include them with time in the budget and in the strategic plans, you simply have to attend to them. Obviously there is substantial difference between the request for services that can be solved by the installed capacity and aligned to institutional practices and those that cannot be solved.  This position reinforces the idea of generating the service provision capacity, without knowing with certainty which will be the demand.

Once again examples are countless.  The Single Tax was technically generated in the organization as a case of simplified system of tax burden for small businessmen, when it passes to the congress for its approval; it is extended to independent professionals with a very different taxation logistics. There is also the case of SICAM, which passed to be an Internet debt inquiry to a financed payment simulation system.  Another more recent example that we can mention is the enactment of whitewashing of capitals, a measure that completely disrupts the policy applied for years of not using moratoriums or other types of techniques leading to the standardization of historic tax failures.

## 2.6  The industry and the organizations have different interests

The presentation of the IT industry to public administrations such as "business partners" has already been abandoned as a slogan and has been replaced by a more adequate "technological partner", always attempting to get away from the vendor-consumer. Indicators marking the direction of technological goods and services vendors and those of the public administration are conceptually different.  Obviously good alliances can be established, by interests are different and this determine tensions in the relations.  Not only by the different actors by the production logic itself as well as the technology marketing established in the world, which causes immature products to be promised and to offer products without knowing how to value their usefulness and promote the acquisition of little use products.

Tax Administrations are very attractive potential clients because of the technology ownership needs and the resources they manage, but are far from being investigation and development entities.  The industry cannot ignore this, but its place must be assigned and worked to establish a healthy relation for both parties.  The need of the companies to increase their profitability and meet its business plans cannot be ignored, but not at the cost of increasing agency costs.  Especially in times of declining economic activity, tax administrations become interesting clients, the focus of all vendors.

As a short example we can mention the advertising relating to Web Services in 2003 when AFIP investigated it use for G2B and G2G relations. The industry offered Needles benefits, but when testing them they lack the most Basic reliability and security characteristics which we must supply with our own investigation resources. Some years later the same happened with BPEL[5].

## 2.7  The IT-Business Relation is Conflictive

Approximately sixty years ago the most conflictive point of the task systematization process is the definition of requirements by user areas and its thorough understanding by IT areas. A clear example of this is the profusion of methodologies that are generated year after year. The increase of public knowledge on massive use technology has not, in general improved the situation. Sophisticated software engineering practices to formalize the management of requirements, the modeling, development and the testing of the users' satisfaction not always has an acceptable cost-benefit equation, but its non-adaption lacks one as well. Many formulae have been attempted and we will surely test many more.

Meanwhile you must continue making systems as best as possible. To wait to find the methodology and the players that allow a definition of development free of questions is today utopia. This problem is sufficiently studied and proven. Specific examples are not required to clarify the same.

## 2.8  TA have a staring role in the Public Administrations

In general, Tax Administrations have an emblematic role in public administrations, which has heavily increased in the past years because of Electronic Government plans. The TA-Taxpayer relation (and the customs user in some cases) has been one of the virtual relations that is worked the most in the past decade, due to the nature of collection, the availability of the resources and the technological immaturity of the responsible organizations.

In many cases this trigger has lead Tax Administrations to adopt problems that are not its own, such as the Management of the digital gap, the participation in the formulation of GE plans which affect the entire state, the assistance to organizations that are more behind, etc. You must also add to this the contribution to the implementation of the interoperability to comply with the One-Stop and Registry Simplification principles.

AFIP has suffered a growing demand for the provision of services and technical assistance from all types or organizations, from the three powers, the three administrative levels, from organizations with related businesses and others that are not related. The availability of resources, the installed capacity, and the experience acquired make these transfers of resources difficult to reject, especially when you consider the one-State vision.

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[5] Business Process Execution Language.

These demands produce strong tensions in the web-type model with hierarchic structures and the analytic distribution of functions and the relational models that provide new state organization trends. Many actions and their corresponding resources assignment can be qualified as questionable or dysfunctional under the institutional vision as well as, praiseworthy and beneficial under a more ample vision.

Therefore, it is important to assume the growing existence of the demand and to act consequently. It is important to consider these organizations as external services users and consider them in the provision of resources. To respond to some demands requires the implementation of practices that not common in the IT government areas such as the provision of technical assistance to third parties. In this process, it is necessary that the organization follow-up and understand these actions, specifically the business and audit areas.

AFIP currently provides hosting and housing services in its data center, as well as user authentication services, tax collection services in the name of sub-national tax agencies, development and transfer of technical assistance applications and processes for many public organizations. The case of the transfer of SARHA (AFIP's Human Resources Administration System) which has required the formation of a structure area operating as a Consulting firm that serves many "clients" without receiving any monetary compensation in exchange is noteworthy.

