A REAL BPR APPLICATION TO DISTRIBUTION NETWORK DEVELOPMENT

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ABSTRACT

IBERDROLA has been working on its own developed methodology of BPR, oriented to the LV new supplies process in distribution. The aim of the project was to increase efficiency, reduce cost, improve customer service and, prepare the organization for a new free market. The process is detailed with special emphasis in the key factors to achieve the goals (training, third parties relationship, labor surplus management, and system integration), main barriers and final benefits obtained. This methodology may be applied to other organizations upon request.

0.- BACKGROUND. TRANSFORMATION PROJECT OF IBERDROLA

IBERDROLA is a Spanish electrical utility with nearly 8 million customers in Spain and around 5 million in Latin-America. Its power generation capacity reaches up to 16 GW.

In 1995, anticipating to the change of the electrical market in Europe, the "Business Transformation Plan of IBERDROLA" (BTP) was born. The new Law for the electrical estate (Nov. 97), that introduces a change from a regulated sector to a free market, is the most clear evidence of these changes.

The new social and economical scenario implies a change in the business understanding and the readjustment of the management systems. To achieve this, the BTP was developed in three levels: strategic, management systems, and optimization of the operative efficiency. It is in this last level where the Business Process Reengineering (BPR) takes place.

The present project has been developed in the IBERDROLA Distribution Area, which had got a territorial organization (Regions, Zones, Territorial Units - TU- and Agencies). As the BTP advanced this organization turned from a territorial into a process oriented organization, based on four main areas: **Executive**, **Assets Management**, **Internal Providers** organized in processes (New Supplies, Maintenance and Local Operation, Network Services and Communications) and, **Support Units** (Systems and Human Resources).

0.A.- Optimization of the operative efficiency

The first step for the optimization was the identification of the *core business process map* defined on the basis of six macroactivities. For the Distribution macroactivity all the processes showed the following common characteristics:

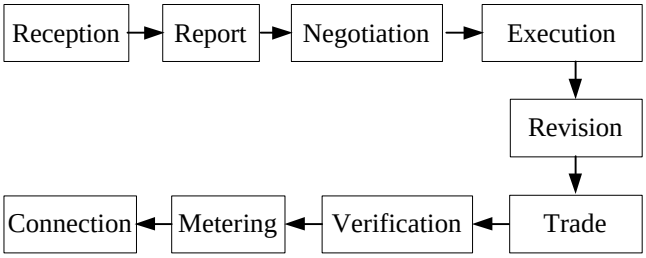
- Large series of the same kind of products involving huge economical and human resources.
- Geographical dispersion, operating under different criteria.
- Subject to national and local regulations.
- Systems and personnel management with wide room for improvement.

The essential process selected for the BPR was "New Supplies" (NS). This Process includes the actions needed to attend the new electrical energy supplies and their contractual requests.

Apart from the BPR, the BTP led to another 33 improvement Projects in the Distribution Area.

1.- NEW SUPPLIES PROCESS

The activities Flowchart in the most complex case for the NS process is as follows:



In the table bellow it can be seen the main magnitudes of the process and its economical impact in Distribution Area:

CONCEPT	DISTRIBUTION
Internal Personnel with full-time or part-time commitment to the process	3.020 people
Internal Equivalent Personnel involved in the process	1.364 people
Internal and External expenses	53 Mill. Euros

Process investment	121 Mill. Euros
Reports	73.371 Units
Construction	37.394 Units
Registrations, Modifications and cancellations	785.058 Units
Number of customers	7.713.011

A deeper analysis of the process revealed the following conclusions:

- A long and complex process in which a number of departments were involved, leading to a lack of coordination and the possibility to come into conflict among them.
- Personnel management and organization not focused on processes.
- Management information system was not ready.

In short, the NS process had got high costs, inefficient resources management, and was not oriented to consumer requirements.

2.- NEW SUPPLIES BUSINESS PROCESS REENGINEERING.

2.A.- Aim

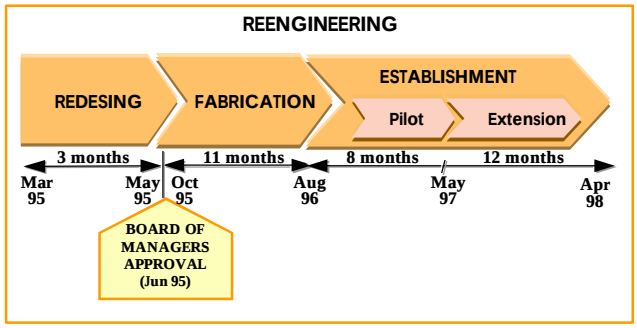
The aim of the BTP was to enable a new process in order to become more competitive and satisfy customer requirements in the most efficient way.

