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Business Modelling in the Transformation of a Cost Unit into a Service Unit.

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Abstract

This article presents the experience gained during the establishment of a Customer Attention Service as the first stage towards the transformation of the IT department into a Service Unit. The use of several modelling techniques at different stages of the project, entitled GESU, is described.

Keywords

transformation, service level, customer, value chain, process models, process, task

1. INTRODUCTION

IBERDROLA is the third largest investor-owned Electric Utility in the European Union, and the leader in Hydroelectric Generation Capability, accounting for 10% of the European Union's overall hydroelectric power capacity. From a domestic point of view, IBERDROLA

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is Spain's largest investor-owned Electric Utility, serving 16 million people and covering 40% of the nation's territory.

The IT department of IBERDROLA (SINFO) is the focus of attention in GESU.

FEND is a federation of members, including European Companies and Universities, building a network of excellence in Enterprise Knowledge Development defined as the communication, integration, adaptation and use of organisational knowledge. The uniqueness of this Federation is that it assists its members to solve specific business problems by organising, managing and staffing 'Collaborative Projects' which are tailor made to the requirements of the member. This collaborative programme provides the means to overcome business challenges by working together with companies that have similar business concerns thus sharing knowledge and experiences.

Within this collaborative framework, the GESU project has been under development since January 1995 and is planned to be completed in August 1997. The consortium consists of four members: IBERDROLA, the problem holder, SOCINTEC, a technological consultancy belonging to the IBV group, FEND and GMD (German National Research Centre for Information Technology).

1.1 Background

IBERDROLA has, as the main objective, the goal of adapting business to the market needs and to enhance its role as a **Service Company**. This business objective has implications for each individual business unit, with all of them contributing to this overall goal through individual initiatives. A series of initiatives and projects aimed at improving the efficiency of the enterprise as a whole, enhancing the abilities of its professionals, the productivity of business processes and the quality of services provided to individual customers and markets have been initiated. GESU is one of these projects.

GESU (Gestión del Servicio a Usuarios) stands for Customer Service Management. Defining the IT department in terms of services provided to the other business areas of IBERDROLA and efficiently managing this services is the main objective of the GESU project. Until now, the IT department has been providing these services as a support unit rather than as a service unit; the IT department had "users" and not customers.

This project has viewed the IT department as a mini-company which provides several facilities and services to the rest of the business areas by means of an IT infrastructure. The efficient management of this infrastructure and the creation of value-added services to complement the routine use of Information Systems will lead to the enhanced performance of IBERDROLA.

The objective is to establish service and customer focus at all levels in IBERDROLA. In the context of this article, all employees and business areas within IBERDROLA that use the IT infrastructure are SINFO customers. The quality of service they receive has direct implications for the quality of service electricity consumers receive, the latter being at the end of the chain, they are the customers of the core business of IBERDROLA. Assuring the quality of service throughout the chain of internal and external customers is the underlying goal of IBERDROLA.

FEND has provided the necessary support in applying several modelling methodologies and techniques which have played a crucial role in meeting this commitment. During early stages of the project, models were used to provide a deep understanding of the current situation and to discover deficiencies and possible improvements. A number of services have been defined, the first one to be implemented is the Customer Attention Service (CAS). The 'TO-BE' model for the Customer Attention Service will be implemented and measured during a pilot phase; it will serve as a reference point for later negotiations with customers and as the means to dimension the service and estimate further needs in terms of information systems and human resources.

2. METHODOLOGY

A methodological approach is necessary to manage the complexity associated with change and transformation. In the context of an organisation, change can have a wide spectrum; in other words, a change can affect the underlying philosophy of work, the job definitions, the work practices, or the support mechanisms, amongst many others. Therefore, it is crucial to be able to identify the scope of the desired change and work towards its accomplishment in a methodological manner. It is very important to understand what motivates the project, what makes it necessary, what is the commitment of the decision makers, etc. Answers such us big or small, many or few are not sufficient; the boundaries, objectives, and potential benefits of proposed changes must be clearly stated.

