

Special Report – Technical Theme

MANAGEMENT – ORGANISATION – SKILLS

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Introduction

The Session 6 is a rather new invention in a CIRED context. The objective of the Directing Committee in implementing this session is to put focus on challenges the utilities in distributing electricity envisage as a result of the new market conditions.

The session intends to reflect the changing tasks of management in electricity distribution, where focus tends to move from technology to business development. The reasons for this are twofold. First of all the rapid changes in business opportunities and business environment calling for new organisation structures and new skills both on the strategic level and on the short term operational level. And secondly the new business opportunities made possible by technological development.

Well-known examples are the emerging and increasing competition, the increasing market focus, and new customer services using information technology.

It is the purpose of the session to explore the immense and rapid development in this area in the many utilities in the different countries, and to share the experiences gained so far.

The three preferential subjects chosen for the 2001 event cover topics of greatest interest related to the field of management, organisation and skills. There is a noteworthy number of contributions in total, many of these dealing with measures to be taken by the utilities to put them in

the position to handle the new challenges in an adequate and efficient manner.

The first subject is related to new tasks of management in electricity distribution. The new market conditions and the third party access to the distribution network give new challenges to the distribution companies. This implies also new tasks of management in the utilities to make the electricity distribution sector able to reach their objectives.

The second subject is dealing with new organisational structures in electricity distribution.

The new and coming business environment which the utilities are facing calls for changes and development of organisational structures and new skills. The new situation the utilities find themselves in will not be handled efficiently without the development of the human resources and their professional skills. This includes technological skills and training, and methods to support development of human resource management, professional skills and training.

Finally, the third subject covers business opportunities created by the technological development. The technological development in the field is a most important momentum to the growth and prosperity in the electricity distribution business.

The papers submitted to Session 6 describe the state of the art in many countries in Europe and in South America. The papers discuss the experience gained so far and also what the future situation in electricity distribution may be as far as the three main topics in question are concerned.

A total of 31 papers were selected for the main session, of which one paper has been withdrawn. The 30 considered papers divide themselves among the three preferential subjects as follows: 7 on the first subject, 15 on the second and finally 8 on the last subject.

Out of the 30 papers 14 are nominated to be presented by the authors at the platform. These papers are divided among the three preferential subjects also considering the number of papers submitted to each subject.

NEW TASKS OF MANAGEMENT

This preferential subject contains 7 selected papers whereof 4 is nominated for the oral presentation by the authors.

The new regulatory framework generates new challenges and threats to the electricity distribution companies, but also possibilities. It is essential to identify the possible comparative advantages of the company in the marketplace.

Network tariffs are expected to decrease in general, partly as a consequence of lower investments. Due to competition so are also the energy prices. The customers are mainly focusing on the total price, i.e. the sum of distribution and energy price. The investors are naturally focused on the net profit.

Aspects such as deregulation, non-discriminating access to the network, local energy generation and energy conservation, will influence the performance of network and management of assets. Costs due to non-optimal operation of the network, such as refund to customers, and regulatory rules and technological developments will also call for thorough considerations when optimising network in connection with the delivery of services. These aspects are supposed to play an important role and create changes in how infrastructure is designed, engineered and administered.

The strategic planning of a replacement programme of distribution assets requires long term retirement modelling. Derived from age profiles of different categories of assets and their respective retirement profiles, a long term forecasting of asset replacement can be focused. Retirement profiles may have a significant effect on asset replacement expenditure. Assets should be replaced only a short time before they become liable to fail. Therefore assessment of the rest lives of assets become very important in the planning of replacement.

The handling of the total asset in the utility in an optimal and efficient manner is one of the primary challenges to the network owners. In this context an increased focus on asset governance can create incentives to improve the performance and efficiency of a distribution business.

One of the methods how to conduct asset governance is by separating out the responsibilities for governance from those of management and operation into an organisation dedicated to the creation and release of value through effective management and exploitation of the asset.

Question 1: Is it necessary to have a separate company, perhaps with in addition some new owners, to succeed in the optimisation of asset development?

In order to monitor and control the development of asset development and cost reduction various measures like establishing profit centres and introducing instruments like Balanced Scoreboards could be used.

Question 2: Is it possible to give examples of cost / benefit development due to implementation of methods like profit centres and Balanced Scoreboards?

The Regulatory regime introduced in the different countries will also incorporate the quality of supply issue in order to give incentives to the network companies to plan, operate and maintain their network in an socio-economic optimal way. Means to compare the different utilities and their ability to meet the standards given by the Regulator will also be needed.

Question 3: What is the experience so far of the impact of the Regulatory regimes on the quality versus price issue and on the revenue?

Question 4: Are there any significant response from the customers to the compensation for not delivered energy issue?

Question 5: In what way do the Regulatory regime influence the tasks of management?

