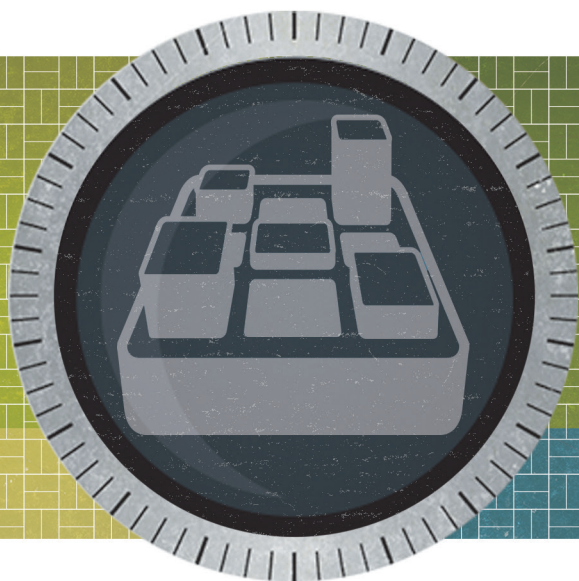


# Turn products into product platforms

Providing a foundation for others to build upon



A pattern study from the Center for the Edge's  
*Patterns of Disruption* series

Deloitte Consulting LLP's Strategy & Operations practice works with senior executives to help them solve complex problems, bringing an approach to executable strategy that combines deep industry knowledge, rigorous analysis, and insight to enable confident action. Services include corporate strategy, customer and marketing strategy, mergers and acquisitions, social impact strategy, innovation, business model transformation, supply chain and manufacturing operations, sector-specific service operations, and financial management.

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# Overview

## Turn products into product platforms

### Providing a foundation for others to build upon

**Def. Create a common core that invites third parties to develop and market an increasing number of product variants.**

The one-size-fits-all approach to products is changing. To meet the needs and preferences of a fragmenting customer base, producers can build off of flexible product platforms to help bring tailored products to market faster and with less investment. In the product platform, the core product is typically designed to be modular and flexible—rather than tightly integrated and difficult to leverage—to invite third parties to rapidly customize and scale variants. This shifts the focus from solely protecting intellectual property to balancing intellectual property with developing and cultivating a diverse ecosystem of innovative producers who can meet the needs of a wide range of customers and help improve the performance of the core product.

In the report *Patterns of disruption: Anticipating disruptive strategies in a world of unicorns, black swans, and exponentials*, we explored, from an established incumbent's point of view, the factors that turn a new technology or new approach into something cataclysmic to the marketplace—and to incumbents' businesses. In doing so, we identified nine distinct patterns of disruption: recognizable configurations of marketplace conditions and new entrants' approaches that can pose a disruptive threat to incumbents. Here, we take a deep dive into one of these nine patterns of disruption: **turn products into product platforms**.

