

## **PROJECT DRIVEN PROCESSES - PRODUCT-ORIENTED FIELDS OF ADMINISTRATION AS A PREREQUISITE FOR PROJECT-ORIENTED MANUFACTURING**

*Especially for administration or for administrative departments in companies the topic of IT-based activity processing is currently being considered by many authors and bodies. Especially in these fields the process of introducing IT-based activity processing requires a continuous adaptation to new developments and theoretical knowledge. At the same time the expenditure on the ascertainment of needs for information through the utilisation of data models, which have been developed for a selected field or for a certain functional area, was considerably decreased. Administrative departments in companies are also increasingly forced to orient their work and their internal organisation to the principle of efficiency. In doing so, IT application is given a key position; the potential for rationalisation and innovation available there is enormous. But the utilisation of this potential and the concrete proof of the efficiency are obviously difficult to achieve, especially when applying integrated information systems.*

*This paper wants to make a contribution to this area. Thus its aim is to develop an integrated approach for the design of product-oriented information systems in company administration as well as to derive first approaches for computer-based knowledge processing. For this, essential prerequisites create specially defined service products of company administration in order to be able to support project-oriented manufacturing appropriately.*

### **1. INTRODUCTION**

The implementation and introduction of integrated information systems in administration of enterprises is a challenging task. Theoretically based methodologies should be applied for the reorganisation of the administration.

Based on the experiences of some implementation projects it is shown that a new degree of quality and effectiveness for project-driven processes is achieved by the use of an integrated workflow based information system.

In this process two essential aspects are of considerably importance for the success of the modernisation of company administration: the formulation of products and the implementation of business process optimisation (Fig. 1):

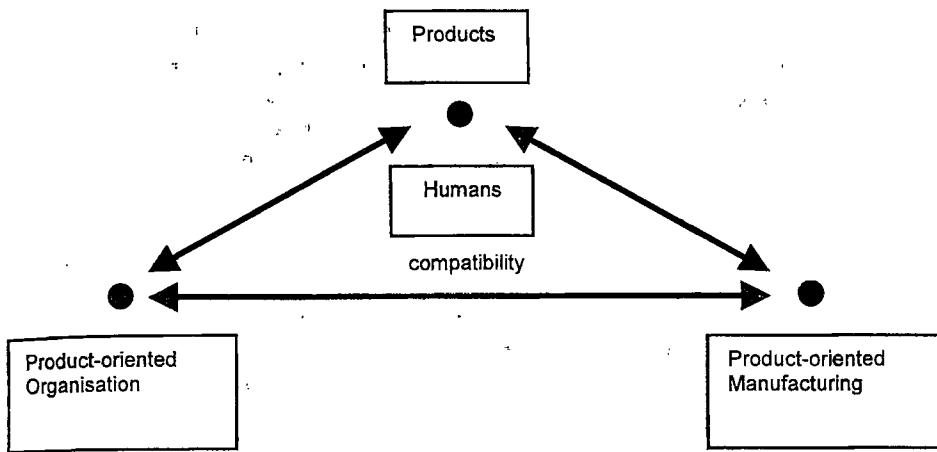


Fig. 1: Cornerstones of project-driven processes

## 2. CURRENT SITUATION IN IN THE PRODUCT-ORIENTED FIELDS OF ADMINISTRATION

There is no competition in and between administrations of counties and communities as it is found in the free market economy where competition requires a constant checking and design of an efficient process organisation. Another difference to the industry is the financial system of organisations in the public sector where is no assignment of charges to the costs of public services. Also the revenue of specific offices has no relation to the budget they are allowed to spend.

These might be some of the reasons that the design of effective administration processes in enterprises was not given much attention in the past.

But due to the current situation of severe budget problems and the constantly increasing tasks set for this public sector decision makers in administration become more and more convinced that there is a strong need for business process reengineering and lean organisation but also for technical support in the administration sector.

While questions of the technical realisation of communication infrastructures to link decentralised organisation structures are answered to a large degree, the organisational potential of information systems in the administrative and management sector has to be paid more attention in research as well as in practice. The modernisation of product-oriented administration and management is a matter of vital public interest. Without fundamental reforms, the ability to act will be lost.

Other challenges for these area can be summarised in two major points:

- Resources do not only mean money, they can also stand for legitimacy through society, political acceptance and time.

- The second challenge comes from the job market. This does not address the issue of unemployment, but instead the change of values which has led to more progressive individualisation of staff.

The new challenges demand that management adjusts the performance and effects, starting from a long term concept, and concentrates more on the output - the result.

Each process of change needs first of all a vision. The basis for that is a bluntly analysis, there is no other way for management to gain the necessary distance to itself. This analysis is also necessary to derive objectives and strategies. The persons concerned have to become persons involved, and more public offices must be won for this process in order to succeed.

The current rigid structures with traditional concepts of hierarchical organisation and management push off the limit of their efficiency. In many cases with the required changes this can be overcome.

