

HOW STRATEGIC ROADMAPPING ADDS VALUE

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In the past several years, I have actually heard several mid- to senior-level executives challenge their teams to drive for disruptive innovations. These Fortune 100 company leaders clearly understand the importance of new product development to drive competitive advantage. From the pharmaceutical giant trying to reinvigorate one

“To achieve our growth expectations, this company is counting on your team to develop a platform product that creates transformative customer value. You’ve got to really ‘get out of the box’ on this one! And we need to launch something groundbreaking within two years.”

-- Senior executive speaking to the product development group

of its brands, to the aerospace company struggling to balance its long term investments with the needs of existing platforms, to the dominant electronics developer facing stiff global competition, to the insurance company wondering how to best leverage information and communication technologies to delight its customers, the struggle to create game changing offerings in shorter time periods has become a worldwide mantra.

In the two years following the 2008 global recession, investing wisely in growth areas has become even more challenging. When times are good, the penalty for making a poor choice or executing on the wrong decision is the lost investment; in bad times, the penalty for being wrong is far more serious, often resulting in heavy erosion of market share, layoffs and even bankruptcy.

What the team needs is a way to transform sweeping visionary statements into a series of actions that when taken together represent a strategic initiative. This is what roadmapping is all about.

THIS STATEMENT...

- **Lacks strategic vision**
- **Has so much jargon that meaning is lost**
- **Does not prompt clear requirements for action**
- **Leaves the new product development team struggling to evaluate possible alternatives**

When linked to other decision-making processes in the company, roadmapping can help the team transform this statement into successful action across functions and over time.

The best performing companies are responding differently to a changing world

While many companies continue to struggle to simply stay afloat, a recent Ernst & Young study¹ suggests that the *best companies* exhibit a pattern of action that includes

- developing a broad and deep view of the market opportunities and the differences between what we see today and what may be the case tomorrow,
- being more collaborative with partners,
- taking a holistic and long-term approach to strategy, and
- communicating more effectively with internal and external stakeholders.

Roadmapping is a method that helps companies achieve each of these important practices. Thus the question no longer is “Why should I roadmap?” Instead it has become “How can I use roadmapping to better understand my markets, my value chain, my internal capabilities, and my needs for the future?” In short, how can roadmapping help me to see over the horizon and to recognize and respond to trends before anyone else even knows they exist?

Getting out of the box

As part of nearly any discussion on innovation, the problem of getting out of the box occurs. What companies have failed to recognize, is that it’s not about getting out of the box, per se, but drawing the boundaries differently and acquiring a deeper understanding of what’s in the box in the first place. To truly delight the market, the entire value chain must come together to create compelling, unexpected products that immediately address an unmet need that the end consumer didn’t even recognize he or she had.

The best people to undertake innovation are the people who do it daily – your product development teams.

These teams possess the deep expertise needed to understand emerging technology trends and their potential. What these teams often lack, however, is the customer insight and end consumer insights to truly appreciate what might delight the market. This means that your product development teams must reach out to others in the organization to create a diverse information gathering effort.