# 3   Planning Guidelines

The purpose of this section is to present the generalization of the IT strategic planning guidelines that AFIP used between 2002 and 2007. The aforementioned must be taken into consideration in regards to the institutional policy stated, in Argentina's political-economic context, and AFIP's characteristics as a TA.

To meet with the strategic planning objectives, in addition to knowing the restrictions of the context, we must understand the nature of the demands of the new services that the IT area must attend. There are many different approaches to the issues, but in this case we will use a simple characterization of the requirements by two orthogonal variables:

- A qualification in function of if they are or not advanced with sufficient freedom to adjust commissioning times in function of prior development activities and the entire work load generated by other demands.
- A qualification in function of whether they can be generated and supplied with technology that is already owned by the organization. By ownership technology we understand that is not only known technology but that it is used throughout and for which there are the necessary resources associated to its use. In other words, it is one of the forms in which the organization already knows how to solve demands and it has the resources to do so.

This double qualification allows us to build a simple double entry table with the following:

| IT                    Services Requirements | Servable    with    the appropriate technology | Require                    new technology ownership |
|---|---|---|
| **Can be planned** | Traditional planning and capacity estimating | New projects generation |
| **Unforeseen** | Maintain response capacity | Mitigate |

We have titled crossing cells with the type of response to each combination. On the requirements of the first row there is not much to be said that is not written in a many recommendations and that the entire mature organization already manages.  In the unforeseen requirements is where we will focus on how they have been treated by this administration.

The first position is to assume that the nature of the unforeseeable is by the nature of the function, not by the occurrence of the requirement in itself.  Therefore, we know with certainty that it will occur, what we do not know is their functionality and we can only estimate the demand for the resources it will generate.  Maintain an adequate response capacity to face these requirements is the essence of AFIP's applied planning in regards to unforeseen requirements but which can be served with the appropriate technology.   Regarding the unforeseeable and not served requirements, with the appropriate technology, certain guidelines are applied for their mitigation.   In their conception they are also guidelines to maintain an installed capacity to provide response, but different from the necessary for the previous case.

Therefore, to establish and maintain the capacity to generate and systematically provide services without collapsing business areas, IT area, data center, assuming that a good part of the requirements are not predictable in time or in effort; this is the central challenge of IT planning.  This vision of planning presents few inconveniences.  Instead of supporting the objectives based on the concrete demands of the external users, they must be supported on their own growth and technological extrapolation criteria.  This situation is assumed by the TI area, but must be institutionally understood by business areas and especially by the finance and audit areas that must accept justifications of this nature.

To generate capacity to face unforeseen demands must is faced from various aspects, was we will see herein.   The following recommendations are generalizations of guidelines used by AFIP's IT area to meet the objective of maintaining the stated response capacity.  The different aspects are presented separately, but there is a very high relation amongst them, which must be coordinated and aligned to have the desired effect.

## 3.1 Maintain the Infrastructure

A central aspect of the capacity to generate and provide services is based – obviously – in the availability of infrastructure resources for processing, storage and communications:

- The growth of processing needs, especially web-based transactions, was mitigated with the use of farms that allowed horizontal scalability with small-size equipment. Central processing was attended with large processing units for which vertical scalability was assured.

- Online storage and safeguarding needs has increased considerably in recent years thanks to the massive computerization of services. At the same time, the offer of storage devices continues to become, in relative terms, cheaper. Whichever way, acquisition planning and the renewal of storage resources become complicated, because excessive acquisitions may play against advances offered by industry and marketing.

- Communications have a similar growth and supply logic, but in general, do not go through acquisitions but through the contracting of services from the large links.

The acquisition of associated based hardware and software must, under this precept, be constant and permanent, and take advantage of times of greater economic margin. This planning requires good market and technological prospection knowledge which allows extrapolation to perform good resource acquisition; avoiding the extremes of obsolete or too new resources.

Regarding software, freely available licensed software has been very useful, because it may become in some cases a solution because it is available faster (in spite of the fact that often the same must go through a support acquisition process). The evaluation of the use thereof must be done on a case-by-case basis with a very pragmatic view by compensating cost flows (TCO[6]) and the acquisition opportunities, where availability may grant many points in favor.

The summary of the strategy applied in regards to the maintenance of the infrastructure is to detach acquisition processes from development and service provision projects. This is achieved by acquiring and maintaining existing resources with permanent purchases and looking for substitutes, temporary or permanent.

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[6] Total Cost of Ownership: as a means to measure ownership cost considering all factors involved and not only direct acquisition costs.

## 3.2  Standardize

Guideline number two is to standardize, and its fundamental objective is to not rethink or redo aspects that were already thought and satisfactorily solved.  To apply certain degree of standardization is beneficial in almost all levels of IT management, but the most specific objective is to make development areas exclusively dedicated to the business' logic; avoiding redoing of all aspects related to the applications' infrastructure.

