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Human Engineering in Automobile Industry

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Abstract

The customer expectations from an auto industry has created competitive pressure and enriched the industry with attitude, knowledge, flexibility and speed for new challenges and changes. Processes are being streamlined and automated, and work teams are reorganized and redeployed for higher productivity on quality, delivery time and cost. Together with these changes, companies are looking for ways to plan better and control their operations by shifting away from rigid and preplanned activities to quick response to changes. New Product development management has been a major component of competitive strategy to enhance organizational productivity and profitability. Performance measurement and metrics have an important role to play in setting objectives, evaluating performance and determining future courses of actions. Performance measurement and metrics pertaining to new product development management, has not received adequate attention. There is time-based competition relative to various stages of Organizational performance measurement and metrics which has received much attention in recent years. The popularity of these measures suggests that new product development, new product introduction, manufacturing, and delivery are key activities contributing to time-based performance. There exists human resource impact on the competitive advantage of new product development management - for speed, for creating an enhanced environment to an interactive role and for breaking the barriers on increasing reliability and dependability of new product & development. The lateral and proactive thinking approach in human resource has to be identified, provoked and nurtured towards new product development activities. The Talent is on Demand. There is good amount of Human Resource role in developing a high-performance culture. It is to be made sure

of ensuring right talent at the right time and making it part of driving culture for new product development. The interest has to be, towards shaping the culture in a natural evolution. The focus of the paper is from, automobile industry conceptual design till mass production mainly covering new product development activities, on nurturing employee, to work for speed, delivery reliability and dependability of new product development and introduction by tapping the innovative quotient and anticipative approach of employee.

Introduction

IT'S NOT ABOUT KNOWING YOUR CUSTOMER.

IT'S YOUR CUSTOMER KNOWING ABOUT YOU.

In life, it is usually easier to say 'no' than 'yes'. But in product development the opposite is more likely true — it's hard to turn down a major customer asking you to add more features to your product or asking you a new model product. Despite substantial prior research on new product success, there are still high failure rates. For this response to competitive pressures to meet the expectation of the customers, companies are focusing on the re-engineering of operations – covering all the areas. Processes are being streamlined and automated, and work teams are reorganized and redeployed for higher productivity on quality, time and cost. Together with these changes, companies are looking for the ways to plan better and control their operations. They are shifting away from a company with rigid and preplanned activities to one that is able to react quickly and appropriately to changes. This needs a network, a network that covers the span of enterprise functions from new product design, new product development – from concept proto manufacturing till mass production readiness covering supplier selection, process design and validation and stabilization, continued with mass production ordering and receipt of raw materials, transform them into intermediate goods and then final products and deliver the products to customers through a distribution system.

Improving performance in new product development has become one of the critical issues for gaining competitive advantages for companies. The lead time of the new product development and importance of real innovation towards improving the new product and process becomes inevitable.

In order to operate efficiently, the design, development, testing, purchase, quality, manufacturing, plant engineering, finance and human resource functions must operate in an integrated manner. Providing quick and quality responses to new product development events requires the coordination of multiple functions across the enterprise.

New product development management has been a major component of competitive strategy to enhance organizational productivity and profitability. The strategies and technologies for effectively managing a new product development is quite a vast area to be worked. In recent years, organizational performance measurement and metrics have received much attention. Performance measurement and metrics have an important role to play in setting objectives, evaluating performance and determining future courses of actions for new product development management needs adequate attention. Above all the impact of human resource as such can make a distinct difference in the new product development. The quality of human resource in an organisation enables a better quality, cost, delivery, reliability of new product development.

Importance - Leadtime and Overall Business Performance

The leadtime is very critical for a business performance. Five-time based measures are generally considered important in new product development:

- * Delivery speed
- * New product development time
- * Delivery reliability/dependability
- * New product introduction
- * Manufacturing leadtime

The new product development, introduction, manufacturing and delivery are key activities contributing to time-based performance. The contribution of procurement Leadtime to overall business performance is very critical.

Requirement - Real and Sustainable Innovation

The most important determinants of new product success involve managerial behavior and therefore a need exists to understand and examine the influence of innovation orientation of human resource management (IO-HRM) on these determinants.

