



Project Proposal
Manufacturing Network Quick Check

Use of a unique, proven and holistic approach

Over 65 International Manufacturing Networks analysed successfully

10 years experience in global production management

1. What is the Manufacturing Network Quick Check in short

The Manufacturing Network Quick Check (MNQC) is a strategic analysis tool for industrial companies. The Institute of Technology Management at the University of St.Gallen provides its research results in a hands-on approach to evaluate existing manufacturing networks along all decision dimensions.

With the MNQC, managers target the improvement of their global manufacturing activities. Usually, industrial companies do not fully exploit the full potentials of their networks.

Management of manufacturing networks typically addresses three decision categories: Manufacturing strategy, network configuration and network coordination. These three dimensions are operated with management frameworks that make all relevant decision categories transparent and provide a unique tool for the realisation of unlocked potentials.

The detailed evaluation of the manufacturing network along the decision categories allows the detailed derivation of improvement areas and the further synchronisation of the manufacturing network.

2. Initial Situation

The importance of manufacturing for the global economic situation remains undisputed and has even been stressed during the global economic crisis. Furthermore, various studies illustrate a global growth in overall international manufacturing activities. Companies today produce in so called manufacturing networks that are spread across the globe. Many networks have grown historically through acquisitions or self-establishment of foreign manufacturing sites. The management of these manufacturing networks has evolved as a challenge that most companies do not handle optimally.

The management of a manufacturing network can be significantly improved through the assignment of site roles to clean-up the network and concentrate on required capabilities at the site level to accomplish the aspired site role. However, not only are the manufacturing sites in most of these networks not well integrated, but the network itself lacks a clear strategy. In fact, recent studies point out that many network managers still focus on optimisation of single sites, thereby missing a significant potential to increase economies of scale and scope across their manufacturing network.

Additionally, most network optimisation approaches focus on the configuration of a manufacturing network (i.e. its footprint). However, the optimisation potentials that lie in a suitable network coordination are not sufficiently addressed.

In general, a problem observed in most companies is the missing transparency about the network management measures and directions. This leads to redundancies and inefficiencies within the business units.

3. Project Objectives

With a Manufacturing Network Quick Check you can achieve or create the basis for the following objectives:

- Increase transparency about your manufacturing network status quo on a strategic level as well as concerning the configuration and coordination of the network
- Identify improvement potentials for your manufacturing network
- Improve the effectiveness and efficiency of your manufacturing network
- Derive areas of improvement

4. Project Deliverables

We offer the following deliverables in the Manufacturing Network Quick Check:

- Make network management transparent and discussible through application of our management frameworks
- Unveil the relations between strategic goals and the current condition of the network (i.e., network configuration and coordination) and how well the network supports your strategy
- Compare your network set-up and management approaches with the data sets of 50+ benchmarked global manufacturing networks
- Identify need for changes in the strategic set up, the global footprint and the network coordination based on the analyses carried out
- Derive improvement potentials towards a holistic network management

5. Exemplary Project Schedule

The Manufacturing Network Quick Check is a strategic project that is carried out with a high degree of interaction between project partners. Usually, on-site sessions help to discuss the different topics in depth and foster a common network-mind-set within the company.