Question 6: Which system indicators are available to conduct Benchmarking with respect to standards?

To have a necessary survey of the customer satisfaction is an important input to the management of planning, operation and maintenance of the network.

Question 7: Should such surveys as a rule be conducted by others (neutrals) than the company itself?

The deregulation of electric energy supply with a subsequent retail competition has taken place in many countries. Obvious this imposes new challenges to the distribution sector.

Question 8: Which are the major impacts from this market situation as far as management is concerned?

NEW ORGANISATIONAL STRUCTURES AND NEW SKILLS

This preferential subject contains 15 selected papers whereof 6 is nominated for the oral presentation by the authors.

The change in customers attitude arises also from the liberalisation of the electricity industry and a following necessary restructuring of the utilities. The customers will become more active in their choices and like to take advantage of new market alternatives. To meet this challenge the utilities have to develop new strategies to meet the customers needs profitably. Namely a strategy where the utility should aim at reaching excellence in its core business, maintaining existing customers. In such a context the utility has to assess its values and reconsider the models of management. The customers are looking for energy services and the utilities have to supply added value to their services. The utilities should also be ready to play a broader role to fit the needs of the customers.

Shifting from a traditional public service organisation to an organisation which is result orientated and based on values and performance agreement is a shift in management model and employee way of thinking. To succeed in organisational change a balanced organisational involvement is important. This may lead to a new way of thinking regarding organisational change projects. Employee commitment is essential in the transition.

Different methods and strategies for business development in a changing regulated environment have to be considered by the utilities. Even if there is no single answer, discussions of this sort will encourage organisations to focus on the importance of having strategies that are robust under a wide range of business environments. Encompassing the different viewpoints of operational, management and executive nature within a company, a coherent vision will arise, and the impact of agreed decision criteria will be clarified in the organisation.

The new business environment calls for the design of new collaborative relationships, often across the traditional borders. The organisation, in an effort to adapt itself to a changing environment quickly, may have a tendency to alienate itself from the staff when the staff is not involved in the transformation process deeply enough. Major organisational change projects requires leadership rather than management. A leadership defining what the future is going to look like. A successful change of organisations has to combine leadership with a management able to keep the company running during subsequent transformations. Mistakes made in respect of organisational changes may take place. Creating a new and adequate organisation culture is the important key objective.

Restructuring of internal processes and quality management as measures to improve competitiveness are necessary. The transition from

a monopoly to a competitive situation may result in a fall in revenues generated by utilities. This calls for cost-cutting programs. Initiatives such as Benchmarking activities, rethinking processes, management by objectives, controlling of capital expenditure, Total Quality Management and changes in the organisation are necessary. Such initiatives have to be applied in a co-ordinated way and involve all levels of the company.

Computer based training tools and virtual reality could prove useful for the purpose of maintenance of electrical equipment. Computer based training will supplement, not replace, training practice. Tasks requiring a manual perception should still be trained by direct manipulation. Procedure execution exercises are well fit for training in a virtual environment, for instance training about safe operations. Training on site directly, without unnecessary relocation of people and equipment is made possible. Such training will benefit from the standardisation of a pedagogic approach, and the evaluation of training results are facilitated.

Tools like Business Process Re-engineering and Total Quality Management and their influence on overall company efficiency must be considered. Benefits can derived from better internal communication. The process may create motivation and commitment of the employees, promote a corporate culture of change and identify the costs of lack of quality in the performance.

A Business Process Re-engineering application to distribution network development with the aim to increase efficiency, reduce costs and improve customer service, is a measure to prepare the organisation for a new free market. Special emphasis should be put on training, labour surplus management and system integration. Such methods are found to be useful, giving qualitative and quantitative improvements and increasing process efficiency and reducing related costs. Main key factors are leadership, planning and communication.

Emphasis should also be placed on engineering, benchmarking techniques and office automation. It is possible to standardise most materials and installations of the distribution. New tools may be implemented to facilitate the interaction between the departments involved. Significant annual savings in the cost to be the result.

Quality management systems convey information to the customers on the quality of service offered in the time to come and thereby ensuring future relationship with them.

Integration of information systems as a basic support for instance in Business Process Re-engineering should be observed. Integration of information systems is a fundamental part of BPR in order to identify the new areas of improvement and to quantify possibilities of better earnings. It may be better to integrate existing information systems instead of replacement by new ones. The modifications should be accompanied by corresponding training, communication and resizing of resources to be used.

In today's cost conscious environment it is essential to ensure that also the organisational development is cost effective, and that it remains relevant in the changing world.

Question 9: What change in organisational structures do we see so far with the purpose to give the utility a competitive edge?

Handling the risk effects involved, for instance of an investment, to monitor and secure cost/ benefit issues and to choose projects by an optimal priority becomes more and more essential.