The Problem is most new product development methods don't lead to real innovation. When developing new products or services, most companies look to three sources:

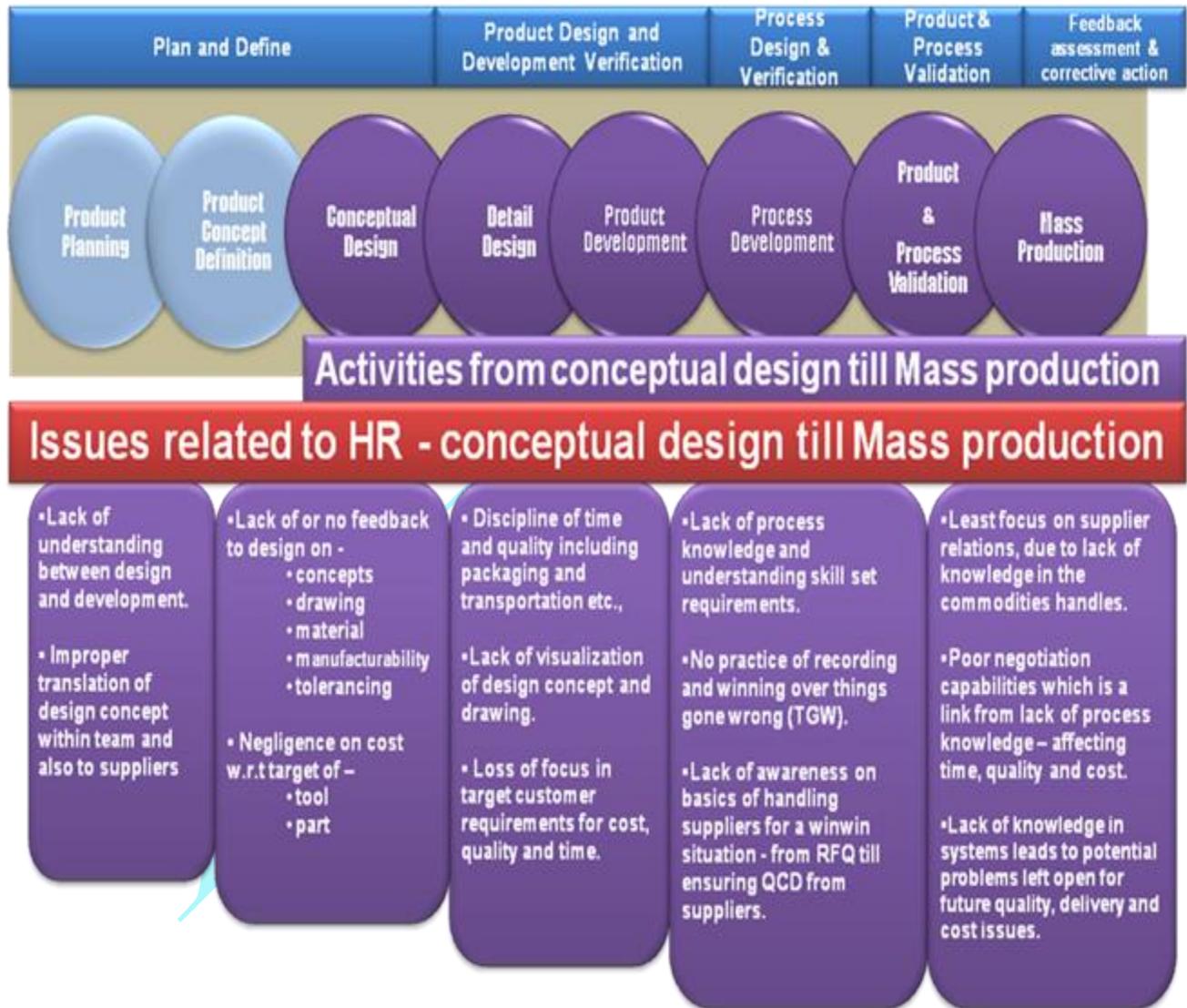
→	New technologies (developed internally or found externally),
→	Industry competitors (for "me too" offerings),
→	Customers (through market research, focus groups, and direct feedback)
	Although all three are clearly crucial for a company that wishes to serve its customers, relying solely on these sources will not lead to real innovation. Here's why new technological breakthroughs can be a powerful source of innovation, but they are usually few and far between, and can involve extremely high costs.
	Looking to your competition or your customers can generate interesting ideas but involves a major drawback: the information you get from them is equally available to everyone else in your industry. And while customers can of course be an invaluable source of new ideas - capable perhaps of generating even 90% of a company's new ideas - they don't actually <i>innovate</i> . As Henry Ford said: "If I had asked my customers what they wanted, they would have said 'a faster horse'.".

