December 23, 2009

Product-Centric Development Is A Hot New Trend

by Dave West and Roy C. Wildeman
for Application Development & Program Management Professionals

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A Distinctive Approach To Software Development That Delivers Exceptional Value

by Dave West and Roy C. Wildeman
with Mike Gilpin and Adam Knoll

EXECUTIVE SUMMARY

Today's application development leaders face unprecedented pressure to deliver more top-line business value, improve partnership with the business, and cut through the stifling technical complexity born from myriad legacy systems. In contrast to these challenges, a distinctive, value-based approach to software development has emerged, identifiable by a high-performing class of "product-centric" development teams that characteristically support their company's value chain, partner with both their customers and business stakeholders, and own the business results that their software delivers. Although the origins of product centricity are concentric to this specific segment of development teams, Forrester's August 2009 Global Product Centricity Online Survey shows that this trend is underway at a wide variety of companies of different operating environments, sizes, and industries. Therefore, many application development leaders can boost their value proposition to the business and gain from adopting product-centric practices in their selection and design of people, organization, processes, and management controls.

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NOTES & RESOURCES

Forrester interviewed more than 12 user companies for this report.

Related Research Documents

"Best Practices: Software Development Processes" April 15, 2009

"Case Study: Asian Telecom Boosts Its Service Offerings With Product-Centric Practices" April 10, 2009

"App Dev's Role In Bridging The Embedded Software Development Gap" December 16, 2008

"Lean Software Is Agile, Fit-To-Purpose, And Efficient" December 12, 2008

EXPECTATIONS FOR APPLICATION DEVELOPMENT LEADERS HAVE NEVER BEEN TOUGHER

Today's software development leaders face unprecedented pressures not only to deliver cost-effective, flawless software time after time but also to tackle a series of new challenges common to modern IT organizations in which they must:

- **Deliver differentiating, top-line business value.** Across manufacturing and services industries alike, structural market changes have introduced more global competition, eroded customer loyalty, and placed unrelenting pressure on the business to bolster those core processes that thwart commoditization, boost margins, and preserve market differentiation. Correspondingly, more tech-savvy executives know that application development professionals are in a prime position to help them drive more business innovation through the delivery of specialized software.

- **Develop bona fide business partnerships.** In recent years, Forrester has seen steadily growing interest in and adoption of both Lean Software and Agile development methodologies — due in part to the increased need for not only better alignment but also more transparency and closer, "joined-at-the-hip" working relationships between app dev teams and their business counterparts.[1]

- **Reduce complexity and redundancy.** Today's software development organizations are awash in application suites, development tools, and legacy platforms that create undue complexity and systematically impede critical speed to value.[2] For example, one multibillion-dollar Asia-based telecom relies on introducing innovative, bundled, new-software-based product offerings ahead of competitors' offerings, yet its development teams found that they were constantly burdened by coordinating all product changes across dozens of disparate and redundant legacy applications. The result? A simple rate change might regularly require eight to 10 weeks, a new bundled package might take up to six months, and an entirely new offering such as third-generation (3G) phones or mobile TV might require 12 months or more to complete.[3]

A One-Size-Fits-All View Of Application Development Organizations Doesn't Work

As software development leaders face additional pressures to deliver more top-line business value, improve partnership with the business, and cut through technical complexity, no single management approach will work because there is no single representative type of application development organization (see Figure 1).[4] The range of different business contexts for development means that:

- **Some organizations add value in the primary value chain, others for commodity functions.** By the nature of their responsibilities and business context, some development teams focus more on their firm's core profit-making operations, such as marketing or sales, which help directly drive a competitive market advantage for the business. Conversely, other development teams support cost-center functions, such as human resources or finance, which resemble

commodities for the business. In the words of one application development leader: "90% of our software is custom developed, as it's a competitive advantage for our business. We have 40 million customers. So it's a competitive advantage to handle bookmaking. One of my peers leads the SAP group." Another app dev leader explained: "We are actively trying to maintain a competitive edge. As product investments flow in, I want to make sure each one meets the customer need but also advances the product platform overall."

