



Industry Developments and Models

Driving Innovation from the CIO's Office: Conducting an Effective Search for Innovation Opportunities

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IDC OPINION

CIOs will witness an increase in demand for innovation driven by increasing competitiveness in the marketplace and slower global growth. CIOs and other IT leaders need a systematic process to search, identify, and select innovations to be included in the innovation portfolio. Firms that will rely on systematic processes for seeking out and incorporating innovations in their innovation portfolio will find themselves at an advantage over firms that rely on ad hoc processes for searching and including innovations in their innovation portfolio. This IDC study finds the following:

- A collation-based process is superior to an ad hoc process in selecting innovation initiatives.
- An analytical method of searching for innovations supersedes a collation-based process.
- Current trends in an industry are often harbingers of future innovation needs and thus must be incorporated into an analytical process for searching for innovation opportunities.
- An innovation portfolio must contain developmental, step change, and game-changing innovations.

IN THIS STUDY

This IDC study offers a methodology for searching for innovations that IT executives can rely upon to build a robust innovation portfolio. It includes three methods of searching for innovation opportunities. It also incorporates a model that enables executives to leverage their industry knowledge and analysis to search for high-impact innovation opportunities. Last, the study provides a guide to setting up an ongoing process for searching for innovation opportunities.

This study is written for CIOs and senior IT managers who own an innovation portfolio and aspire to drive innovation with significant impact on IT but, more importantly, on the business itself.

SITUATION OVERVIEW

Innovation is one of the top priorities for CIOs because innovation provides an effective antidote to competition and economic shocks. Firms that innovate effectively reap big rewards, whereas others may struggle to stay afloat. Even in the midst of the Great Recession, Apple's revenue and profits continued a strong upward march, while other firms witnessed a decline in profits and revenue. Similarly, Google's innovation in mobile devices allowed it to seize a large share of the mobile device operating system market, even as the market became increasingly more competitive.

Although innovation is sometimes a result of serendipity, relying solely on serendipity is a surefire method for failure in the long run. As a result, most firms rely on an innovation portfolio to roll out innovations in a planned manner (see *IT Strategy and Governance: Driving Innovation from the CIO's Office – Crafting a High-Impact Innovation Strategy*, IDC #243329, September 2013). If your portfolio has holes, you need to fix them by designing appropriate innovations.

The importance of an innovation portfolio raises the question: "Where do your innovations come from?" Is your portfolio filled with innovations that were loudest and first to the turf? Or are they mostly innovations backed by the strongest advocates? Or do you use a well-defined process to search out and select the right innovations?

An innovation portfolio filled with randomly generated ideas may be less effective than a portfolio created through a systematic method of searching for innovation opportunities. Lack of a system and process for searching for innovation opportunities may mean that you could be ignoring major opportunities for innovation or missing emerging threats that need a powerful, innovative response. In either case, this could leave your business vulnerable and your innovation portfolio wanting.

Approaches to the Search

Collation

You can improve upon the ad hoc approach to searching for innovations by using a systematic collation approach within your organization. If you simply ask numerous people in different parts of your business, they will give you hundreds of ideas. This is why many firms have a suggestion box to

collect innovative ideas. Employees in different parts of the business feel the opportunities and pain points around them. Tapping into this gold mine of knowledge can yield huge returns.

Although the collation process is a powerful tool to search for opportunities for innovation, it misses opportunities. For example, employee opinions may often focus on small and tactical opportunities rather than larger strategic opportunities for big ideas. Since people often search for ideas over a short time horizon and in familiar domains, they miss big opportunities that may arise over longer time periods and in areas unrelated to their field.

Competitive Scanning

You can also scan for innovation opportunities through a systematic competitive scanning process. This requires a systematic scan for competitive activity. You can also go beyond the competition to scanning for the latest ideas in related industries and upstream and downstream activities in your industry. Such efforts can also produce great yields.

Similarly, scanning for competitive activities provides only the cutting edge of innovation today rather than what may be the compelling need of business tomorrow. For example, in the future, car rental companies will need to manage dual-business models if they start to imitate Zipcar while keeping their prior model in place. This became apparent only after the emergence of Zipcar. A collation approach to an innovation search misses such powerful opportunities for innovation before innovations arise on the horizon.

