Roadmapping Your Way to Better Innovation
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Innovation matters in business. According to a recent PWC Global Innovation Survey,1 93% of executives indicate that organic growth through innovation will drive the greater proportion of their revenue growth. Leading innovators can expect significant rewards both financially and in terms of competitive positioning. Over the previous three years, the most innovative companies in this survey delivered growth at a rate of 16% above that of the least innovative, and they are more bullish about their growth prospects.

In five years' time, the leading innovators in this survey forecast that their rate of growth will further increase to almost double the global average, and to over three times that of the least innovative companies.

Nobody doubts the value of innovation as a driver of business growth. And everyone agrees there are only two ways to grow top-line revenue: Acquire or innovate. After decades of cost-cutting and consolidation, innovation is widely recognized as the key to growth and success going forward. However, recognizing the value of innovation as a growth driver is different from succeeding at innovation.

Succeeding at innovation and achieving the ROI expected by shareholders demand the use of more sophisticated process management techniques and tools. Roadmapping Your Way to Better Innovation is a paper about using roadmapping, the technique and the tool, to help you manage your innovation efforts more successfully. By using roadmapping you can clearly align your innovation strategy with your organization’s ability to execute, facilitate better collaboration and communication within your innovation team or network, and deliver real top-line revenue growth.

Part I of this paper discusses innovation as a strategic imperative, outlining the multi-dimensional nature of innovation, and highlighting some challenges to successful innovation management within complex enterprise organizations. Part II examines how a strategy-driven approach to innovation, including the use of a structured roadmapping process, can and does enable growth from new products.

Part I – An Innovation Perspective

Innovation: A Strategic Imperative

Leading business consultants and product development practitioners agree that innovation is a strategic imperative. In a global market, innovation is not just a driver for growth but also an active response to changing customer demands. Innovation is also critical to building the intellectual capital needed to survive and compete in the emerging knowledge economy.

Today’s consumer of business products and services is more informed and more demanding than ever, partly due to the global influence of the internet. A better-informed customer has led to fickle product loyalties and fragile brand allegiance. Combine this with the relentless pace of technology change and the result is shorter product lifecycles as businesses are forced to introduce more products, more often. This vicious cycle undoubtedly puts increased emphasis and pressure on the ability of corporations to innovate.

Nowhere is this more obvious than in the global phenomenon of the adoption of handheld mobile devices. For example, mobile phone adoption has not only spanned geographic
borders, but also crossed the generation gap. As the availability of technology such as miniature color screens, digital cameras and global positioning has become commoditized, mobile phone users worldwide have forced intense levels of innovation from handset manufacturers and carriers. So much so that many handset manufacturers could be regarded as being in the business of innovation rather than following a traditional product development and distribution business model. In this industry, previous generations of mobile phones are literally obsolete within a year or two because of the pace of innovation.

Also, as companies expand globally and emerging economies rapidly close the education gap with established economies, the development, ownership and leverage of differentiating intellectual property (IP) become critical in the developing knowledge economy. Patents and other IP can be acquired, but innovation is the only sure way to build a portfolio of unique knowledge assets either for internal leveraging or external licensing.

To cope with these kinds of demands, innovation as a strategic imperative requires that innovation functions as a core competency within your organization – the way that you do things from day-to-day, every day. But this kind of intentional innovation effort cannot depend on a poorly understood, ad-hoc process. Instead it demands a process that is valued, shared and transparent. A process that is sustainable over time and easy to repeat – like any other business process that operates as a value chain, transforming raw materials into value in the marketplace.

**Incremental vs. Radical Innovation**

Innovation means different things to different people, and different things at different times in the growth and maturity cycle of a business. Certainly innovation can only thrive in an organizational culture that values it and rewards it. This depends on C-level leadership and the engagement of all employees in the innovation agenda. It requires both a top-down and a bottom-up commitment to innovation. However, an important part of this commitment to innovation is also to communicate and practice an innovation business process, supported by appropriate innovation management technology. But, first you need to understand where to put your innovation emphasis: on incremental innovation, radical innovation, or both?

