

# Turning Bureaucracies into Process Networks

**Kai A. Simon**

**Göteborg University  
School of Economics and Commercial Law  
Dept. of Informatics**

## **Abstract**

*Even though the process approach to organization design gains increased popularity, there is still a lack of methodologies for managing the migration process from functional, hierarchical organizations to process networks. While current change management approaches, such as BPR, often emphasize an organizational redesign “from scratch”, i.e. a total disregard of the current structure, combined with the design of a new, idealized organization, many organizations have considered this radical restructuring as being inapplicable and require methodologies for managing a migration from bureaucratic structures to a dynamic, process based organizational form. This paper will discuss the challenge of turning bureaucracies into process networks, potential gains and pitfalls will be identified, and a methodology will be introduced.*

## **Introduction**

Many theorists, as well as practitioners, consider modern organizations, i.e. organizations based on the control paradigm of the industrial era, as being insufficient in a world of global markets, increasing competition and changing customer requirements.

Change approaches such as reengineering, are a proposed solution to the problemacy of surviving in a dynamic world. Even though many companies are embarking on these trends due to threats imposed through environmental contingencies, the radicality of many of these approaches appears to be insufficient for managing the complexity of organizational transformation from a modern to a “postmodern” form.

This article is intended to propose an “incremental” approach to organizational transformation, which will allow organizations to migrate from a bureaucratic to a process-based form without the disruptive disturbances evolving from a reengineering effort in its more radical form. I will present guidelines for choosing appropriate processes for incremental reengineering, present a methodology approach and stake out a way for changing the organizational steering paradigm from a simple collaborative to a cooperative way (as described by Kämmerer and Ljungberg (1994)), where management by control is replaced by symbolic management, i.e. commitment of the individuals being involved, rather than

behavioral control by superior managers. Additionally, critical success factors for this process will be identified and the changing roles of organizational members will be briefly discussed. Finally I will briefly present a vision of an organization totally based upon processes and describe some of the implications of this perspective.

## The nature of bureaucracies

### Organization and operation

Organizations, no matter if we talk about businesses, public institutions, or other forms of corporations, are no natural phenomena, but social constructions, i.e. they exist because their members perceive them to do so (Harrington 1991). They evolve as a result of a striving for some kind of order, i.e. they are the artificial result of human efforts to handle the severe issues of complexity and to implement an artificial order, where a natural one cannot be found. Regarding this social-constructionistic perspective, bureaucratic structures in businesses appear to be a way of providing mechanisms for dealing with the increasing need to handle the difficulties occurring as a result of the requirements to run the business with regard to environmental dynamics and the needs for coordination and cooperation of several functional activities.

However, when looking at the outcome of these intentions, we can often observe, that the measures taken to struggle with increasing internal and external complexity are often only reflected by increasing internal complexity, i.e. more complex information flows through the organizational element of the company, while the operational flow, i.e. the way of the product, or service, remains rather unaffected.

In order to describe this organizational duality, we can use the distinction between *organization* and *operation*, as described by Kosiol (1962). This distinction emphasizes a conception of organizations as having two aspects - organization and operation - where the operational part is the carrier of the product or service, while organization is the formal depictable structure describing the relationships of hierarchy and control. Even though Kosiol considered the two elements as not being clearly distinctable and the distinction itself as a scientific trick, aimed

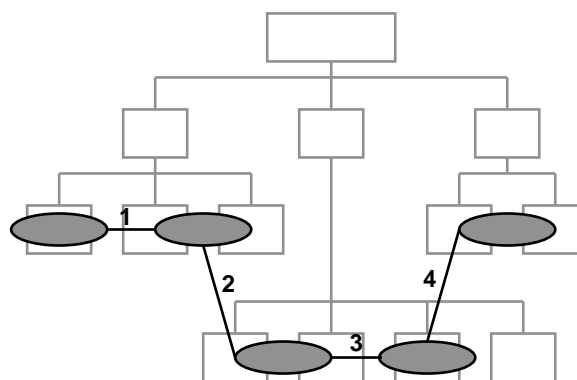


Fig. 1 Operational flow

to reduce the problems being related to the domain of organization design, I find this distinction useful in order to point out one of the potential sources for ineffect-iveness, namely the divergence between the organizational and the operational workflows. When complexity increases, due to growth, diversification, shifting market positioning strategies a.o., these two sub-elements of the corporation become more and more divergent, thus delaying the handling of current workflows, and complicating the adaptation to changing environmental constraints.