Figure 1. Pattern snapshot

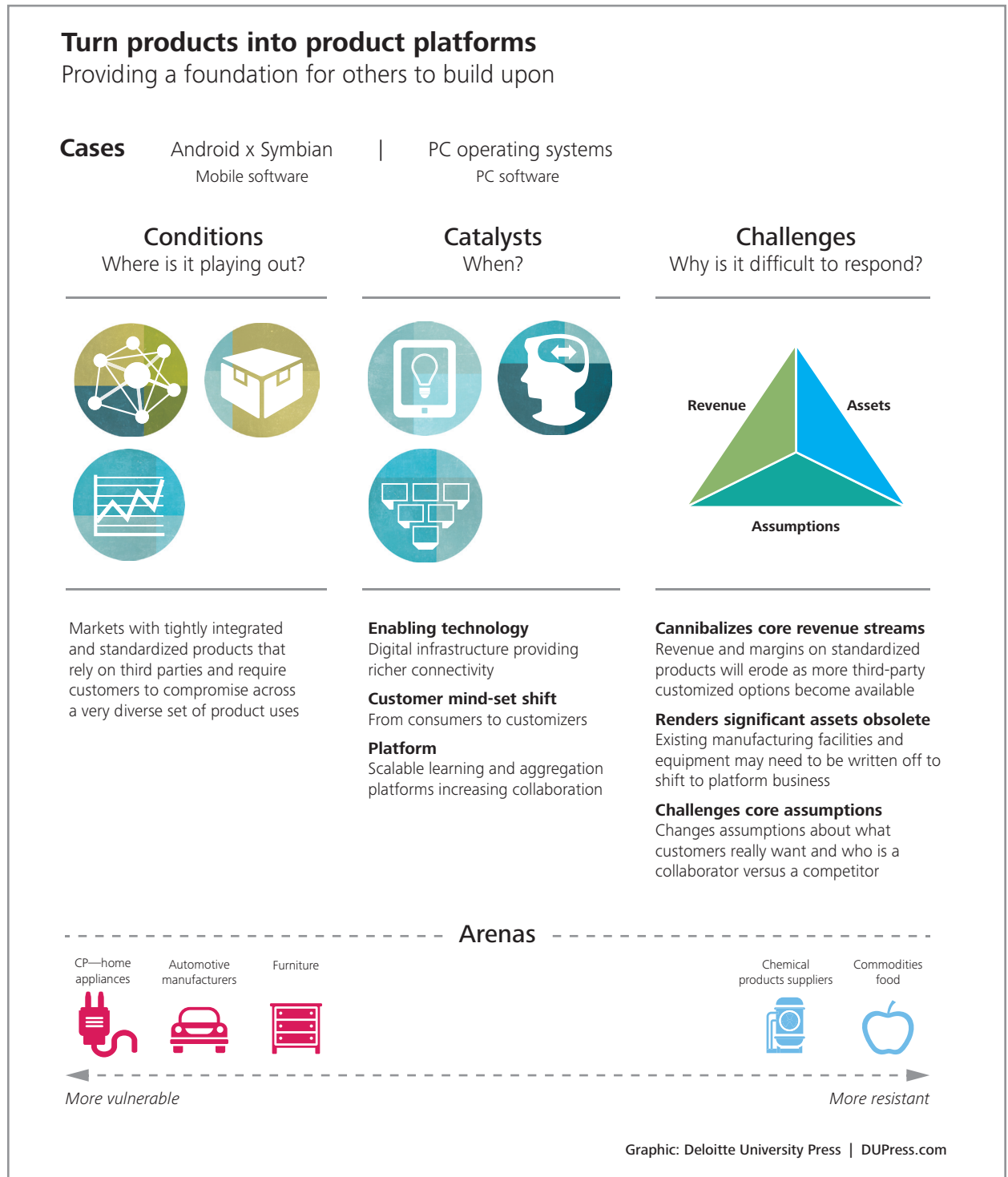
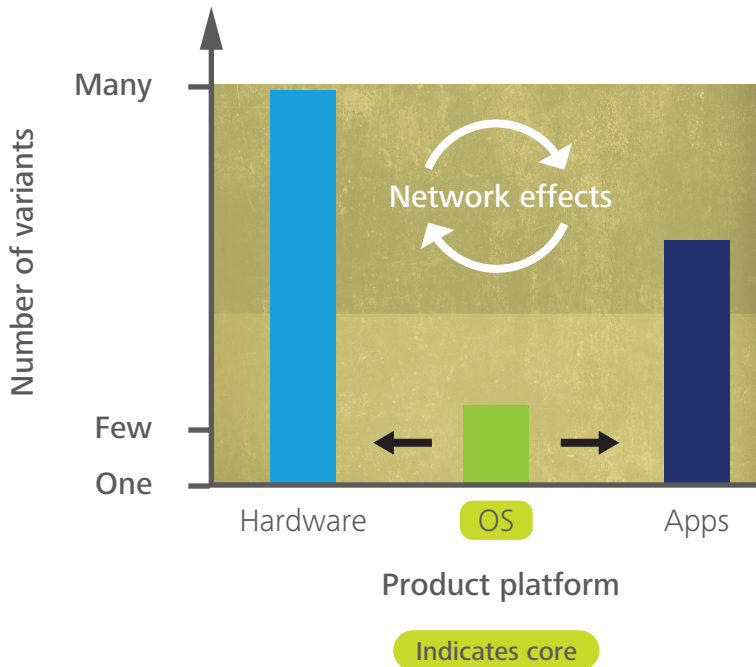


Figure 2. An operating system as an example of a product platform



A product platform can be a foundational core of hardware and/or software that third parties use as a base to build variants on, enabling product innovation on multiple sides.

Graphic: Deloitte University Press | DUPress.com

Traditionally, products were created behind closed doors, without third-party input. The resulting proprietary offerings often limited personalization and customization. But, advances in information technology can fundamentally change the way products and services are conceived and created, making it easier to develop and deploy flexible product platforms that others can build upon. An effective product platform creates significant economic value for third-party participants to create and capture value for themselves, while also (thanks to network effects) yielding strong returns for the platform builder. The third-party producers leverage innovations in the core product to rapidly and more cost-effectively develop variant products tailored to the specific needs of end-user segments. In response, customers begin to demand products that better meet their niche needs. As a result, markets that once pushed standardized products to the masses are redefined such that an increasingly fragmented producer marketplace

refines core product innovation to the needs of the customer.