- **Some development teams' work must constantly adapt to uncertainty and change.** In particular, development teams supporting software-based product offerings — such as in financial or telecom services — face ever-increasing pressure to accelerate their rate of change to keep pace with dynamic customers, competitors, and regulatory action. In these environments, adapting to change is also a critical aspect of product delivery success; in a survey of more than 1,500 companies that execute product development projects, 80% of the projects that failed did so because they neglected to address change adoption.[5] One CTO we interviewed acknowledged: "All of our products are information. Software development is both the design and manufacturing process. Compared to corporate IT, the cadence of our work is much faster because we must react to the marketplace."

- **Some development teams learn about their customers through rapid release cycles.** As a tactic for delivering software within an uncertain, customer-facing environment, some development teams seek to release software as early as possible and then rely on a combination of direct customer feedback and rapid, incremental improvement cycles to ensure that their apps are both highly relevant and differentiated.[6] In the words of another CTO we spoke with: "When we launch a product, we may not know if it will work. So we need to do a quick launch test to ensure business viability as well as functional capability. This piloting helps weed things out early on."

- **Some orgs are structurally tied to business success; others simply align with business needs.** In a departure from conventional IT management practices, some software development leaders report to executive business stakeholders and measure success by business results, such as the revenue, margins, and market penetration that their software delivers. For example, one leader we interviewed explained how his team's key performance indicators (KPIs) differ from the traditional "on-time, on-budget" IT metrics:

  > "Our outcome measures are different from corporate IT. We both get measured on timeliness and efficiency (estimated budget versus actual), but we are also accountable for: 'Did the product we build achieve revenue and margin per the business case?' Our team has more skin in the game on business results."

- **Some development teams have a heightened sense of product ownership.** The nature of delivering applications with higher risk and reward potential means that some app dev teams display unusually strong pride in the quality of their work. In the words of one such application development leader:

> "A longer association with a product model will give [my] people a greater sense of ownership of the success of that product. I'm about making sure that product is as efficient and effective in delivering the business value that it provides, whether that's increased revenue or better optimization of after-tax returns."

Another app dev leader explained: "Our mission is not merely to perform testing but to minimize the risk of product or service failure. We have to think holistically about all risks, not just complete a test script."

Figure 1 Application Development Organizations Carry The Same Name But Can Be Very Different

Product-centric focus	Delivery-centric focus
Supports core, differentiating business process	Supports noncore, commodity business processes
Biggest concern: coping with a rapid pace of change	Biggest concern: delivering projects on time and on budget
App dev is core to the business.	App dev is separate from the business.
Reports to the business	Reports to the CIO
Seeks *partnership* with business stakeholders	Seeks *alignment* with business stakeholders
Measured by business results	Measured by quality and efficiency
Strong sense of *ownership* of business results	Strong sense of *reacting* to business results
Above-average spending in QA, testing	Average spending in QA, testing

