Value System Redesign

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Abstract

Business process re-engineering (BPR) is a methodology that originates from implementing enhanced information technology to streamline business performance. Not only can the efficiency of existing business processes be improved, but also have entirely new business pro??cesses and even entirely new business come into reach through information technology. Thus, BPR has become a major organizational and strategic challenge.

In this paper we will therefore address the question, how enterprises can benefit, how they can create value from the emerging information society by enhanced BPR. For this purpose we will set the scene by describing the competitive background. We will then focus on the spanning of boundaries, synergy among management functions and the idea of platforms as three important implications of the process concept. Value System Redesign (VSR) is presented as a methodology that builds on these implications of the process concept and provides systematical support to gain competitive advantage new in business opportunities. We will present VSR as an approach that is under development in the TELEflow proj??ect.

1. A Competitive Scenario

Competition in the information age will no longer take place among single companies, but among clusters of companies that come together to exploit the value of a business opportunity. We call such clusters Value Systems (VS) and understand that VS are organized actions and interactions which bring together processes from different companies, different sites, suppliers, OEMs, distributors, service providers, etc. that co-operate to provide the customer service [1]. Most popular examples of this kind of co-operations are Nike or Diesel, which sometimes are referred to as virtual organizations.

With the emerging information society, co-operation on a global scale can be expected to become more intense and will increase in strategic relevance because distance will no longer be a limiting issue [2]. This might turn into a competitive advantage for large multinationals that already today provide the organizational structure of global presence. European companies, however, are smaller in size compared to the US and Asian ones. To share the benefits of the information society, it is therefore often necessary for them to engage in co-operative strategies to achieve global presence.

As smaller companies lack the power of large multinationals, they have to seize the opportunity to substantially improve their competitiveness by creating, leading and sharing win-win constellations with their partners. This in turn requires advanced management competence, or at least the broadening of the domain of interest for managers. They have to leave their turf and actively re-engineer inter-company processes within the VS.

It is the assumption of the value system redesign approach, that the competence to create and re-create VS as co-operative ventures in a systematical and professional way is a source of sustainable competitive advantage in dynamically changing global markets, because ever-new business opportunities can be addressed with adapted VS. To that end, business objectives and the value created has to be linked to the services provided by suppliers, which can adequately be supported with business processes.

2. From Business Process Re-engineering to Value System Redesign

The link between the use of information technology and the hereby possible improvement of business performance have been categorized in a range from efficiency gains in single functions to the strategic definition of new businesses [3]. Generally speaking, the impact on business performance is predicted to increase with the degree of networking information technology from standalone computers to worldwide networks. In any case play process a central role, either because the process determines what a particular function has to look like, or be-

cause networks are designed as interrelated business pro??cesses. In other words, thinking in business processes provides a link between the process output that is created for the customer and the services provided for it. Pro??cesses in this sense create business justification because the value of the customer solution is linked to the cost of the services to provide it. Thus the process concept makes a suitable basis for value system redesign for at least three reasons.

2.1. Processes in Business Innovation

'Don't automate, obliterate' is the motto that Hammer gave to BPR [4] to point out that business processes should be designed to create customer value and to free BPR from constraints of the organization in place. And indeed, for any business opportunity a 'natural' business process [5] can be imagined, which only consists of the activities that are vital to create value. As in the case of the Internet bookshop amazon.com, this can lead to completely new ways to work, here for example without physical bookshops. This innovation obviously requires two things. First, the vision of how to do business must not be restricted by existing organizational boundaries and second, in order to work, the business design must cover all necessary activities, regardless of the supplying firm. The business process concept meets both requirements, because processes are independent of organizational boundaries and processes can be checked for consistency in the creation of any given product or service.

We focus this aspect to stress the role of business pro??cesses for recurring process innovation and creating value from short-term business opportunities under the conditions of dynamic change. This role is distinct from gaining efficiency through processes.

2.2. Processes Effect Synergies between Workflow, Logistics, and ICT

Processes are coordinated activities or tasks, which are linked through different types of flows [6]. A coordinated process can be perceived as a system of at least five types of flows, the material flow, the formal information or data flow, the workflow and the informal information flow [7]. In today's hierarchical organizations highly specialized management functions typically take care of systematic coordination for each of the flows, and as a result mostly operate their management systems independently. In that manner, material flow is managed by the logistics department, workflow by the organizational development department and the formal information flow by the IT department. However, when changes are required to serve a new market opportunity with a different organization, additional coordination between the different departments cannot be avoided. As long as changes are not numerous this does not create difficulties. However, when change becomes frequent, which is the case for exploiting short-term business opportunities the co-ordination between isolated functional departments leads to an increase in total complexity. Reduced complexity can in such situations be achieved through total management systems aiming at totally optimized coordination of all flows thus creating synergy [8].