With this brief introduction to GESU, the reader can grasp the idea of improving the quality of service, creating mini-companies, overall transformation initiative driving changes at smaller scales, etc. Issues such as organisational change or business process definition and whether to consider a technological or organisational point of view must be addressed. These questions and many others have been continuously arising during project team discussions, especially during the initial stages. A methodological approach must be taken when accomplishing or explaining management of change.

The first step is to clarify the scope of change and its implications:

- **Scope of change**: does it affect individual tasks, processes or business processes? Figure 1 defines business processes, processes and tasks, the scope of change for a given project must be situated at one of the mentioned levels.

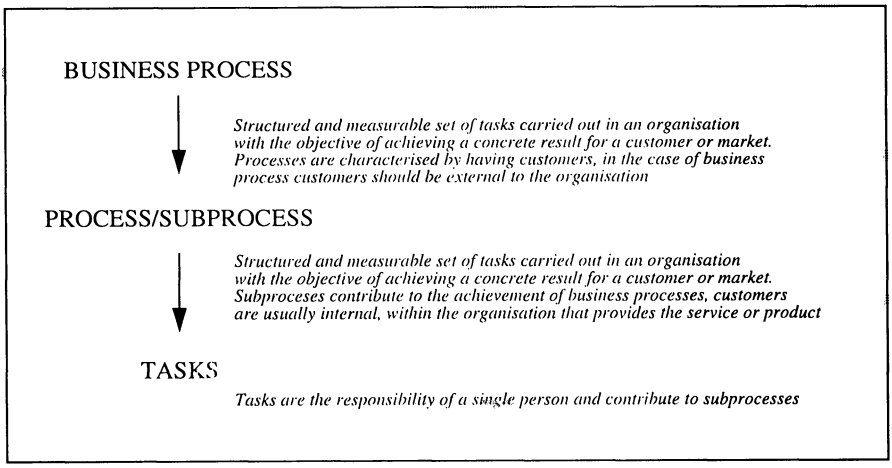

Figure 1: Scope of Change

Change will be propagated across levels, thus, change at business process level means change at process and task level. Although the design of changes must follow a top-down approach, its implementation is always a bottom-up process.

- **Strength of change**: small improvements for current practices or change of current practices? In this sense, the strongest change would be that which breaks the underlying hypothesis upon which the business basis its behaviour. A radical change not only means learning new ways of working but also abolishing old ones. The strength of change can be evaluated by looking at what it affects: the practices or the capacities; individuals, groups, or the whole organisation. Thus, the 'lightest' change would be that which affects the work practices of a single person, for instance using a word-processor instead of a type writer.

Once the scope and strength of change have been identified, it is important to methodically begin the modelling process. One must first model the current processes in order to better understand them. The following step is to model the processes, tasks or systems that are to be designed or re-designed. The proposed changes must then be modelled in order to evaluate the implications of the various alternative solutions. Then, model proposed solutions and see how different alternatives would affect. Conceptual models have an important role in organisational transformation, especially as a facilitator of discussions and abstract representations of alternative solutions.

In summary, the suggested approach would be:

1. Identify scope of change
2. Identify strength of change
3. Model and analyse 'AS-IS' situation
4. Model and analyse alternative solutions
5. Give guidelines for future solution
6. Implement solution

3. DESIGN OF THE CUSTOMER ATTENTION SERVICE

GESU is at the process/sub-process level, and it implies a radical change as the philosophy underlying the behaviour of the IT department is questioned. There are no more users, there are customers; services must comply with certain standards, a service level agreement will be negotiated with and agreed to by the customer, thus services must be traceable in order to ensure quality and control costs. Organisations can no longer afford a support unit like IT which demands large investments without it being perceived as a value adding service to the overall performance of the company.

IBERDROLA has identified the core business processes and functions of the IT department. The method used for analysis and representation of results is Porter's Value Chain. Four key processes have been identified:

1. Define Strategy for the Infrastructure and Services
2. Develop, Implement and Evolve the Infrastructure and Services
3. Operate Infrastructure and Services
4. Provide Support to Users.