Question 10: In what way do the handling of short and long time risk influence the skills needed?

The transition from one organisation structure into another should be conducted in a manner with satisfactory governance of result with respect to getting a more adequate and effective organisation.

Question 11: What is the experience so far in altering the organisation of a utility? Are there any possible pitfalls to keep in mind?

Due to the pressure to reduce cost many utilities are now considering outsourcing of traditional in-house activities. Outsourcing decisions should be looked upon as rather complex business activities not lightly assessed.

Question 12: Are there examples of outsourcing at this stage and which are the results regarding better performance and profit?

Question 13: What do we see as the core business of distributing companies in the coming years?

Re-organising of the company and allocation of the human resources into new tasks and structures calls for training plans and consolidating co-ordination mechanisms in the utility.

Question 14: What could the methodology look like to carry out design and realisation of training plans for employees involved?

Question 15: Which are the key factors to take into account to get employee commitment?

BUSINESS OPPORTUNITIES MADE POSSIBLE BY TECHNOLOGICAL DEVELOPMENT

This preferential subject contains 8 selected papers whereof 4 is nominated for the oral presentation by the authors.

Today the distribution utilities experience a tremendous change in their business environment. This change is due to many factors arisen from political decisions both on a global and a national basis, and evolves through new market conditions. The new situation makes it necessary for the distribution industry to reform its business goals and reconsider its strategies.

Key-factors to reach planning efficiency when investing in electric networks due to growing energy demand within a framework of a new regulatory scheme are firstly: the organisational structure, secondly: equipment standardisation is important to reduce the per unit cost of equipment, and lastly: medium and long term study of network expansion with extensive use of cost/benefit analyses, where use of the latest generation computer tools is essential.

Tools for investment planning used in context with investment selection and scheduling, and reports of new features, have to be considered to give an evaluation of the impact on the investment plan due to unexpected changes in conditions, parameters and priorities.

Technical quality of delivery in context with characteristics of a market as far as product quality control is concerned is also essential. The demands for control of continuity of service at an individual customer level dealing with voltage level measuring and disturbances have to be focused.

The energy market deregulation will certainly influence the investment choices when refurbishing the network in a transition from conventional protection and control devices to fully digital ones. Principles how to minimise the down time and to allow cohabitation between different generations and origins of equipment have to be worked out and proven.

The implementation of technical management systems and its impact on a distribution company should be observed. System consisting of data bases, tools for failure reception and control and control and registration of service quality should be installed in order to achieve a complete survey of the value chain. An important part of the objective is to obtain satisfaction of the customer in the utilisation of the implemented system. It is of importance keeping the old system in operation while the transition to a new is undertaken. This transition from isolated and private information systems to systems being integrated and corporate will lead to better decision making and improvements of medium and long term planning. The attention to customer service quality can be improved and as a result also a reduction of operational costs.

Increased effectiveness by a more sophisticated utilisation of data information systems combined with a high degree of digitalisation of data involved has to be considered. Cost-effective availability to data, and the quality of the information needed for planning, operation and maintenance, is strongly correlated to the level of digitalisation. Improvements may for instance be achieved through a better utilisation of the existing network, i.e. optimal investments, due to more proper decisions and more effective planning and operation.

An effective strategy for IT applications is called for. The strengths and weakness of existing IT strategy must be evaluated to enhance the effectiveness of the utility IT strategy. The strategy up till now focus mainly on the technological aspects. The future strategy should be more balanced and give more consideration also to organisational elements.

For the development and implant of an information systems into an electric energy distribution company a methodology should be implied which make easy the planning, installation and maintenance of the system.

Question 16: Which are the items to take into account in the preparation and implementation of information systems?

Strategic IT and business alignment is an important issue when implementing IT tools in the utilities.

Question 17: How is the co-ordination of the different elements involved in the process handled and are there important interdependencies to take into account?

Implementing a system for energy balance management in a utility involves a great amount of data where the use IT systems is a must.

Question 18: Are there special problems likely to be encountered when establishing such a system?

Integrated management systems that are easy to upgrade should be a useful tool to handle the huge amount of data and to secure quality and efficiency continuously in the enterprise.

Question 19: Are there certain problems to address when keeping the adequacy between the organisation's need and the capabilities of the system in mind?

Load forecasting in the short and long term, exchange of metering and settlement of information have become very important tasks in the utility in the new business situation. Different tools and formats are used in this process, such as dedicated solutions and the also the Internet.

Question 20: Will the Internet play a more substantial role in this field in the near years to come?

Question 21: Are the tools in the different utilities homogenous enough to permit inter-change of data and results in cases of co-operation?

The planning and building of network in many utilities is also focused on a more functionally oriented design as a response to the requirements of the new market situation.

Question 22: Which are the most characteristic changes in design and construction of network as a result of adoption to the new challenges from the market?