

ADOPTION OF A PROCESS-ORIENTATED ORGANISATION AND “STATUS INDICATOR FOR NETWORK OPERATIONS” TO OPTIMISE ASSET MANAGEMENT

Hubert WÖRLE
TIWAG-Netz AG Thaur - Austria
hubert.woerle@tiwag-netz.at

ABSTRACT

TIWAG Netz AG was founded on 1.1.2006, as a result of statutory unbundling for the operation of networks. Steps had been taken years before, however, to convert the highly decentralised structure of the grid operator into a centralised structure. This reorganisation was completed in 2006. Inevitably operations and personnel have since had to change.

To ensure the efficiency of operations and thus the strength of the company as a whole, a process-orientated organisational structure was adopted and, in addition, a so-called “status indicator” was introduced to standardise operations and allow them to be tracked.

With this computer-aided instrument, it is possible to trace all the steps in each organisational unit, while the appropriate authorisation procedures are being carried out. Furthermore, it is possible to brief all of the parties involved on the status of operations at any time.

This article illustrates the need for the adoption of a process-orientated organisational structure and the introduction of a “status indicator for network operations”, as well as some of the problems that arose during implementation.

INTRODUCTION

In Tyrol, a province in the west of Austria, TIWAG NETZ AG is a grid operator and the operator of its own control area, which due to historical developments is assigned to the Germany control block. Network lengths in the distribution grid (0.4 – 110kV) are 10849 km and in the 220kV grid approx. 400 system km. In the grid, there are 3856 substations (low voltage 0.4kV), 40 substations 110/6-30kV and five substations 220/110kV.

Before TIWAG Netz AG was founded, the grid operator was an integrated part of TIWAG, now known as TIWAG - Tiroler Wasserkraft AG. The original structure was of a relatively small scale. The power and distribution grid (220kV to 30kV) was operated from 7 base points, each with their own control centres (some in combination with power station control centres). In addition, there was still a parent control centre for the operation of the power grid and functions of the energy industry.

At that time, operations were primarily widely spread in the 0.4kV voltage level and the historical second 10kV distribution grid level with over 40 base points, which were separated into two levels with 38 local stations and 8 branch stations. These stations were responsible, relatively independently, for the areas of network expansion, customer connections and maintenance in the aforementioned voltage ranges.

The 30kV voltage level has been centrally managed in network expansion and maintenance issues for a long time due to the low number of decentralised stations.

The 220kV and 110kV levels have always been centrally managed.



Illustration 1 Tyrol, TIWAG Netz AG's service area, base of operations

Decades of a highly decentralised structure in voltage levels 0.4kV to 10kV, sometimes even 30kV, favoured the development of various different approaches, decision-making principles and processes as well as decision-making directions in many details. Even the quality of the documentation was completely diverse.

After the announced deregulation and its subsequently expected cost pressure on the network area, work on a restructuring programme began at an early stage. The local stations were closed in 1999 and integrated into the branch stations. Other departments have also gradually been consolidated under single management, wherever possible.

At that time, neither the model of deregulation nor of regulation was known. However, it was clear that there was going to be intense cost pressure on electricity prices (energy and grid were then still together).



Illustration 2 Tyrol, structure in the new area

The different approaches mentioned previously, decision-making principles and processes as well as decision-making directions did not prove to be a problem until a later stage in the convergence.

Due to the increased and expanded use of IT and the consequent necessary consistency in data management, graphic representation and many other things, a rapid solution was required.

MOTIVATION

The company saw the streamlining of all processes, in particular customer and decision-making processes on the one hand and a considerable improvement in the quality of databases on the other, as pivotal aspects for future approaches.

Streamlining of Processes:

As part of initial convergence efforts, the number of organisational units was reduced; however, too little attention was paid to the personnel and processes in the company affected by it.

Only a comprehensive examination of all the processes in the company showed that there was still considerable potential here.

Data Quality and Structure:

In the course of introducing various different electronic aids for planning, operational management and maintenance, a number of needs were addressed in order to increase acceptance among employees. This ultimately led to a great deal of freedom with too many details being left in the direct responsibility of employees. It was not possible to maintain consistent analyses from data collections due to the freedom granted in data acquisition; assuring the quality of data was not yet possible either at that time.

As part of this reorganisation process, it became necessary to centralise further still. The structure and the increasingly intensive use of electronic databases were also involved. Gradually employees in the central offices lost previous knowledge from the decentralised offices, making the content of databases immensely important.

The lack in data quality resulted in considerable time expenditure for data collection.

The need, therefore, arose for the systematic tracking and review of all data, a restrictive specification of data structures as well as a standardisation of all the processes.

Differences in data caused extreme difficulties in the migration to higher software releases. The slightest variation in data structure (mainly in the case of the graphic data in the grid information system) prevented automatic data migration for the affected data records and required extensive post-editing.