Incremental innovation is what most businesses are engaged in all the time: improving products, tweaking service processes, adjusting business models. This kind of small-step innovation is often in response to minor changes in customer demand, ongoing competitor leapfrogging activity or technology improvements. Incremental innovation has a sustaining impact in the marketplace. It helps to retain or regain customers, to achieve parity with or temporary leadership over competitors, and to reflect consumer expectations of benefit from technology improvements. Incremental innovation typically sustains an existing market position and a relationship with current customers and competitors.

Many new product introduction (NPI) processes are essentially supporting incremental innovation in the sense that conventional NPI typically leverages well-known existing markets, customers and value chains. So the team charged with executing an NPI effort is able to follow a well-understood and straightforward process from concept to market; a process in which many of the players and tasks are well-established and understood when the effort starts.

Contrast this to radical innovation, which is much less “business as usual” (see Figure 1). This type of step-change innovation depends on recognizing and leveraging the kind of significant change that can occur as a result of major technology leaps, dramatic events in the environment, the fruition of demographic and attitude changes among whole
customer segments, or the entry of innovative new start-up competition into a marketplace. Radical innovation has a disrupting impact in the marketplace. It can undermine existing markets and completely wrong-foot existing competitors. It can gain wholly new customers in new markets. And it can make significant internal demands on your own organization to deliver and realize the innovation. Radical innovation either creates new markets or substantially changes the dynamic of existing markets in favor of the disrupting innovator.

But while the rewards from radical innovation may be greater, the risks are greater too. Radical innovation typically takes longer to complete from initiation to realization of value in the marketplace – five to ten years until breakeven is reached in some cases. Radical innovation may be initiated on the basis of misleading input that has to be amended as the effort climbs and responds to its innovation learning curve. And radical innovation often proceeds when a market is either not fully understood or not even known – or when the supply chain required to develop or deliver the innovation is not fully in place. Realizing value in the marketplace from radical innovation places even more emphasis on a robust and rigorous innovation management process.

What is clear is that while incremental innovation may be managed adequately on the back of existing NPI processes – assuming the occasional spark of creative input – radical innovation with a disruptive agenda cannot. A more robust process, in combination with specific innovation management technology designed to support the innovation process, is needed to generate, develop and realize disruptive innovation.

Innovation Challenges
But substantial effort is needed to sustain and repeat innovation – and disruptive innovation in particular. At a macro level this is because of:

- Process ambiguity.
- A fragmented technology market.
- The need for learning cycles to sense-make.
- The demands of coping with change management implications.
Process ambiguity is inevitable when there is some dispute about just what constitutes “the” innovation process. This debate includes extreme positions from “innovation depends on creativity that cannot be processed or managed” to “innovation is just another linear Stage-Gate® process.” The reality is somewhere in the middle, but there are some clear phases to an innovation process.

In reality, innovation is not just triggered by change and new knowledge; it also functions as a trigger for both. So, successful innovation often depends on “sense-making” cycles of reflection and feedback that either inform the next process activity or cause a revaluation of prior process activity.

In practice, these kinds of macro innovation challenges are difficult enough to cope with. But when it comes to actually implementing an innovation process “on the ground,” businesses are faced with a veritable force-field of micro challenges (see Figure 2) that threaten to derail their ability to deliver repeatable innovation outcomes. Innovation is difficult, as you are doing it, because of challenges with:

- Visualization of vision, participants, goals and progress.
- Communication to a wide range of internal and external stakeholders.
- Collaboration and enabling often dispersed innovation teams to work together.
- Change management that results from learning as you go.

Visualization means the ability to visualize the innovation process: who is involved, what is their role, where are the dependencies between them, and how is the effort proceeding towards the goal? Communication means making sure that everyone is “on the same page,” working towards the same unified plan of record. Collaboration means making it easier for the assembled teams of people to execute a specific innovation effort, and to work together as easily as possible. And the need to learn-as-you-go has important change management implications. Because changing people’s mental models of why or how they are doing something, as they are doing it, is not easy, which is what most radical innovation efforts require.

Another trend that has made innovation even more challenging is the increasing tendency for businesses to adopt an “open” attitude to innovation. Open Innovation means involving, and often relying on, external partners as participants in your innovation efforts. This is in contrast to “closed” innovation that favors all participants in an innovation effort working within the “walls” of your own organization.
Open Innovation depends on creating an innovation network that comes together for the specific purpose of innovating. Open Innovation depends on creating an innovation network that comes together for the specific purpose of innovating (see Figure 3). In this sense, it is similar to the way a movie is produced. The network participants contribute in different ways, at different times and to varying levels, as the innovation effort progresses depending on their role. This kind of organizational “adhocracy” – a loose coupling of innovation stakeholders that may eventually disperse once the innovation is realized – places even more emphasis on overcoming the micro-level challenges of innovation – visualization, communication, collaboration and change management. These are the real challenges that organizations will encounter on the ground level.