For example, the four facts presented in Figure 1 would most likely be

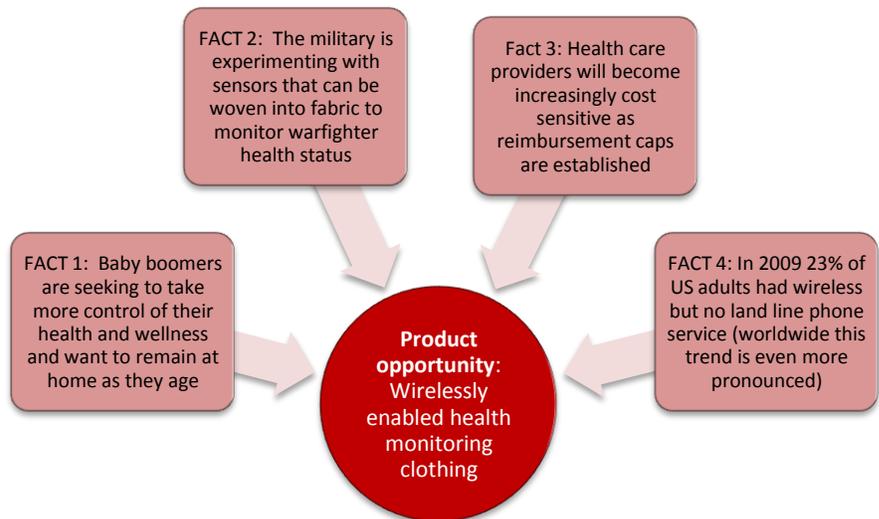


Figure 1: Linking facts to identify non-obvious product opportunities

¹ Ernst & Young, Lessons from Change series, <http://www.ey.com/us/en/Issues/Business-environment/Lessons-from-change--Findings-from-the-market>

known by individuals in very different parts of the organization. Each of these facts when considered independently is interesting, but not necessarily compelling. It is only when the team can consider the diversity of facts in relation to one another that non-obvious opportunities emerge. Depending on the company, some of these facts may actually be known by suppliers or distribution partners. To uncover a non-obvious product opportunity, either these diverse individuals happen to bump into each other around the water cooler, they all participate in some type of social media site or they share some other link outside of their work. This is serendipitous at best. So how can a company consciously create an environment where *knowing* a fact becomes understanding *why* that fact is important? Here is where roadmapping is a critical enabler.

From a “Eureka moment” to sustainable insight

In its simplest definition, roadmapping is an organizing framework that creates a way to capture diverse information and to see the links – both obvious and non-obvious – between different pieces of the new product development puzzle. This framework helps teams capture information that resides in multiple points in the organization (and beyond) and then to consider the trends that are emerging and that might present product opportunities. Thus roadmapping is a method that promotes (1) the collection and organization of facts; and (2) the discussion about these facts to uncover trends that may present future product opportunities. Companies who have successfully deployed roadmapping as a sustainable practice recognize that it is a tool that promotes data driven decision-making across multiple levels within the company.

Five Essential Questions: Why, What, When, Where and How?

In the new product development space, there are five essential questions that each company must ask as it determines its strategy and then reduces that strategy to action.

- **Why:** What are the drivers to competition in our market(s)? How are these trends broadly defined? What are the global differences? Are there customer behaviors or consumer behaviors that are creating unmet needs in the market space? Are there emerging information and communication technologies that may offer alternatives to our traditional approaches to reach the market? What forces are at work to induce action in my company?
- **What:** Given the forces at work, what types of products should our company be introducing into the marketplace(s)? What are the product platforms and their derivatives that will create sustainable competitive advantage in current and future markets? Can we leverage emerging information and communication technologies to create new paths or to increase customer/consumer touch points?
- **When:** Now that we understand our current and future market evolution and have crafted a high level plan for a series of product offerings that will delight these markets over time, when should we be initiating action across multiple functions within our company? How can we organize our work (at a high level) to ensure that we are not missing these market windows of opportunity? What are the critical path activities?

- **Where:** Given our core capabilities and resources, how can we leverage capabilities and resources in our value chain through partnerships, agreements or other arrangements that help us to create the products in a timely and efficient manner? Should we be making or buying the needed technology? Do we need to develop new supplier and/or distribution channel relationships to take advantage of emerging advances?
- **How:** Now that we've determine what we will offer to the market and how we will partner with suppliers and others in our distribution channels, how can we best organize our own workflow and tasks to optimize our financial and staffing resources?

In Figure 2 we see the ways that these questions are supported by the various types of roadmaps. At the **why** stage, an environmental assessment roadmap captures external trends and helps the company to organize this information in a framework that promotes discussion. Often companies use the Environmental Assessment Roadmap to support scenario development.