The development of applications must produce Systems that comply with the functional specifications required and efficiently use the infrastructure in production.  This is a central aspect; the core of the IT area is the provision of the services implemented in the datacenter and not software development. Conceptually wonderful software constructs that cannot be put into production or result instable or do not properly use resources, lack meaning.

The search for the proper balance between the needs and the desires of the development and production areas is mandatory.  Many initiatives in this regard are contrasting, where operations prefers to maintain configurations stable as long as possible, development attempts to maximize its production with novelties.  Surely the best position is not found in any of the extremes.

To establish the configuration and use it already mature during periods of greater risk is a good practice.  To discuss and agree changes to make them during low demand periods, to assure that in this manner the resources are stable for high periods.  Similarly, it is important to discuss and agree which software is managed by support and which by development, attempting to search for a balance between the stability of the production environment and a healthy innovation in development areas.  This can be achieved with an architecture area that develops, establishes and maintains the applications infrastructure so that developments area are only dedicated to the business' logics, delegating in the areas of architecture and infrastructure the provision of common services.

Regarding the platforms, we have found highly convenient to establish two: one for fast developments (prioritizing development speed) and another for central systems (prioritizing robustness, adaptability, etc).  Another central issue to prevent commissioning and testing situation problems is that they be managed by the support area, while development areas may be managed and coordinated by both parties.

The market is flooded by standards, methodologies and reference frameworks for IT management, which follows the evolution, trends and bubbles.  In this regard we have always taken a very pragmatic point of view with adopting, by analyzing them to take advantage of the good things and disregard the bad things.  It is not wise to disregard what others have successfully used, but is equally pointless to only rely on exogenous frameworks because of the same reason.  The application criteria of frameworks must produce better services, lower costs or less risk.  For the Tax Administrations the adoption of a trendy standard is not a sales argument.

Throughout the years we have developed a standards adoption policy what can be summarized as follows:

- To make sure the specification is supported by a representative set of industry players.
- To support with the existence of usage experiences of significant reach that support their successful utilization.
- To make sure there are different implementations and that the compatible among themselves.
- To make sure that the scope of the specification and the associated instruments be made "more accessible."
- To provide the hope of acceptable life for the purpose sought.
- To prioritize the use of open standards.

And the last one, although it may be the most important one, but it depends entirely of the context:

- To make sure that the specification effectively adds value.

## 3.3 Data Management

For decades tax agencies have been collecting data of every nature, and the amount has grown significantly during recent years, so that it is persistent and treatment has become the axis of businesses.  Much data comes from management systems themselves, others are generated by external systems.  The demand for the same also increases with examination criteria which are increasingly sophisticated especially for predictive systems.

Updating and integration needs grow by accumulating data, logic and physics are necessary for their use from any system.  Registry Simplification and One-Stop principles also require that these be offered to other organizations, requiring the implementation of safe publication, authorization and authentication safe mechanisms.  This interoperability presents new challenges, tax administrations are used to requesting the data they need, but the trend is for each production organization to be in charge of capturing, updating, Publishing and preserving what it produces.  Therefore, we must learn to play this double role, organized producers and consumers.

Preservation demands become complicated day-by-day, because of volume, technological evolution, the amount; therefore, it is very difficult to assimilate the cost of conversion when risks are still remote in time.  However, attention must be paid to this issue.

To manage data, in the broader sense, to capture, update, publish, preserve adequate levels of quality and security is expensive and painstaking. Not only is it necessary to do it in function of one own needs as well as the needs of the circumstance need, but it is

also important to maintain a more broader vision in time and on state and not only tax businesses. This practice assimilated to natural functions contributes enormous value when responding to unplanned needs. To be proactive when managing data requires faster action when we must respond to data treatment requirements. This is another aspect, which as well as technological ownership, that must be understood institutionally and not only by the IT area.

## 3.4 Explore technological evolution and the business

Tax administrations are not technology research and development organizations, but often the needs exceed the industry's supply and resources must be at hand to take what is useful and adapt it to the needs. To have resources that can carry out works that are foreign to the traditional development process presents itself as something that is fundamental to not exclusively depend on the commercial offer. These resources, human and logistic, not only should be capable of understanding the business, infrastructure and appropriate practices of the organization, but they must also be capable of understanding the organizational impact of the technology under study.

The technology available changes constantly, but new uses are continuously uncovered and their institutional ownership can attain interesting applications because of new benefits or costs reductions. The industry often overwhelms us with new products, but we believe that it is necessary to pursue evolution with an institutional approach and the knowledge of one's own business.

In foreign trade control, innovations continuously arise that may significantly impact the administration as well as the users. In these situations, new products can generate radical changes in operations where both parties gain with their adoption, even accepting to jointly face the necessary investment for change. In this specific business, the balance between control and facilitation of economic activities is critical; there are many examples where the introduction of technology allows increasing non-intrusive control, by improving balance conditions.