The key ideas were:

- To improve customer service in terms of quality and execution time.
- To decrease cost, and improve efficiency.
- To set homogeneous performance criteria.
- Demand sized organization and process orientated.
- Simplification and continuous improvement of the process.

2.B.- Methodology

The methodology started with the theoretical conception of the process as if it was designed for the first time, without bearing in mind the locations where it is set, the organization which governs it, the people who carries it out, and the systems which administrates it. Using a process reengineering method, in order to reach, in the short term, a radical efficiency improvement.



2.C.- Key Organizations.

Distribution Board of Managers. To guarantee the project success and to coordinate every stage, being constantly involved in the project.

Permanent Reengineering Team (PRT): The members of this team were highly qualified Distribution Area staff, with high creative skills, leadership capacity and full-time commitment.

3.- REDESIGN STAGE.

The aim for this stage was to search and quantify the improvements in every activity of the process.

Firstly, the boundaries of the project were clearly defined and set. Thus, the inputs which unchain the process and the final outcomes were identified.

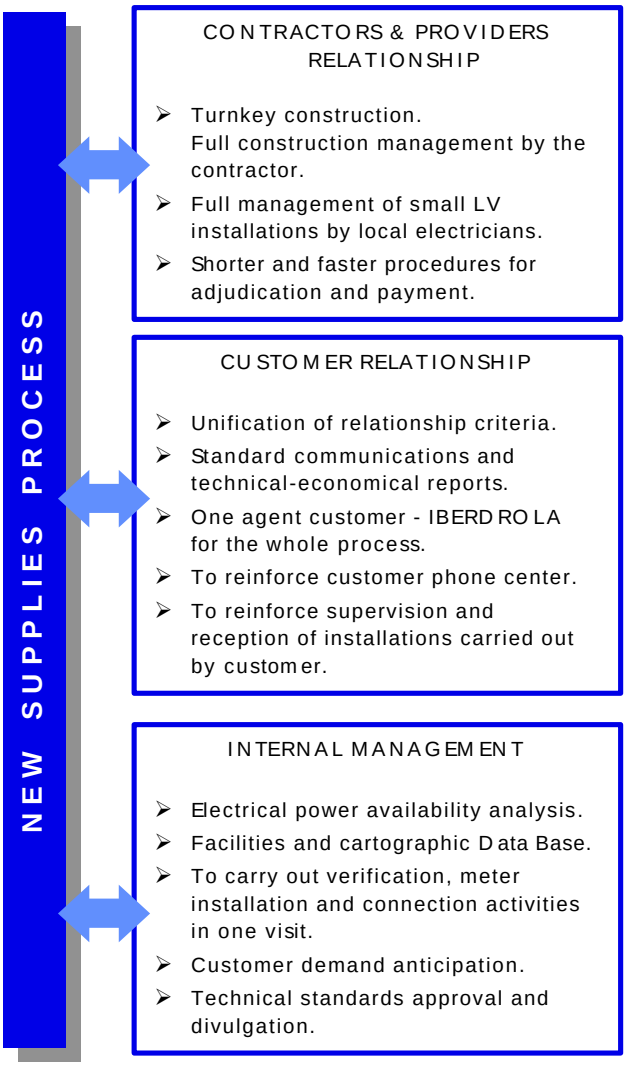
3.A.- Starting Point

Based on a *quality function deployment* (QFD) methodology, the "Direct Customer Voice" project was used in each commercial segment: Domestic and Small Businesses, Services and Industries, and Qualified Consumers. In the Domestic and Small Businesses, where the process is mainly involved, the high impact requirements were:

- Services and equipment information.
- Fast and kind attention to customer.
- To keep the agreements.
- Supply quality and installations safety.

3.B.- Setting up the improvement fields

Using group creativity techniques, the NS process was redesigned, defining a new way of performance for every activity. Based on this new design, the single improvements to introduce in the process were set up until the process was as easy as possible. The following diagram summarizes the improvements that were found out:

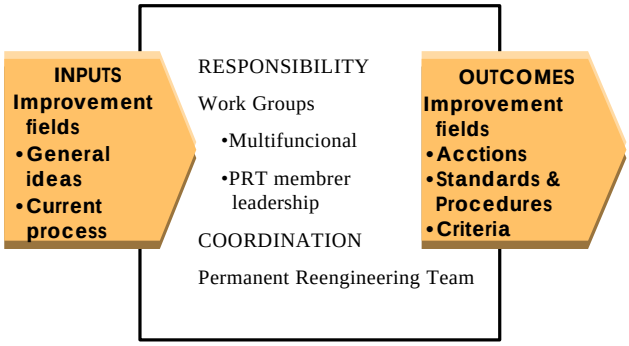


The process foreseen savings, with the introduction of this improvements, reached up to 35%.

