Unbundle products and services
Giving you just what you want, nothing more

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.
Contents

Overview | 2

Case studies | 8

Is my market vulnerable? | 15

Endnotes | 16

Contacts | 19

Acknowledgements | 19

About the authors | 20

About the research team | 21
Overview

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: **unbundle products and services**.

**Unbundle products and services**

**Giving you just what you want, nothing more**

*Def.* Unbundle a product or service into stand-alone offerings that were not previously viable to sell separately.

Advances in manufacturing and distribution technology change the economics of production and distribution such that established mass-market products can be decomposed into narrower, more specialized component offerings. Customers gain access to offerings that are cheaper or that better fit their specific needs than the original product could.
Unbundle products and services
Giving you just what you want, nothing more

**Cases**
- iTunes x Tower Records
- Craigslist x newspaper classifieds
- WhatsApp x wireless carriers

**Conditions**
Where is it playing out?

**Catalysts**
When?

**Challenges**
Why is it difficult to respond?

- **Enabling technology**
  Digital infrastructure providing richer connectivity
- **Customer mind-set shift**
  From expecting “more than you want” to “just what you want”
- **Platform**
  Aggregation platforms increasing market reach
- **Cannibalizes core revenue streams**
  Offering unbundled products at a competitive price point will erode revenues and margins
- **Renders significant assets obsolete**
  Existing production facilities and distribution infrastructure may need to be written off to unbundle products and services
- **Challenges core assumptions**
  Changes assumptions about what customers value and in what form factor

**Arenas**
- Public sector
- Higher education
- Tech CP
- Consumer electronics
- Power and utility providers
- Automobiles
- Oil and gas providers

More vulnerable

More resistant

Graphic: Deloitte University Press | DUPress.com
The cost and time required to manufacture and distribute to the customer base in a way that satisfies customers’ needs have historically limited the viability of a given product or service. To offset the costs of expensive production assets and infrastructure-heavy distribution networks, products had to be sufficiently broad to appeal to, and drive purchases from, a large reachable customer base. The resulting standardized products can be thought of as complementary capabilities bundled into one unit, a “converged product,” in order to gain supply efficiencies. Each product capability was good enough to meet a mass market customer’s need, and in aggregate, the converged product offered value for the customer at the price point even if the customer did not want or use some of the product capabilities and desired more depth in others. Customers who wanted depth rather than breadth had to trade affordability, frequency, or quality to obtain it.

Although not limited to media, bundles are common in the media industry where the medium and distribution channel were deeply intertwined with the concept of the product itself. Consider, for example, the daily newspaper: It had to cover a range of topics—local and world news, sports, economics, home-making, classifieds, etc.—to attract enough buyers to cover the expensive infrastructure (for example, regional printing plants, trucks, newsstands, and delivery staff) needed to produce and distribute a physical paper. Coverage was timely; yet, other than a limited number of periodic investigative reports, topics could not be covered in depth. Specialized magazines emerged to address the desire for depth, but the limitations of production and distribution meant that these periodicals were monthly or even less frequent—customers traded timeliness for depth.

However, when new technology, methods, or processes reduce manufacturing, distribution, or other infrastructure costs, the original impetus for bundling is eliminated. New entrants take advantage of technologies—such as digitization and aggregation platforms—to economically offer individual components of the product bundle that may be of higher quality or value than the limited offering in the bundle. For example, Craigslist unbundled classifieds from the newspaper, improving value for buyers by offering a wider array of free searchable content and for sellers, low-cost access to more buyers.

As customers experience more choice and products that better meet their specific needs in other areas, customer mind-set shifts from “accepting too much” to “expecting just what I want.” They become less willing to pay for a bundle in which they use components unevenly (or not at all) and willingly transition to new products and distribution models. Consider how digital distribution enabled stripping a single song from the album and offering it as a low-priced stand-alone product rather than requiring the consumer to pay for

“Bundles emerge as a consequence of current technology.”

—Marc Andreessen, cofounder of Netscape and co-creator of the first widely used web browser, Mosaic

1

2
extraneous CD content. In addition, as products are unbundled, customers will continue to discover or develop needs that vary from the middle-line capabilities offered by the product bundles. For example, investors demand real-time research on increasingly specific investment classes rather than just a daily financial paper.