To proceed further we should go through a brief on new product development – the steps and its alignment to Advanced Product Quality Planning - APQP (Advanced Product Quality Planning is a process followed in Automobile industry for new product development). This may be helpful in understanding the issues listed under the development steps.

New Product Development Flow - A Glance

We will go through the general flow of new product development and also the factors that govern speed, quality improvement and cost reduction towards optimized new product development performance and thereby improving the bottom line.

A General Flow of New Product Development Aligned with Advanced Product Quality Planning Sequence

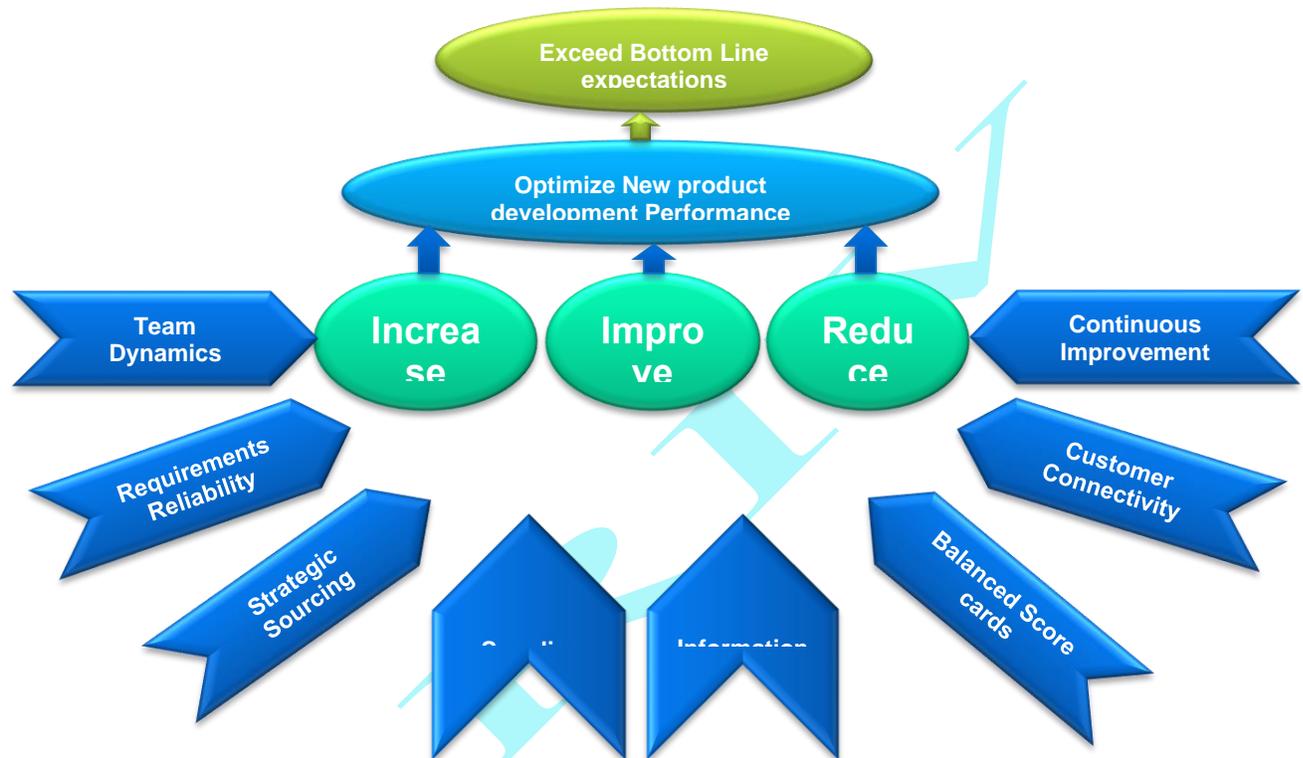


The issues listed above can be related to human resource. It may give us a glimpse of impact on Quality, Cost and Delivery of new product development.

Surpassing the bottom-line expectations

If you've ever said, "There must be a better way" ... 'then there is!

Business success is directly related to how well it masters the basics of new product development management. The figure below gives us a quick understanding on the involvement of human resource in an organization, at various categories towards speed, quality and cost.