Your innovation portfolio is the road map of your innovation journey over the next few years. It is supposed to strengthen your business and enable you to drive the right innovations. It is also supposed to prepare you for emerging information systems needs from your business partners. To achieve these goals, you need a powerful process that allows you to look for opportunities for innovations in the future.

To go beyond observation and collation, an analytical process allows you to identify potential opportunities for future innovations based on changes taking place today in your business and industry. Obviously, such a process will have to effectively merge sophisticated analysis with real-time information.

The Value Pillar Process

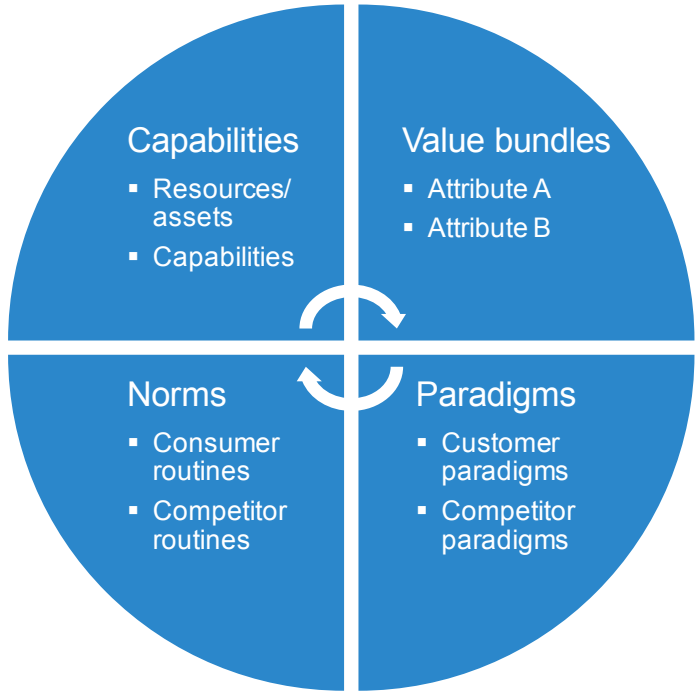
The value pillar framework for seeking innovations is a powerful approach for anticipating them (see Chopra, Ankush, *The Dark Side of Innovation*, Brigantine Media, 2013). It enables you to understand the implications of numerous changes taking place in your business environment today. It is an organizing mechanism to focus your attention on a large number of changes taking place in your business and environment and understand how they could change the future of your business.

The four value pillars are like four tectonic plates of the business. Their stability is the source of your business' profits. Potential changes in these value pillars can enhance or destroy profits in your industry. When you proactively design innovations that enhance profitability and design solutions that profit from changes, your innovations will have major impact on the business' future.

Figure 1 shows the four value pillars of your business. These are value bundles, paradigms, norms, and capabilities. Customers and competitors have paradigms of the world according to which they follow routine actions. Routine actions, such as shaving, lead to demand for products and services. Companies in an industry use their specialized capabilities to fulfill this demand. To fulfill the demand in an industry, firms create and deliver value bundles that include products and services. When these four pillars remain stable, business profitability is maintained by the innovations that reinforce these pillars. When these pillars shift significantly, profitability of the business can be drastically impacted.

FIGURE 1

The Four Industry Value Pillars



Source: IDC, 2014

An example will better illustrate the value pillar framework. Consider blades and razors. Many males consider facial hair to be undesirable. This is a paradigm for male shavers. Suppliers have a paradigm that male shavers want to get a close shave with minimal discomfort. Within this paradigm, there are norms (routines) such as daily shaving and pre- and after-shave routines that lead to the need for shave care products. Companies such as Procter & Gamble (P&G), with its Gillette brand, capture a part of this value in the industry because of their superior research capabilities and assets such as established brands. Continuous innovation in shaving technology allows P&G to create and maintain this value. Products such as a pre-shave lotion, a shaving cream, a razor and blade, after-shave lotions, and moisturizing cream are all a part of the value bundle that allows the industry to create, capture, and maintain value.

An event that destabilizes these value components in the industry can change the value in the industry itself. For example, a laser-based hair removal device that allows a long-lasting shave might not only change the value bundle but also transform the capabilities needed in the industry, significantly destroying the perceived value of existing industry products. However, the same innovation can provide an outsider the ability to create a massive position in this industry. Similarly, a change in the paradigm and norms around shaving could diminish demand for the industry's products.