55099 Source: Forrester Research, Inc.

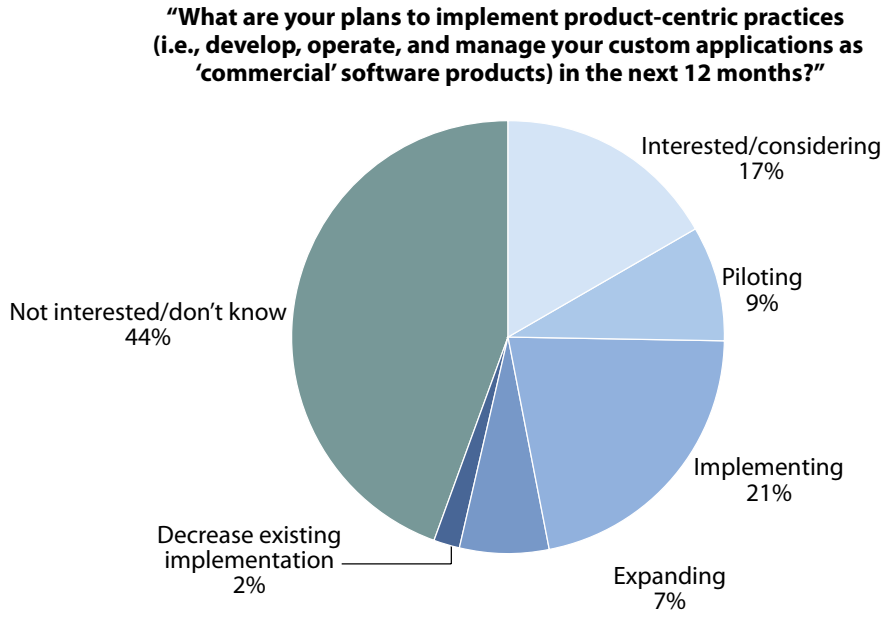
A DISTINCTIVE, PRODUCT-CENTRIC DEVELOPMENT MODEL HAS EMERGED

In response to these distinct responsibilities and challenges, a unique, product-centric approach to application development has emerged, identifiable by a specific class of development teams that distinctively support their company's value chain, partner with both their users and business stakeholders, and own the business results that their software delivers. Forrester has formulated a definition of this new app dev archetype:

Product-centric development organizations use a characteristic set of organizational structures, processes, and people to better harness customer input, cut through technology complexity, and repeatedly deliver high-value software applications that drive competitive advantage for the business.

Notably, Forrester's August 2009 Global Product Centricity Online Survey shows that this trend is more ubiquitous than one might expect: When we asked 149 app dev leaders about their plans to implement product-centric practices, more than one-third of our respondents indicated that they would be piloting, implementing, or expanding product centricity in the next 12 months (see Figure 2). Furthermore, a significant number of product-centric initiatives are present across companies of different sizes and industries (see Figure 3 and see Figure 4). Forrester envisions product centricity persisting regardless of whether internal or outsourced developers do the bulk of software development and whether development occurs at a centralized site or is more globally distributed. In fact, large enterprises may have both traditional and product-centric development represented in various divisions or business units depending on their structural orientation and business context.

Figure 2 Product Centricity's Importance Emerges Among Application Development Leaders