A product platform strategy can be powerful, particularly in times of increasing pressure to find new growth, because the network of innovative producers enables the platform owner to reach and sustain more customers. The network becomes potent when the product platform spurs a form of distributed innovation where participants can learn and scale faster than they would on their own.

Platforms<sup>1</sup> are often associated with software, as in the case of the iOS<sup>2</sup> and Android app platforms, but product platforms can also be physical, with or without a digital component. Regardless of the industry, developing a product platform implies different economics and operations than those of a typical product company. The focus shifts from speed and product innovation (differentiation) to scale and scope. Although the platform creator incurs the expense of developing the core product infrastructure, third-party innovators

become both stakeholders and drivers of its success. The platform owner no longer owns the complete set of capabilities and knowledge to deliver products to customers.<sup>3</sup> The more extensive the reach and demonstrated value of the product variants, the more likely other participants will be attracted to using the product platform. As figure 2 illustrates, a product platform—in this case, an operating system—can spur different categories of variants (for example, devices and plug-ins) that incorporate it, optimize for it, and/or exploit it. The larger the network of third parties building on the product platform, the harder it tends to be for independent producers to compete effectively against the product’s variants.<sup>4</sup>

Many product companies already use product families built off of common product elements as a means of managing technology risk and leveraging brand influence—for example, beginning in the 1970s, Black and Decker’s family of electric tools leveraged the technology and production process of a common product platform—but all of the variants

remain within the control of a single company as derivative products. Now, advances in cloud computing, miniaturization of digital components, and the trend toward “smart,” connected products<sup>5</sup> combine to make it more compelling to create a flexible, modular product core that can be extended into unique product variants for as-yet unidentified customers and uses by third-party producers. At the same time, many barriers to participation for smaller producers are dropping with widespread access to learning platforms, such as Git and wikis, where they can accelerate their knowledge and capabilities for working with the product core, while aggregation platforms can make it easier to market and distribute the variants. Costs that might have previously prohibited smaller producers from entering the market are often already embedded in the infrastructure, making it easier and more cost-effective for platform-based innovators to gain scale quickly. Meanwhile, the third parties can benefit from and amplify the impact of improvements in the cost-performance of the technological core and

“The best model is to be open. That is what the Internet has taught us. The test of course is whether the applications and developers emerge. The reason we are announcing now is to make sure developers have time to make available applications that have never been available before but are common on Macs and PCs.”

—Eric Schmidt, Google CEO, announcing the Open Handset Alliance, November 5, 2007<sup>6</sup>

increase speed-to-market of diverse products. Rather than bring complete and comprehensive product offerings to market, today product developers can build businesses around extensions to the core product, decreasing the need for full product design, capital, and manufacturing capabilities.

Incumbent product companies may struggle to respond to a product platform. The incumbent's standardized product may not be able to compete with the more innovative and more targeted products being rapidly created by the platform's network of producers. Yet an incumbent that has invested in complex systems and infrastructure to independently develop products may be unable to shift toward a product platform strategy of its own for several reasons. First, the incumbent would have to relinquish control of the end product and lose the revenue from the existing core products as customer demand shifts toward the more customized third-party variants. Second, moving toward a platform might require the incumbent to write off existing manufacturing facilities and equipment that are optimized for producing and marketing mass-market products at scale. Third, providing access to the valuable product core to third parties and

relinquishing control of the customer relationship often challenges the fundamental assumptions of a product company about how end products reach consumers, where value is created, and what constitutes a viable approach toward product development. Finally, even if the incumbent overcomes all of the internal hurdles and creates a product platform, it may be difficult to build credibility for the platform strategy and escape the suspicion that they will eventually compete with the very third-party participants that they need to attract to sustain a successful platform.

As a result, the incumbent company may persist with standardized offerings that require customers to compromise across a diverse set of product uses despite customer expectations shifting toward more tailored offerings. In addition, because new variants may span the quality and price spectrum, less expensive variants may unlock pent-up demand from the low end of the customer pool, further reducing market share for the incumbent.