These kinds of challenges to successful innovation limit the ability of every business, in every market sector, to innovate successfully. The next section of the paper discusses how roadmapping can help you manage and overcome these challenges.

Part II: Roadmapping and Innovation

Before discussing roadmapping in more detail, it’s important to understand that roadmapping is best suited to support a specific approach to innovation – namely top-down or strategy-driven innovation (see Figure 4). This differs from the other main innovation approach, which is bottom-up or idea-driven innovation.

Strategy vs. Idea-Driven Innovation

Strategy-driven innovation starts with a strategic intention to innovate – an effort that is likely to take considerable time to execute and bring to fruition. Examples might be delivering a new type of airplane, creating a new drug or establishing a leadership position in a new market. Strategy-driven innovation is characterized as top-down because it requires C-level involvement to kick it off.
Idea-driven innovation is based on the transformation of a raw idea into value in the marketplace. Ideas are often triggered by campaigns that originate from, or are sponsored by, individuals or teams at any level of the business. Idea-driven innovation is characterized as bottom-up because anyone, from anywhere in the organization, can have a useful idea.

Strategy-driven innovation is focused on envisioning, planning, executing and realizing the strategic intent to innovate, whereas idea-driven innovation is focused on generating, converting, developing and realizing the innovative value of ideas. To succeed, strategy-driven innovation depends on a process with at least four phases:

• Envisioning the strategy.
• Planning the execution of the strategy.
• Executing the development of the deliverables demanded by the strategy.
• Realizing the value of the strategy in the marketplace.

Again, this is not a linear process but a process cycle with built-in feedback loops as illustrated in Figure 5.

Both of these innovation approaches can require the engagement of a wide range of internal and external stakeholders. However, strategy-driven innovation typically operates over a much longer timeframe than idea-driven innovation. But neither operates to the exclusion of the other because innovation depends on both approaches supporting each other. And in technology terms, idea-driven innovation depends on idea management as a technique and tool, whereas strategy-driven innovation depends on roadmapping as a technique and tool.

What is a Roadmap?

A roadmap can be described in a variety of ways:

• As a shared vision of strategy execution over time.
• As a means for ensuring organizational alignment.
• As a holistic perspective of strategic drivers and enablers.

As a shared vision, a roadmap visualizes the strategy and plan for executing and realizing the strategy. As a means for alignment, a roadmap aligns an innovation effort with corporate strategy and aligns people, process and technology with the execution process. From a holistic perspective, a roadmap reflects the “big-picture view” of an innovation effort, putting all the players on the same page and enabling them to operate from the same unified plan of record.
Perhaps the most powerful way of creating an organizational roadmap is through a collaborative roadmapping software solution that is designed to help visualize, plan, manage and communicate future direction. There are usually at least six organizational domains collaborating as part of a roadmap. The seventh, Partners, is an additional participant in an open innovation effort that depends on an innovation network embracing both internal and external stakeholders.

<table>
<thead>
<tr>
<th>Function</th>
<th>Domain</th>
<th>Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers</td>
<td>Marketing</td>
<td>Market/Brand Position</td>
</tr>
<tr>
<td></td>
<td>Product Management</td>
<td>Competitor/Customer Position</td>
</tr>
<tr>
<td>Enablers</td>
<td>R&amp;D</td>
<td>Technology Delivery/Development</td>
</tr>
<tr>
<td></td>
<td>Production/Operations</td>
<td>Manufacturing/Delivery Process</td>
</tr>
<tr>
<td></td>
<td>Partners</td>
<td>External Resources/Competencies</td>
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<tr>
<td></td>
<td>HR</td>
<td>Internal Resources/Competencies</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>Innovation Funding</td>
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</tbody>
</table>

These domains represent either drivers or enablers of the strategic innovation effort. From a knowledge management perspective, the driving domains and their respective perspectives and contributions represent the “know-why,” and the enabling domains represent the “know-what” and “know-how,” on which the innovation effort is based.

