

Case study of nissans cogent co- development



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In early 1990s Nissan started its NX'96 improvement initiative focusing on quality(Q), cost(C), delivery(D), development and management(M). Thus Nissan could measure QCD performance levels of components from supplier, then set and achieve improvement targets. But that was not the case in development assessment due to diverse range of challenges in terms of widely varying nature of supplier's products and technologies, resulting in poor overall performance and threat for their competitiveness. These deficiencies of development in NX'96 initiative were considered and replaced with NEXT21 (Nissan Euro eXcellnce Towards 21st century) incorporating new approach to design and development (D&D).

Nissans requirement from its supplier base was about 75%. Though suppliers had world class quality levels with defect rate of less than 10ppm, in public's perception Nissan remained below its competitors even after surpassing them in quality data figures. With these feedbacks, Nissan focused on attractive quality apart from basic quality.

In 1995 Nissan formulated COGENT, Co-development re-generation tool, an initiative developed with partnership between NETC (Nissan European Technology Centre), Cranfield University and 89 of its supplier's. COGENT has a Latin origin meaning, Drive Forward Together, and runs hand-in-hand with NEXT21 programme.

The aim of COGENT was to improve overall performance of product; that is to get best quality at cheaper price with faster delivery. The fact that 80% of quality performance determined at development phase brings in significant overall benefit at production stage justifies the need to focus on component

D&D itself. The specific goal of COGENT was to bring D&D activities of suppliers in close alignment with that of Nissan itself. The objective was primarily to develop better understanding and more effective relationship between Nissan and its suppliers by having open communication at early stages of product development and also to maintain the momentum.

Part 2: Overview of theories involved

Supply chain management is the integration of each element of supply, design, production, and distribution from extraction of raw material to end customer delivery. (Rudzki et al. 2006). Managing supplier relationships is the vital part of strategic supply management as market changes and trends makes external suppliers a critical part of a firm's value chain (Trent 2007). Through a good relationship, supplier development activities by means of collaboration with suppliers in various forms of partnerships, enables to improve overall effectiveness and efficiency of the supply chain as a whole (Ford et al. 1998).

One of the important steps in supplier development during Integrative Development stage is Supplier Integration in New Product development (NPD). Suppliers are integrated into buyers supply chain network by means of supplier involvement in D&D of new products, processes, and services (Krause 1999 - Module note page: 45, Refer appendix Fig. A for supplier development Model - Step#10).

Early supplier involvement(ESI) is the process of relying on suppliers, either physically or virtually, to provide support early on during strategic planning, demand and supply planning, continuous improvement projects, project

planning and development of new technologies and products. ESI is often associated with new product development and the factors that drive include the need for continuous improvement, the need to develop new products, services, and processes quickly and also save cost by doing the design right at first time, thus achieving reduced cycle times of concept-to-customer (Trent 2007).

Though there are various expenses involved in supplier relationship management, buyer companies reap the benefits such as achieving are lower production costs by means of right first time design, improved material flow through reduced inventory, and reduced administration costs by means of integrated information systems (Ford et al. 1998).

Overall benefits to the buyer company are reduction in material cost, reduction in development and manufacturing cost, reduction in development cycle time, improvement in quality, functionality, features and technology. Table1 presents findings from the study that focused on how different organisations involve suppliers during product and process development and reveal that ESI deliver better performance results (Trent 2007).

Early Involvement

Reduction in material costs

20%

Reduction in development cycle time

20%

Improvement in material quality

20%

Reduction in development costs

20%

Reduction in manufacturing costs

10%

Improvement in product functionality, features, & technology

20%

Table1. Median Improvements from ESI (Trent 2007: 227)

. In general, long-term relationships result in improvements in:

Supplier involvement

focus and ownership of product

focus on continuous improvement implementation method

focus on quality

teamwork on new product introduction

shared vision

alignment of people and systems

clearly defined responsibility and accountability (Burnes and Dale 1998).

Part 3: COGENT Implementation and Achievements

MDs of some of Nissan's supplier companies were invited to NETC to discuss about key points of co-development, what was required to be done for them to achieve world class levels of design by year 2000 and how they would implement changes.

NETC and Cranfield University worked together intensively with Nissan's first tier suppliers for the first year, trying to communicate the very essence of COGENT. But they realized that the message was not reaching the wide supplier base fast enough. Thus fast-track COGENT was initiated.