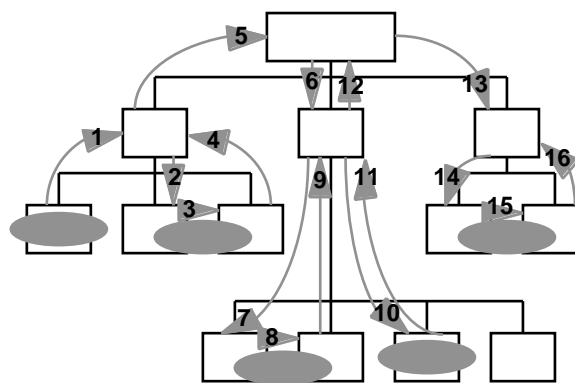


Fig. 2 Organizational flow

This organizational duality is depicted by figures 1 & 2, taken from a medium sized swedish service company, where fig. 1 describes the operational, and fig. 2 the organizational flow. It is obvious, that the built-in mechanisms for control, coordination, and approval, as found in virtually all hierarchically structured organizations, result in two apparently divergent flows. The main emphasis of any attempt to transform the corporation must therefore be the alignment of these two flows, before the issue of supporting workflows with information technology may become a relevant issue. Disregarding this precondition will result in sub-optimized systems which will support and harden the existing bureaucratic structures, instead of allowing the design and development of efficient and effective businesses.

### Management and control

Modern organization theory has provided us with several "Management by ..." approaches, such as "by exception", "by delegation", "by objectives", aso. Despite their intention of subsidiarity in decision-making, one could claim, that they all to some extent belong to the "Management by control" paradigm, since control is the major tool for coordination and management of complexity. The focus of the control structures is ultimately the control of human behavior and the outcome of human activities within the organizational structure (Ouchi 1977).

In order to ensure the reaching of pre-defined goals, superior instances are established for approval and measurement of actions to be taken. With an increasing number of individuals involved, i.e. an increasing need for co-ordinating their activities, the number of

”bureaucrats” increases as well. The role of this organizational group, more commonly called ”middle management”, is a dual one: They collect information and prepare it for the further flow upwards in the hierarchy, thus providing their superiors with input for decision-making, and they quantify the often qualitatively defined strategic goals, thus transforming them into a basis for human behavior, which then, in turn, can be controlled against the quantitative pre-settings.

This control paradigm implies the belief, that individuals are virtually incapable of being guided by qualitatively defined goals, i.e. they need to be behaviorally controlled in order to achieve the objectives defined and to perform the task assigned. One can conclude, that the control and steering mechanisms resulting from this belief ought to be major disablers for designing, constructing, and implementing process-based corporations with self-managing units which are cooperating in a networked way.

### **The way to go**

#### **From structure to process**

Instead of defining organizations in structural terms, dividing them into business units, departments, or functions, they can be defined as sets of processes. This perspective enables a shift of focus from the organization as an institutional phenomenon to its ends, and the means to achieve them. The identification of activities and the integration of those into processes, their interrelation and outcome, according to the organization’s mission and process objectives then becomes the primary task for organization design, instead of providing an institutional functional frame (Simon 1995).

Applying a process-perspective will have a considerable impact on several aspects of organizations, such as superiority and sub-ordination, the way of promoting and rewarding people, and the way of coordinating the activities and processes towards the organizational goals.