**What Does a Roadmap Look Like?**

As Figure 6 indicates, a roadmap puts the participating organizational domains or categories down the left of the map, their activities, deadlines and dependencies as elements in the main part of the map and a multi-year timeline along the top or bottom of the map.

Using roadmapping software ensures that the roadmap you produce is not a static snapshot like Figure 6 below, but rather a dynamic and interactive view of the unfolding of an innovation effort:

**Figure 6: A Typical Roadmap**

- **Categories**: Element types within a roadmap are usually grouped with common elements using categories.
- **Elements**: Anything within a business can be visually represented on a roadmap using a variety of shapes, colors and images.

**Time Line**

The horizontal axis of a roadmap is typically a measure of time relevant to the viewed project.
A roadmap provides strategic oversight of an innovation effort – it is not used to plan and manage the tactical detail of a strategy-driven innovation effort. But a roadmap can act as a conduit or path to all of these more detailed documents, or to link to more detailed roadmaps, as in Figure 7 below. This kind of drilldown to detail capability creates a rich content repository and context for any innovation effort that is accessible from a single roadmap overview.

### A Roadmap is Not
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<table>
<thead>
<tr>
<th>A Roadmap is Not...</th>
<th>Like...</th>
</tr>
</thead>
<tbody>
<tr>
<td>A static view of a plan</td>
<td>Presentation slide</td>
</tr>
<tr>
<td>A budget or forecast</td>
<td>A spreadsheet</td>
</tr>
<tr>
<td>A program or project plan</td>
<td>Project management Gantt charts</td>
</tr>
<tr>
<td>A strategic plan description</td>
<td>A business document</td>
</tr>
<tr>
<td>A process flowchart</td>
<td>A schematic or diagram</td>
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</table>

A roadmap is also not a Stage-Gate process. Dr. Robert Cooper’s Stage-Gate process is a widely used and effective way to support the development of new products. But this reflects the fact that a commitment has been made to a specific development. In this sense it supports the tactical execution and decision-making process related to one or more elements in a roadmap and involving one or more functional domains included within the roadmap. So although a roadmap is not a Stage-Gate process, a roadmap may embrace one or more processes.
How Does Roadmapping Support Innovation?

There are many ways that roadmaps support innovation:

• Roadmaps translate strategic intent into innovation initiatives.
• Roadmaps visualize innovation drivers and enablers.
• Roadmaps ensure all innovation assets are utilized.
• Roadmaps capture knowledge as the effort progresses.
• Roadmaps reduce change strain and uncertainty.

A complete corporate strategy encompasses more than just innovation, but a roadmap is an ideal way to translate specific parts of the strategy into discrete innovation initiatives. The roadmap forces the organization to visualize the innovation drivers and enablers, and helps to ensure that existing assets are leveraged in support of the innovation effort. Roadmaps also act as knowledge containers and as a means to reduce the uncertainty that is an unavoidable part of any innovation effort.

Roadmapping supports the strategy-driven innovation approach by providing specific capabilities at each phase of the process, for example:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Envisioning Strategy</td>
<td>Understanding of scenario and gap analysis</td>
</tr>
<tr>
<td>Planning Strategy Execution</td>
<td>Understanding of complexity of relationship</td>
</tr>
<tr>
<td>Executing/Realizing Strategy</td>
<td>Monitoring and managing execution and changes</td>
</tr>
</tbody>
</table>

In this way, roadmapping does not just support the development of technology or the rollout of products, but rather every phase of a strategy-driven innovation process.

Consider how Apple’s iPod phenomenon could have been helped by roadmapping. We can start by assuming that this was not an innovation effort triggered by an idea – such as “let’s put a digital music player into a cool white handheld box” – but rather a strategic intent such as “how do we capture a slice of the handheld content delivery market?” This requires envisioning what the drivers for handheld content delivery actually are, and what enablers are needed to respond to these drivers.

As a result, in the “first-pass” roadmap some gaps may have been identified such as the need for a miniature hard drive to store content, the need for a licensing deal with content providers, and the need for software to manage the content both on a handheld device and a PC. With these gaps identified early on, and the enablers added to a “second-pass” roadmap, a clearer understanding of the complexity of the innovation effort begins to emerge and allows the iterative formation of an execution plan that gradually comes to embrace all the stakeholders in Apple’s iPod innovation network. Once this plan is in place, the roadmap can be tweaked and changed as you go. Roadmap revisions would reflect the operational reality of the challenges that Apple faces and needs to respond to as it continues to rollout replacement iPod generations over highly-concentrated product development cycles of 6 to 12 months.