All tasks involved in management of services fit under processes 3 and 4; therefore, it can be stated that change will affect all tasks, people and technology employed in the execution of such processes. This is **change at the process level**.

3.1 AS-IS models

Having established that GESU is at the process level, the next steps are to identify main areas affected by possible changes and analyse their current situation by means of models, interviews and research.

Management functions of IT systems and applications, responsibilities for customer attention and management support tools were dispersed across the organisation and were not homogeneous. In order to clarify ideas and reach a common understanding of the situation, the following models were produced:

- Map of the physical and logical distribution of the IT resources and applications. SINFO manages a very complex and heterogeneous infrastructure which combines different networks and protocols, distributed systems with a central system, and a long list of standards and in-house developed applications. Different technological domains, have their own management systems and inventories of resources, these management systems are not always integrated nor share information, thus leading to fragmentation of support and service provided to users.

- The second series of models represent the decomposition of business processes focusing on interactions, flows and interdependencies. The processes detailed in GESU take place once the IT applications, main services and infrastructure are running. In the value chain model these processes include *Operation of Infrastructure and Services* and *Provision of*

Support to Users. During this phase, such processes were detailed using IDEF0 methodology and supporting software (IDEF0 1992).

The methodology is based on SADT (Structured Analysis and Design Technique), developed by D.T. Ross and SofTech, Inc. it includes both a definition of a graphical modelling language (syntax and semantics), and a description of a comprehensive methodology for developing IDEF0 models. The result of applying IDEF0 to a system is a model, which consists of a hierarchical series of diagrams, text and glossary all cross referenced to each other.

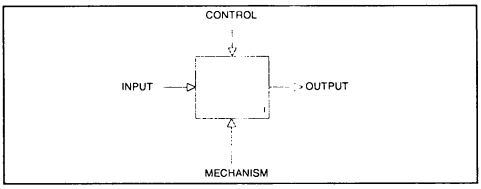

Figure 2: Basic elements in IDEF0 Diagrams

Following this standard, a full series of diagrams detailing the processes have been produced. Figure 3 is the second level of the process model reflecting the interactions of all processes identified in the value chain.

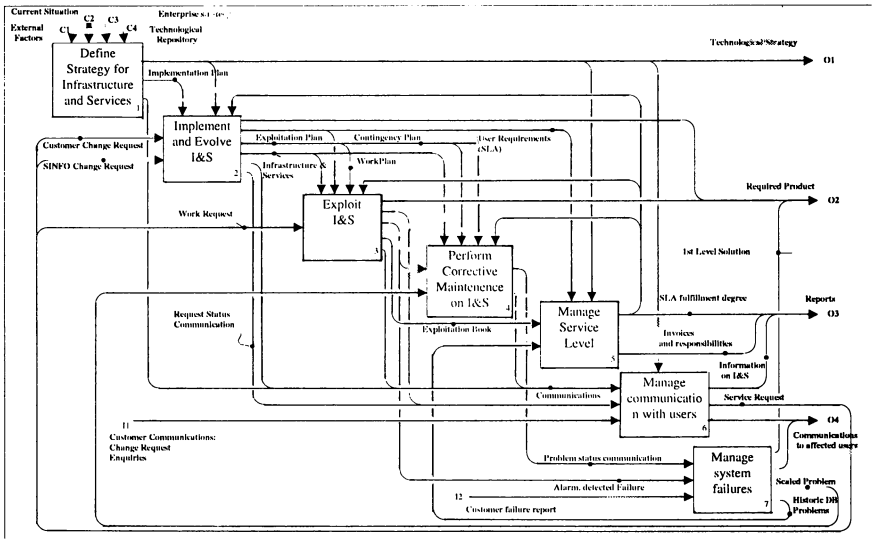

Figure 3: Second Level of IDEF0 Model.