For the incumbent, replicating the new entrant by offering stand-alone products would cannibalize the revenue from the currently profitable product bundle. This is especially true when new distribution technology reduces the marginal costs to near zero and new entrants offer the product for significantly cheaper, or even free—as is the case with online news services. In addition, following the path of unbundling would force some incumbents to write off existing manufacturing facilities and other production and distribution infrastructure oriented to support the product bundle. Finally, the notion of the product as a bundle of capabilities that can be unbundled and offered as stand-alone products challenges the core assumptions of an incumbent about their product. Incumbents do not recognize the potential for the product to be unbundled and distributed differently and are unable to think about customer needs and value creation in this light.

The desirability of the unbundled offering and potential to displace the bundled product depends on many factors, including the relative appeal and desirability of the component products and the brand power behind the bundle. The most vulnerable arenas will be
characterized by distribution channels that have required scale to be viable, particularly those arenas with significant physical assets, such as daily newspapers. Within these arenas, the products that may be substantially threatened by unbundling will be those that combine a standardized set of complementary product capabilities where a number of the capabilities are inferior or under-used by some customer segments. However, unbundling will be less of a threat to products in which the components are more equivalent in appeal or where the producer commands such trust or cachet that the bundle has value beyond the components. Industries such as media and entertainment, telecom, and higher education—where digitization is reducing the costs of production, changing the format of the product, and making the marginal cost of distribution near zero—are already being threatened by unbundled products. Other arenas, such as automobile manufacturing, are less vulnerable to unbundling because the potential sub-products (for example, engine block, steering column, and seats) have little stand-alone value to the average customer. As technology continues to alter cost structures, product use, and purchase behavior, manufacturing, distribution, and infrastructure advantages may decline, potentially limiting competitive advantages and increasing vulnerability in additional industries.

Key stats

• In just six years, WhatsApp has grown to own nearly 40 percent of the global messaging market by volume.

• In 2002, the year before iTunes was launched, singles only accounted for 1.9 percent of sales but by 2012, digital singles accounted for more than 75 percent of music-related transactions.

• By 2015, Craigslist had achieved sustained success with more than 50 billion page views per month.
Digging deeper

Is product unbundling confined to digital products?

As more physical products have become digitized, it has become easier and more economical for new entrants to create and distribute products across an array of categories. In addition, digital marketplaces make it easier for producers and customers to find each other and exchange goods with minimal transaction costs. However, unbundling can occur without digitization; consider the trend toward higher education and lifelong learning offerings that attempt to strip components such as lecture, practice, community, and networking out of what was traditionally the professional degree program from a university. While massive open online course (MOOC) platforms represent a digital approach to providing the lecture component, the emergence of corporate education programs, coding boot camps, and sector-specific incubators such as RockHealth illustrate how products can be unbundled in non-digital ways. These programs, driven by a new demand for lifetime anywhere-anytime-anything learning, are made viable as supply costs decrease with the growth of creative cities and the surge in the number and accessibility of knowledgeable teachers.
The single (as represented by Apple® iTunes® online store) displaces Tower Records

In the music industry, high manufacturing, storage, and marketing costs for both labels and distributors drove the bundling of songs into albums to increase distribution efficiencies and overall market revenue. Each medium shift—from vinyl to 8-tracks and cassettes to CDs—only altered the economics incrementally. Singles were not viable for retailers; in 2002, they accounted for only 1.9 percent of music sales.\(^{11}\)

In the early 2000s, as distribution and consumption moved from physical CDs to online and digital music players, the costs associated with manufacturing and holding inventory dropped significantly, eliminating the cost rationale for bundling songs. Napster, followed by the iTunes file sharing model, capitalized on digital distribution channels to unbundle the single song from the CD and began reshaping music consumption. Over the next decade, fueled by customer demand and a low price point, the single displaced the CD as the primary form of music consumption. Singles let customers purchase only the music they desired, forgoing unwanted and rarely listened-to additional content that they had previously been forced to purchase with CDs. Customers were willing to adopt the new format not only because it met their unique tastes, but also because the 99-cent price point was desirable relative to the $14.99 price of the CD.