CIOs can use this framework to identify incremental, step-up, and game-changing innovations in their businesses (see *IT Strategy and Governance: Driving Innovation from the CIO's Office – Crafting a High-Impact Innovation Strategy*, IDC #243329, September 2013). While this can allow them to be a driver of business innovation, the same framework can also help them deliver IT innovations. For example, in the previous example, if short stubble (versus a clean shave) becomes a popular style, it can lead to an increase in the life cycle of a blade. Providing systems solutions to the business that allow managers to compare blade life in microsegments can help business design better advertisements and evaluate the effectiveness of advertisements. The same shift in norms can also provide an opportunity to create a different kind of shaving system that gives a desired stubble length instead of a clean shave. By understanding the implications of changes taking place in each of the four value pillars, CIOs can identify emerging needs for high-impact innovations.

Innovations in this model can be pillar-reinforcing or pillar-shifting innovations. Pillar-reinforcing innovations reinforce the existing pillars and thus preserve the value in the industry, whereas pillar-shifting innovations change the existing pillars in a way that destroys existing value in the industry. Reinforcing innovations are supportive of the dominant incumbents; pillar-shifting innovations are more supportive of peripheral forms and outsiders. For example, in the case of Gillette, its future innovations should ideally be pillar-reinforcing innovations such as those that provide smoother shaves and less discomfort. These will reinforce paradigms and norms and thus increase the value of existing capabilities and value bundles. However, for a company such as Philips that exists only in the dry shaver segment, developing a pillar-shifting innovation like a laser-based hair removal device can allow it to expand its position in the shaving industry. IT can be an enabler of both kinds of innovations. While pillar-reinforcing innovations may need simple tweaking of information systems, pillar-shifting innovations may need a larger systems change. When using this framework, it would be helpful to not lose sight of the fact that some innovations will be helpful, whereas others may be harmful for your business.

Innovation efforts have two critical objectives – to defend existing business from competition and to extend existing business in spite of competition. This framework enables both. By focusing on the value pillars, it demonstrates where the future gold mines and landmines may lie. In the previous example of the shave care industry, anticipating a laser-based threat and creating appropriate responses will enable one to defend existing business, whereas anticipating needs for partial shave products allows one to extend an existing business.

Whether such innovation ideas arise from the CIO's or another CXO's organization, IT will remain an integral part of these innovations by anticipating future information needs. To conduct the value pillar analysis, you need to assess the changes taking place in each of the four pillars in your industry.

Customer Paradigms

Customer paradigms are the worldview customers use to look at the world. They often emerge from customer needs and values. For example, in-home entertainment is a leisure need that has remained important over time. However, the way that this need is filled has changed. When television viewers began to shift their viewing from television to the Internet, the value of the television broadcasting industry declined. It provided opportunities to companies such as Hulu but worked against dominant cable companies like Comcast and Verizon that have high-value contracts with content providers.

Even when customers do not change the way they fulfill a need, they can still change what they value. Change can happen in two ways:

- In the relative importance of various product features (e.g., gas mileage versus size of car)
- In the performance level of a feature (e.g., sophistication of in-car electronics)

For example, in the mutual funds industry, prior to the advent of index funds, investors valued funds that sought higher-than-benchmark returns (i.e., beating the index) while willingly incurring a higher cost for such active funds. However, with the advent of index funds, customers began to desire low-cost funds while willingly accepting benchmark performance (meeting index returns rather than beating index returns). Similarly, when customers traded off the instant availability of movie rental at places like Blockbuster with lower-priced online rentals that arrived at their doorsteps in two days but gave them many more titles to choose from (Netflix), this shifted a profit pillar in the industry.

Consider the case of office productivity software such as Microsoft Office. Over time, Microsoft Office became the dominant office productivity software. It became feature rich and allowed users to do more and achieve more with its software. However, when some users began shunning this feature-rich, top-of-the-line software for open source and free software such as Google Docs, these customers made a price performance trade-off wherein they happily accepted an inferior product with no frills at a significantly lower cost, or even no cost.