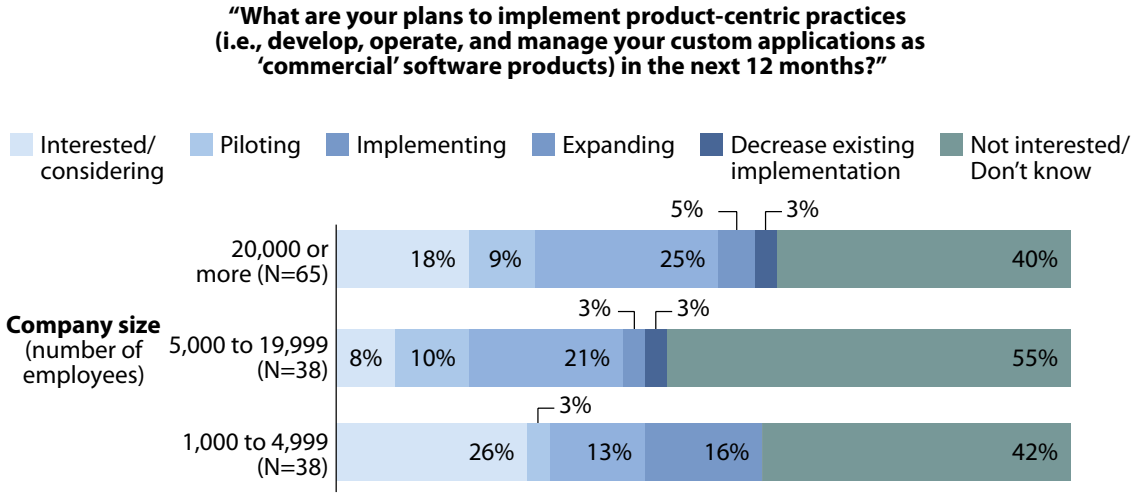


Base: 149 application development leaders

Source: August 2009 Global Product Centricity Online Survey

55099 Source: Forrester Research, Inc.

Figure 3 Product-Centric Development Is Present In Companies Of All Sizes

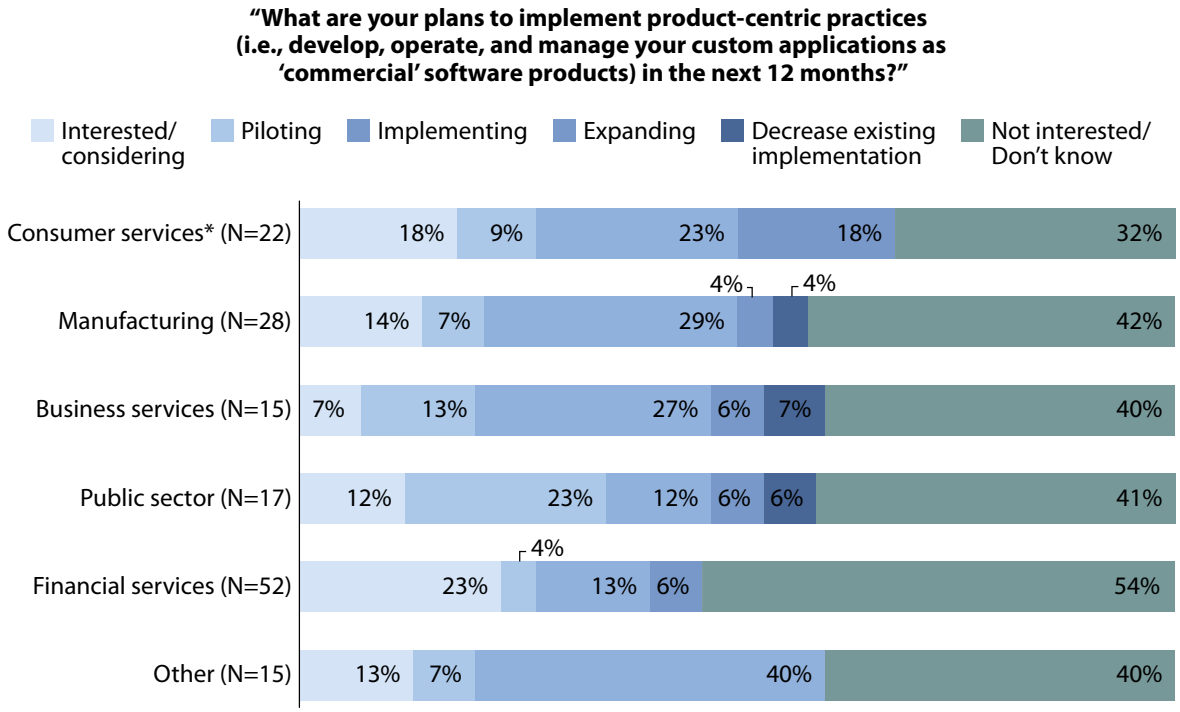


Base: 141 application development leaders

Source: August 2009 Global Product Centricity Online Survey

55099 Source: Forrester Research, Inc.

Figure 4 Product-Centric Development Appears In A Variety of Industries



Base: 149 application development leaders

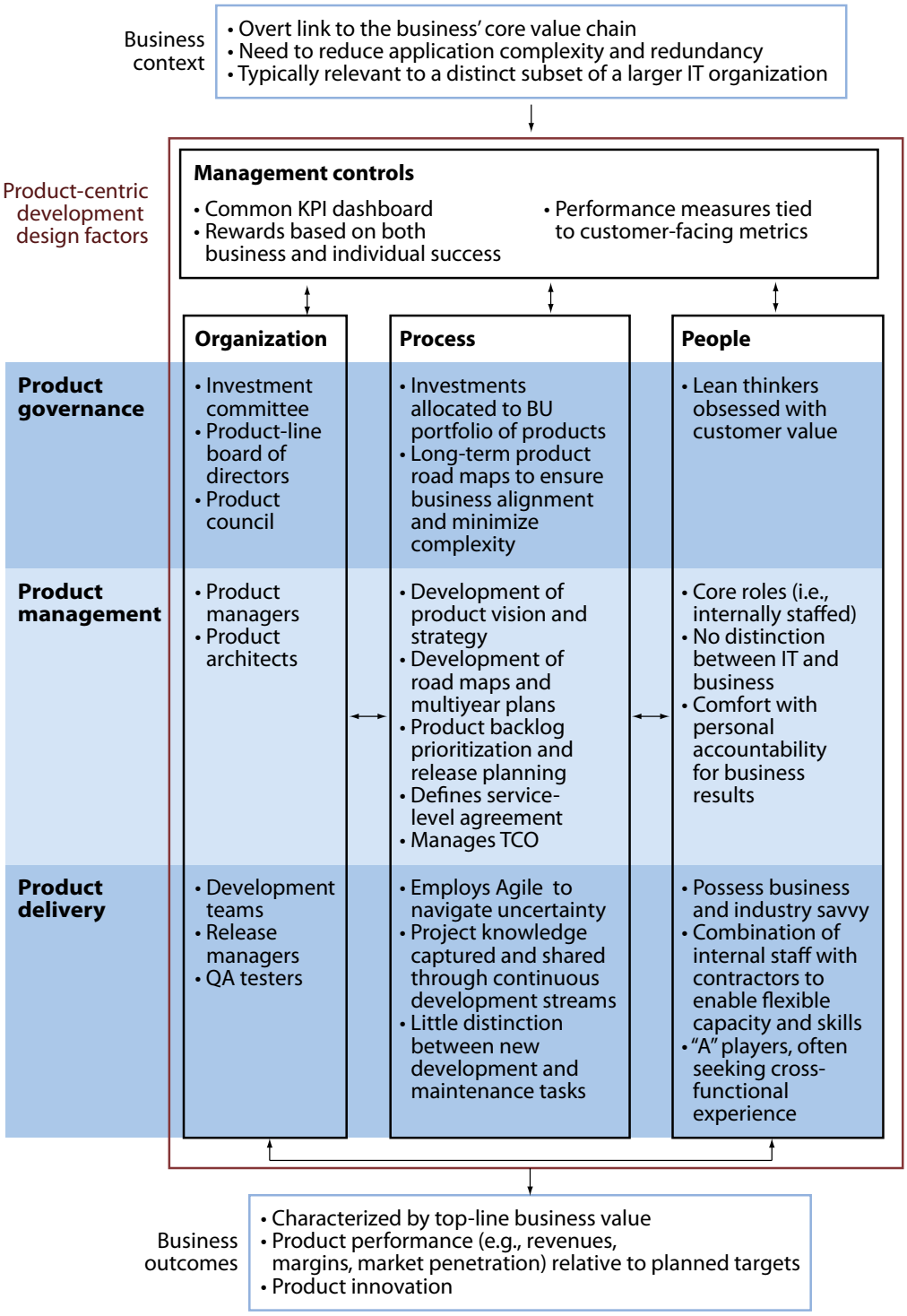
Source: August 2009 Global Product Centricity Online Survey
*Includes: utilities, telecommunication, retail, wholesale, media, entertainment, and leisure

55099 Source: Forrester Research, Inc.

DESIGNING A PRODUCT-CENTRIC OPERATING MODEL DRIVES SUPERIOR VALUE

Just as there is no single application development organizational type, there is also no single, canonical blueprint for an intrinsically "product-centric" approach. Instead, app dev leaders must assemble many different team design parameters — their people, organizational design, formal processes, and management controls — that, in sum, characterize a holistic product-centric development approach spanning product governance, product management, and product delivery tiers, enabling the entire organization to deliver exceptional value to the business (see Figure 5).

Figure 5 Design Of A Product-Centric Development Operating Model



55099 Source: Forrester Research, Inc.

Product Centricity Design Parameter No. 1: Your People

The importance of personal skills, interests, and preferences in delivering quality software with differentiating business value cannot be understated. In our research, we found product-centric teams typically composed of people who have:

- **Business and industry savvy.** Teams generally possess significant business domain knowledge that helps foster new product ideas and innovation. Team members tend to have a preference for more business-centric responsibilities and personal development opportunities.
- **A track record of "A" performance.** Companies tend to view their product developers in particular as "company superstars," found and recruited either through formal channels or self-selected via their motivation for more diverse, cross-functional experience across IT and business domains.
- **Comfort with personal accountability for business results.** With a bias for meritocratic advancement, product-centric talent doesn't expect large rewards unless they achieve the expected business results.

We also found that product-centric development shops take a distinct approach to building the high-functioning teams essential to success. Their product-centric teams:

- **Internally staff some core roles.** With a job requirement of being intimately familiar with the business context as well as legacy IT topology, teams nearly always staff roles such as product managers, product architects, and release managers with internal resources.
- **Use variable staffing to retain flexibility.** Unlike with other roles such as product managers and product architects, teams commonly staff developers with both internal staff and variable third-party contractors that provide fast access to additional capacity or skills, as needed. Managers justify the extra cost of this flexibility based on faster time-to-market and the competitive advantage of superior product features.
- **Double their quality assurance (QA) resources.** With the extraordinarily high cost of releasing defective software into an external market (e.g., lost revenue, tarnished brand image, etc.), product-centric teams report nearly doubling their testing and quality assurance (QA) personnel relative to conventional IT staffing models to ensure that all defects are eradicated prior to launch.