Once this stage was accomplished, the conclusions were presented to the Distribution Board of Managers, who approved them all.

4.- FABRICATION STAGE.

The fabrication stage provided a detailed definition and preparation of the necessary steps to carry out the improvements identified in redesign stage, as shown the following diagram:



The outcomes made possible to the PRT to quantify each improvement field save, to define the flow-charts of every activity and to start the development of a new organization to support the process. Then, a first "Operative Guideline" of the new redesigned process was issued.

Quick-hits. Several improvements easy to introduce, which could impact in the short term, were established and applied.

5.- ESTABLISHMENT STAGE.

The establishment stage was divided in two blocks: Pilot (8 TUs) and Extension.

The Extension was structured in three phases. Before each one, some previous actions as the communication and personnel involving scheme had to be developed.

5.A.- Pilot Territorial Units Establishment.

The aims were:

- To test and adjust the new operative models.
- IBERDROLA's management policies and systems arrangement, to be able to support the new performance models.
- To validate the organization.
- To bear out performance criteria for labor surpluses management.
- To develop communication and management mechanisms for the extension of the establishment stage.

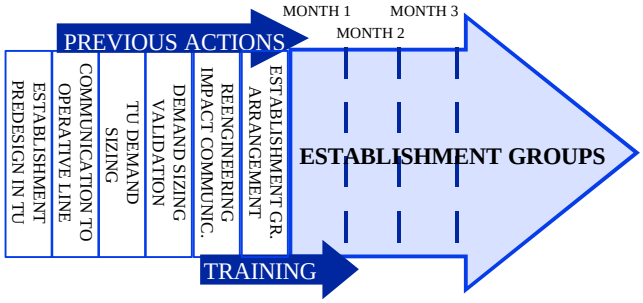
Eight pilot territorial units were selected (about 10% of demand volume) using geographical dispersion, leadership skills of the TU responsible and improvement impact criteria.

5.B.- Extension of the Establishment Stage to the rest of the Territorial Units.

The extension was arranged in the following phases:

❶ Extension predesign: May 97 - Jul 97
❷ PHASE I (21 TUs): Jul. 97 - Oct. 97
❸ PHASE II (20 TUs + 2 Zones): Oct. 97 - Jan 98
❹ PHASE III (20 TUs): Feb. 98 - Apr. 98

This extension was carried out as a sequence of activities, oriented to involve personnel by means of Establishment Groups. Previously, there were several tasks to execute which were on the "critical path", as shown in figure bellow:

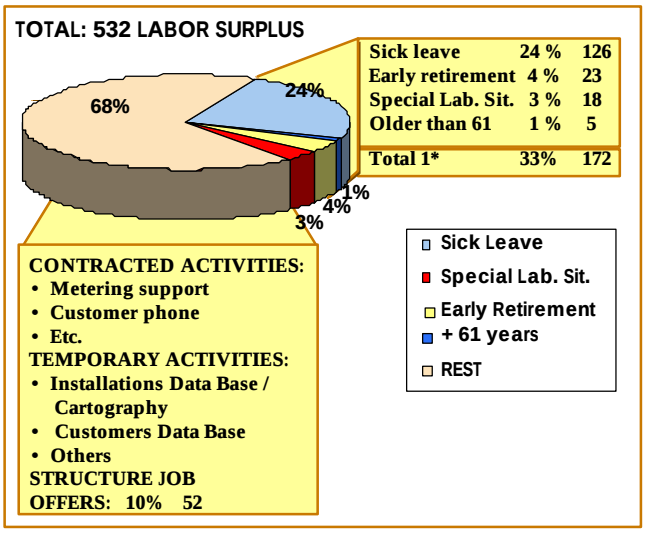


5.C.- Main features of Establishment stage.