To understand the dominant paradigms in your industry, you should identify customers' major needs and their modes of fulfillment in your business. By examining changing social and other trends you can understand whether your customer paradigms are shifting or remaining constant. Based on your business needs, you can decide whether you should introduce pillar-reinforcing or pillar-shifting innovation.

Supplier Paradigm Shift

The paradigms of firms that serve customers are as important as paradigms of the customers. These paradigms refer to the mental models about the industry and customers and how profits are made and the ways to compete with others. Sometimes firms bring about a paradigm shift, and it often needs a response.

Consider the case of Google and Microsoft. Microsoft has been a leader in office productivity and operating systems for personal computers. Google, on the other hand, developed a new method of searching the Web and became a dominant search engine. Google's primary source of revenue is the online advertising products it sells to its customers. Microsoft increased its revenue and profits by

producing innovations in its operating system and applications; Google improved its search results. Google's business model led it to offer new products that allow it to index greater number of digital interactions of consumers. As a result, it added many more free services such as mail, office productivity suites, and video sites. Google brought about a shift in the existing paradigm in the office productivity suite market. Although Google provides free office products such as Google Docs, it makes money selling advertising. This forced Apple to make its productivity suite (iWorks) free and has recently forced Microsoft to provide a free office suite to its home segment. While Google benefited from its move to the office, Microsoft lost some of its profits.

Paradigms have been similarly changed in many other industries. Dell changed the paradigm of what a personal computer value chain should be. It eliminated the retail segment and sold computers directly to consumers. This made it harder for competitors to compete with Dell and enabled Dell to create a strong position in a competitive market.

You should consider whether your competition is the same or changing, and if it is changing whether new attitudes and new paradigms could permeate your industry. A shift in supplier paradigms could alter your industry and require innovation to maintain your position.

Shifts in Norms

While paradigms are frameworks or patterns about the world around us, norms are the ways of doing things. Often, paradigms lead to normative patterns of behavior.

Customer norms are activities that customers habitually undertake. The need to shave daily is a norm that arises from a paradigm around the attractiveness of hair on a man's face. If a technology arises that could challenge the need for routine, it could change the norm for the customers. There was a time when everybody wore a watch; now, cell phones have eliminated many people's need for watches.

There are times when the change in norm is not due to technology but due to broader social and habit changes. Reading the morning newspaper is a dying habit, as evidenced by the dwindling print circulation numbers of the newspaper industry. Readers can get the news they want from television or from the Internet. This change in reading norms has had a devastating impact on newspapers, since much of the value of their business lies in print circulation. Combine this with the shift of classified advertising to Internet portals such as Craigslist, and you can see why so many newspapers have folded.

With the increasing share of online sales, the retail industry is witnessing a powerful shift in norms. With location of stores becoming less relevant, there is an urgent need for innovations that make customer relations "sticky." CIOs in the retail industry can play a significant role in designing innovations that can enable business to create sticky relations using big data-based applications.

You should identify whether some norms are changing in your industry – whether at the customers' or the competitors' end. What would each normative change result in? Do these changes provide an opportunity to innovate, or do they represent a threat for which you need an innovative response? For example, in the jewelry industry, online designers such as Blue Nile are enabling customers to design

their own jewelry. If this changes the norms of buying jewelry, it may result in significant impact on brick-and-mortar jewelers. They may need a transformative response, which would heavily rely on IT as an enabler to create workflows and design databases.

Change in Capabilities

Paradigms and norms create the market needs that firms fulfill through their value propositions. To meet these needs in the most profitable manner, firms develop capabilities and acquire important resources and assets that not only serve the customers but also prevent other producers from effectively competing in their arena (see *IT Strategy and Innovation: Driving Innovation from the CIO's Office – Staying Ahead of the Curve with New Strategic Capabilities*, IDC #246854, February 2014).

For example, Kodak had strong capabilities in chemicals and manufacturing that enabled it to produce best-in-class camera film. Kodak's capability prevented chemical giant DuPont from competing successfully in the photography film roll industry. When DuPont entered the industry in the 1950s, it found that each time it made an improvement on its film, Kodak had already produced a better one. Incumbent capabilities like Kodak's are the reason why we do not see much new entry in an industry after the industry's initial years.