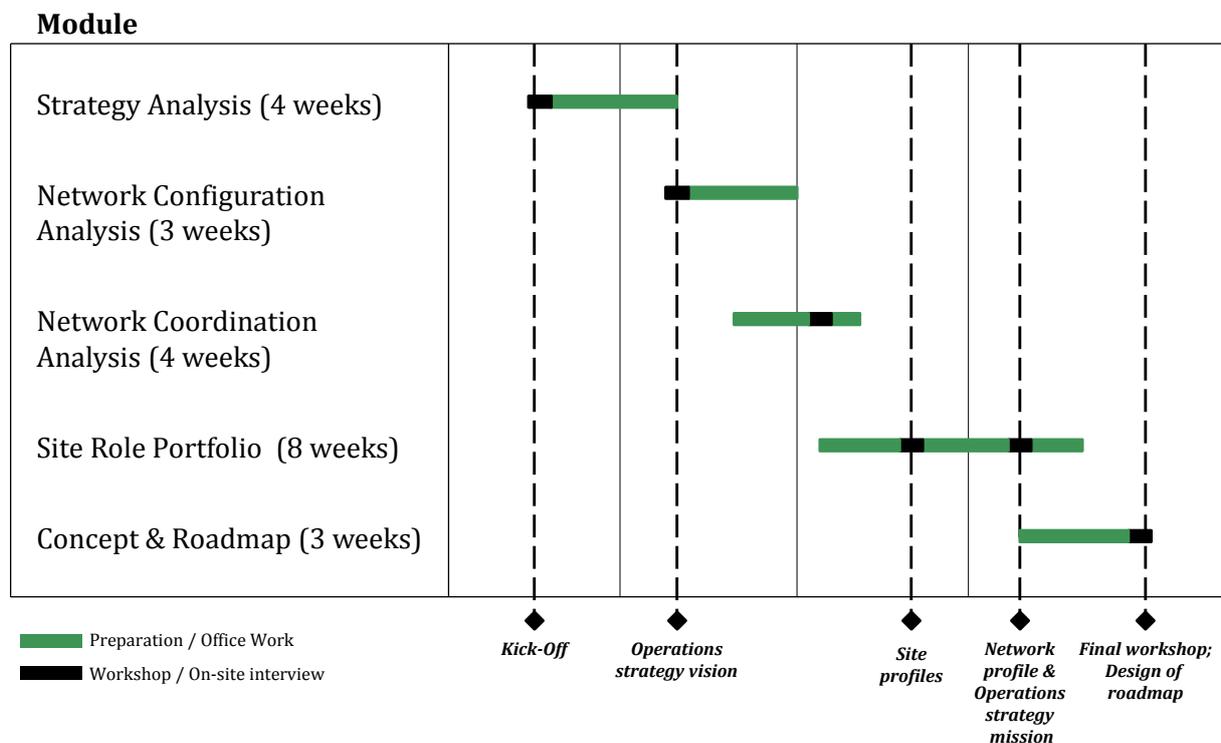


Figure 1: Exemplary time line for a Manufacturing Network Quick Check

6. Project Example

To make the management of manufacturing networks transparent and discussible, we use management frameworks we have developed over the last years. In the following, we provide you insights in some selected frameworks and illustrate their utilisation with the example of a European mechanical engineering company. This will give you an impression about the management frameworks and the kinds of analyses we conduct in a network quick check.

Figure 4 depicts the manufacturing strategy of a European mechanical engineering company. The strategic focus lies on high levels of quality and product range flexibility as well as innovation as classical factors for differentiation in this business. Additionally, the company tries to differentiate itself from competitors through services.