Product Centricity Design Parameter No. 2: Your Organization

Application development leaders we spoke with rely on numerous roles and reporting relationships to get product-centric development tasks allocated and completed across their organizations. These roles include:

- **Product governance board.** To ensure that the longer-term product portfolio strategy is continually in step with the company's business environment, product-centric shops often formally designate executive responsibility to allocate product development investment spending by business unit as well as product-line directors to sponsor the business case for new initiatives and review and approve product road maps.

- **Product managers and product architects.** Both of these roles help define and lead individual product strategy throughout product planning activities from marketing and technology perspectives, respectively. Notably, some product-centric development teams abandon the traditional construct of separate IT and business counterparts and have a single set of combined business technology (BT) roles for these two responsibilities. Also, companies we spoke with emphasized the "connector" value that product management roles can have across organizational silos — particularly in driving product innovation. One application development leader emphasized that:

  > "You have to understand who the connectors are in your organization. You've got to have a tacit way to bring them into the right dialogues. So it's important to understand those roles that each participant in the [development] process is playing, and are you consciously including the right kind of people, and do you have connectors included in the project?"

- **Combined new development and maintenance teams.** By combining product delivery and support responsibilities, a product-centric environment removes the conventional distinction between new development and maintenance tasks. As a result, ongoing support activities — traditionally buried within a maintenance allocation — become more explicit and visible.

- **QA and release managers.** With the primary responsibility of facilitating and negotiating flawless product releases, QA and release managers play a pivotal role in ensuring that all defects — which cost exponentially more when code is released into external markets — are eradicated prior to launch.

Product Centricity Design Parameter No. 3: Your Processes

The activities, artifacts, and responsibilities required to deliver a product are different enough from most traditional software development life cycles (SDLCs) that product-centric application development leaders often have a radically different approach toward their development processes. These leaders:

- **Combine new development and maintenance processes.** Many product-centric teams follow a process designed not only to deliver new working software but also to maintain that software in the future, thereby ensuring that they make the right tradeoffs between today's needs and future changes in requirements.

- **Separate development and release processes.** By enabling product managers to concentrate on functionality and value and leave the release management to others, this approach helps organizations better manage the complexity that most teams face when trying to decide on the timing of a release based on all of its composite parts. Additionally, separating development and release activities can help enable more cross-product releases to include features from multiple product teams — the "feature train" approach that one application development leader described by explaining:

  "The feature train has a schedule and a set of very defined organizationwide standard activities, such as platform, security, and performance testing. Product teams need to deliver based on the release train timetable. This helps ensure that teams make the right tradeoffs, as they are always working to deliver the most valuable features into the release first."

- **Favor product documentation over project documentation, to better support change.** Traditional project-centric processes enforce rigorous documentation standards, measuring progress and compliance by the number of completed documents. Product-centric processes prioritize delivered functionality, building just the right amount of documentation to ensure that developers can maintain the product.

Notably, many of the product-centric teams we spoke with also import "tried-and-true" planning and development approaches from the manufactured-products world to bolster their effectiveness. Some of these approaches include:

- **Value-driven portfolio planning.** Financial measures, scoring models, and portfolio maps are all tools used to peer into a product portfolio and balance expected value and margins from the aggregate pipeline against the risks of market, technical, and execution uncertainties. By treating a collection of functionality as a *product* and tying that product clearly to business value, application development professionals simplify the planning process. The head of transformation at a large financial services company explained:

  "Traditional approaches to planning were difficult, as we wrestled with hundreds of potential projects over our entire portfolio. By introducing a product focus, we can clearly define the value and then make coarse-grained decisions allocating a bucket of funds to that product set."

- **Product road maps.** Unlike traditional project-centric operations, product-oriented approaches build a long-term vision and product strategy based on anticipated market changes. Such a strategy entails multiyear plans for functionality, technical architecture, finance, and staffing. Notably, this process also enables product planners to build a core staffing model, augmented when necessary by variable staff to account for uncertainty and risk.