Similarly, customer relations capabilities also create an entry barrier. In the CT scanner industry, between 1970 and 2005, all new entries took place in the first 10 years. Over time, the technological distance between an incumbent and a potential new entrant increased to the extent that it was hard for newcomers to enter. This technological gap, along with solid relations that incumbent CT scan firms had established with customers, made any new entry risky. The capabilities of incumbents act as an important barrier to new entry and preserve the value in the industry.

Without new competitors, incumbents provide value to customers in a way that reinforces the existing paradigms and norms that create value. This is the reason why incumbent firms often bring about more pillar-reinforcing innovations than pillar-shifting innovations. Innovations such as the iPhone 5 after the iPhone 4, Windows 8 after Windows 7, and a five-blade shaving system after a four-blade shaving system are all pillar-reinforcing innovations that reinforce the industry's existing norms and paradigms and also prevent new entries.

Other than these superior capabilities, firms also develop control over some unique assets and resources that act like a moat around the perceived value of a product. These capabilities and assets prevent competitors from entering the industry and competing effectively. Such assets can include control over the distribution channels or legal protection through patents. This protection can also come from well-recognized brand names that protect the incumbents from competition.

Some innovations result in making these capabilities and assets easier to acquire or use, in essence making the capabilities and assets more generic. This commoditization makes new entries possible. This often requires a powerful response from incumbents.

Prior to the Internet era, participating in the telecommunications field required the ownership of a vast telecom network. The firms that had larger networks could provide service to their clients and charge clients of other providers that used their networks. The firms with a smaller network found it hard to

compete with large players. However, once the Internet became a widespread asset, a new breed of firms such as Vonage and Skype began providing telephone services without investing in a telecom network. Furthermore, the Internet infrastructure was generic compared with a specialized and controlled telecom network. This commoditization allowed new competition and destroyed value in the telecom industry.

Such capability changes in an industry often result in potential innovation opportunities or threats that need an innovative response. You should identify capability changes that are taking place in your industry and determine whether these changes mean innovation opportunities to your business. Staples is seeing a much bigger impact of Internet capabilities of online firms than firms such as Home Depot are witnessing. IT managers at Staples will therefore witness significantly higher demand for new IT and other capabilities than the IT managers of Home Depot would.

Value Bundle Reconfiguration

Value is often created by some tangible product or service in a value bundle. For example, in the photography industry, the value bundle included the camera, film, processing, and storage. However, digital cameras changed the value bundle by eliminating film from the bundle. This required a new set of innovations from incumbents such as Kodak.

When ebook readers emerged and began to take off in 2007, electronic books began to replace paper books. With this shift, several parts of the value chain in book printing and distribution were eliminated. As a result, when a book is purchased online or through a mobile device, the value (and associated costs) created by a physical bookstore, the value created by printing and binding services, and the outbound logistics of a printing press are all eliminated. This value bundle reconfiguration eliminates value in at least three industries: paper, printing, and physical book retailers. Thus an innovation in one industry can affect the profitability of supplying industries.

CIOs and IT managers can impact the value bundle by changing or reinforcing innovations in a major way. Increasing digitization is creating major opportunities to use data in products. For example, body-monitoring devices are providing new data around health and wellness, and a toothbrush company named Beam Technologies has launched a toothbrush that measures the brushing effectiveness and sends it to a mobile device app. The Internet of things is expected to be a major wave in future that will result in value bundle change in several industries.

The 3rd Platform is playing a critical role for innovation efforts of the CIOs and this trend is expected to strengthen over time. Cloud, mobile, social, and big data provide numerous ways to strengthen existing businesses and to build new business value. This exercise of anticipating changes in the industry would provide CIOs with significant opportunities to leverage the 3rd Platform. For example, in shave care, personal hygiene data could become a source of advantage for a shave care company. Such data could be collected via blade- or razor-based sensors, which may allow one to track skin conditions, shave strokes per shave, hair quality, and other measures. This would lead to an increase in volume, velocity, and variety of marketing data, which is amenable to big data initiatives. The personal-level details of individual shavers could then be used to not only segment the market in precise ways but also sell a personalized array of shave care and related products. CIOs can play a critical role in leveraging the 3rd Platform for future innovations by using the value pillar framework.