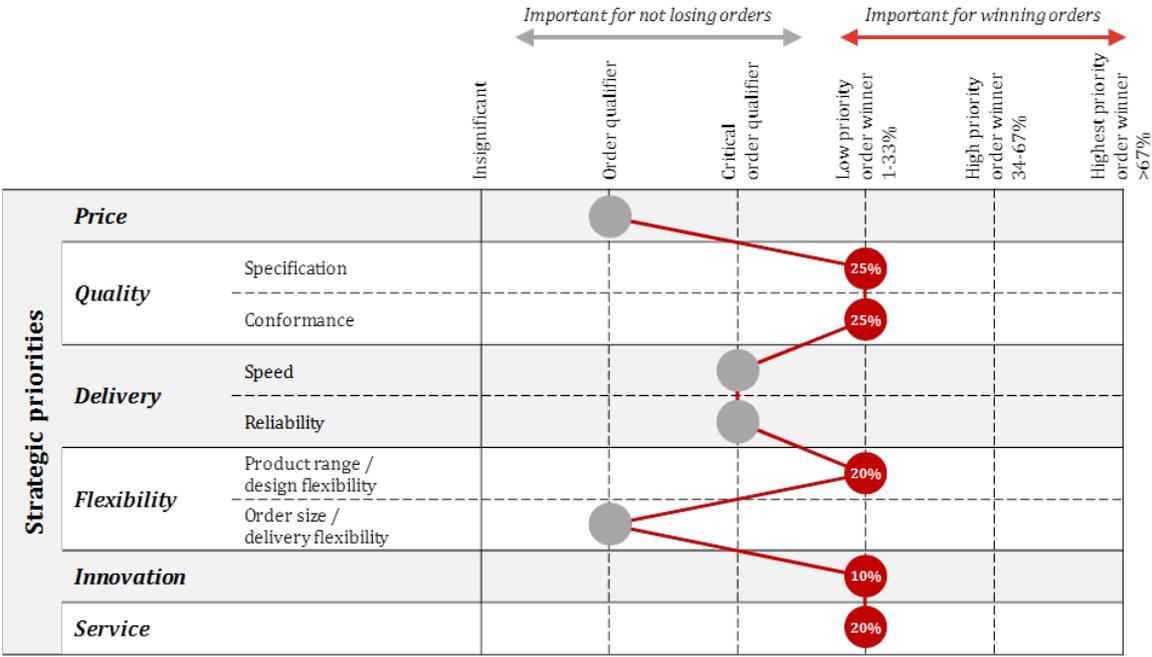


Figure 4: Manufacturing strategy example

Assuring the access to strategic markets/customers and the assurance of access to resources (suppliers, low-cost as well as skilled labour, and external know-how) is of utmost importance for the company (cf. figure 5). Additionally, providing mobility of products, processes, and personnel within the network for example to allow for volume shifts among sites in times of order peaks or the shift of specialists from one site to another, is important for the success of the company. Also, unlocking and transferring knowledge among the sites, i.e. organisational learning, is very important for the success of the company.

Accordingly, the network configuration (aka global footprint) and the management of the interactions and collaborations between the sites of the network must allow for these capabilities and ensure the access to the important resources.

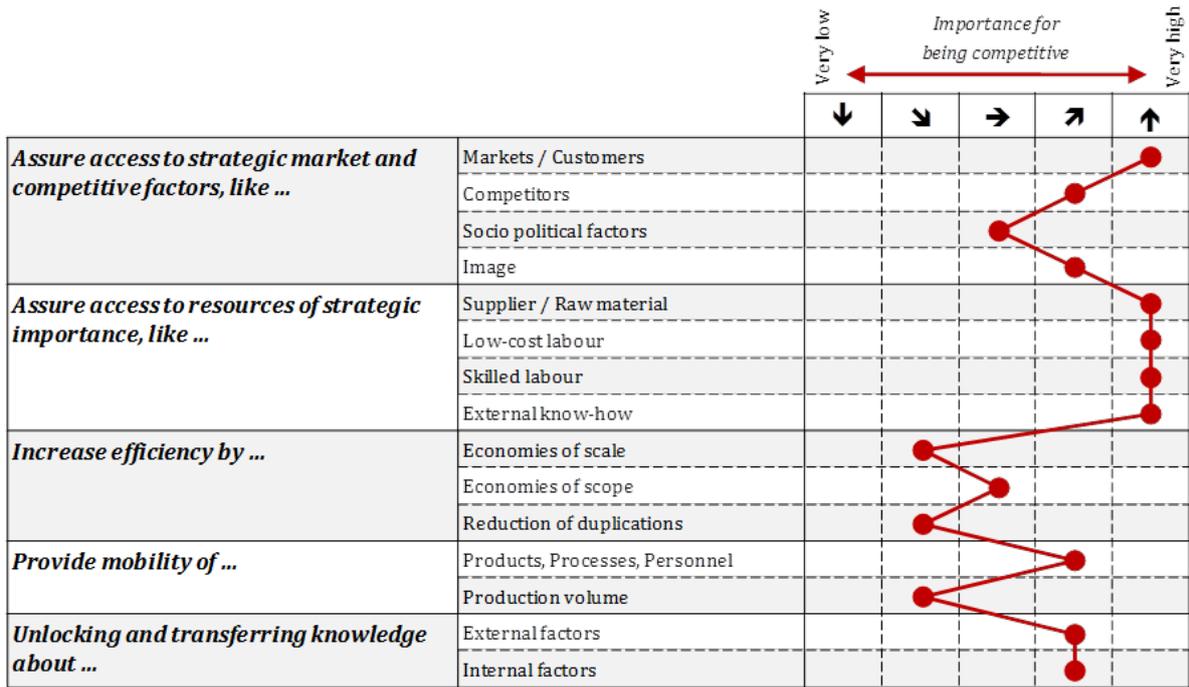


Figure 5: Network strategy example

A look on the company's site role portfolio ideally should indicate a site configuration that allows for the realisation of the network strategy.