The institutional problems, human problems and the problems related to government politics are of substantial importance. Therefore a new atmosphere in administration must be created, which has a positive attitude towards risk and which will be rewarded for its readiness to take risks.

Technology must be used to feed the forces of change. Today's information systems do this almost by accident.

In the past the purpose of information systems was primarily to support and rationalise individual functions in administration. They served to optimise function-oriented events. In this way the individual systems tended to develop independently from one another (island solutions). This is why the communication between various information systems - determined by the lacking compatibility of hardware and software components - results partly manually or through specially designed interface programmes. In addition some data is processed a couple of times and has various semantics in different administrative applications.

Information systems can only meet the intended role when an uncomplicated information systems environment is offered to its users where the individual demands are integrated into the context of public administration.

While in USA administration processes are already being renewed in numerous projects, the actions in Europe are rather hesitant (Hablützel 1995, pp. 142-147).

A functional structure in public administration often means that the processes are not "client"- or citizen-oriented. The business processes of the administration are divided between to many specialists. In comparison, in the area of production the idea of business processes is clearly to the fore. In recent years this led to many industrial business reengineering projects. In administration this business process idea has not manifested itself so clearly.

This is due to:

- sovereign jurisdiction reasons,
- missing competition,
- missing cost-oriented processes for business processes.

Due to the changing views in production, but also due to increasing personnel costs in administration there is a rationalisation pressure in order to work more efficiently.

Time delays, repeating activities during data acquisition and processing, a high demand for communication and co-ordination are, among others, current problems.

All results until now show that for the successful use of new technology it is not sufficient that the technology is available. It is much more important that the technology and its use is arranged according to the specific demands.

### **3. APPROACHES TO IMPROVE THE SITUATION**

An improvement of the situation in administration begins with an analysis and reorganisation of the processes. Thus it is often required to change organisational structures. The reorganisation of processes is accompanied with a qualification of the staff and their support through adequate technology. The potential of the administrative staff plays a very important role. The personnel know the problems, they have the knowledge how to run the processes. It is also them who basically have to carry out the changes.

In the future product-oriented administration can and will profit tremendously from the possibilities offered by workflow oriented information technology. Citizen-friendly administration is possible. Real progress will only be possible if new institutional structures are formed. Above all, willingness to take risks is needed which can open up new service potentials for citizen-oriented administration.

An improvement of the situation in administration after the reorganisation of the business processes is mainly dependent on the workflow management, an integrated information system, integrated data bases and last but not least the electronic data interchange with other authorities. Then orientation towards clients also means that in the near future the client will have to deal only with one authority even if more are involved. Within the authority, the objective is first of all to increase the efficiency and quality of business processes.

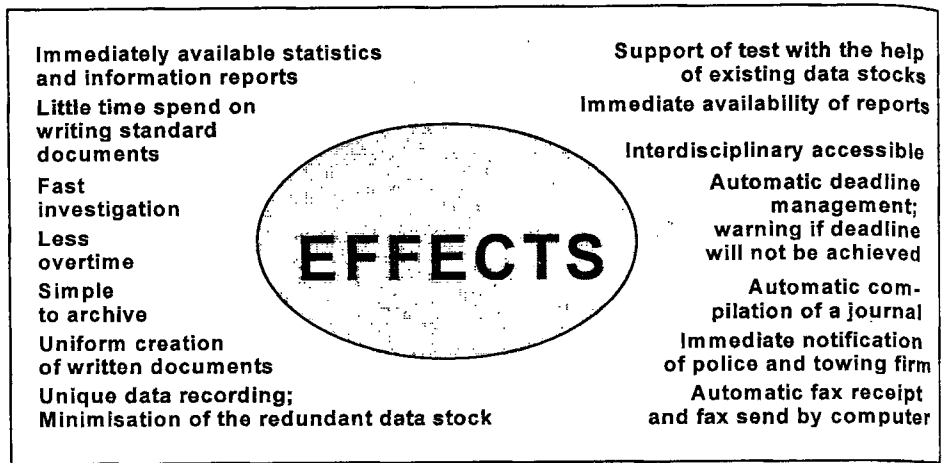
With these examples presented, one can recognise that information technology in administrations becomes more and more a decisive factor standing for efficiency, flexibility and quality. And: a workflow oriented integration concept makes up the most important part of the proposed conception.

### **4. SOLUTIONS**

#### **4.1. Objectives**

The aim of all efforts is to improve the workflows and thereby the organisation of the administrative processes through reengineering and support by an information system. All administrative processes have to be supported completely by the information system and controlled as far as the time factor is concerned. Extensive computer applications are to secure fast and direct access to data. Interfaces to other systems must ensure the communication to the corresponding organisational units of the road traffic and vehicle registration office and other authorities.

Some qualitative effects are summarised in Fig. 2.