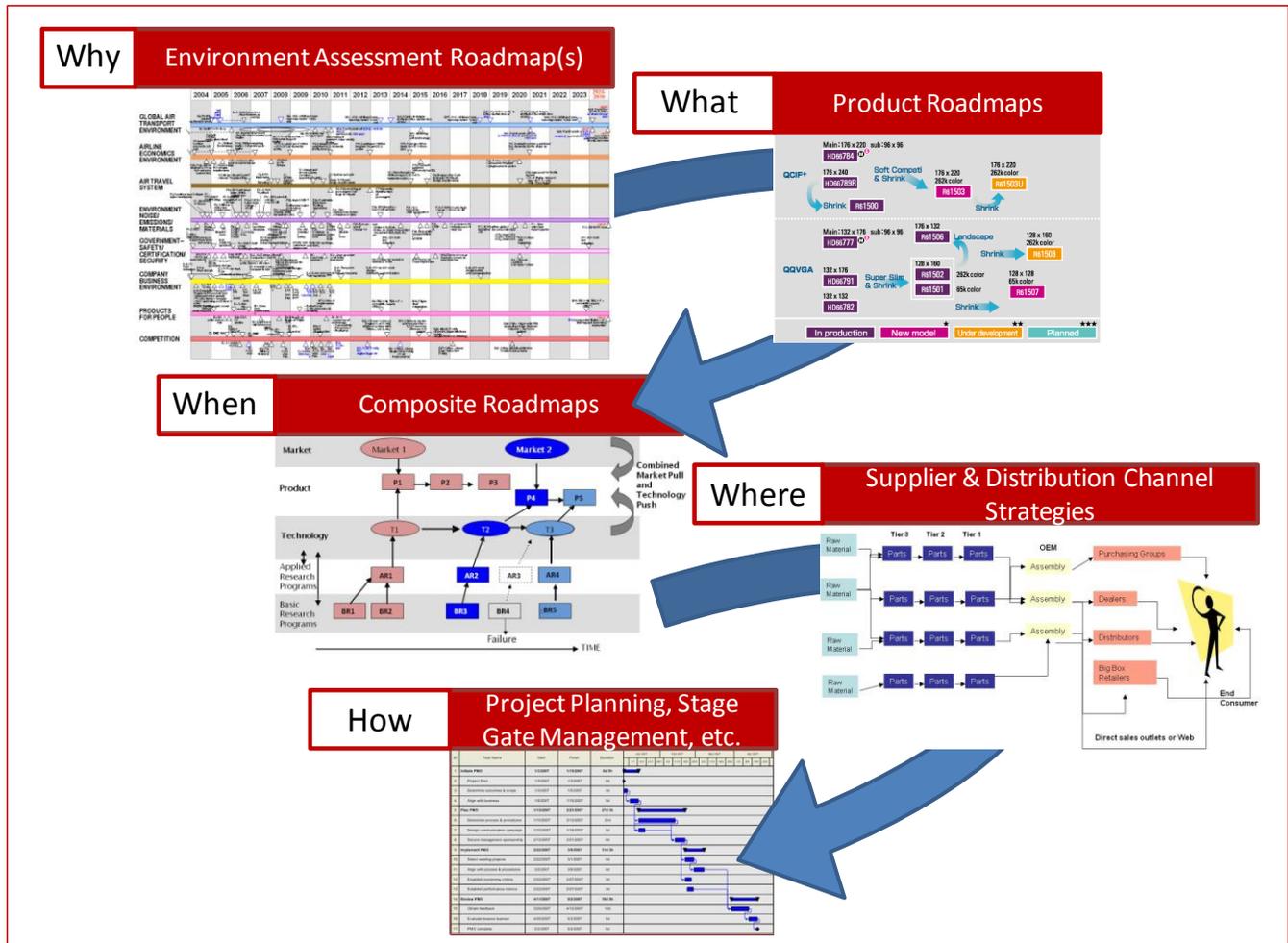


Figure 2: Five Key Questions and their Relationship to Roadmapping

As the team evaluates various scenarios, it begins to develop its Product Roadmap. This Product Roadmap presents the team’s view of **what** the various product streams might be to support current and/or future markets and what derivative products might be possible. At this point, most teams then begin to break down this Product Roadmap into one or more Composite Roadmaps. Composite Roadmaps help the company determine **when** it is possible to do various activities, given funding, staffing and other constraints. Here Composite Roadmaps help support strategic planning by calling attention to the high level activities that have to happen across functions. Composite Roadmaps often help the company executives see the implications of various product stretch goals. Often, when sufficient resources are not available to do all that the company wants to include on the Product Roadmap, product features and derivative product offerings can be moved to future dates. Alternatively, resources may have to be culled from another product offering, suggesting exit strategies for older products.