#### **The management paradigm shift**

Traditionally, management has been based upon regulating and limiting the behavior of individuals in order to adapt them to the requirements imposed by achieving the goals pre-defined by their superiors. However, it can be argued that this top-down control manner is insufficient to meet the challenges emerging from the application of process-principles on organizations. Therefore, new management mechanisms have to be found and applied for ensuring the continuity of purpose and achievement of outcomes, without maintaining a control structure that limits human capabilities. Instead, we should try to create and apply

control mechanisms that align individuals to the organizational goals in a more subtle way. This can be achieved by gaining a genuine understanding of the meaning that people put into their activities, i.e. the process of providing meaning becomes a major managerial task, rather than the definition of behavioral patterns.

### **Benchmarking**

Benchmarking has become a common term for the process of measuring several factors in the own organization, in order to compare them with the values of companies being conceived as best-in-practice. While the term itself has its origin in surveying and found its way into business administration by the way of Xerox Inc., the concept is now applied by a variety of companies in a multiplicity of industries on many different measures, including time-to-market, activity-costs, customer satisfaction, thus covering quantitative, as well as qualitative measures.

Benchmarking allows the uncovering of pathologies in virtually any part of both organizational sub-elements, either by measuring against other companies, or by generic benchmarking, i.e. relating the performance values of the currently existing company against an idealized model of the desired future state.

Since any change project requires starting points for analysis, design, and evaluation, benchmarking becomes a precondition, as well as a critical success factor for the entire process, since dismissal may result in wrong indications about the incorporatibility of existing parts.

### **A benchmarking framework**

In this paper, I will use a three-layered benchmarking framework, that allows the application of benchmarking on several levels, depending on the level of intention, and the focus of change. Each level will contain qualitative, as well as quantitative measures. Since benchmarking builds on requirements for comparability, there is, however, a need for choosing even the qualitative aspects with a certain regard to quantifiability.

In the following, the measures being proposed for the different levels will be briefly introduced in order to allow a better understanding of the methodology approach to follow. A more detailed description of the framework including the integration with a methodological approach to process analysis and redesign is currently developed by Michael Mandahl and Kai Simon (Redwood 1995) and will be completed during spring 1995.

The following list is intended to provide a brief introduction to several usable benchmarking methods, however, they may be replaced/complemented with others that might

be in place due to e.g. ongoing quality improvement projects, as long as they are chosen upon the premise of comparability and quantifiability.

### **Activity Based Costing (ABC)**

ABC is based on the principle to allocate all costs directly to the object under concern, thus identifying cost drivers and diffuse overhead-costs, where the value adding contribution is undetectable. This is achieved by analyzing organizational activities and their impact on the cost structure of the operations.

### **Critical Success Factors (CSF)**

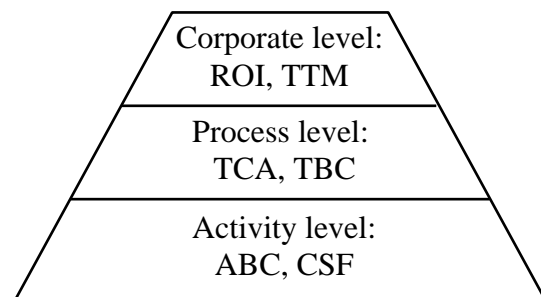
CSF analysis was originally developed to determine managers' information needs for decision taking and was widely used in the development of MISs. However, this method can successfully be applied all over an organization in order to identify all factors being critical to the performance of activities. This includes the accessibility of resources of different kinds, such as work force, information, capital, but may even include a consideration of the activities' environment and the potential SWOTs being imposed from there.

### **Transaction Cost Analysis (TCA)**

The TCA approach is based on the assumption that all organizational processes contain two cost elements - production- and transaction-costs. While production costs are concerned with specific activities, the transaction element deals with any costs generated by the need of coordinating several activities to become a process. This might include additional costs for logistics, communication, aso.