Product platforms are already common in technology-based hardware and software sectors, but the pattern's potential to increase product diversity make it likely to play out in other arenas as well. For example, the automobile, retail furniture, and mobile phone sectors all appear vulnerable to disruption through product platforms because of the increasing role that digital technologies play in providing personalization and value creation in these sectors. On the other end of the spectrum, chemical product suppliers tend to be less vulnerable to product platform disruption given the high level of regulation and limited product modularity. Across vulnerable sectors, core or "essential" products within the industry are more likely to become product platforms than are those that are complementary.<sup>7</sup> In addition, customers' increasing preference for personalized rather than generalized offerings will likely make products with a variety of use environments more vulnerable to a product platform model.<sup>8</sup>

## Key stats

- Nineteen percent of the world's population used an Android device in September 2015.<sup>9</sup>
- In the Chinese 3G smartphone market, Android's market share jumped from 2.9 percent to 89.5 percent in three years.<sup>10</sup>
- The best-selling stand-alone mobile phone of all time sold 250 million units.<sup>11</sup> In contrast, Ara, Google's upcoming modular mobile phone, is targeted at 5 billion mobile Internet users.<sup>12</sup>



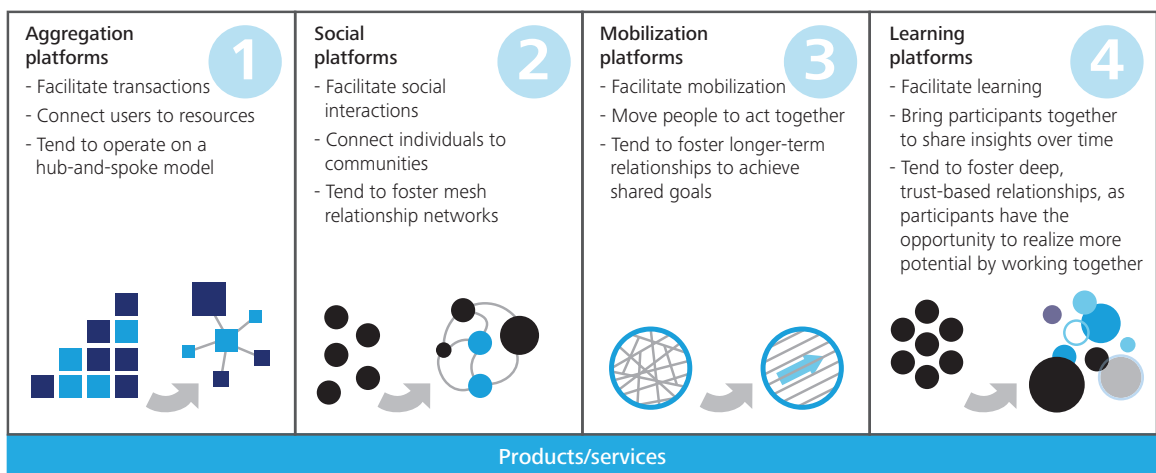
# Digging deeper



What is the difference between “product” platforms and all of the other platforms I hear about? Or are they the same thing?

There are at least four types of platforms (figure 3). A product platform is a special type of platform, a base layer—virtual or physical—that third parties can enhance by developing new features and added or modified functionality to create new products for B2B or B2C markets.<sup>13</sup> An effective product platform should facilitate learning, but also have elements of other types of platforms—aggregation, social, and mobilization—in order to gain and sustain critical mass.<sup>14</sup>

**Figure 3. Types of platforms**



Graphic: Deloitte University Press | DUPress.com

## Is licensing a technology to others the same thing as a product platform?

Licensed technology can often be a product platform. Depending on what is being licensed, third parties may build a large number of commercial customized variants on that platform. It also depends on whether the technology is actually provided to the licensee to provide the core functionality (without which the product would not exist) or if it is just a “permission” to apply some knowledge. For example, Symbian offered an operating system (OS) that would allow limited customization, but its handset manufacturers kept the source code to themselves, and as a result, stifled network effects and the compounding effect of innovation that a true product platform promotes. In contrast, Android is an open-source product platform in conjunction with an app store that attracted more third parties to join and create an ever-growing array of new and unexpected products.