The key for success of establishment stage was to acknowledge the following working areas:

Staff and Organization:

- ✓Staff sizing according to demand, using daily and individual work-sheet based on activities, as a management tool.
- ✓Establishment of the new process organization structure, assigning person to job.
- ✓Project presentation to social agents, explaining to them transparently, the impact in the organization of the redesigned process. As a result of it, they collaborated, accepting the new organitizative model and dealing assignment procedures.
- ✓All this resulted in the rearrangement of 1.077 people, 532 labor surplus in the process and 52 new job offers.
- ✓Labor surpluses readjustment were personally considered according to their profile and skills as shown in the map below:



Working Groups /Communication. Two key points in the establishment stage were:

- ✓Keeping well informed about the main matters of the project to all the relevant collectives (operative line, personnel, other IBERDROLA Areas, etc.).
- ✓Creation and Maintenance of the establishment groups.

MEMBERS	FUNCTIONS
✓Key people in the TU to drive the project and guarantee success. ✓Leadership skills. ✓Members: – Territorial Head – Commercial Head – TU Head – Significant staff in the unit. – PRT coordinator.	✓To search, plan and schedule the duties involved in the establishment stage in the TU. ✓Fulfill the improvement tasks on their responsibility. ✓Monitoring and evaluation of the progress reached during establishment stage. ✓To keep the Regional Committee and the BPR informed about the degree of introduction.

Teaching/ training. It was needed a big effort in order to teach all the internal and external personnel involved in the redesigned process.

Focusing in the internal personnel, 304 curses took place, with 27.773 training hours to all the staff involved in the process. All the trainers (158) were IBERDROLA's employees.

As the rules with contractors, suppliers and local electricians had been changed, all related external personnel needed to be trained as well.

Relationship with Suppliers. With the redesigned process it was required to write down new procedures regulating relations with the contractors and the installers. This task required a great communication effort and common work.

Systems. Management information system had to be developed to support the new process (customers, cartography, work management).

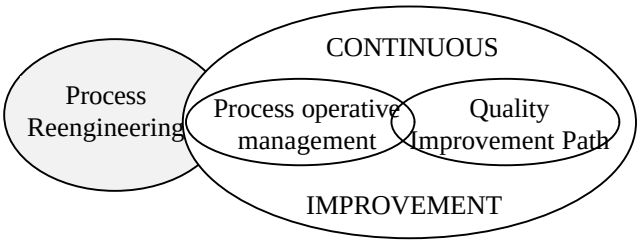
Project Management. The establishment process required good planning, a well set program, a global coordination and, the development and maintenance of the management information system, in order to support the process.

Document Management. The development of the BPR activities implies the generation of a great quantity of documentation that requires a complex treatment. To give support to this subject a Document Management utility was defined. This utility took under consideration the geographical dispersion and was built up in Lotus Notes environment.

6.- MAINTENANCE AND CONTINUOUS IMPROVEMENT STAGE

After the establishment, in order to guarantee the success and the continuity in time of the improvements introduced, a Consolidation Project was started. This project analyzed every TU looking for the deviations and leading to an Action plan in order to adjust them.

In parallel with this Project a new tool known as Continuos Improvement has been introduced. The aim of this tool is to provide the process with an agile and efficient methodology, and it has been thought to manage NS subprocesses.



In this sense, the first step has been the identification and selection of the subprocesses, choosing metering installation as the prime process to undertake.

7.- CRITICAL SUCCESS FACTORS

Since there are many factors conditioning such a process, the correct identification and the operating strategy are of fundamental importance, mainly at the establishment stage. In any other case, these factors could become obstacles for the project, and consequently increase the failure risk.

In this project the most important critical factors to be successful are:

General for the whole Project	–Reengineering as methodology. –Provide every resource required. –Board of Managers involving with decision capacity. –Support Area Responsibles implication. –Design and elaboration of a Communication planning. –Personnel (3.000 people) involving to reach the cultural change.
Redesign stage	–Full-time commitment of the Permanent Reengineering Team –Suitable selection of PRT members
Fabrication stage	–Understanding of working groups as a tool. –All the required areas to be involved.
Establishment stage	–Pilot experience success as a reference. –Information systems adjustment within the expected period. –Participation and implication of the whole operative line. –Establishment group, key and essential element. –Individual treatment of labor surplus. –Personalized assignment of employees into the new structure. –Training planing.