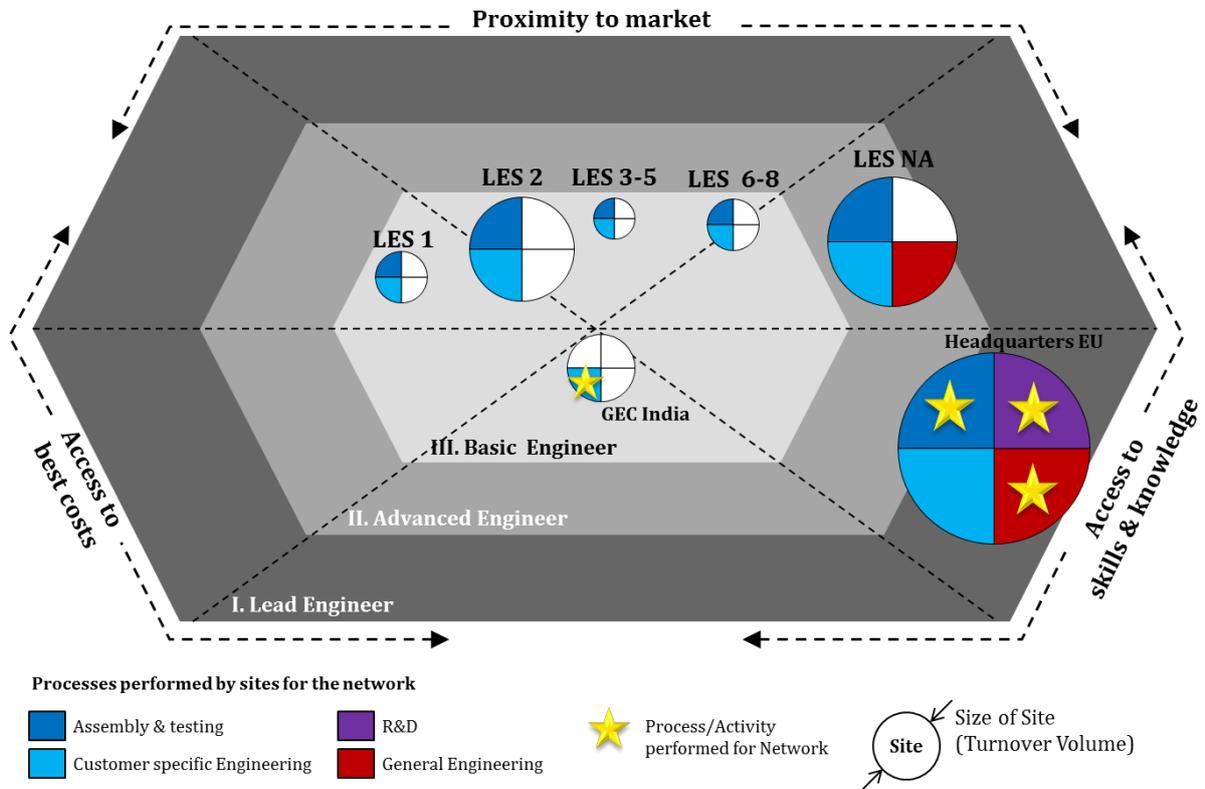


Figure 6: Site role portfolio example

The company's European headquarters (cf. figure 6) takes over a leading role in the network and performs all the R&D activities for the network. This is due to the fact that the headquarters has access to universities (external know-how) and internal functions important for knowledge generation and distribution. Also, general engineering activities (e.g., definition of variants) are performed for the other sites. The other sites benefit from the headquarters' services in this field. The headquarters additionally supplies the other sites with basic products for their assembly activities.