An activity desired and often sought by the AFIP but with uneven results was to use academia as a consulting source for technology research and development. The lack of precedents and certain specific characteristics of Argentinean public university presents barriers that are still difficult to overcome. This continues being an activity that is pending.

## 3.5 Strengthen Human Resources

Finally, but not least important, we have left human resources, key stakeholders of the process and the source of all the other guidelines. Having analyzed all restrictions and with the premise of carrying out transformation actions thanks to existing resources, the management of people in the organization is key.

The complexity of current IT systems with the many levels and different services requires facing a clear tension between specialization and group vision. The necessary specialization in each aspect requires that each specialist focus on its issue forgetting that it is part of a greater system, maximizing its interests often to the detriment of the collective interests. This natural trend must be directed towards the greater knowledge of the context and the business. The question is: how is it done? Training on the one hand and personnel rotation on the other are two necessary actions that must be seen as an investment and not as cost.

However, a central aspect of the strengthening of the human resources is to assume the challenges and drive people to learn in action. New tasks are learned by doing and making mistakes to then do them again. If these tasks are outsourced, there will always be dependency of a third party to do them and the necessary knowledge will not be owned. Obviously, we must evaluate very well which things are worthwhile assuming and which not.

Activities that produce long-term responsibilities, such as the formulation of RFP[7], are presented as key to be assumed by those that must be in charge of what has been acquired. At the AFIP, this process was always done by the IT group, especially by who had to carry out the implementation once the purchase is done. This practice guaranteed somewhat the continuity of the task, the education of personnel on the issue and the commitment of the parties' involved. This factor can further delay RFP preparation, but in general it is recovered with interest during other stages.

This way of giving officials a star role produces a feeling of personal worth, which in general results to be highly esteemed by people. Similarly, for being part of well sectors known by peers and users, they often result in commitments that are sounder than economic incentives.

Similarly, the acquisition of resources, project development cannot wait the reconversion of human resources. Therefore, they must be designed in such way that they can be carried out by currently personnel, with their strengths and weaknesses. At the same time, investment in training and human resources turnover related to technology management seems to be a need when Racing challenges to response capacity generation, as we will see later.

The follow-up of new technologies is a need, but it is necessary to manage tension and seek a good balance between updating and taking advantage of what is suitable. Addition to new technologies with the purpose of finding magical solutions to problems is not advisable for an organization where technology is instrumental. The extreme of remaining in obsolete technologies by maximizing amortization does not seem to be advisable as well. To find balance is not easy and the problem happens at many different levels, not only in big issues.

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[7] Request for proposal: an invitation to vendors to present a proposal for a specific product or service.

All the aspects that have been presented previously are related to human resources management. The management of the infrastructure, to accept and manage standards, to manage extensively data, relate to ones own colleagues and with officials from other organization for the development of activities with common objectives are all aspects that have important cultural component. This component must be treated with diligence and dedication, as all cultural aspects, which are not owned by the mere facto f acquiring software or methodologies.

# 4  Conclusions

To assume the cost of facing unforeseeable requests does not imply work to a chive that most requirements be placed in the can be planned line. What must be understood is that this process is separate from the planning process, as a long-term investment that will produce in the future the reduction of requests outsider the plan. Analogously, the proactive attitude of the IT area and the thorough understanding of the business areas of the technology available with a good dialogue between both parties will allow reducing demands with inappropriate or unforeseen technologies.

As we have mentioned, the electronic government vision demands coordination with the remaining organizations of the public sector to present itself before society as an organized unit. In many countries this type of relation requires practices that are not common, with strong cultural, legal and organizational barriers. One of the great challenges of the public administrations for the coming decade is to work in coordination. This capacity is mostly achieved by technology management, but requires the acquisition of capacities and achieve strong changes at all levels of the state's business, because it crosses information, organizational, legal and cultural planes.

Tax administrations as leading organizations in the management of technologies and organizational innovation will continue being points of reference in this aspect; therefore they must be prepared in this regard to be able to set the necessary bases for the development of the Electronic government plans. These plans should not lose the target of a more agile State that assures rights and facilitates economic activities.

This effort does not seem to be conceptually different to the one stated and undertaken by the AFIP in recent years, only that in a greater scale. It seems that the practices proposed regarding infrastructure, human resources Management, standardization and data Management are necessary but must be applied to a group of organizations and not only to one component. This will surely require another type of legal and organizational challenge, but from the IT point of view, seem to be completely aligned.

The restrictions and the generalization of the proposals presented are simple and obvious. But often what has been overlook is known but not recognized; they are simply ignored and are not consequently acted upon. We have competently performed new methodologies or products that assure the attaining of success by their blind use. Good results came about because of the day-to-day efforts a group of people, aware of the context and ready to learn from their mistakes.

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