All activities identified in processes, although performed, are not always traceable. The process model represents a reactive behaviour where the majority of activities are performed on demand, that is, initiated by the customer. A summary of the conclusions derived from the analysis of 'AS-IS' models is the following:

- a high number of processes considered at the level of business processes, while most of them are really sub-processes in which GESU can be divided
- a clear reactive behaviour of the system, which simply acts as a response to customers' queries
- the lack of an unique contact point with which customers can interact and, consequently, of an homogeneous concept of the IT services as a whole.
- the high complexity of the relationships among different sub-processes, which causes loss of information and feedback.
- the serious difficulties encountered when tracing services and, therefore, the impossibility to invoice the rest of the departments in order to transform SINFO into a profit centre.

- The third model developed presents a view of the internal organisation of SINFO. This model consists of a matrix where the different units of SINFO are mapped against tasks and processes.

The organisation is not conceived in terms of processes, but rather in terms of technical-functional divisions. The organogram is structured in five departments: *Central Systems*, *Distributed Systems*, *Networks and Communications*, *Development*, and *Security and Planning*, each of them with the subsequent subdivisions and roles. Each unit participates in all tasks involved in *Operation of Infrastructure and Services* and *Provision of Support to Users*, attending demands for specific elements or applications, managing their resources, and attending users. Neither the infrastructure nor the services can be absolutely categorised by technologies; there are parts of the infrastructure that are clearly in the domain of central systems and others that are traditional network elements like routers and hubs, but the end customer using the applications should not be concerned with these differences. Individual elements may be performing correctly, their problems being solved and their resources efficiently managed, but for the customer of IT there is only one service. That is, to access a certain application, and for this purpose all areas must be co-ordinated and perform correctly. This characteristic of quality IT services highlights the need of horizontal co-ordination between departments which were initially organised by technologies.

In the future, the IT service has to evolve towards an schema like the one presented in Figure 4. A catalogue of services has been defined to support the implementation of this schema.

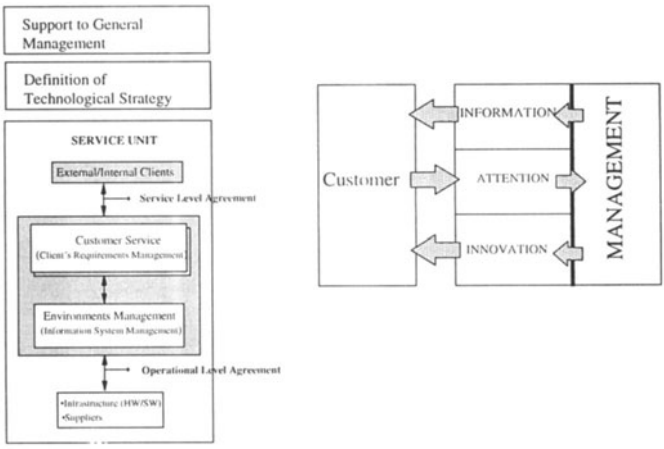

Figure 4: Conceptual vision of the IT Function and Services

Service Management and **Customer Focus** are the key words in the solution; thus, the first service to be established has been the Customer Attention Service (CAS). There are several reasons behind this decision:

- a single contact point with SINFO has been continuously demanded by users of IT applications
- the CAS will collect system failure reports, answer enquiries on the use of applications and service orders
- the CAS demands collaboration from technical experts in all technological domains, contributing to horizontal co-ordination and distribution of knowledge
- the CAS demands identification of customers and their assigned services and resources
- the CAS demands that all resources in the infrastructure are monitored in order to locate and solve problems and further that SMS (System Management Systems), NMS (Network Management Systems) and Help-Desk systems work in an integrated platform
- the CAS promotes the culture of a service unit

3.2 TO-BE models

A Service Level Agreement (SLA) establishing the standards for the CAS has been developed which will be negotiated with the customer areas at a later stage. The proposed SLA sets high standards on the provision of services, such as time for problem resolution.

Reaching these standards places requirements on the supporting technological solutions, as well as on the procedures and organisational roles to be established.

The technological side of the project has lead to the detailed definition of requirements for the integration of inventories, systems management functions and help-desk functions, these specifications have been produced following the OSI standards for network and system management and the OMNIPoint (NMF 1993) approach for IT Service Management.