# Case studies

## Android displaces Symbian

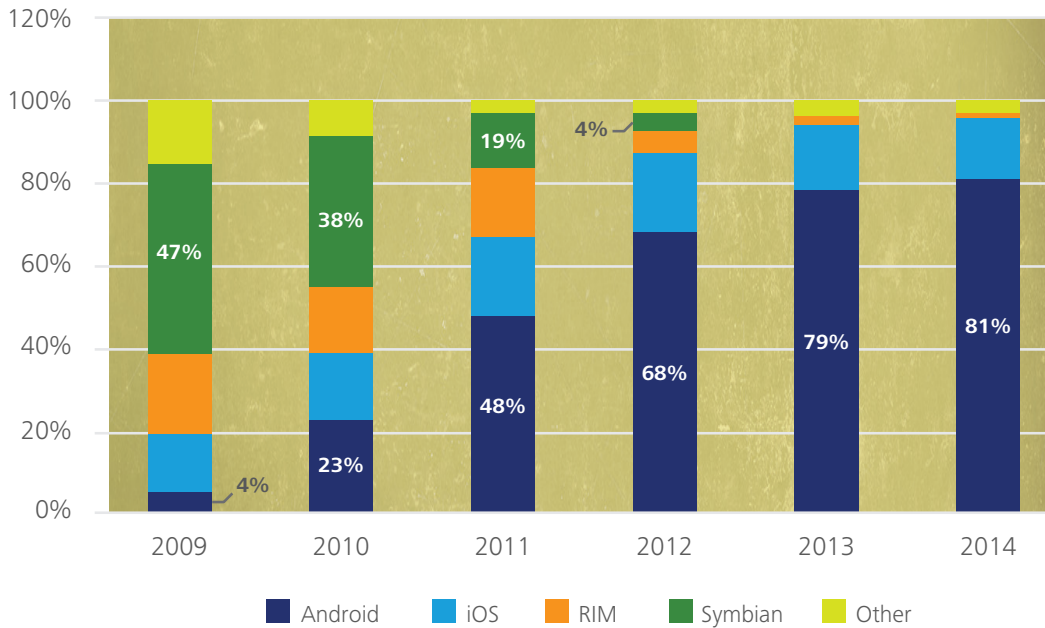
In the early years of mobile, Symbian captured market share with a proprietary mobile OS. Formed in 1998 as a joint venture between Psion Software and phone manufacturers such as Nokia, Ericsson, and Motorola, in less than a decade Symbian captured nearly half of the mobile OS market. Despite its early success, the company faced steep competition from new market entrants. In 2007, Android began offering an open mobile OS that allowed third parties to develop on and add additional value through the creation of variant offerings. Symbian, reliant upon its de-facto partnership with phone manufacturer Nokia (which accounted for 87 percent of Symbian's sales in 2008), began losing market share (figure 4). By 2014, Android had captured over 80 percent of the market.

By forming the Open Handset Alliance (OHA), a partnership of 34 leading phone manufacturers, carriers, chipset makers, and other third-party developers, to develop the

Android open mobile OS, Google demonstrated its commitment to building critical mass quickly (a key factor for any platform strategy) and achieving increasing returns for all ecosystem parties involved, which further helped mobilize more participants in its ecosystem. The OHA has since attracted 88 member companies to contribute to the development of the comprehensive software stack, while thousands of smaller developers create apps designed for the OS.<sup>15</sup> In contrast, only the six handset manufacturers included in its joint venture were allowed to create variants on Symbian OS.<sup>16</sup> Ultimately, this limited innovation and the development of variants (figure 5) to satisfy diverse and changing customer demand; the Symbian OS rapidly lost market share to the flexible and rapidly evolving Android OS.

Symbian's initial OS was tied to the technology of the PDA market of the 1990s, which limited the development potential and