### **Time Based Competition (TBC)**

TBC, even known as Time Compression Management or Cycle Time Reduction, considers time as a manageable factor, such as e.g. costs. The basic assumption is that time is a factor as well suited for gaining competitive advantage as any other of the classical resources.



**Fig. 3 Benchmarking framework**

### **Return on investment (ROI)**

ROI is a financial measure depicting the amount of capital invested in a specific project/product flowing back into the company, and relating the result to alternative investment forms, thus allowing a comparison of their rentability.

### **Time-to-market (TTM)**

TTM is the total time a company needs to react on an occurring need, i.e. the time required to provide a product to the market that satisfies the requirements of the demanders. Since product life cycles become shorter and shorter, and the reactivity to changing customer requirements turns to be one of the most critical factors for survival and success, TTM can be considered to be an important measure on corporate level.

### **A methodology approach**

Although there are now several methodological approaches to organizational transformation based on a process-perspective, many of them are based on a top-down approach, i.e. that analysis, design, and implementation of the new organization are based on a fragmentation of idealized meta-processes down to activity level, thus disregarding existing and often well operating operational processes. The approach presented in the following encourages a more contingent thinking: Start with a multi-level analysis of the current operations, design an idealized model of the future state, implement upon the basis of reusing the workable existing functional elements and align and fine-tune.

The methodological approach to be presented in the following, currently developed under the name of MULTI - Multi Level Task Integration - has, despite the fact that it shares several commonalities with other process approaches, some characteristics that makes it different. The basic differences between reengineering and MULTI on the conceptual level are described in table 1. It is, however, important to point out, that the content of the table is reflecting my own perception of BPR, and the methods and tools used, and cannot be generalized to be valid for all methodologies and projects. In the following, the methodology stages will be introduced and described.

### Preconditions

In order to allow a successful organizational transformation, several preconditions have to be fulfilled. However, since the preconditions for migrate change are not significantly different from those being necessary for more radical change approaches, they will only be briefly considered here.

#### Secure top-management commitment

From the President, CEO, and the entire top management level, but even from the supervising instances like the supervisory board, a commitment to the intended change is required throughout the entire change process.

Current statistics about the failure of BPR projects shows, that a significant number of projects fail due to the lack of top management commitment to change. This commitment is not only about "selling" the change to the employees, but to support it in an active manner, and first of all, to become a positive example, e.g. is it difficult to justify staff reduction due to the need for reducing costs, while, at the same time, management salaries and benefits increase at an accelerating pace, as could be observed in Sweden during the past years, and it can be assumed that similar phenomena have occurred in other countries as well.

Approach Feature	BPR	MULTI
Analysis	Top down	Multi-level
Design	Top down	Top down
Implementation	Top down	Bottom-up, fine-tuning

**Table 1 BPR and MULTI -  
Conceptual differences**

#### Assemble change team

The change team should be assembled with regard to the multi-functionality of the processes being the output of the transformation process., i.e. the team must consist of members from the various parts of the company. To be able to assess the aspects of functional SWOTs, local cultures, potential conflicts etc. the change team members should possess broad skills and knowledge beyond their functional core competencies.

