

Product Engineering

The 4 Cornerstones of Product Engineering

The Product Engineering Strategy

Offshore Product Engineering

Applications Consulting
Quality
Processes
CMMI
India ISO
Bangalore
Java C# C++
\$ € £
ASP.NET
Tech Support Rs



Agility At Work

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Synopsis

Product Innovation and engineering budgets in the US cannot be under more pressure than they are today. Accordingly to a report in one of the premier business publications in India, the publicly listed software product companies in the US have come down to 200 from 350 over the last 7-8 years. There could be several factors that have driven this situation. But the writing on the wall is clear: Businesses need to be agile enough to survive and win in this multi-leg race!

This survival game involves proper knowledge and application of the right technology, business applications and economics of the solutions. Unfortunately, most of the products use similar technologies and ensure high quality standards. So the differentiation in the functionality and robustness of the solutions is

very narrow. However, 'economics' – the way companies are able to create demand - is where the real battle is!

Product engineering, the central activity for any product business, can alone address these issues. Strategic leaders need to identify the cornerstones of the product engineering activity to take timely, strategic decisions. Innovation, speed, cost and quality are identified to be key variables in the product engineering practice.

It is increasingly noticed that the product companies are eventually focusing only on product innovation. Engineering has become a strategic area to deliver the expected results.

Outsourcing product engineering has so far shown limited benefits. It has helped to increase control over the costs, if not reduce them significantly. While quality

standards remained reasonable, outsourcing did not help to accelerate the time-to-market as it was expected to. Product companies, however, are seen to tap the global software talent for greater benefits.

Offshore product engineering is recognized to deliver greater benefits and eventually increase the customer satisfaction. Countries like India not only offer high quality software talent but are able to accelerate the time-to-market as they are located 10-12 time zones ahead of the US. Moreover, the availability of this high quality talent at significantly lower wage rates brings huge competitiveness advantage to product companies.

This paper attempts to investigate and identify evolving product engineering strategies. It also collates information necessary to

evaluate and consider offshore product engineering.

About Us

Agility at Work!

Siri Technologies is a SEI CMM Level 4, ISO 9001:2000 IT services company. Founded in Bangalore, in 1994, we have successfully delivered over 500 projects across the product and software lifecycles. Having worked on 15+ products till date, we are one of the pioneers in offshore product engineering in India.

Profitable and debt-free every year since inception, with Bank of America as a major shareholder, we have established ourselves as a reliable, long-term services partner of many companies in the US and Europe.

The 4 Cornerstones of Product Engineering

What drives product engineering!

Strategic leaders of technology commercialization are often caught in their **"Rush-hour Pause"** – Market size is growing but customers are more scattered; Technology advancements are exponential but product life cycles are shortening; IT spending is improving but the market is getting over-crowded; Quality consciousness is growing but differentiation is narrowing; Volume demand is encouraging but the cost competition is increasing!

Too many encouraging things but too many uncertainties – any strategic mind goes still in such rush-hour pause. While sales & marketing and other business operations can resolve few of the

issues, product engineering is central to any grass-root level makeover. Getting out the "good product that can sell by itself" can alone fetch the long run success. Hence the need for understanding the success drivers of product engineering is paramount.

The 4 corner stones of product engineering are:

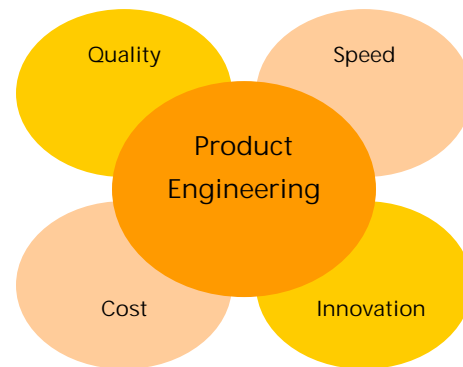
- **Quality** – Product performance, breadth and depth of the functionality is all what the customer is concerned about. Other differentiators are competition driven
- **Speed** – Competition is always closer than anticipated. Your time-to-market needs to place you miles ahead of your nearest competitor!
- **Cost** – While you need to retain your high quality product standards, you need them developed at the lowest cost possible
- **Innovation** – The sole differentiation in the market is your innovation

As depicted in the graphic, your product is based on its quality, speed, cost and innovation. The economics of product engineering is to rightly balance the product on the four corner stones. This is, however, easier said than done. The primary concern in product engineering is that there is a trade off in any effort to address any one issue that is categorized as 'priority #1'.