The iPod is also a great example of the kind of successful radical innovation initiative that disrupted not one, but three markets – digital music players, music download services/
substitutions, and consumer PCs as digital music repositories. This example illustrates the kind of support that roadmapping technology can provide where roadmaps are implemented to enable a proactive, purposeful and coordinated approach to innovation decision-making.

How Does Roadmapping Help Deliver Better Innovation?
Roadmapping can help to envision, plan, execute and realize all kinds of innovation efforts – including those tasked with delivering new product or services or business model change. But roadmapping can also act as a means to rationalize existing innovation efforts to ensure that R&D programs are properly aligned both with customer needs and products in the pipeline.

Here the roadmap becomes the means to identify and eliminate projects that are out of alignment with customer needs, or with commercially available products or with the availability of internal innovation assets. By helping to rationalize R&D in this way, a roadmap not only saves money and reduces pressure on limited resources, it also helps to prevent products and services from failing in the marketplace. Failure in the marketplace is much more costly and does far more reputational damage than failure in the lab.

Roadmapping helps to integrate the efforts of departments that want to innovate collaboratively but need cohesion. The shared vision created by a roadmap acts as this adhesive, helping to bridge the functional silos that exist within every organization. The roadmap also helps to deliver a shared insight into how changes in technologies, capabilities and competencies can impact the company’s capacity to innovate over a medium- to long-term timeline.

In this way, a roadmap helps all stakeholders in an innovation effort understand how changes in one area of the business can impact the ability of another part to innovate successfully by taking advantage of new market opportunities. The result can be that the business is better able to gain first-mover advantage in new markets or better exploit disruptive influences as they occur in existing markets.

Global companies that are engaged in multiple innovation efforts at any one time can use roadmapping as a means to gain visibility into the global innovation picture within their organization. This visibility helps to prevent duplicate or overlapping innovation efforts, again saving money or reducing the strain on limited resources. By using roadmaps in this way, a single point of reference is created that helps to keep track of all innovation efforts enterprise-wide.

Conclusion
Roadmapping, the technique and the tool, is a key enabler for better innovation, especially for managing disruptive innovation efforts. It is not specific to any industry sector and can be used equally effectively to manage and monitor product, service and business model innovation.

Roadmapping is ideally suited for supporting top-down, strategy-driven innovation rather than bottom-up idea-driven innovation. And it is an important technology for managing innovation as a business process.

Creating a roadmap is a means to aligning strategy with the people, processes and technologies needed to execute the strategy. The roadmap provides shared transparency of vision and a means both to effectively communicate long-term innovation goals and to support the cross-functional collaboration needed to achieve them.
Without a roadmap, innovation effort may be wasted and innovation results disappointing. With a roadmap, innovation effort is more likely to achieve the strategic goals of the organization to drive top-line revenue growth.

For more on this topic, visit www.sopheon.com/roadmapping-software/ to learn how Sopheon's Accolade Roadmapping™ (previously known as Accolade Vision Strategist™) software solution can help improve the returns on your investments in innovation.
Reference Notes

1 Breakthrough Innovation and Growth, Global Survey, PwC 2013

About Sopheon

Sopheon partners with customers to provide complete Enterprise Innovation Performance solutions including software, expertise, and best practices to achieve exceptional long-term revenue growth and profitability.

Sopheon’s Accolade solution provides unique, fully-integrated coverage for the entire innovation management and new product development lifecycle. For the first time, businesses can access a single source of the truth across Strategic Innovation Planning, Roadmapping, Idea and Concept Development, Process and Project Management, Portfolio Management, and Resource Planning.

Sopheon’s solutions have been implemented by over 200 customers with over 60,000 users in over 50 countries, including industry leaders such as BASF, Bayer MaterialScience, ConAgra Foods, Corning, Electrolux, Honeywell, Northrop Grumman, P&G, PepsiCo, and Samsung.

For more information on Sopheon and its software and service offerings, please visit www.sopheon.com