2.3. 'Platforms' for Business Processes

Today much work in BPR has to be dedicated to the implementation of operative systems that ensure seamless flows of material, information and work. Because many of these investments are highly process specific, they have to be replaced for re-engineered processes. That limits the flexibility to change processes. A trend is however conceivable towards the establishment of more process independent infrastructures as platforms, which would release process innovation from investments and thus allow for more flexibility. The Internet, for example, is rapidly emerging as a globally accessible network, which can be expected to replace much of the more pro??cess specific EDI implementation. Examples from logistics show that networks of hubs and transportation platforms are designed by major logistics providers like UPS, FedEx, or Danzas, which allow free routing of goods and replace point-to-point transportation. Technical constraints, of course do not immediately and totally disappear, however the 'breathing space' for business value driven re-design of processes can be expected to increase.

If we accept the arguments presented so far, it is only consequent to approach each business opportunity and capture its potential value with an adapted business pro??cess that is co-operatively supplied by the appropriate business partners. We will refer to this as a value system redesign in the next chapter.

3. Value System Redesign

To approach each business opportunity with adapted business processes requires continuous restructuring (Figure 1). Indeed, value system redesign is based on the Schumpeterian assumption that sustainable competitive advantage can only be achieved with organizational agility to exploit change [9].

In other words, the source of value changes for dynamic competition. In mass production value has been added to raw material in form of labor when it was transformed into products. Avoiding the waste of labor and thus creating efficiency [10] was the approach to

increase the value added. Under the changing conditions of the information society and its global markets, less and less value stems from the manufacturing of physical products. Instead, services and knowledge that satisfy the needs of a short-term business opportunity 'on demand' become important sources to create value.

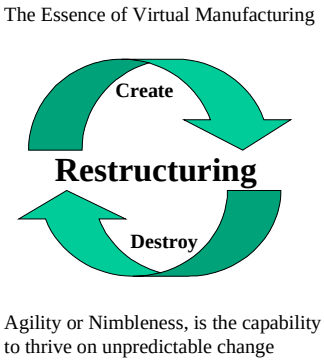

Figure 1: The Essence of Value System Redesign is Perpetual restructuring

3.1. The Value System

As a value system we define a co-operation that creates value through flexible reconfiguration of its participants' resources and competencies. Three basic elements describe the value system (figure 2), which allows developing answers to the questions:

Why is the value system created?
The value system is designed to create value in the business opportunity. The value is the force that drives continuous restructuring of the value system.

How can the value be created?
Value is created with the value system and business pro??cesses that are adapted to the requirements of the short-term business opportunity.

What are the potential partners?
The potentially participating partners of the network will in most cases be related parties; independent companies, but as well decentralized profit centers or strategic business units of a global holding.

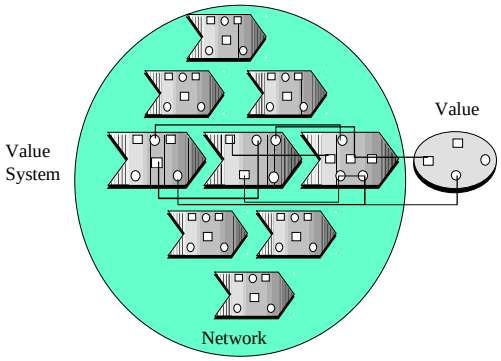

Figure 2: The three Elements of the Virtual Enterprise

3.2. Value Systems Redesign in Life-Cycle-Phases

Under the conditions of change, all systems are created for temporary purposes; thus have a lifecycle from their creation to dismantling.

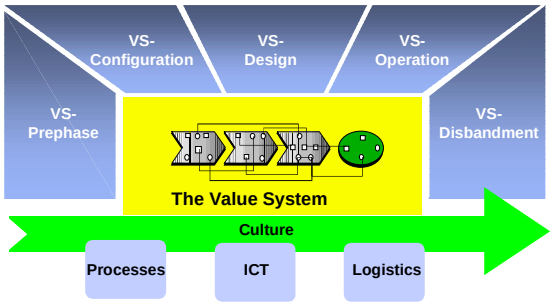

Figure 3: The Life Cycle Approach of Operations in the Value System [11]

The value system is organizationally and technically integrated to create value for a business opportunity. However, the cooperation is not an opportunistic, arm-length market relationship, but assumes a managed co-operation among partners for the life cycle of the operation (figure 3). Contrary to the traditional hierarchy, value systems cannot (and do not want to) rely on an existing vertical integration but integration has to be achieved for each business case. The success of the value system will be dependant on the degree to which the independent partners can be united for the time that is necessary to capture the value of the business opportunity. Value

systems, will constantly require the competence to redesign pro??cess logistics and information technology systems.

4. TELEflow Provides Methods and Tools

TELEflow is a telematics engineering project funded under the TELEMATICS APPLICATIONS Program (4th EU Framework Program 194-98). Its objective is to integrate existing and develop new methods and tools for value system redesign. Four facets are developed for the TELEflow demonstrator. First a value system re-engineering methodology, second, the value system re-engineering tool NetMovals which combines an enhanced process modeling tool for inter-organizational application with the business network modeling tool. Third, a logistics management solution repository (LMSR) provides rule-based guidelines for the implementation of logistics strategies and fourth, the TELEflow Information Infrastructure, which provides services to quickly set-up project specific IT infrastructures. Out of those tools we here present the NetMovals and shortly indicate its integration with LMSR.