Product engineering leaders had to compromise on the depth and breadth of the product features, when time-to-market pressure is high. On the other side, adding more people to improve the product performance is often not considered, as it is an unwarranted cost burden.

When it is heavier on any one side of the table, it is bound to crumble. Today's product engineering pressures are no different. Often driven by the

competitive pressures and ad hoc product development plans,



senior management had to watch their products fail in meeting their expectations. The answer, however, can be found in the practice of product engineering.

Product Engineering: The 3S Model

Finding clues

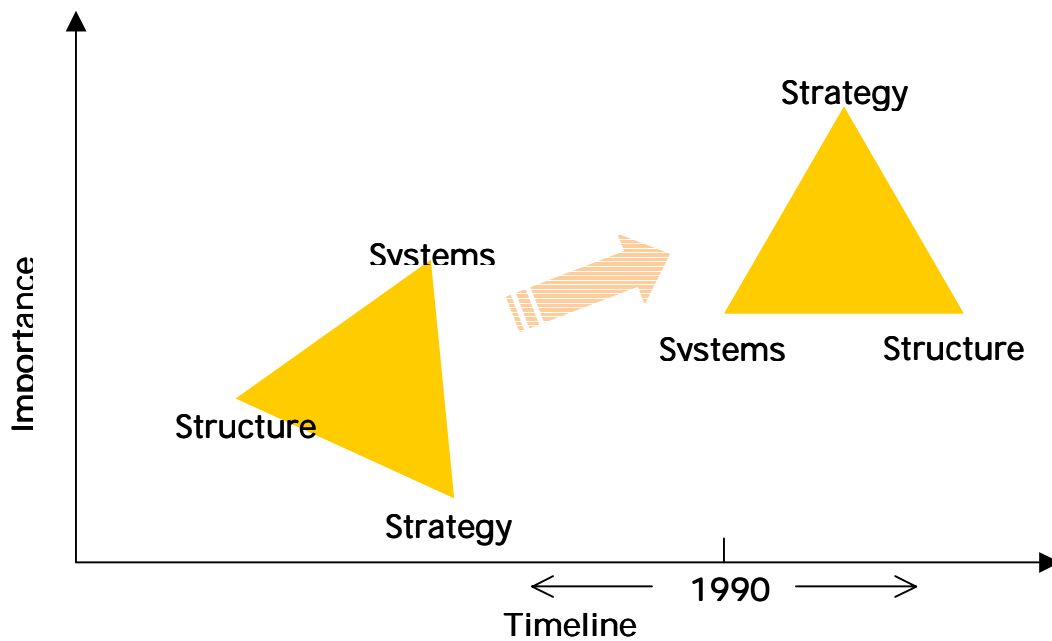
Back to basics! **Strategy**, **Structure** and **Systems** – These are the key elements of any business and each of the operational areas within. **Strategy**, as the name indicates, addresses the strategic issues in reaching the desired goals of the team. While **structure**

defines the hierarchy of the team, **systems** establish the processes for improved productivity.

In order to increase the efficiency, product companies introduced more structural and process oriented changes. In a way, the product engineering practice has been persuaded more like a

ideal total number of members in a team

Streamlining the process: Establishing the chain of command, utilizing the easy-to-communicate media and documentation of all the development activities



scientific discipline than a business one. Some of the well adopted productivity practices were:

Right-sizing the teams: Establishing the team leader to members' ratio, determining the

Improving the productivity: Establishing the output/input ratios, introducing the cross-functional teams and increasing the reusability of the code

A strategic decision, outsourcing the product engineering was

pursued, but with little overall benefit. Outsourcing the engineering within the country might have increase the control over the costs, but did not help them reduce significantly. It has also failed to accelerate the time-to-develop.