In order to continue with the methodological approach used so effectively in the earlier parts of the project, FEND has developed process models to guide the definition of procedures and roles.

ActionWorkflow (ActionWorkflow 1995) was the methodology chosen for this purpose. ActionWorkflow is a methodology developed by Fernando Flores and Terry Winograd which focuses on the way people interact and the flow of responsibility to achieve customer satisfaction as the goal of the entire process. Each process is divided in four phases: *Preparation, Negotiation, Performance*, and *Acceptance*. For each workflow a *customer* and a *performer* must be identified and the type of flow (Offer or Demand) chosen. This selection establishes the responsibilities of the customer and the performer in the different stages of the process. ActionWorkflow models represent the chain of activities between external and internal customers and performers until a service is delivered. Using ActionWorkflow it is possible to define how the activity of each participant in the process contributes to the overall goal of customer satisfaction. Furthermore, it provides support for continuous improvement in quality and reduction in cycle time.

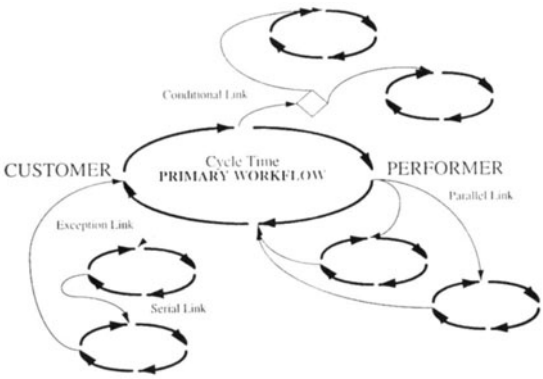

Figure 5: Basic Concepts and Notation in ActionWorkflow Models

The models presented in Figures 6 to 8 are part of the initial design of the processes to be carried out in the Customer Attention Service. The CAS obliges different departments to work together in the resolution of problems, enhancing the desired horizontal co-ordination and distribution of knowledge.