4.1. NetMovals: Modeling the Networks of Partners, Resources and Processes

Strategies are particularly successful, when existing industrial structures can be reconfigured to serve new business opportunities. Pre-existing resources and tested processes reduce the specific investment for capturing the new market opportunity. Networks of partners, of resources and of processes each need to be modeled. (figure 4) Most important, however, are their interrelationships, which sum up to strategic importance [12].

Equally important is the effect of the sub-network interrelationships on time-to market. Setting-up resources and processes from scratch is a limiting factor for market penetration. The value system is a network of partners who provide the necessary competencies to supply a network of processes for the period needed to realize the value of a business opportunity regardless of their geographic distribution or ownership by partners. NetMovals further provides a process-modeling tool with a number of features, which are motivated by this field of application (figure 5).

NetMovals combines the sub-network models as views to allow for the redesign of the value system with icon drag-and-drop facility. In this manner the different timeframes of the network evolution on one side, which may take years of trust building and on the other side rapid re-configuration of new business processes can be combined.

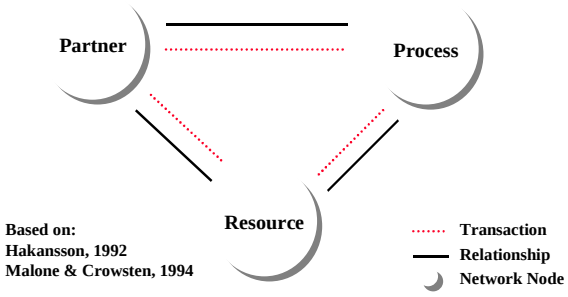

Figure 4: The Network Model based on *[13, 14]*)

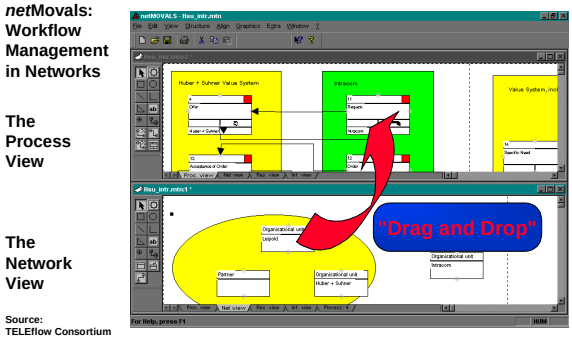

Figure 5: Screen from the NetMovals Tool

Because the partners have been regarded as independent peers in the competitive scenario, the tool aims at supporting their negotiation as equals. Easy user interfaces and graphical functions as well as its multi-user capability are important features to support negotiation. Each user can for example control what information is publicly accessible in shared editing sessions as this information may affect the negotiation position. The amount of information given in the model has been limited, with the possibility to hyperlink extensions in order to meet the limited human information processing capacity during fast value system redesign decisions.

4.2. Integration of Tools and Services

Once the network and process models have been established, integration with other tools shall be provided, where necessary. The scenario of this integration draws on the fast configuration of VSR services, which are

needed for certain phases and tasks in the value system life cycle. For such a scenario the on-demand integration of services and tools with simple browser technology and widespread business applications on the user side is the objective. NetMovals as an application, therefore, is intended to be delivered as a download and provides OLE interfaces for the integration with other off-the-shelf applications such as MS-Access or MS-Excel. The logistics management repository LMSR on the other side requires expert consulting and will only exceptionally be installed at the user side. More often NetMovals models will be transferred to the logistics service provider to be handled by computer application and human experts. Redesign options from a logistics perspective, however, will then be returned as NetMovals models to the user.

5. Summary and Conclusion

In this paper we have addressed the question, how companies can benefit from the emerging information age. For that purpose we have sketched a short business scenario, which points out that sustainable competitive advantage requires the ability to recurrently exploit the value of new business opportunities. We then have shown that the process concept has three useful implications on which an approach for systematical change can be grounded, which we refer to as value system redesign. First, processes link the value created to its suppliers across traditional organizational boundaries, second pro??cesses enact synergies between management functions like logistics, organizational design and IT. And third, processes will be less determined by technical constraints with platforms in place and can thus more flexibly be adapted to business opportunities. In the second part we have introduced examples of methods and tools for VSR, which are under development in the TELEflow project.

It is common to point to the dynamic change and the competitive challenges that come with the emerging information age. We have argued in this paper that change need not be regarded as threat, but that companies can develop the systematical knowledge to thrive on change. The ideas and concepts, which have been developed within the TELEflow project into a set of methods and tools, are prefiguring more advanced research into novel and dynamic approaches to re-engineering of business networks.

New ways of co-operatively working between self supporting companies are emerging for the information society. Under the 5th Framework Program for research & Technological Development (1998-2002) the Information Society Technology Program will focus its Key Action II (New Methods of Works and Electronic Commerce) on addressing the above issues in particular.

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