- **Agile methods to navigate uncertainty and/or maintain flexibility for change.** Agile approaches have become the de facto standard for product companies.[7] It should come as no surprise that to encourage a focus on delivery and value, many Agile methods employ product-centric terminology, such as *product backlog* and *product owner*. Agile methods provide the perfect foundation for applying product-centric thinking to the way that teams describe, prioritize, execute, and report on work.

Product Centricity Design Parameter No. 4: Your Management Controls

The design of product-centric control measures and reward systems can help foster a high-performance culture and create more-repeatable product launch successes. Our research identified principals including:

- **Shared KPIs oriented around the customer.** While actual KPIs vary quite a bit among cases, we did find that product-centric shops commonly align their performance measures around a single, common dashboard shared across IT and business roles. Notably, a few leading teams also link their KPIs directly to customer-facing metrics such as new subscribers or customer retention to increase the transparency of the resulting impact to the business.

- **Rewards that balance individual incentives with product success.** Leaders we interviewed emphasized the need to incentivize people where they have direct control of the results, yet maintain some "skin in the game" with the product's ultimate business success relative to original expectations.

IDENTIFYING YOUR PRODUCT CENTRICITY

Where should you start? Use this diagnostic tool to assess your current product-centric characteristics and capabilities — and opportunities for improvement — and see how you stack up against your peers. Scores are calculated automatically for online readers. All scores are anonymous (see Figure 6).

Figure 6 Product Centricity Self-Diagnostic Tool

Your people

Do your teams possess significant business domain knowledge?		
Do your people have a preference for more-business-centric responsibilities and personal development?		
Are your people motivated by more-diverse, cross-functional experience across IT and business domains?		
Are your people comfortable with rewards based on expected versus actual business results achieved?		
Do you employ variable staffing of third-party contractors for fast access to additional capacity or skills?		
Is the proportion of your testing and QA resources significantly higher than industry averages?		
Total		

Your organization	**Yes**	**No**
Do you have a formal team of executives responsible for justifying and allocating development investment dollars by business unit?		
Do you have a formal team of product-line directors responsible for justifying new initiatives and approving product road maps?		
Do your product managers seek to innovate by connecting company perspectives across organizational silos?		
Do you have product architects who help define and lead product strategy from a technology perspective?		
Have you combined the conventionally separated IT and business responsibilities of product management and product architecture into unified "business technology" roles?		
Total		

55099 Source: Forrester Research, Inc.

Figure 6 Product Centricity Self-Diagnostic Tool (Cont.)

Your processes	Yes	No
Are your new development and maintenance roles combined within one set of responsibilities?		
Are your development and release processes separated?		
Do you conduct cross-product releases that include features from multiple product teams?		
Does product completion supersede project documentation among your teams?		
Do you conduct periodic portfolio planning to balance your products' pipeline value against external or internal risks?		
Have you simplified your planning processes by aggregating collections of functionality as products and tying those products to business value?		
Do you create longer-term, multiyear product road maps to plan for functionality and resources?		
Do you employ Agile development methodologies when navigating uncertainty or when facing a need to maintain change flexibility?		
Total		

Your management controls	Yes	No
Do you align your performance measures around a single, common dashboard shared across IT and business roles?		
Have you directly linked your KPIs to customer-facing metrics such as new subscribers or customer retention?		
Do your incentive systems include a product's business success as a part of individual rewards?		
Total		

55099 Source: Forrester Research, Inc.

RECOMMENDATIONS

SELECTIVELY PURSUE OPPORTUNITIES FOR GREATER PRODUCT CENTRICITY

To paraphrase quality guru W.E. Deming, "Change is not required, nor is survival mandatory." Although Forrester does not intend this product-centric model to be a widespread change mandate for every app dev organization, we do believe that app dev leaders will find it increasingly difficult to be truly successful without some ability to deliver innovative, top-line business value that optimizes a product-centric approach where appropriate. With that in mind, get started leading selective product-centric changes within your organization:

- **Scrutinize your application portfolio.** Mapping how your myriad assembly of applications and resources align to business capabilities can be a powerful *bottom-up* approach to recognizing which parts of your organization are in a position to drive more-product-centric business value.
- **Grab your business partners to shed more light.** By better understanding your company's planning and investment priorities, you can gain a *top-down* view on which process and application areas are best placed to drive more competitive market advantage for the business.
- **Pilot product-centric teams where the need is greatest.** Once your topology of core versus commodity business process support is clear, pick a few development areas with a clear need for change, and deploy a cross-functional team with a mandate to use this markedly different approach to achieve improved results in these areas.
- **Review your measurement controls.** The immediate impact of adjusting your team's dashboard to include customer-centric KPIs such as incidents or satisfaction cannot be overstated. Additionally, clearly linking these operational success measures with strategic business goals such as revenue or market penetration can be a powerful way to motivate team efforts and articulate app dev's delivered value to the business.