Through these changes, business has become more complicated. The success, however, seems to have come to those who are able to break away from their traditional thinking.

Outsourcing

What is 'Core' anyway!

The most important thing to ponder is why should there be a trade off at all, when one had to make a choice. For an evolving and competitive business, this is no new topic in the boardroom discussions. In fact, these

brainstorming sessions alone have made innumerous companies survive and rapidly grow.

A typical mindset of a product company is to own the ENTIRE product engineering cycle. Decades earlier, the manufacturing industry used to be much the same. Automobiles, for instance, used to own and manufacture everything in-house. The pressure of costs, time-to-market had lead to scenario where 'engines' alone are considered the 'core' and everything else is outsourced. This has not only helped them to reduce the unwarranted costs, but also to focus on their strength and compete much better!

Adapting to the modern business environment, various software product companies were able to leverage this advantage. Today, most solution providers prefer to position themselves as technology

innovators. This has helped them focus on their product innovation and outsource the non-value added product engineering and related activities.

Identifying 'Innovation' as the core activity might not be an issue; however, there would be doubts on the 'success of such model'! Perhaps for the same reason many solution providers are adopting a collaborative strategy to bring in a slow strategic business transformation. Instead of carrying the product enhancements entirely in-house, collaborative vendors are brought in to maintain the product.

Moreover, the key to this strategic business transformation lies elsewhere. Fortunately, the fast changing economic landscape has enabled business leaders to unleash huge competitive advantage.

Global Resources

Where the key to wealth lies!

While trade has been existent from the time immemorial, for once, the world time zones seem to have attained greater business importance. Similar to the import and export of agricultural produce and industrial products based on the scarcity and abundance, services too seem tap the uneven distribution of skills. Today, software products can be developed 24 hours non-stop at much lower costs.

In countries like India, the business hours close when the business hours start in the US. Innumerable companies already tapped this advantage to develop their products round-the-clock. 'Advantage India', however, is more than the world time zone placement. India produces the

largest number of science and technical graduates who work at more economical wage rates.

As per report of National Association of Software and Service Companies (NASSCOM), India has over 250 universities and engineering colleges providing computer education. India produces about 200,000 engineering graduates, 120,000 trained doctors and over a thousand biotechnology scientists annually. Indian graduates are highly skilled and differentiate with other Asian counterparts in their English speaking ability.

Abundant talent, high quality skills, lower wage rates and higher cultural compatibility puts India in a unique position in the offshore outsourcing. India is poised to attract more offshore IT services given the growing support from global corporations at a business

level and Government of India at a policy level.

Offshore Outsourcing

The way to go!

Putting the pieces together, a better approach is to start with a collaborative vendor in offshore outsourcing. This is highly recommended as it is a necessary learning for better management and eventual strategic business transformation. While there are many success stories, there is no dearth of pitfalls in offshore outsourcing. It takes a different management style to manage offshore product development, especially as it happens in various time zones across the world.

A very important lesson from offshore outsourcing failures is to define the goals and expectations very clearly and drive the process effectively.

Documentation of all the requirements, however trivial some of them that might sound, is very essential. There is absolutely no scope for 'across-the-cubicle' requirements in offshore work. Moreover, a well define requirements documentation enables rapid product development that rewards you with significant cost and time savings.

Access to global resources is the only way to balance on the 4 corner stones of your product engineering. Cheaper labor reduces the development costs, concurrent development across the time zones ensures faster time-to-market, quality is uncompromised and you could focus on the product innovation. By adopting offshore outsourcing, you will be able to drive the product strategy for increased customer satisfaction. This is

bound to bring huge competitive advantage for your products and the business.

Take-Away

Strategy positioning: Technology

Innovator

- Focus on product innovation
- Document all the requirements
- Develop the products across the world time zones

Rapid development ensures:

- Reduced cost
- Increased time-to-market
- Uncompromised quality
- Increased customer satisfaction