General Engineering is also done by the second largest site, the local engineering site in North America (LES NA) which has access to local skilled workers and knowledge. This is also the single site which is able to perform advanced engineering.

The global engineering centre in India (GEC India) as an extended workbench with access to skilled workers is used for customer specific engineering tasks to support other sites within the network.

The other sites mainly assure access to markets and customise, assemble and test products for their respective markets, supported by the headquarters and the GEC. These sites are smaller and dependent on the headquarters. Historically, each expansion into new markets came along with opening up a new site in the respective market. This led to numerous sites with solely proximity to market as strategic reason.

A lack of transparency hinders the full exploitation of cost advantages through purchasing volumes and the access to best cost labour is not actively used to achieve the efficiency goals. Additionally, the production of basic products in Europe for the sites' assembly activities is not in line either with the goal of low-cost labour, nor market proximity. There is also a lack of production activities in low-cost countries within the network. A further expansion of the engineering activities in the GEC could possibly lead to realisation of economies of scale and the utilisation of low-cost advantages for the whole network.

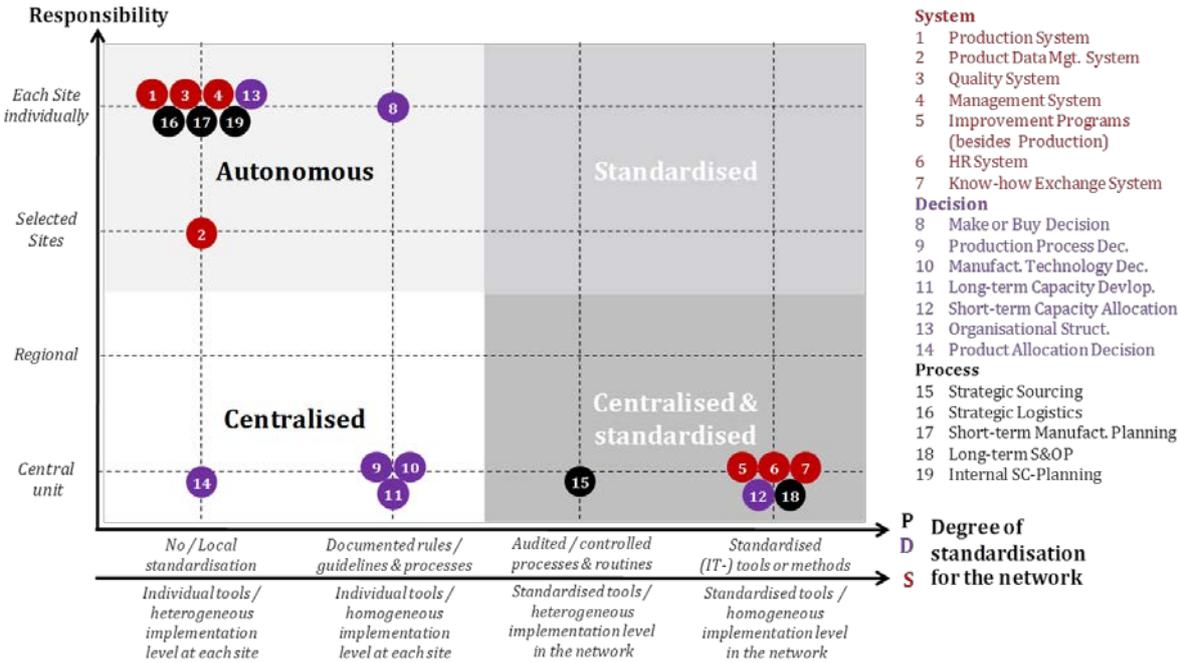


Figure 7: Centralisation and Standardisation Framework Example

Strategic and engineering-related systems, decisions, and processes are mostly centralised whilst other activities, like production related processes, are decentralised at each site and not standardised (cf. figure 7) at all. In general, decisions are not or only marginally standardised and mostly made by the headquarters. Systems, on the other hand, are either fully standardised and homogeneously implemented at each site of the network (under responsibility of the headquarters) or not standardised at all and dedicated into the responsibility of each respective site.

