

# management focus

essential management knowledge for today's leaders

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Jeffrey K. Liker



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# Welcome to Management Focus

... and welcome to the July/August issue.

In today's business environment the products and services produced by a company are its "public face" in as much as it is these on which customers judge a company: great products and services equals great company. For example, Apple and its very innovative line of products including the i-Phone.

As a result, companies invest a tremendous amount of time and financial resources in developing new products and services. Consequently, there is interest in understanding the evolution of these offerings and how these products can be developed more efficiently and cost-effectively. There is a strong connection between how companies go about developing products and services in the marketplace and their ultimate success or failure. Two things have changed over the past several years. Read our featured article to find out what these are.

Dr Jeffrey K. Liker is Professor of Industrial and Operations Engineering at the University of Michigan and President of the Toyota Way Academy – a network of top-notch practitioners who consult, coach, and teach in the Toyota Way. He is author of the international bestseller, *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*, as well as six other books about Toyota. His two newest books are: *The Toyota Way to Continuous Improvement*, and *Toyota Under Fire: Lessons for Turning Crisis into Opportunity* – about how Toyota has adapted and is remaking itself through the recession and recall crisis.

Dr Liker is a frequent keynote speaker and consultant. Recent clients include Siemens, Kraft-Oscar Meyer, Alcatel-Lucent, Hertz, Caterpillar, Nebraska Furniture, and Harley Davidson. Read our interview to find out what he has to say.

Finally, our latest issue of *Management Matters* discusses the idea of open innovation – a subject which has found favour with several large corporations, including Apple and IBM, and has provoked much debate.

Remember, log on to our website at: <http://first.emeraldinsight.com> to expand on the topics highlighted in this issue of *Management Focus*.

Best wishes,

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# The importance of strategic research and development

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Two things have changed over the past several years:

1. both the speed and scale of

market and technological changes have increased; and

2. there is a greater understanding of how closely connected are the processes by which products and services are developed and the outcomes from these processes.

## Product and service development

From a market perspective, international competition has become increasingly intense. In many markets there are a number of competitors bunched together in terms of their product and service performance. As a result, even small advantages in product and service specifications can have a differentiating impact on competitiveness and ultimately product survival. This has made customers much more sophisticated in exercising their choice and often

more demanding in terms of wanting products and services that fit their specific needs.

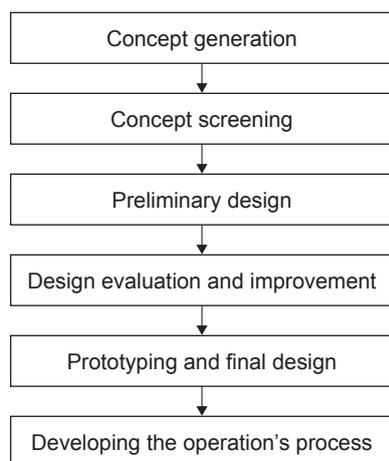
Furthermore, markets are becoming more fragmented. Unless companies choose to follow relatively narrow niche markets, they are faced with developing products and services capable of being adapted in different ways to different markets. To further exacerbate the technical challenges, product and service life cycles have become shorter. Therefore, introducing new products and services in an efficient and effective manner allows companies to take advantage over the competition. Competitors respond by doing the same and the situation escalates.

## Stages of development

Describing the way in which organizations develop products and

services is as varied as the products and services themselves. Furthermore, what companies specify as a formal product or service development methodology, and what happens in reality, are usually very different things.

Figure 1 outlines the development process, as it moves through a series of stages, some of which may be missed out and sometimes the process recycles back through stages. At the beginning of this process there are stages concerned with collecting ideas and generating product and service concepts, and towards the end of the process there are stages concerned with specifying the detail of product or service specifications.



**Figure 1**  
A typical “stage model” of the product and service development process

As the development process moves through these stages, the number of alternative design options reduces until one final design remains. The process often includes decision points which screen out options viewed as being unsatisfactory.

The possible design options are then reduced to a very small set of possible R&D outcomes and the engineers move from a state of uncertainty to a state of increasing certainty.

One consequence of this is that the ability to change the design set becomes increasingly difficult and limited. Making changes at the end of the development process can be considerably more expensive than making them at its beginning.

Therefore adding value early on in the R&D process is critical to success.

### Marketing’s role in strategic R&D optimization

Marketing plays a critical role in the development, success and optimization of the strategic R&D new product and process development.

All businesses face different sets of challenges; challenges in internal operations, in the industry, in the economy, in the marketplace, and growth stages. Starting a new business can be difficult, time-consuming, and risky. Marketing research and strategy development at this stage are as important as raising finance for the business.