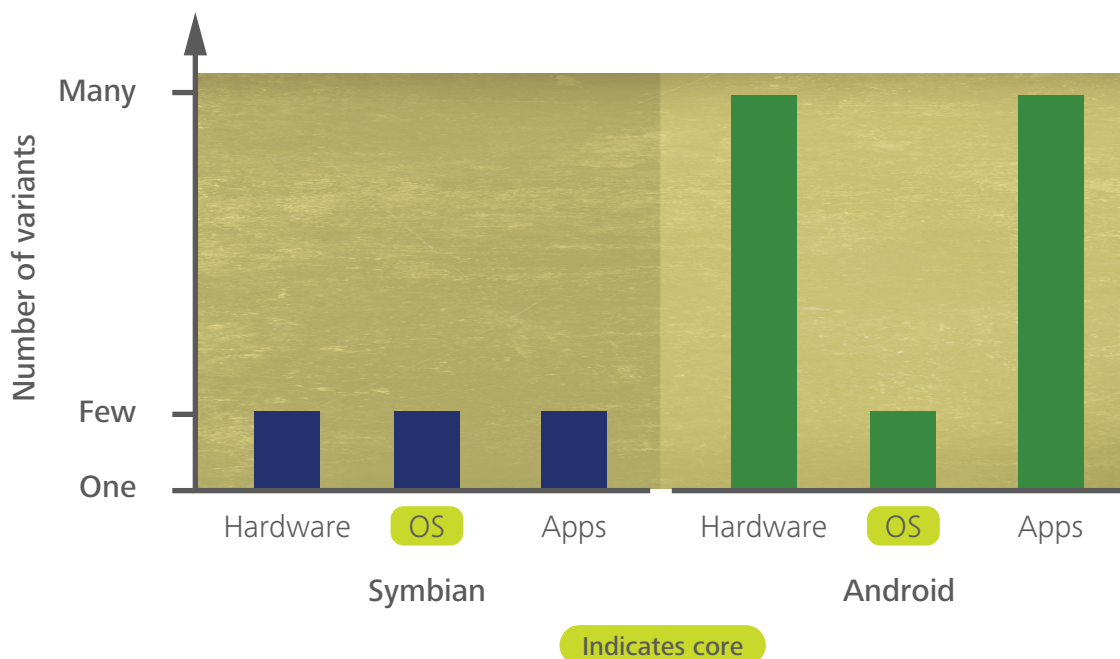
Figure 4. Global mobile OS market share



Sources: Data for 2009–2013: Statista, “Global market share held by the leading smartphone operating systems in sales to end users from 1st quarter 2009 to 4th quarter 2013,” *Statista*, <http://www.statista.com/statistics/266136/global-market-share-held-by-smartphone-operating-systems/>, accessed September 19, 2015; data for 2012–2014: IDC, “Smartphone OS market share—2015,” IDC, <http://www.idc.com/prodserv/smartphone-os-market-share.jsp>, accessed September 19, 2015.

Graphic: Deloitte University Press | DUPress.com

Figure 5. Potential variant growth on the Android product platform versus Symbian



Graphic: Deloitte University Press | DUPress.com

“We hope Android will be the foundation for many new phones and will create an entirely new mobile experience for users, with new applications and new capabilities we can’t imagine today.”

—Andy Rubin, co-founder and former CEO, Android, Inc.<sup>17</sup>

desirability of its operating system as a product platform. In addition, Symbian’s variants were not compatible with each other so separate third-party applications had to be built for each variant, further limiting any benefits to be derived from the ecosystem.<sup>18</sup> In contrast, Android benefited from newer developments in computing capabilities and mobile OS technologies that aligned with activities of other new ventures in the early 2000s.<sup>19</sup> Furthermore, Symbian handset manufacturers guarded their operating systems and ecosystem communities rigorously, not allowing external organizations access to the original source code of Symbian’s

OS and limiting outside customization that could have created a unified experience like that of Android.<sup>20</sup>

For Symbian, the limits of its PDA-derived technology versus Android’s newer technology, combined with its opposition to open innovation (for example, an app store), effectively restricted the potential and value of the ecosystem. By making its platform accessible to a broad network of developers, Google mobilized a large and growing number of participants through open-source licenses that in turn created a self-supporting and self-propelling ecosystem.

## Short story

### Project Ara

Not all product platforms will be software products. Physical product platforms may also threaten incumbents. Planned for a 2016 release date, Google's Project Ara invites third-party manufacturers to build niche-targeted swappable mobile phone hardware modules that fit into nine compartments in the Ara shell. Users can choose to swap out or upgrade components of the phone at their convenience. A user might extend battery life with an extra battery one day, then switch out the camera for a night-vision module the next. This flexible modularity opens the door for third-party developers to channel creativity, innovation, and ingenuity, and allows smaller phone hardware manufacturers to benefit from significantly lowered barriers to entry. Betting on a concept similar to that behind the Android software, Google claims its product to be "designed exclusively for 6 billion people."<sup>21</sup>

Coupled with the Google ecosystem, Project Ara will likely challenge handset incumbents to reconsider how their assets are used by customers and in relation to the family of products already available. In addition, the modular, customizable mobile phone challenges the notion that handset customization is limited to software and accessories.