Especially the lack of standardisation in sales and engineering processes is a huge disadvantage of the network. Sales and engineering specialists are scarce and must be trained locally which is very costly.

Hence, load levelling of products among the sites is not possible. Also the usage of the GEC in India is limited due to that local-for-local system.

There is also a lack of knowledge exchange concerning process knowledge (cf. figure 8) among the network sites, i.e. no exchange of knowledge about business processes, management knowledge and no exchange of best practices between the sites. This leads to a heterogeneous process landscape. Heterogeneous IT systems within the network make information exchange among sites even more difficult.

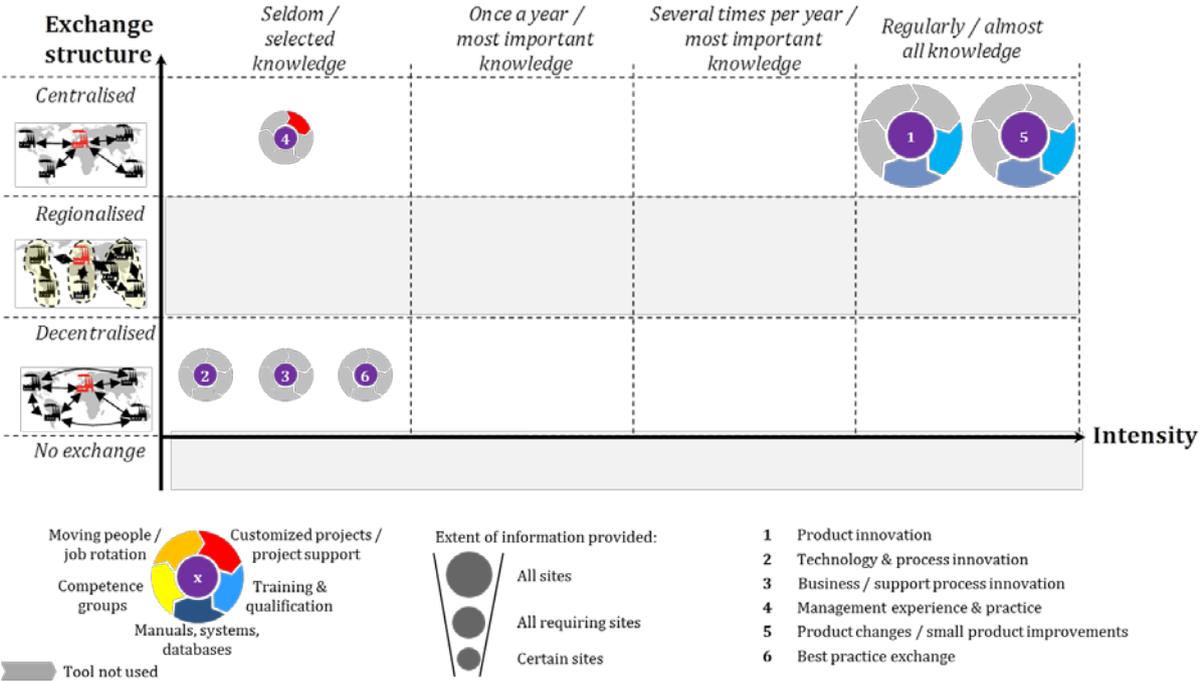


Figure 8: Knowledge Exchange Framework Example

To be able to implement the production and network strategy, the mechanical engineering company has to redesign its network coordination, especially reallocate responsibilities and standardise systems, decisions and processes. Also, the exchange of knowledge and information among sites must be redesigned to allow for several positive effects on network level, e.g. exchange of best practices between sites with similar challenges.

The example of a European mechanical engineering company was supposed to give you insights into some management frameworks we use to analyse manufacturing networks and somehow to illustrate the deliverables carried out during a manufacturing network quick check project.

7. Contact

If you are interested in the topic or want to receive further information on the management of international production networks, please do not hesitate to contact us.

We are looking forward receiving your message!



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