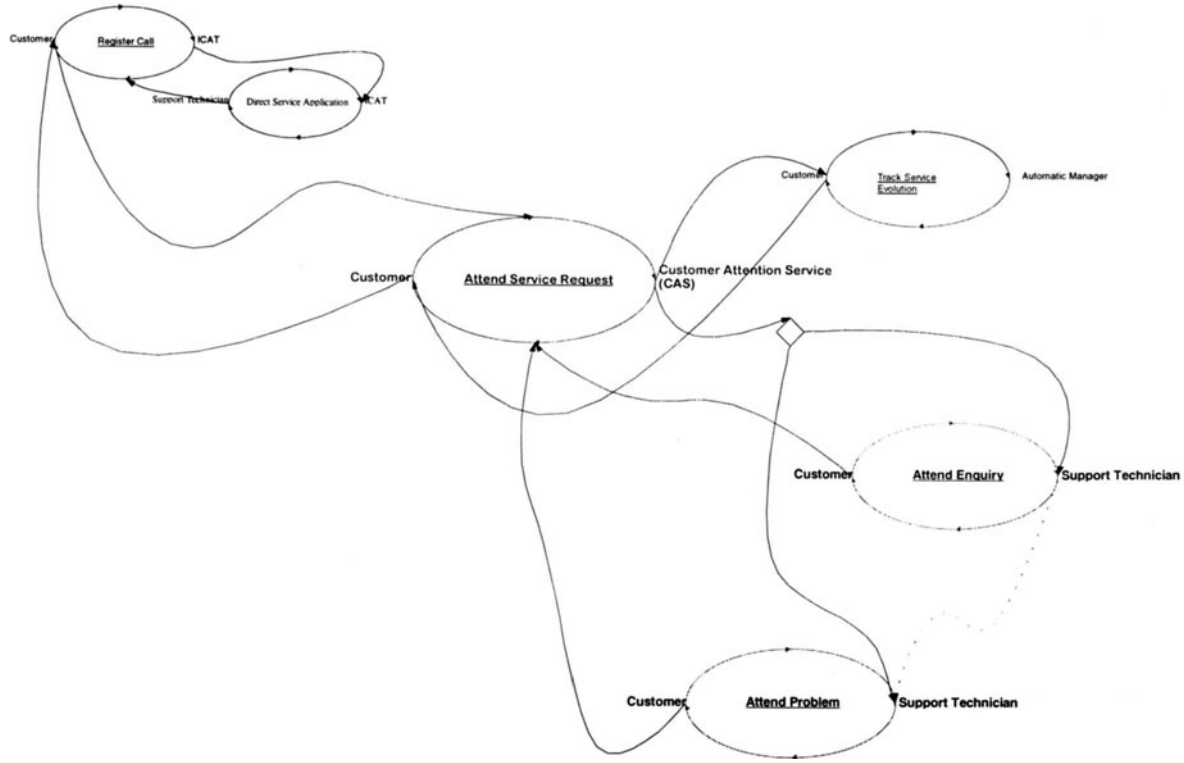

Figure 6: Attend Service Request

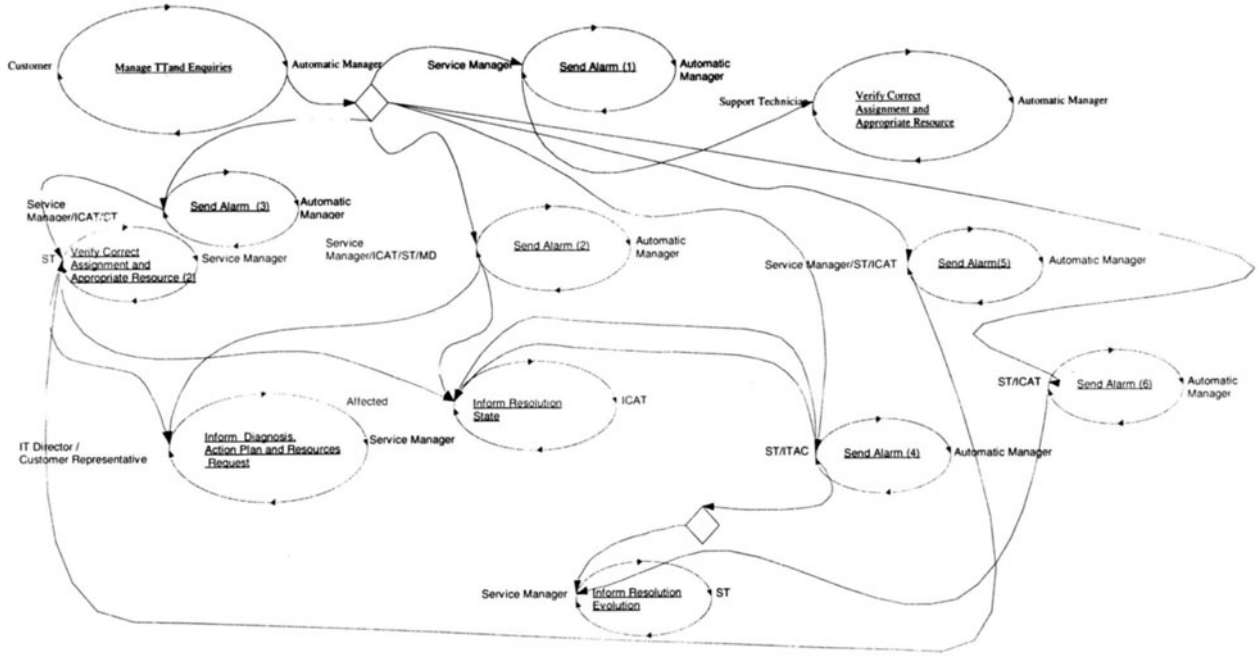

Figure 8: Manage Trouble Tickets and Service Requests

In addition, a series of indicators have been identified in order to measure the effectiveness of the decisions taken during the design of the CAS and continuously improving this service. Examples of such indicators fall under these categories:

- technical support domains (eg. number of services provided /domain)
- training requirements for support and customer attention technicians (eg. number of requests badly allocated /domain)
- customer training requirements (eg. system to classify arriving calls)
- expertise required at different levels of support
- scaling and priority systems
- use of e-mail, fax, phone to request services
- Service Level Agreement standards (eg. number of enquiries solved in standard time)

The manager of the service has the responsibility for periodically collecting all these indicators and analyse them suggesting and implementing improvements in both the CAS itself and all other services provided by SINFO (Innovation, Management and Information). A Customer Attention Service should always be the means for gathering valuable information to be used by other services in the department and in the rest of the organisation. It should be a centre to collect the voice of the customer, trends in the use of IS, training needs, etc.

In Figure 8 the IDEF0 model resulting from implementing the above operational models is outlined. Although this model will be further detailed, it is useful for presenting how changes at task and operational level will help in the implementation of changes at process level. It also presents the CAS as the means of providing feedback to the rest of the processes, feedback that is generated directly from the voice of the customer.

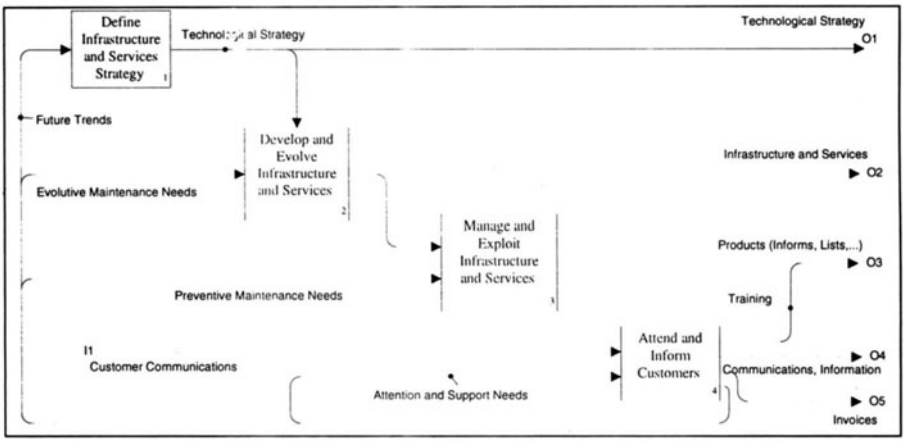

Figure 9: TO-BE conceptual model

3.3 Implementation

The implementation of a pilot CAS has started in March 1996 according to the decisions taken during the development of 'TO-BE' models. As mentioned in section 2, the implementation of change must follow a bottom-up approach. In this manner, teaching new work practices and procedures to both the customers and CAS personnel and implementing all supporting tools will be among the first steps towards the establishment of the CAS. Once all supporting tools are running and models optimised, it could be stated that a new process has been implemented.

4. CONCLUSIONS

Conceptual models have played a fundamental role at all stages of the project. A model in this context, can be defined as a symbolic representation of a system such that the model can be used to derive information about the system it represents.

The use of modelling techniques has been a continuous feature throughout the duration of the project. Different models have been developed as a result of the information gathered during meetings and interviews. Models were presented to the team for discussion and approval, thus, the final versions reflect a consensus among the members of the team. The help that models have provided to enhance the meetings is evident. They have allowed the team to keep conversation in focus and to develop a common understanding of the problem under study. Moreover, models have served to provoke reactions and to picture alternative solutions.

FEND, at different stages has applied modelling techniques to facilitate to the following:

- conceptualise opinions
- lead meetings and discussions
- highlight points of conflict
- accelerate the decision taking process
- define processes and procedures
- specify personnel and information requirements to perform processes and guarantee SLA fulfilment
- identify skills needed at different positions
- route and co-ordinate responsibilities
- capture system management requirements
- capture problem tracking requirements.

In summary, the modelling exercise has been fundamental in capturing knowledge and mental data for participants, support team reasoning and learning, as well as encouraging system thinking and scenario planning.

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7. BIOGRAPHY

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