WHAT IT MEANS

PRODUCT CENTRICITY'S VALUE-DRIVEN APPROACH COMPLEMENTS LEAN SOFTWARE

While many conventional IT organizations relentlessly seek to prove and justify their value to the business, product-centric development teams are, by their nature, the genesis and definition of value for their organizations. As more application development organizations pursue Lean Software tactics to cut through complexity, eradicate process waste, and deliver bottom-line efficiencies, product centricity can be a powerful lens to sharpen the team's top-line value statement across executive, management, and delivery tiers and act as a strong, complementary improvement initiative to Lean.

SUPPLEMENTAL MATERIAL

Online Resource

The online version of Figure 6 is an interactive tool that helps clients assess how their current application development practices stack up relative to leading product-centric development teams.

Methodology

Forrester's Global Product Centricity Online Survey was fielded to 149 application development leaders from our ongoing Application Development & Program Management research panel. The panel consists of volunteers who join on the basis of interest and familiarity with specific application development and program management topics. For quality assurance, panelists are required to provide contact information and answer basic questions about their firms' revenue and budgets.

Forrester fielded the survey in August 2009. Respondent incentives included a summary of the survey results.

Exact sample sizes are provided in this report on a question-by-question basis. Panels are not guaranteed to be representative of the population. Unless otherwise noted, statistical data is intended to be used for descriptive and not inferential purposes.

If you're interested in joining one of Forrester's Research Panels, you may visit us at http://Forrester.com/Panel.

ENDNOTES

[1] Forrester sees Agile methods gaining in popularity, as more than half of 2,227 software organizations we surveyed in Q4 2008 are expanding their use of Agile development. For more information, see the April 15, 2009, "Best Practices: Software Development Processes" report.

[2] Notably, Lean Software is emerging as a tactical antidote to bloatware, enabling architects and developers to rapidly assemble business solutions that deliver "just in time" the software capabilities the business requires both today and tomorrow. For more information, see the December 12, 2008, "Lean Software Is Agile, Fit-To-Purpose, And Efficient" report.

[3] By taking a product-centric view of its product management and IT operations, one company pursued and successfully executed several leading product life-cycle management practices and can now deliver products an average of seven to eight times faster with up to an 80% savings in manpower. For more information, see the April 10, 2009, "Case Study: Asian Telecom Boosts Its Service Offerings With Product-Centric Practices" report.

[4] Similarly, all IT organizations appear to have the same "reason for being" from the outside looking in, while in fact there are three clear, distinct archetypes for successful IT organizations: Solid Utilities, Trusted Suppliers, and Partner Players. For more information, see the March 22, 2006, "The Three Archetypes Of IT" report.

[5] Manufacturers in automotive, aerospace and defense, consumer electronics, high-tech, and medical devices are also embedding more and more software into their products as a means to accelerate their own release cycles and ultimately deliver more innovative, high-end functionality into their products. Source: Larry Boldt, "Product Management Within ALM," *Business Management* (http://www.busmanagementme.com/article/Product-Management-Within-ALM).

[6] A key difference between software-based product development and physical, manufactured goods is that with software-based product development, it costs less to make a product revision and release a new version. Software-based products favor a very rapid iteration even very early in the product evolution, whereas manufactured devices require significantly more effort to set up production tooling, fabricate the product, and validate quality. See the December 16, 2008, "App Dev's Role In Bridging The Embedded Software Development Gap" report.

[7] For a detailed description of adoption patterns, view the August 31, 2009, "Agile Adoption In The Real World" Webinar (http://www.forrester.com/rb/teleconference/agile_adoption_in_real_world/q/id/5881/t/1). This includes details on adoption models in IT versus technical industry (TI).

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