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THE WAY OF MODULARIZATION STRATEGY BY HYUNDAI

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The auto industry's experiment with modular assembly systems is raising big concerns among automakers about innovative achieving cost reduction and efficient new methods of work. Korean automakers emerged under specific economic conditions, which have since changed considerably. We have seen, among other things, (1) the severe global competition of automakers; (2) increased R&D and cost cutting and (3) the end of continuous market growth in Korea, leading to severe recession for automakers. All of these trends have put severe pressure on the existing managerial strategies, which could put in question traditional forms of labor-intensive product system. In concert with the growing pressures on increased profit and new technology development, there is pressure for new managerial strategies in favor of more flexibility, increased quality and innovative cost reduction. For this purpose, Korean automaker has introduced modularization as a method of increased productivities, elimination of workers and reduced cost.

This paper has three major aims: a new production system, a new feature of supply chain and work organization through discussion of the introduction of modular product architecture. In relation first aim, the main elements of the increasing flexibility are the introduction of microprocessor-controlled robotics; other computer numerically controlled machine tools and automated process control. These new forms of automation have dramatically increased the flexibility of the manufacturing system.

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In relation next aim, the supply chain has polarization between modular suppliers and traditional suppliers. Modular supply philosophy calls on parts makers to build large chunk of a vehicle and deliver these modules to an assembly plant. Modular assembly system allows automakers to shift design, engineering and supply chain management. Automakers would take different approaches to modular design and assembly, all tailored to their own specific situations. Korean auto industry fell far behind its European counterpart in the case of modularization. The first tier supplier in the traditional supplier chain has become the second tier supplier in modular system, because Hyundai does not select them as modular supplier. It means that the supplier will increase its position as key suppliers of high-tech components to the OEMs and also to the big module integrators. It seems that attention is shifting to emergence of large-suppliers. In this trend, the affiliated-firm has play most important role in the supply chain and the buyer-supplier relationship should be changed into a more meaningful partnership based on product and technology development. Another option is that parts suppliers – they are a relatively weak horizontal network and creates a lower level of control – should be integrate vertically into supplier chain as second tier suppliers. Even these firms are bigger and have a higher-averaged technical capability than the modular suppliers.

With respect to supply chain aspect, Hyundai has attempted to develop new delivery system at shop floor. Synchronized sequential delivery is flexible to market fluctuation and led to reduced inventory cost. However modular supplier has high risk to synchronized sequential delivery and takes response for quality of products, because they have not enough inventories. It means that inventory cost and quality control for parts and components has been passed on to the modular suppliers.

The paper also discussed the changed work organization through modularization. Introduction of modularization is purpose to increased productivities, elimination of workers and reduced logistic cost, not a new orientation of work organization. Even the introduction of modularization on the shop floor has brought to the doubtless high-performance, it is not characterized by new production concept. Taylorist-Fordist concept at Hyundai is still key elements of the production management. It means reforms at the margins of the mass-production system.

Lastly, it is deemed necessary to focus future research on Networking. The implementations of modularization require an optimization of just in time and in-sequence delivery and material handling. It is bring new cluster of second tiers parts suppliers in the near by large module supplier like Hyunai Mobis. Also first tier suppliers move their plant into new industrial districts like Asan. Assembler promotes the integrated production-site concepts, which is supported by the central and regional government. Assembler is looking forward an optimization of logistical management with Supplier Park. It seems also necessary to explore quality of working life that has caused modularization.

With this view in mind, my paper will deal with examining the characteristics of modularization of Korean automaker. In the first part of this paper I will give a brief description of the modular assembly system of Hyundai. Then I will describe in detail the new trend toward the establishment of a subcontracting system, which will bring about a fundamental restructuring of inter-firm relationships in the Korean automobile industry. Following that, I will discuss the change of work organization. The modular assembly system takes on particular importance as a factor that will lead to the establishment of a new production system.