A clear view of the company’s resource commitments given its product priorities can also help direct the company’s assessment of **where** activities should take place to reach its new product goals. In the complex value chains that support most products, a single company rarely possesses the capabilities to undertake the full

product development, manufacture, assembly and distribution needed to reach multiple markets. Thus actions must be coordinated not only within the company, but with outside partners. Here is an undervalued attribute of roadmapping. Roadmapping has helped companies better communicate with their suppliers and distribution partners about the company's strategic new product development goals, changing relationships within the value chain from a contract-based procurement relationship to an innovation-based partnership. In the future, the ability to recognize the sources of innovation across the value chain will become a differentiating core capability. Relationships matter.

Finally, once the company has determined what aspects of the new product development initiatives it must do itself and which it can strategically source or share, then these plans can be articulated in the context of the company's functional operations in the form of Stage Gate management (for R&D and other investments), portfolio management (for risk assessment and mitigation planning) and finally into annual project plans and individual employee assignments and statements of work. Here is where roadmapping can inform **how** the company actually manages its day-to-day activities, balancing short term needs with longer range initiatives.

A cautionary tale – It's all about the market

When roadmapping was introduced as a tool over 25 years ago, the key source of uncertainty was technology evolution. And the primary challenge of managers in this era was how to coordinate activities across multiple functions within their organization which was hierarchically structured with strong command and control approaches to the organization's design. Because of this, early roadmapping efforts stressed a careful understanding of the technology landscape, with a very strong link between technology forecasting and activity planning. Thus early efforts emphasized the composite roadmap as a way to balance technology investment with ongoing new product development activities.

In today's globally integrated world where design, production, sourcing and distribution are spread across continents and companies, the major source of uncertainty is the external market. Now, the composite roadmap is useful to better understand the implications of market differences, but it has limited value to help companies recognize market differences or to develop deep insights about customer or consumer segments and sub-segments. As information technology forces companies to be more consumer centric in their strategies, the most important roadmap – and resulting discussions – center on the Environmental Assessment Roadmap.

Key Roadmapping Benefits

Returning to our senior executive who asks the new product development team *"...to develop a platform product that creates transformative customer valueand to really 'get out of the box'! ...all within two years,"* we can see that while roadmapping will not necessarily change the statement immediately, it will enable the team to better anticipate what it all means.

- Environmental Assessment Roadmaps organize the diverse information about consumers and customers that highlights behaviors rather than product features. Now companies can be in search of the problem(s) rather than jumping to the solution development.

- Environmental Assessment Roadmaps help the new product development team better understand their company's (and their team's) underlying assumptions about the world. By questioning these assumptions companies can find alternative views to the future – alternative scenarios – that can help them think differently.
- Scenario development promotes an improvisational atmosphere where brainstorming and problem finding lead to new ways of thinking about potential solutions – this, in turn, helps the team envision new relationships with suppliers, customers and consumers.
- Composite Roadmaps force a level of discipline on multiple functions through a single high level view of the initiative which promotes buy-in and communication within the organization.
- Composite Roadmaps identify overlapping activities that may support more than one strategic initiative, thus reducing wasted effort and redundant investments.
- As an overall tool roadmapping combines a graphical communication tool with the methods to capture the underlying discussion. Thus roadmapping supports the corporate memory over time.
- Because roadmaps are linked and layered, they articulate strategy at a high level and also graphically portray the implications of this strategy across units. This creates a sense of purpose at the individual employee level by linking day-to-day actions with strategic objectives.

Irene J. Petrick has over 25 years in new technology planning, management and product development. Petrick holds a Ph.D. in Engineering Science and Technology Management, is a Professor of Practice at Penn State University and has authored or co-authored more than 100 publications and presentations which have been presented across the United States, Canada, the United Kingdom and Asia. In addition to her academic work, Dr. Petrick advises companies on technology strategies, product and system development, collaborative supply chain management and strategic roadmapping. More than 65 companies have directly benefitted from her expertise, including Boeing, Procter & Gamble, Motorola, Bayer Materials Science, Intel, Honeywell, Pfizer and Kennametal, among others.