## Short story

### Modular furniture

AtFAB, a design firm cofounded by architects Anne Filson and Gary Rohrbacher, is trying to create physical "furniture" product platforms. The pair designs simple, durable furniture that can be produced locally using digital computer numerical control (CNC) fabrication tools.<sup>22</sup> Filson and Rohrbacher design and test the furniture platforms in their studio, then post the digital files on OpenDesk, "a global platform for open making," for others to download, customize, and cut. AtFab receives royalties for use of their platform designs. OpenDesk itself is an aggregation platform that was designed to foster an ecosystem for furniture creation and consumption. OpenDesk supports any product platform that can be made reliably and repeatedly by CNC machining wooden sheet materials. It includes a community of designers, local machine shops, and users and allows the platform owners to sell under their own names, brands, and licensing or permission models. OpenDesk's goal is to reduce the environmental impact of shipping, increase local employment, and provide consumers with customizable designer furniture for a fraction of the retail price.<sup>23</sup>

Flexible, customizable, localized product platforms may threaten traditional furniture incumbents that have invested in expensive infrastructure to produce, transport, and store stand-alone products that cannot meet customer needs for customization.

# Is my market vulnerable?

## **Does the user base have a diverse set of needs and preferences? Does my current offering provide opportunities for customization?**

Markets with diverse customers being served by a limited number of standardized offerings are more vulnerable to disruption because large segments of fragmented customer demand are not being fully addressed. A product platform-based business model may expand the types and number of offerings available to end customers and may bring more personalized offerings to market faster. Third parties may leverage the core product platform to satisfy the diverse set of market needs.

## **Does my product offering serve an essential function in the market?**

If the market would likely find it difficult to operate without a particular product, third parties tend to have higher motivation to support a more open platform that allows them to contribute to and build on top of the core product. If products are not central to markets, there may be less incentive for others to attempt to build upon them.

## **Is there potential for shared infrastructure across my products and related products?**

When individual offerings across the same or adjacent industries share a common, expensive-to-build infrastructure, it may be more likely that a wide range of market participants will benefit from the development of a product platform. Product platforms may eliminate redundancies and requirements, enabling third parties and other providers to focus their efforts more productively on building modular functionality and applications.

## **Is the product offering complex and tightly integrated with layered functionality?**

Complex offerings may be at risk of displacement because product platforms may more cost-effectively and efficiently mobilize third-party producers to invest in and deploy the latest functionality. Offerings that currently are not interoperable with complementary products and services are limited in terms of their capabilities and impact, whereas modular add-ons may expand the functionality of the product platform.

# Endnotes

1. Product platforms are a special type of platform. Platforms help to make resources and participants more accessible to each other on an as-needed basis and can become powerful catalysts for rich ecosystems of resources and participants. A couple of key elements come together to support a well-functioning platform: a governance structure, including a set of protocols that determines who can participate, what roles they might play, how they might interact, and how disputes get resolved; and an additional set of protocols or standards typically designed to facilitate connection, coordination, and collaboration. Platforms are increasingly supported by global digital technology infrastructures that help to scale participation and collaboration, but this is an enabler, rather than a prerequisite, for a platform. For more information on platforms, including product platforms, see John Hagel, *The power of platforms*, Deloitte University Press, April 15, 2015, <http://dupress.com/articles/platform-strategy-new-level-business-trends/>.
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8. For instance, stand-alone product offerings that have limited customization, loose integration, and modularity could be vulnerable in the face of increasingly flexible yet integrated offerings. Similarly, businesses that do not rely on third parties or complementary products could be more exposed since they lack preliminary sketches of product platform network requirements.
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12. Dieter Bohn, “Building blocks: How Project Ara is reinventing the smartphone,” *Verge*, April 15, 2014, <http://www.theverge.com/2014/4/15/5615880/building-blocks-how-project-ara-is-reinventing-the-smartphone>.
13. Annabelle Gawer and Michael A. Cusumano, “Industry platforms and ecosystem innovation,” *Product Development and Management Association J PROD INNOV MANAG* 2014; 31(3): 417–433. Michael Cusumano and Annabelle Gawer have investigated platform-based strategies in their categorization of internal and external platforms to identify effective leadership strategies and space for future research.
14. **Aggregation platforms** bring together a broad array of relevant resources and help users of the platform to connect with the most appropriate resources. These platforms tend to be very transaction- or task-focused—the key is to express a need, get a response, do the deal, and move on. They also tend to operate on a hub-and-spoke model. **Social platforms** are similar to aggregation platforms in the sense of aggregating a lot of people—think of all the broad-based social platforms we’ve come to know and love: Facebook and Twitter are leading examples. However, they end up building long-term relationships across participants and foster mesh networks rather than hub-and-spoke interactions. **Mobilization platforms** take common interests to the level of action. These platforms are not just about conversations and interests; they focus on moving people to act together to accomplish a shared goal, something beyond the capabilities of any individual participant. Because of the need for collaborative action over time, these platforms tend to foster longer-term relationships rather than focusing on isolated and short-term transactions or tasks. **Learning platforms** are still rare in business, but one can find very large-scale learning platforms in arenas as diverse as online war games (for example, World of Warcraft) and online platforms to help musicians develop and refine their remixing skills (for example, ccMixer).
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16. Hussain Fakhruddin, “The fall of the Symbian OS: A case study,” *Teknolwedge Software*, February 2014, <http://teks.co.in/site/blog/fall-symbian-os-case-study/>, accessed September 17, 2015.
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# About the authors