Suppliers were invited for a day long intensive event to work through three specific workshops that takes through the core messages of COGENT. The fast track COGENT concentrated in three areas for aligning different aspects of co-development – aligning perceptions, aligning processes, and aligning project targets and key milestones. The steps followed for each areas of alignment were same – where do we want to be, where we are now, how to get there, and implement and monitor improvement plan. Suppliers were asked to consider their current perceptions of their relationship with Nissan, analyse their own existing development processes and their plans to meet NEXT21 targets. Also, they were asked to start thinking about where they want to be in terms of world class performance levels of development and were discussed in each session of fast track COGENT, ultimately leading to the very important question – how to get there. This enabled Nissan and suppliers to identify possible improvement activities to strengthen their

development capabilities and also to prioritize areas of improvement resulting in a clearly defined improvement plan. Again the suppliers were encouraged to further prioritize their specific improvement actions and to begin generating improvement action monitor sheet from their findings.

On completion of fast track activity each supplier is clear with what is being expected of them with a set of mutually agreed action plans for D&D improvement. Thus success of COGENT can be monitored against their action to assess supplier's development performance.

COGENT was primarily designed to invest more time and resources in starting of development phase itself, thereby avoiding the concern of re-design after testing and verification of trial design parts and also improve lead time. This eliminates majority of waste throughout the whole development cycle and also total resources used are comparatively less.

Those suppliers who took part in COGENT initiative displayed outstanding achievement levels in NEXT21 performance appraisal. The fig. 1 projects the rate of improvement that suppliers might have achieved by year 1998 to about 1% if they had continued with NX'96 and where as NEXT21 targeted at 5%. However, average figures achieved by suppliers who took part in COGENT achieved 11% improvement.

Part 4: Conclusion

Through the workshop, Cranfield University created an environment to ease effective communication and understanding between supplier and Nissan, and to have a better combined work relationship in order to identify what Nissan and supplier needs to do to stay competitive in the global market.

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The entire process is not just to find out areas of improvement for supplier, but also a mutually beneficial joint effort of development for future to bring performance improvements and continuous improvement thereafter, which will help eliminate wastes at every stage, from concept to successful delivery.

COGENT has enabled Nissan identify what is required to be done to overcome the flaws, under shared basic understanding of challenges and problems they are likely to face during the process of product D&D in order to bring about the most effective co-development relationship. The approach as a whole, has not only given a face-lift for measuring success in D&D, but also gave an opportunity for Nissan to align its supplier's development processes alongside its own. COGENT has enable Nissan work more closely and effectively in their relationship with its suppliers throughout the whole D&D phase.

Nissan and its suppliers together are developing future products with attracted quality to satisfy their customer by driving forward together. As more and more suppliers are introduced to COGENT through fast track, the achievements continue to represent a significant step change in performance. By 2000, 90% of Nissan vehicle sold were built in Europe and this demonstrates Nissans vital European operation which was achieved as a result of COGENT initiative, aiding Nissan gain competitive advantage in the automotive market.

Part 5: Theory linked to practice – Key Learning points

In an effective supply chain management suppliers and customers work together in a coordinated manner by sharing and communicating rapid flow of information. Suppliers and customers must have shared goals and vision, and also must participate together in D&D of products/processes of the supply chain to achieve their shared goals. In context of Total Quality Management (TQM), benchmarking is essential for assessing current performance to identify possible improvements. Benchmarking is measuring where the company is positioned now and using that as a guideline identify where the company wants to be in future by setting performance goals in each areas of supply chain (Module Note, page 51-54).

During the course of mutually benefiting bilateral relationship in supply chain, one of the important steps is ESI in D&D, which has a major role in minimizing total cost. This basic understanding brings in the need of co-development, where suppliers are involved in early stages of new product D&D and hence most buyer companies are making ESI one of their most important supply management strategies. Effective integration of suppliers into the supply chain will be a key factor for manufacturers in achieving improvements necessary to remain competitive and to improve supply chain as a whole.

Part 6: Future trends

Automotive manufacturers in general have their own strategy for bring out best quality and cheapest cars in short time to the competitive market. In case of Nissan, they have a pool of potentially capable suppliers who meet the production requirements in terms of quality and delivery with reasonably

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good cost factors and are driving for continuous improvement towards the achieving further set targets by Nissan. With COGENT initiative, Nissan has started the integrative development by involving its first-tier suppliers in their NPD activities and is essentially the success story behind success of its new products in recent few years.

The future trend for Nissan would be to establish performance improvements in second-tier suppliers and also possibilities to establish improvements in third-tier suppliers and so on. These supplier development steps will definitely help Nissan achieve a globally aligned supplier network in future ahead.

Part 7: List of References

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Part 8: Appendix

1. Fig. A. Supplier Model (Krause 1999 - Module note page: 45)