

A CONCEPT FOR THE CONFIGURATION OF VALUE ADDED NETWORKS BASED ON QUALITY CAPABILITIES DURING RAMP-UP

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The ubiquitous globalization, which opens up new markets with their specific local conditions and labor costs, as well as the increasing pressure regarding time, costs and flexibility lead to the decentralization of the value added. The resulting global value added networks, consisting of company-owned and external sites as well as logistic partners, have to be configured, operated and optimized. An important criterion for these networks is their ability to a fast and efficient ramp-up. This article presents a concept to assess and select potential value added network's nodes (sites or external partners) according to their ramp-up performance to achieve an optimal configuration of the network.

1. INTRODUCTION

Due to shorter product lifecycles the number of production ramp-ups of more and more variable and customer specific products (mass customization) is increasing. The economic pressure to shorter time to market as well as shorter time to customer forces these production ramp-ups to be planned and conducted fast and in shorter intervals (Schuh, 2004; Terwiesch, 1998). Hence production ramp-ups become a major step within the entire product lifecycle which determine the economic success as with the introduction of new products higher product prices can be achieved. The production ramp-up is generally defined as the period between finished product development and the achievement of full production capacity (Terwiesch, 1998).

Due to these shorter product lifecycles and the relatively low quantities, competitive advantages (e.g. through economies of scale) can only be achieved by specializing and concentrating on the companies' core competences (Höbig, 2002). This leads to the decentralization of the value added and in relation to the tendency of increasing globalization to the creation of global value added networks (Wiendahl, 2003; Eversheim, 2000). Value added networks are meant as value adding systems independently from company boundaries, which integrate the intra-organizational view (e. g. sites, cost or profit centers within a company) and the cross company view (inter-organizational, e. g. suppliers).

The objective of these value added networks is a flexible and cost-optimized distribution of the value added, both at company-owned sites as well as at external

partners (Fleischer, 2004). For the configuration of these networks not only the conditions of a stable running network have to be taken into account. Due to the economic relevance especially the ramp-up phase has to be considered. For this, the potential value added network's nodes (sites or partners) have to be assessed and selected according to their performance for a fast and cost-efficient ramp-up to achieve an optimal configuration of the value added network.

Production ramp-ups are characterized by their effectiveness and their efficiency (compare figure 1). As the performance of production ramp-ups with given capacities especially depends on the quality of the processes, it is necessary to evaluate the quality capabilities of the different value added activities.

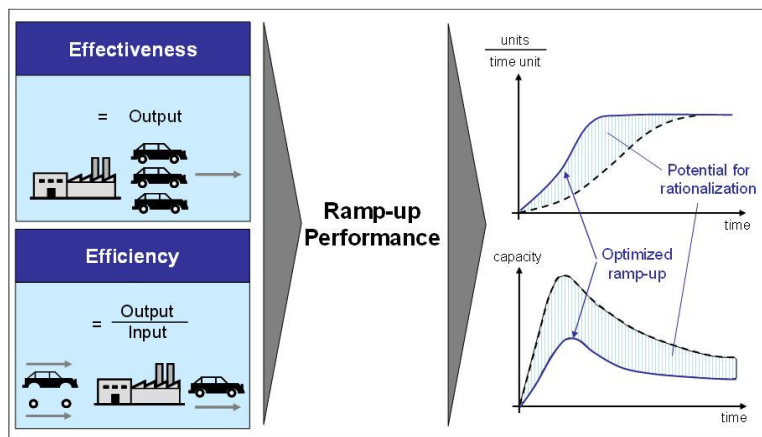


Figure 1 – Potential for rationalization regarding efficiency and effectiveness

The following approach allows the configuration of value added networks with special consideration of ramp-up costs. It is developed within a research project funded by the Landesstiftung Baden-Württemberg's support program for young scientists. The approach enables producing companies to distribute the value added which is necessary for the production of their products among their sites and partners in a global surrounding. It also allows them to guarantee highest ramp-up performance at optimal quality and costs.

In the following, the basic concepts for the configuration of value added networks and for the evaluation of quality capabilities are described. Based on these concepts the approach of the quality development during ramp-up within the configuration of value added networks and the therefore needed working steps will be presented.

2. CONFIGURATION OF VALUE ADDED NETWORKS BASED ON BUSINESS CAPABILITIES

Within a former research project at the Institute of Production Science (wbk), a method for the configuration of global value added networks was developed