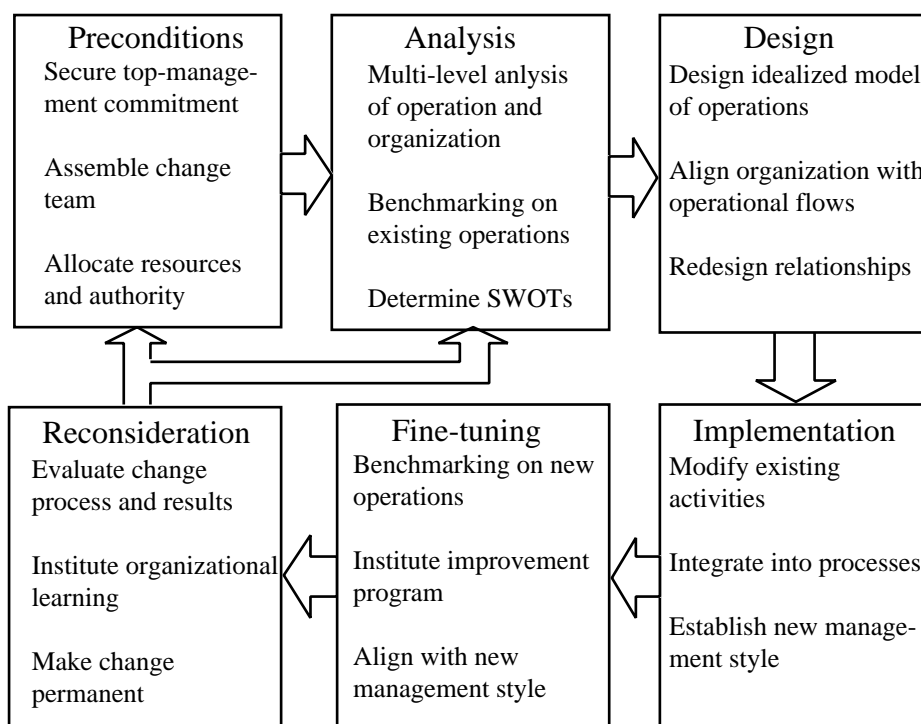


Fig. 4 MULTI stages

#### Allocate resources and authority

To be successful, the change team must dispose all resources necessary and the authority to acquire them, otherwise there is a potential risk for "undercover" operations from staff members being threatened by the changes to come. This potential change resistance is a critical success factor, since it may delay, or even endanger, the change process.

#### Analysis

While many "radical" BPR proponents advocate the design of the new process "from scratch", i.e. under disregard of the existing organization and the operations performed, one can simply conclude, that the prefix "re-" implies that genuine knowledge about the existing processes and structures must be gained, before a redesign, or reengineering effort can take place. It may be counterargued that this automatically leads to a consideration of the pathological organization, thus limiting the creativity required to look "afresh at the company's operations", however, being aware of the structure, operations, and performance levels at the current state reduces the need for fine-tuning, since the definitely existing real world constraints can be taken under consideration in the design phase, and existing strengths and opportunities can be incorporated into the new process-organization to be the result of the

change process. Disregarding the current structures and operations may result in a lack of understanding of local cultures, informal power bases, and may generate change resistance.

### Multi-level analysis of operation and organization

Many of the current change approaches are emphasizing an analysis in a top-down manner, thus implicitly building on the theories of Herbert Simon, who considered complexity as the major problem for organization analysis and design, and who advocated a fragmentation of the organization into smaller, independent and manageable parts, in order to ensure perspecuity. This top-down analysis, however, implies the potential risk of missing several aspects of the organization, the operations performed and the issues of organizational and individuals' behavior.

The simultaneous multi-level analysis to be performed instead allows a detailed consideration of the elementary activities, as well as of the operational processes and organizational structures they belong to. The methods used here might be process-mapping (e.g. with ISAC, BSP), activity analysis, and strategic framework analysis on a corporate level.

### Benchmarking on existing operations

In order to identify the performance levels, cost structures and pathologies of the current operations, these will be benchmarked according to the framework described above. The results of the benchmarking process will allow a comparison with other companies, so that the achievable levels of performance can be explored, and build a basis for the change goals, i.e. the level of ambition. They will also be used for fine-tuning and feedback, so that the achieved results of the change process can be measured against the pre-change state. The latter aspect, follow-up of the achieved changes, is actually neglected in many current change projects.

### Determine SWOTs

The analysis of strengths, weaknesses, opportunities and threats on the different levels is a major precondition for succeeding with change projects which are intended to build on the existing organization and operations, since it determines capabilities, needs for improvement, and indicates the level of change required for the operations to be incorporated in the future state operations.