8.-FINAL RESULTS ANALYSIS

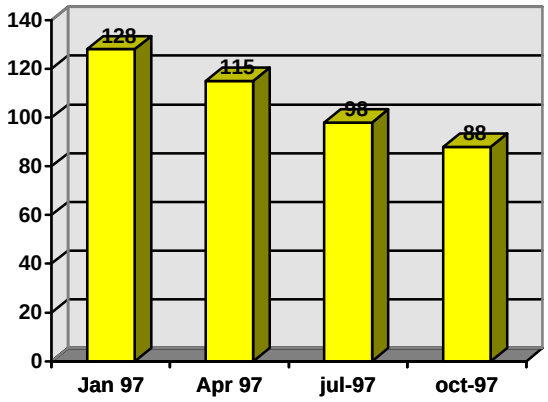
Once the establishment stage was over, the analysis of the level of achievement of the goals show they had all been fulfilled as detailed in the following table:

New Organization	–Process oriented Organization was introduced.
New Procedures & Operative	–New operative guidelines. –New procedures. –Internal and external interfaces identification, analysis and implementation. –Internal and external personnel safety improvement.
Standard Culture / Training	–Homogeneous performance. –Personnel training.
Process Monitoring	–Individual work-sheets. –Management information system. –Establishment groups.
Customer approach	–Customer satisfaction index (1994=6,81, 1997=7,02, 1998=7,1). –Execution and answer period reduction (35%). –Customers facilities quality improvement. –To keep the agreements. –Better consumer attention. –Requirements anticipation. –Suggestions box.
Supporting tools	–Training handbooks. –Systems adjustment.
Human Resources	–Demand sized organization. –Jobs and activities reassignation. –Identification of 532 labor surplus in the process.

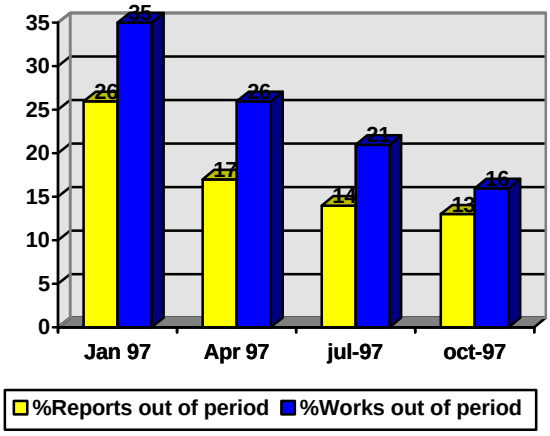
It is important to emphasize the management system, that has been developed for the results monitoring, based on three main aspects: cost, execution time, and efficiency.

The following graphics show the evolution of three of the indexes employed for the monitoring of the process.

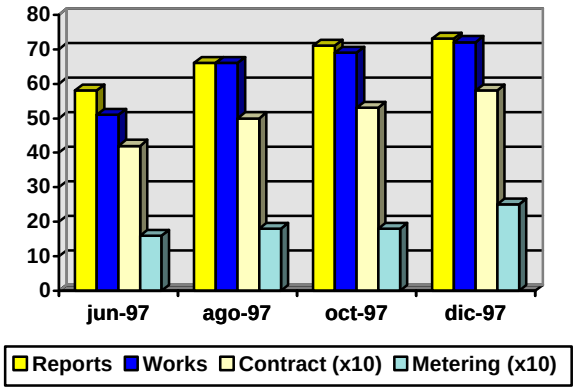
✓**Cost:** Personnel dedicated to the process in Pilot TUs (35,5% reduction).



✓**Execution time:** Reports and works finished out of requested execution time (reduction of 44% in reports and 59% in works).



✓**Efficiency:** Average productivity of internal personnel in pilot TUs.



These efficiency, quality and profitability improvements have meant an annual saving for IBERDROLA of 16,718 Million Euros.

9.- CONCLUSIONS AND LESSONS LEARNT

- Reengineering as a methodology works since in a short period of time it has been possible to achieve quantitative, and qualitative improvements, increasing process efficiency and reducing its related cost around a 30%.

- Support and leadership of the chain of command become a clue factor to achieve the goals successfully.

- Project management, planning and programming each of the activities to be undertaken helps to reach the objectives.

- Faith in what you do and to be self-confident it can be done.

- Assumption of the members involved in the process as if it was their own project.

- The key factors to guarantee success in a similar project at any organization are:
  - ✓Leadership.
  - ✓Communication.
  - ✓Faith and self-confidence.
  - ✓Planning
  - ✓Pilot Experience.

10.- IBERDROLA CONSULTING SERVICES

IBERDROLA has achieved, with the development of this project, an important know-how in management and improvement process quality subject. The strong and weak points in each stage have been identified, making it possible to strength the former and minimizing the last ones. Concluding, this project enables our organization to export its own experiences, advising to other organizations.