*Fig. 2: Effects of an integrated information system.*

In addition to numerous qualitative effects, quantified effects can be proved through the use of an information system in this area.

#### **4.2. Methods**

It supports also communication with users and decision makers through graphical representation of processes, information structures, etc., during all phases of the project. The graphical visualisation (e.g. process models, data-models, organisational charts) describes the as-is and to-be organisation with different views. At the same time the requirements for maintenance of the models have to be reduced.

The optimisation of business processes in industry can be considerably simplified with the use of reference models. But reference models for processes in administration have not been developed to a great extent. This is most surprising since the organisation of certain processes in administrations is quite similar.

An essential point should be mentioned: maintenance of software. The integrated information system can only be useful if it is reliable and maintained all the time. For that reason a maintenance agreement has to be arranged (if it is possible) with a local software house. This became possible through early involvement in the project, using standardised implementation techniques and extensive software documentation.

By use of the integrated information system a reduction of throughput time is noticeable. In this way significantly more events can be processed which in the case of processing exceptional approvals, for example, allows additional revenue.

With the permanent and fast availability of data the information ability rises both in the administration as a whole, in the individual departments and where individual specialists are concerned. Thus, the integrated information system contributes significantly to the transparency of work in the administration.

## 5. IMPROVEMENTS

Some improvements through the use of the integrated information system are:

- Faster handling of processes for project-oriented manufacturing.
- No double input of charges in the administration.
- No multiple registration is possible.
- Better overview of product-oriented fields of administration and thus more convenient planning of approvals for further construction actions.
- Faster processing of applications and questions of the customer.
- For staff the complex handling of the processes becomes transparent and efficient by means of the integrated information system because mistakes during data acquisition and handling can be eliminated through the system to a large extent. Thus reworking is reduced and incorrect issuing of approvals and orders are almost impossible.
- Due to efficient process handling personnel have more time to communicate with customer. Overtime which was necessary before is to that extent not required any more.
- Due to accelerated project-driven processes cost reduction in the administration is obvious.
- The integrated system guarantees progress control. It is ensured that deadlines are recalled and processes can be handled in time.

Through the extensions to other offices of the administration of the integrated information system there might be more advantages for the authority and the whole administration, but also more orientation of the administration towards the customer.

The handling of an application is a typical example of administration processes. Figure 3 shows in what a way improvements are achieved for the determined process.

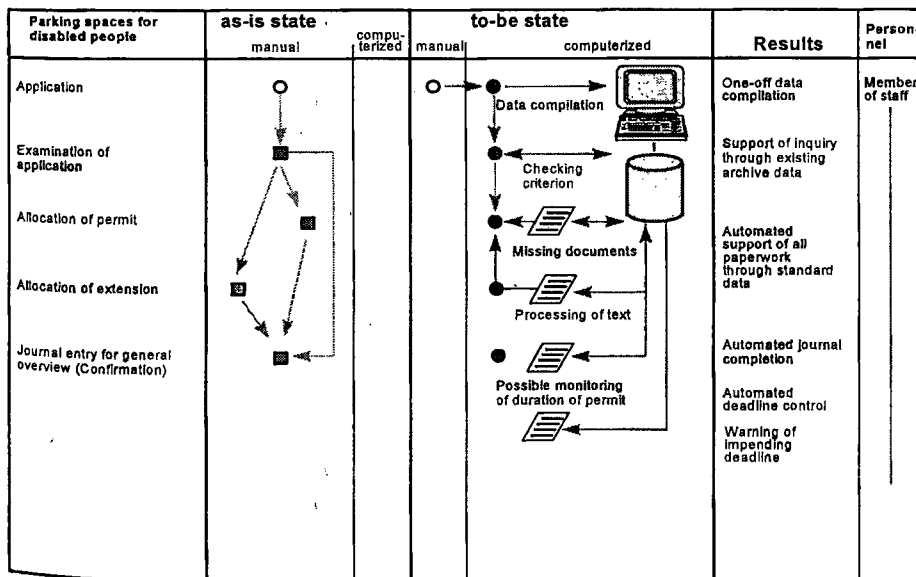


Fig. 3: Representation of as-is and to-be state of an application procedure.

## 6. CONCLUSION

Experiences from a lot of projects validate that an appropriate modelling frame, appropriate views and methodologies supported by appropriate tools promote the development of an integrated information system. The analysis of weak points and the design of new business processes get an effective support. However, the quality of an integrated information system is strongly dependant on mutual respect and acceptance between users and developers.

In connection with standard software (e.g. word processing, spread sheets) a significant increase in efficiency of the administration is obvious.

Adaptation to changes in demand can be achieved with low efforts due to the modularity.

Real improvements in the processes are achieved by application of integrated information systems and the previous business process reengineering, that means we have a great chance on the field of development of product-oriented information systems in relation with computer-based knowledge processing respective project-oriented manufacturing.

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