A growing business, in addition to managing the growth process, must deploy and leverage new technologies, while developing strategies for increasing its share of the market. It must juggle the developing of brands, the management of cash flow, and the development of an effective distribution and supply chain. Established businesses must develop new income streams to sustain profitability in a rapidly changing competitive market, consistently define new markets and develop synergistic partnerships.

Historically, in the pharmaceutical industry, customer-led R&D has not been practised so rigorously. Pharmaceutical companies set R&D priorities based on the opportunity for scientific discovery combined with long-term revenue forecasts – notably, not profit forecasts – that promise attractive commercial gains. They seek the customers’ input – from physicians, payers and patients – usually only after a product reaches the late-stage pipeline; even then, the feedback influences only launch strategies and market positioning.

In the future, pharmaceutical companies will need to listen early in their R&D efforts to the voice of customers – especially payers. While a pharmaceutical company cannot design products tailored to customer specifications, it can guide its R&D closer to customer needs. That shift is imperative. As payers consolidate, they are becoming more powerful and cost-conscious, demanding hard

evidence that their reimbursement dollars are well spent. By identifying which health outcomes payers are more willing to reimburse, pharmaceutical companies can more closely align R&D priorities with market realities. This new approach will be challenging, and even a little frustrating, because payer priorities change over time. But pharmaceutical companies must listen, respond and evolve, based on what their customers are saying.

### How do you know if you are innovating effectively?

Innovation is not for the risk-averse. For example, in the context of the life sciences environment there are a lot of moving parts connected to effective and efficient R&D delivery. Emphasis on quality of care, adherence to regulation, increasingly challenging reimbursement policy and the risk of litigation heighten the stakes relative to introducing change in the medical environment. How can cutting edge technology successfully migrate into healthcare without also being a risky proposition? How is the landscape changing? Or, more importantly, how can you find out how it is changing?

The answer is preparation, iteration and prototyping as driving components of the development process. Focus on methods and strategies for proactively identifying and responding to obstacles to success relative to technology adoption, including:

- Extracting user needs beyond VOC.
- Utilizing effective co-development with high value-add supply chain partners.
- Effectively identifying and speaking to all of your stakeholders.
- Making sure that your requirements are the right requirements.
- Having the power of an effective and efficient process of development optimizing across the most critical variables. This could require substantial iteration in the development process.

**This is a shortened version of “Strategic research and development: it is more than just getting the next product to market”, by Yair Holtzman. The article originally appeared in *Journal of Management Development*, Volume 30 Number 1, 2011.**

*“Marketing plays a critical role in the development, success and optimization of the strategic R&D new product and process development.”*



# Toyota Under Fire: an interview with

**Jeffrey K. Liker**

Interview by Giles Metcalfe

**Giles Metcalfe: For those who aren't familiar with Toyota's culture, what is the "Toyota Way"?**

**Jeffrey K. Liker:** Toyota defines it very simply – respect for people and continuous improvement. Continuous improvement quite literally means everybody everywhere in the organization – manufacturing, engineering, sales, purchasing, distribution, customer service, quality, supplier partners, dealers – living the philosophy of getting a little better every day, and a lot better some days. If there is a period of intense focus on getting out the product or fighting fires to keep the business running and nobody has time to reflect, find the root cause, and improve, then continuous improvement is failing. Respect for people means viewing them as partners in the business who appreciate in value as they learn, rather than replaceable commodities who can be let go or added at any time. Without a commitment to employees and their development continuous improvement will be a dream, never a reality. There are a lot of details below these two, such as how you do continuous improvement. Toyota believes strongly that there is a skill base to really understand the problem and its root causes before firing off solutions and that any solutions are temporary "countermeasures" until a better idea comes along. So you must always reflect and keep adjusting the process to improve it and, the more problems you solve in the right way, the more skilled you get at problem solving. In the case of the recall crisis, Toyota was never going to be happy about just getting through all the negative publicity and damage to its reputation.

The only acceptable outcome was to come out stronger.

**GM: What role does sustainability play at Toyota?**

**Jeffrey K. Liker:** The global vision for the entire company for the decade, by 2020, is to create harmony between the cycles of manufacturing and the cycles of nature. That includes the vehicles themselves being environmentally friendly (recyclable, zero omissions, energy-efficient) and every plant, building, operation recycling and being environmentally friendly. It is at the very core of the mission of the company.