**John Hagel** (co chairman, Deloitte Center for the Edge) has nearly 35 years of experience as a management consultant, author, speaker, and entrepreneur, and has helped companies improve performance by applying IT to reshape business strategies. In addition to holding significant positions at leading consulting firms and companies throughout his career, Hagel is the author of bestselling business books such as *Net Gain*, *Net Worth*, *Out of the Box*, *The Only Sustainable Edge*, and *The Power of Pull*.

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**Andrew de Maar** (head of research, Deloitte Center for the Edge) leads the Center's research agenda and manages rotating teams of Edge Fellows, focusing on the intersections of strategy and technology in a world characterized by accelerating change. He has worked with a wide range of public, private, and non-profit entities to help executives explore long-term trends that are fundamentally changing the global business environment and identify high-impact initiatives that their organizations can pursue to more effectively drive large-scale transformation.

# About the research team

This report and the Pattern write-up series would not have been possible without the hard work of our research team—colleagues who tracked down case studies and cheerfully dug for data and more data on the way to proving and debunking countless possible patterns.

**Tamara Samoylova** (former head of research, Deloitte Center for the Edge) led the Center's research agenda. Her particular interests include innovation and new growth opportunities, work environment redesign, and how technology and changing consumer preferences are reshaping the retail landscape.

**Carolyn Brown** (research fellow, Deloitte Center for the Edge) is interested in emerging technologies/innovations, disruption, organizational structures and approaches to innovation, and the impact of government on innovation and vice versa. Brown's consulting experience at Deloitte focused primarily on enterprise strategy for large government agencies, with an emphasis on new technologies such as telemedicine.

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**Carolyn Cross** (research fellow, Deloitte Center for the Edge) is interested in finding innovative ways for companies to establish lasting customer relationships and deliver seamless customer service. As a consultant in Deloitte Consulting LLP's Strategy & Operations practice, she has spent the past two years helping clients across a range of industries, including health care and insurance. Cross is passionate about the future of the food landscape as well as blending together business and community to empower small business and non-profit growth.

**Austin Dressen** (research fellow, Deloitte Center for the Edge) is a self-described catalyst. Although a traditionally trained historian and entrepreneur, he also serves as resident philosopher-in-training. He is interested in the interaction of human beings and machines in our old, new, and unimagined systems.

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# About the Center for the Edge

The Deloitte Center for the Edge conducts original research and develops substantive points of view for new corporate growth. The center, anchored in Silicon Valley with teams in Europe and Australia, helps senior executives make sense of and profit from emerging opportunities on the edge of business and technology. Center leaders believe that what is created on the edge of the competitive landscape—in terms of technology, geography, demographics, markets—inevitably strikes at the very heart of a business. The Center for the Edge’s mission is to identify and explore emerging opportunities related to big shifts that are not yet on the senior management agenda, but ought to be. While Center leaders are focused on long-term trends and opportunities, they are equally focused on implications for near-term action, the day-to-day environment of executives.

Below the surface of current events, buried amid the latest headlines and competitive moves, executives are beginning to see the outlines of a new business landscape. Performance pressures are mounting. The old ways of doing things are generating diminishing returns. Companies are having a harder time making money—and increasingly, their very survival is challenged. Executives must learn ways not only to do their jobs differently, but also to do them better. That, in part, requires understanding the broader changes to the operating environment:

- What is really driving intensifying competitive pressures?
- What long-term opportunities are available?
- What needs to be done today to change course?

Decoding the deep structure of this economic shift will allow executives to thrive in the face of intensifying competition and growing economic pressure. The good news is that the actions needed to address short-term economic conditions are also the best long-term measures to take advantage of the opportunities these challenges create.

For more information about the Center’s unique perspective on these challenges, visit [www.deloitte.com/centerforedge](http://www.deloitte.com/centerforedge).





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