### Design

In the design stage, the idealized model of the future state will be developed under consideration of major constraints being identified during analysis. This may include external aspects, found in the strategic framework of the company, or internal factors, such as lack of financial resources, which might have a significant impact on the conditions under which the company has to work in the future, and which are outside the domain of possible change. The designer(s) must handle the balance between the often high ambitions of change and the real world constraints, which are often neglected by BPR approaches, intended to achieve dramatic results by design from scratch. However, high ambitions and extreme goals are no contradiction to regarding the limitations that undeniable do exist. One should rather see both as complements enhancing the design of operations and organizations close to the real world.

#### Design idealized model of operations

The idealized model of operations depicts the workflow (the flow of tasks) through the organizational units. However, at this stage one is not concerned with designing organizational structures which become the functional frame for operations, but with the design of value adding flows of products, or handling of services, while the consideration and design of organizational structures and relations is disregarded.

It is important to point out, that the design of operations must be previous to the design of organizational structures and relationships in order to avoid that the structure becomes a harness.

#### Align organization with operational flows

Earlier, I identified the divergence between operational (product/service) and organizational (related information) flows as one of the main hinders for efficient and effective performance. The task is now to reduce this divergence by aligning the organizational flows with the value adding processes, or workflows, which have been previously defined. This includes the identification and definition of the structural capabilities, or "secondary activities" required for building a skeleton for the operational component.

It is a question, however, to which extent the organizational element of the company should be emphasized. It appears to be possible to totally disregard the structural component and to apply a total process perspective. This can be advantageous firstly in order to use a homogeneous conceptual model, i.e. to avoid struggling with different perceptions of the same corporation, and secondly to prevent the institutionalization of the implemented structures.

### Redesign organizational relations

Based on the idealized model of operations and the identified structural requirements the current relationships will be redesigned. This includes the coordination of operational in- and outputs to achieve time-compression, concurrent performance and reduced transaction costs, i.e. applying the principles of process management, as well as reconsidering the formal and informal relations of power and authority. At this stage, the informal relations, i.e. power bases, aspects of local cultures and potential conflicts, a.o., can either be incorporated into the design, thus being a potential asset when used appropriately, or build a basis for change resistance, when neglected and remaining unconsidered.

### **Implementation**

While the design stage is concerned with the development of an idealized image, the crucial issue of implementation means to realize the ambitions that have been defined previously, and, first of all, achieve this without major interruptions of the ongoing operations. The objective is to enable a "smooth" migrate process from a hierarchical, structural organization to a corporation of processes which work together in a networked way, not to generate a major disturbance with a significant negative impact for a considerable period of time.

### Modify existing activities

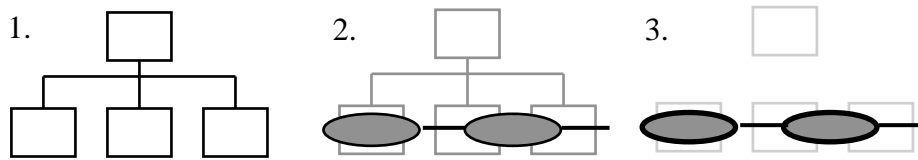
As the existing operational elements of the corporation shall be used as the basis for implementing the result of the design stage, they must be modified in order to fit the requirements of the future processes. This includes the identification of divergences, based on the previously defined SWOTs, and the development of measurements intended to reduce them.

### Integrate into processes

The redesigned and modified activities must now be integrated into value adding processes, thus allowing the assessment of the advantages provided by a consideration of the corporation in process terms. This includes a reduced need for interfunctional coordination, i.e. reduced transaction costs; reduced cycle times, and a faster adaptation to customer requirements and changing environmental constraints. Since these processes are built upon modified activities, the integrative process becomes a matter of fine tuning, rather than enforcement of a top-down introduced process structure. Beside the realization of the operational model designed at the previous stage, the existing hierarchical relations are now removed, where necessary. Graphically, the procedure is depicted in fig. 5.