Connecting Innovation with the Innovation Portfolio

Using this framework, CIOs and IT managers can augment their existing innovation search and selection methodology by adding more analytical horsepower to the process. This pillar-based analysis will shed light on potential opportunities and threats. Threats will need to be responded to by designing appropriate responses, whereas opportunities to design innovations can be included into the innovation portfolio. These innovations could be optimization and development, step-change or game-change innovations (see *IT Strategy and Innovation: Driving Innovation from the CIO's office – Crafting a High-Impact Innovation Strategy*, IDC #243329, September 2013). Furthermore, these innovations could also have different time horizons for their fruition. The innovation ideas from this exercise can help rebalance the innovation portfolio.

Figure 2 shows an innovation portfolio template (see *IT Strategy and Innovation: Driving Innovation from the CIO's Office – Crafting a High-Impact Innovation Strategy*, IDC #243329, September 2013). The innovation portfolio needs to be well balanced across three types of innovations and three time horizons for a higher impact on business. By using the methodology explained in this document, readers can generate these nine types of innovations for their innovation portfolios. As you identify an innovation opportunity using the value pillar approach, you can identify whether it is an optimization, step-change, or a game-change innovation. Similarly, you can also identify whether it is a short-term, medium-term, or a long-term innovation project. This will enable you to place the innovation in the right box in the portfolio.

As a result, the innovation search process explained here should be an integral part of your innovation audit and efforts in managing your innovation portfolio.

FIGURE 2

Innovation Portfolio Template

		Focus of innovation		
		Optimization	Step up	Game change
Time horizon of innovation	Short term			
	Midterm			
	Long term			

Source: IDC, 2014

FUTURE OUTLOOK

The demand for innovation will increase as businesses face greater competition, global economic shocks, and slower growth. CIOs will need a systematic innovation search and design process that will use both a collation process and an analytical process. The value pillar framework will enable CIOs to drive innovation by selecting among a larger group of innovations ideas. Firms that effectively use analytical and collation processes will be more effective in designing high-impact innovations than firms that rely on ad hoc processes for searching for and designing innovations.

ESSENTIAL GUIDANCE

- **Short term (0-6 months):**
 - Assess your innovation search, selection, and design process.
 - Set up a process to search externally and internally for innovation ideas if you do not have a collation process.
 - Set up a single owner for conducting a one-time value pillar analysis.
 - Conduct the four value pillar analysis exercise by analyzing each of the four pillars explained in this document.
 - Analyze each pillar and ongoing changes to discover potential innovation opportunities.
- **Medium term (6-18 months):**
 - Set up an ongoing process to conduct the four value pillar analysis every 6-12 months.
 - Sensitize the broader organization about four value pillar framework.
 - Connect the innovation search process with innovation portfolio management process on an ongoing basis.
- **Long term (2-3 years):**
 - Build deeper business analysis capability in the IT organization to integrate the analytical search process in the functional competence matrix.
 - Continue to conduct and optimize the four value pillar analysis process in response to business needs.

LEARN MORE

Related Research

- *IT Strategy and Innovation: Driving Innovation from the CIO's Office – Staying Ahead of the Curve with New Strategic Capabilities* (IDC #246854, February 2014)
- *IT Strategy and Innovation: The Corporate Innovation Culture* (IDC #245288, December 2013)

- *IT Strategy and Innovation: Driving Innovation from the CIO's Office – Crafting a High-Impact Innovation Strategy* (IDC #243329, September 2013)
- Chopra, Ankush, *The Dark Side of Innovation* (Brigantine Media, 2013)

Synopsis

This IDC study offers a methodology for searching for innovations that IT executives can rely upon to build a robust innovation portfolio. It includes three methods of searching for innovation opportunities. It also incorporates a model that enables executives to leverage their industry knowledge and analysis to search for high-impact innovation opportunities. Last, the study provides a guide to setting up an ongoing process for searching for innovation opportunities. This paper is written for CIOs and senior IT managers who own an innovation portfolio and aspire to drive innovation with significant impact on IT but, more importantly, on the business itself.

"Innovation is one of the top priorities for CIOs because innovation provides an effective antidote to competition and economic shocks," says Ankush Chopra, adjunct research analyst with IDC's Research Network. "Firms that innovate effectively reap big rewards, whereas others may struggle to stay afloat."

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