**GM: 2008 was Toyota's first *annus horribilis*. Did planning contribute to Toyota's horrible year, or did it help them bounce back from it? How did Toyota's relationship with its suppliers survive 2008?**

**Jeffrey K. Liker:** Let's get real here. In the worst recession since the Great Depression when the auto market plummeted by 30 to 40 percent, after gas prices had sky-rocketed, and when the yen was reaching record heights, was it in any way possible for Toyota to skim over the problems as if none of this existed? Moreover, how many people or companies in the world had a plan for the 2008 global financial collapse? Find me some and I will find you some very rich people. All you had to do was short all your stocks. So for the most part it was a catastrophic event that could not be anticipated accurately or planned for. On the other hand, the spirit of reflection and *kaizen* says to find what you could have done better. Mainly, Toyota concluded that they had built up too much inventory of vehicles, especially large SUVs and

trucks and there were signs before the summer of 2008 that gas prices would rise and demand would fall. They are very unhappy that they got in a situation of overproducing, which is a fundamental sin in the Toyota production system.

**GM: Toyota has dealt with its perceived problems and shortcomings better than any other motor manufacturer, yet it still suffers from an undeserved reputation for mechanical and electrical malfunctions in the USA that actually plague *all* marques (including Ford), not just Toyota. Is this American jingoism?**

**Jeffrey K. Liker:** The short answer is yes. Once you are tried in the court of public opinion in America, and probably most countries, you are guilty, whatever the technicalities of what has been learned. Few people have the time or attention to sort through all the details and discover the real problems and separate fact from fiction. That is a major reason we wrote *Toyota Under Fire*. Those who have read it are surprised at how overblown the claims were about Toyota's demise and about how effectively Toyota used the crisis as an opportunity to reflect and improve themselves. If you can take a mostly mythical set of problems and use that as leverage to shake up the whole company and make major improvements in quality and customer responsiveness, what could you do with real problems?

**To read the full interview with Dr Jeffrey Liker visit <http://first.emeraldinsight.com>**

# Management Matters

## Incisive commentary on topical business issues

### Open innovation

So, one day you are called into your CEO's office, and she gets straight to the point: we need to innovate more – how do we do it? Slightly unnerved, you start to trot out the usual mantras, but just as you are in full flow she stops you.

"No – we are going to bring in ideas from outside the business, and any ideas we are not pursuing we will share with our competitors." she says. As you are picking your jaw up off the floor, you realize that your CEO has read something, and pointing out what a wacky idea it is may not be the best strategy for securing that promotion you have wanted for so long.

Sometimes, however, your CEO may have been reading the right books, and in recent years there has been a lot of discussion around the idea of "open innovation." This is the idea that the best way to innovate in a business is to bring in fresh ideas from outside, while actually sharing ideas that have been created internally, but are not going to be

pursued. This has found favour with several large corporations, and has provoked much debate.

### Apple

Apple is a world-beater in personal music players, mobile phones, music retail, tablet computing, TV hardware – and computer manufacture. It also dominates the market for mobile phone applications, and has done this by being open and rewarding developers with generous profit sharing. In 2010 it hosted over 250,000 "apps" from outside developers and, while it is criticized for being "closed" in operating a strict policy in monitoring the content of these apps, it is generating almost \$1bn a year through the innovation and has made many developers millionaires on the back of it.

### IBM

IBM has changed direction outside its comfort zone to ensure growth through innovation, and the open culture it fostered, together with a shift away from concentrating purely on the market, has credited it with a change in fortunes. Furthermore, it

was able to do this by recognizing, and exploiting, its core competencies in its management practices and making the best use of these while changing direction.

### P&G

P&G are a more traditional, R&D-focused conglomerate, with pharmaceutical operations as well as a host of different products in a crowded domestic market. In dealing with such markets it has developed an effective branding strategy, with some of the best known brands in the world. How it has leveraged these brands has a lot to do with recognizing their strength, looking at other solutions that could use the brand name, and developing them, even if they are very different from the original product type.

### Five steps to open innovation

So how can your business benefit from open innovation? Follow this five-step plan:

1. Use the first lesson in corporate strategy – define your firm's core competences across *all* areas
2. Define areas of growth where those competences can be used
3. Define areas where there are gaps in competences
4. Don't attempt to fill the gaps yourselves – invite outside agencies to fill them for you
5. Change processes and the culture of the business to allow this to happen, and get buy-in from key stakeholders.

Adapted from "What do Apple, IBM and P&G know? How open innovation can help business – and yourself", *Strategic Direction*, Volume 27 Number 3, 2011.





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**Final thought ...**

“ Just as energy is the basis of life itself, and ideas the source of innovation, so is innovation the vital spark of all human change, improvement and progress. ”

Ted Levitt

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