Establish new management style

As it was mentioned earlier, a virtually flat, process based corporation can not be managed by using the conventional control and steering paradigms. Instead, a management style covering the aspects of leadership and control in a more subtle way must be chosen and implemented.



**Fig. 5 Implementation steps**

This "management by meaning" concept allows individuals to perceptually manage themselves, while they are "seduced" to adopt they corporate goals as their owns, thus reducing the divergence between individual and collective goals. This difficult task for management, providing employees with meaning for their actions that align them to the corporate objectives to be achieved, is, however, not a short-term issue, but requires a deliberate approach.

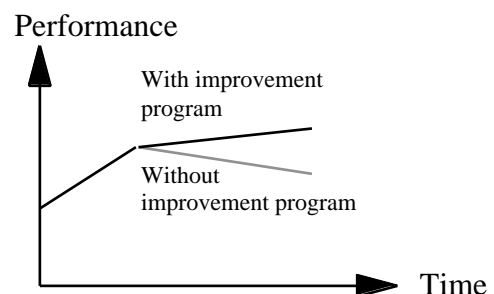
**Fine-tuning**

Benchmarking on new operations

In the same way as the previously existing operations were benchmarked in order to identify SWOTs and change potentials, the new established processes will be measured, in order to evaluate the results of the change process, and to compare the new operations with best-in-practice companies. Additionally, the benchmarking results are used for the determination of objectives for the improvement program to follow.

Institute improvement program

Since the achievements of the change project need to be sustained in order to allow long-term results, and many companies already have several types of improvement programs, training and education programs, quality improvement, a.o., in place, it appears to be natural and necessary to link those to the organizational change processes, especially since there is a tendency to lose the achieved

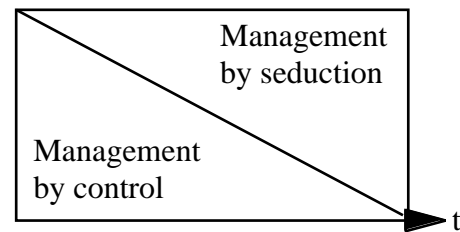


**Fig. 6 Linked improvement program**

improvements, when no improvement program is established. The programs can be chosen from a rather wide range, including formal TQM focusing on ISO 9000 certification, further time-based competition, or other development programs intended to develop corporate core competencies.

#### Align with new management style

The establishment and of the new, “seductive” management style is no short-term and ad-hoc process, but requires a deliberate maturation process, in order to extend the degrees of freedom and subsidiarity of decision making, while maintaining the necessary level of control during the change process. The result of this successive replacement is critical to the success of the entire change process, since failure may result in



**Fig. 7 Successive replacement of management style**

diffuse power structures and goal displacement. The formal basis for this replacement may be built during the transformation process, but the maturation is no matter of scheduling, but a crucial management task, that will take significantly longer than the formal project.

#### Reconsideration

Since the adaptation to changing environmental conditions and requirements from pressure groups, stakeholders and customers is no one time occurrence any longer, it becomes necessary to evaluate the change results and to build a basis for further changes. This includes a formal, quantitative evaluation, as well as the institution of organizational learning programs and the establishment of preconditions for making change permanent.

#### Evaluate change process and results

The ex post analysis of the achieved result of the change process is a necessary precondition for evaluation and the establishment of organizational learning. Unfortunately, this necessity is often neglected, a fact that results in diffuse perceptions of the change process itself, its results, and the need for future change, since there are no obvious effects that can be deduced from the change project, so that there are no visible incentives for future change.

The evaluation consists of a quantitative part, based on the results of the benchmarking processes, and a qualitative element, considering aspects like customer satisfaction, workplace quality, and the employees' perceptions.