Human resource - Impact

- Human resource impacts on the competitive advantage of new product development management practices that can improve Speed of development.
- It can create an environment that can enhance interactive role of managers and employees, specific to new product development.
- It ensures removal of implementation barriers on the success of new product development management to increase Reliability and Dependability.
- Human resource can create change through lateral and proactive thinking approach in new product development that activates Innovative Quotient and Anticipative approach.

Human resource in driving a high-performance new product development culture

While many talks about the need to transform their cultures, few have actually succeeded because it requires changing behaviour of the entire workforce. To affect true cultural transformation, the structure, system and process must reinforce the desired culture. And worse, all leaders must embrace new attitudes and conduct their activities in new and different ways. Changing the culture requires the efforts of everyone in the enterprise. It is sometimes better to work to shape the culture in a natural evolution, rather than to try to change deeply ingrained working styles and behavioral norms. HR practices have typically been about meeting individuals' needs, figuring out what psychological profile they fit and what should be done to help them grow and advance. But if an employer who is worried about issues like the finances of the company, HR would like to, think about personnel, from the perspective of money and costs and may end up with not having the right people in right place. Part of the problem is that many companies are locked into an older paradigm based on the assumption that they can accurately meet their talent needs through static forecasting and planning models, even though the global marketplace is an increasingly unpredictable, unforgiving environment. The idea that we can achieve certainty through planning is no longer true; instead, we have to deal with uncertainty by being more responsive and adaptable. The role of human resource management is to be refocused from the “traditional HR focus on attracting, selecting, and developing individuals to a new focus on developing an organizational context which will attract and develop leaders as well as facilitate teamwork”. This new global leadership focus of HR encompasses new approaches to decision making, as well as innovative approaches to organizing and managing people.

Why the focus so essential for progress?

Talent on demand

Failing to manage the company's talent needs is equivalent of failing to manage the new product development. Yet the majority of employers have bad track records when it comes to the age-old problem of finding and retaining talent. New product development management tackles these kinds of questions all the time. Managing new product development is about managing uncertainty and variability. This same uncertainty exists inside companies with regard to talent development. Companies rarely know what they will be building five years out and what skills they will need to

make that happen. They also don't know if the people they have in their pipelines are going to be around. Talent management simply means "trying to forecast what we are going to need, and then planning to meet that need. New product development management is essentially defining the same: "We think that demand for our products next year is going to be 'X'. How do we organize internally to meet that demand?"

The way out

Systematic Inventive Thinking - SIT for New Product Development

SIT for New Product Development may be one of the solutions. SIT can offer a radically different- and highly effective-strategy for NPD, for an organization that wants to:

1. create a pipeline of new products for the next few years;
2. extend an existing product line to new target markets;
3. refresh an existing product (or line) by introducing new, exciting features;
4. 'come up with completely new ideas for products.

Give a Pause – Give a Re-think

NPD project is considered successful when new products or services are actually launched in the market. There should be a team with high performance motive backed by good skills and experience. A study to approach the new product development issues from automobile industry's conceptual design till mass production may be really worth. SIT may be one of the solutions. The study may benefit towards improving the quality of activities in new product development and introduction in auto industry, avoiding delays and failures that will be resulting in poor bottom line. The auto industry, in rescission will never like to enjoy the luxury of research and development with all the delays and failures. The first time right in these areas may be a point of focus.

To ensure that the right persons are selected and put in place for new product development becomes important for the organizations. The selection of human resource should be specific to the new product development, it cannot be as simple as selecting resource which does not have experience in the development activities and inducted with an assumption that it can be molded to the

requirement of development. This concept is a failure in most of the cases. The study should reveal the present deficiency in selecting the human resources without understanding the problems and requirements of development. The investments in the new product development are getting increased like the customer requirements, with a reduced product cycle time. There lies the responsibility of the organizations to ensure the right human resources are selected and made responsible for the investments and its returns for the organization with, definitely the customers in mind.

Most of the issues related to bad selection of resources are being siphoned and camafledged with trainings, as it may reveal the efficiency of the team that selected the resource. It may be compared to selecting a supplier who is incapable of fulfilling the product requirement but inducted with a target of putting under supplier up-gradation plan. The goal is to rise to the standard and raise the standard. A proper utilization of human resource provides sustainable competitive advantage to an organization, even when competitors adopt similar new product development management “best practices”.

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