Initial observations have shown that post-editing with the current level of personnel, which is essentially fully occupied with ongoing activities, will take a period of around 5 years.

Despite all of the difficulties involved and the problem of timing, we have decided to deal with the issues ourselves. Ultimately expertise regarding content and necessity of data quality is extremely important for the employees in the company. Moreover the amount of preparatory work required for external assistance should not be underestimated.

Implementation:

The examination of all the processes in the company provided the basis for the organisational considerations. The standardisation of different processes, in particular customer processes and decision-making processes, could ultimately be achieved through a highly process-orientated organisation with a clear delineation of responsibilities.

Based on a standardised customer interface, internal customer processes are also initiated and customer-related correspondence is dealt with.

The centralised department for all grid-related decisions is Asset Management, which includes all technical planning, maintenance management, operations management (except the control centre) as well as network data acquisition and updating for all voltage levels. Whether and which other departments should be involved in impending decisions is also decided here.

For operational implementation, the decentralised structure from before is still in place, for obvious reasons (distribution of jobs), albeit also in a very streamlined form with 4 decentralised management functions.

The employees assigned to the respective centralised departments are also based in these areas. This centralised arrangement will promote rapid standardisation of the processes.

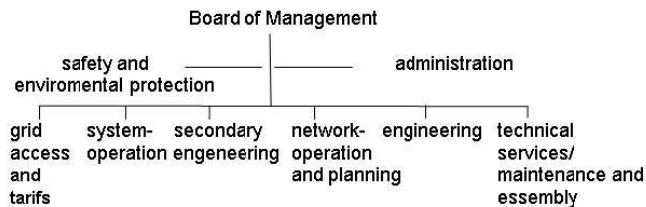


Illustration 3 Netz AG, organisation

In order to avoid any repetition of work, it was necessary to delineate clear areas of responsibility and determine the scope of activities for each individual organisational unit. To support the operations, a workflow system was established, whereby jobs (grid operations) can be tracked and the respective status can be viewed by everyone involved at any time.

Process flow for Status Indicator for Network Operations

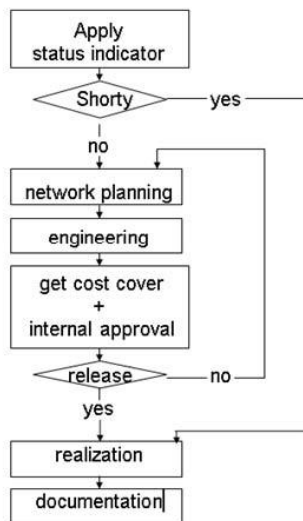


Illustration 4 Netz AG, workflow

The employees coming from the decentralised units, who had in the past always undertaken a broad range of tasks, may, from now on, only carry out specific operations in the new organisation, depending on which organisational unit / stage of the process they are in.

Operations have, therefore, been greatly standardised, thus guaranteeing that the relevant decisions fall to the areas for which they were intended.

The possibility of introducing a process quality assurance system was also involved. Consequently, the processing times of individual, department-related jobs can be ascertained, lengthy operation times can be identified and corrective measures taken.

In order to improve data quality, the employees in the decentralised areas responsible for updating data were put into a team under central management. To most efficiently fill in the gaps where data was missing, it was necessary to locate these gaps, prioritise them and then work out a solution for each data packet, which ensures the best possible solution out of the given resource conditions. A quality assurance system was introduced for this area as well, in order to document the progress and improvements in data quality.

Practical Experience:

Problems arose in the course of the convergence with regard to the assignment to departments of certain tasks and responsibilities. Previously a broad range of jobs had been carried out in a decentralised structure by a few employees, now the functions of each individual are defined according to which department or team the employee belongs.

With the appropriate time and effort, responsibilities and scope of activities could gradually be clarified and determined, although some elements of implementing the concept were accompanied by much discussion.

SUMMARY

The process of converting the highly decentralised structure into a centralised one began in 1999. With it, operations and the personnel inevitably had to change.

As a result of statutory unbundling, TIWAG-Netz AG was founded to operate the networks in 2006.

In order to guarantee the vigour of the company and the efficiency of its operations, a new process-orientated organisational structure was implemented on the one hand, while on the other, a so-called “status indicator for network operations” to track the processes was introduced.

Consequently, it is now possible to comprehensively inform everyone involved, particularly Asset Management, about the status of all the operations, ensuring adherence to approval procedures.

ILLUSTRATIONS:

- Illustration 1 Tyrol, TIWAG-Netz AG’s service area, base of operations
- Illustration 2 Tyrol, structure in the new area
- Illustration 3 Netz AG, organisation
- Illustration 4 Netz AG, workflow