### Institute organizational learning

To implement organizational learning programs, intended to contribute to skill improvement, the development of competencies, and adaptability to internal and external dynamics, is a major step for sustaining achieved improvements and their further development. Organizational learning allows improvement to become a natural part of all activities, instead of being one of the numerous quality/productivity/etc. “things, that management comes along with” on a more or less regular basis.

### Make change permanent

Once a genuine understanding of the organizational and environmental dynamics has been gained, change turns from being a project related occurrence into a natural part of all operations being performed. This requires, however, that improvement and learning has been established and internalized successfully, and that the “seductive” management style has come to a maturity level that enables individuals’ self-adaptability and self-alignment to changing requirements.

## Conclusions

In this paper, a methodology approach to organizational transformation from a bureaucratic, structural organization to a process based network was presented and several features of such a network were discussed. These findings are part of the research project “The Coop”, initiated at the Göteborg University in 1994, and investigating aspects of information technology use for cooperation.

This paper is not intended to provide a holistic approach to the crucial issue of organizational transformation and IT-support for the transformation-process and the resulting process networks, but to build a basis for further investigations and the development of theories and methods for allowing companies and other institutions to overcome the deficiencies of modern structuralism and to become more customer-oriented, competitive, and to use information technology in a more cooperative, intelligent way.

## Sources/References

- Bush and Frohman (1991), John B. Bush Jr. and Alan L. Frohman, *Communications in a "Network" Organization*, In: Organizational Dynamics, Autumn 1991
- Creech (1994), Bill Creech, *The five pillars of TQM: how to make total quality management working for you*, Truman Talley Books/Dutton, Penguin group

- Davenport (1993), T.H. Davenport, *Process Innovation: Reengineering work through information technology*, Harvard Business School Press, Boston
- Emery (1969), James C. Emery, *Organisation planning and control systems*, Macmillan, New York
- Gartner Group (1993), Gartner Group handouts, BPR seminar Stockholm
- Hammer & Champy (1993), M. Hammer & J. Champy, *Reengineering the Corporation*, Harper Business
- Harrington (1991); Harrington, Jon, *Organizational Structure - Information Technology*, Prentice-Hall
- Kämmerer & Ljungberg (1995); Kämmerer, Frederik & Ljungberg, Fredrik, *CSCW and the collaborative methods of work arena*, Studies in the use of information technology series, Göteborg University
- Kosiol (1962), Erich Kosiol, *Organisation der Unternehmung*, Wiesbaden
- Lawrence & Lorsch (1967), P.R. Lawrence and J.W. Lorsch, *Organization and Environment: Managing Differentiation and Integration*, Homewood
- March & Simon (1958), J. March and H. Simon, *Organizations*, Wiley, New York
- Nadler & Gerstein (1992), David A. Nadler and Marc S. Gerstein, *Strategic Selection: Staffing the Executive Team*, in: *Organizational Architecture*, David A. Nadler et.al., Jossey-Bass
- Ouchi (1977); Ouchi, W.; *Relationships between organizational structure and organizational control*, Administrative Science Quarterly vol 22 p 95-111 March 1977
- Redwood (1995); Mandahl, Michael & Simon, Kai, *Benchmarking for BPR: A Framework for Analysis and Design (Working title)*, REDWOOD RESEARCH AB
- Rockart & Short (1991), John F. Rockart and James E. Short, *The Networked Organization and the Management of Interdependence*, in: *The Corporation of the 1990's*, edited by Michael S. Scott-Morton, Oxford University Press
- Schubert (1972), Schubert, U., *Der Management-Kreis. In: Management für alle Führungskräfte in Wirtschaft und Verwaltung*, Stuttgart
- Simon (1995); Simon, Kai A.; *From Structure to Process: A Vision of a process-based Organization*, Paper presented at the ENTER95, Innsbruck, Austria
- Taylor (1911), Frederick Taylor, *The principles of scientific management*, New York
- White (1994); Tom White and Layna Fischer (eds.), *New Tools for New Times: The Workflow Paradigm*, Future Strategies Inc.