The CD took a big hit: between 1999 and 2005, CD sales fell by 25 percent,\(^{12}\) and by 2012, 7 times more singles were sold than CDs.\(^{13}\) The digital marketplace only accelerated the transition to singles—for every 1 percent increase in users who move to buying music online, there is a 6 percent decrease in album sales.\(^{14}\) Even though people were making more purchases of music than ever before in absolute

\(^{10}\)
numbers, they were spending less on each purchase. Allowing customers to pick and choose with the low-profit single undercut the revenue previously generated by purchases of the high-profit CD. In the seven years between 2003 and 2010, music revenues dropped 32 percent as customers gravitated toward single tracks.\(^{15}\)

iTunes and other online distributors rode the wave of single music consumption to displace independent music and record stores such as Tower Records, which could not profitably offer singles and saw the market plummet for the higher-margin album product they depended on to cover the high costs of physical retail and storage spaces. Tower Records ultimately declared bankruptcy in 2006.\(^{16}\) The digital single played into customers shifting expectations toward personalized content, and capitalized on the growing customer population of digital natives who were willing to try new product and distribution forms.

For independent record stores to offer the single would have cannibalized the revenue streams generated from albums, decreasing overall revenue, and making it difficult to maintain profitability, especially at the 99-cent price point. Practically, stocking so many physical singles, assuming a physical single would have had similar appeal to the consumer, would have required a different distribution and inventory model and made the current inventory of albums obsolete. Had the incumbents switched to offering digital singles, the effect of making existing brick-and-mortar
In the early 2000s, carrier-provided voice and SMS were the dominant forms of mobile communication. However, in 2009, over-the-top (OTT) providers began using existing Wi-Fi and carrier infrastructure to provide services such as Skype mobile (VoIP) and WhatsApp (MIM) for a much lower price, allowing users to bypass the more expensive carrier options provided in the wireless service bundle.

Benefiting from improved global access to data services and riding the wave of demand for instant and inexpensive global communication, OTT messaging and voice services are quickly challenging carrier-provided SMS and voice revenues, which in 2012 comprised 11 percent (SMS) and 51 percent (voice) of worldwide mobile industry revenue.

In 2013 alone, free social messaging applications reduced phone carriers’ revenue by nearly one third, or $32.5 billion in texting fees. While SMS is only a small portion of total carrier revenue, its rapid demonetization is indicative of the way OTT messaging and other OTT stand-alone products might eat away at the carrier bundle.

In just six years, WhatsApp became a popular communication platform and currently accounts for 38 percent of the global messaging market by volume. By removing the requirement for a specific network, OTT providers do not have the same infrastructure costs as carriers and can therefore viably offer one or two stand-alone products where there is high demand for low-cost service. New digital distribution platforms, such as app stores, allow for cheaper distribution, further reducing the cost of providing OTT services. Customers see this difference in price—an SMS costs roughly $0.02 while a multimedia message over WhatsApp costs less than 1/300th of that for the average user. Adoption rates are accelerating as digital natives make up an increasing share of the customer base, and expanding marketplace reach connecting more customers than ever to these new applications.

Incumbent carriers cannot offer similarly low-priced service without cannibalizing current revenue streams from SMS, which is considerably more profitable on a per-message basis than the data revenues carriers receive from customers using OTT platforms. On average, SMS generates $23 in revenue per year per customer for wireless providers, while a customer using WhatsApp, sending 15 times the number of messages, generates on average only $3 in annual data revenue. In order to achieve the same revenues for OTT as SMS users, carriers would have to increase data rates by over 700 percent!

The economics and appeal of products remain in flux given the rate of change in technologies and customer behaviors in this dynamic market.
Assumption: WhatsApp's ratio of messages sent to received was available for two years (2011 and 2013), while total (sent + received) counts were available for other years. The ratio for 2011 was used to calculate the number sent for unspecified years.

Sources:

Graphic: Deloitte University Press | DUPress.com
Between 1995 and 2012, digital publishing and reliable high-speed Internet eliminated the need for material and logistical costs associated with distributing print media, enabling new entrants to offer specialized, sometimes individualized, content previously only partially provided through the bundle of sections known as the newspaper. For example, Bleacher Report provided a deeper sports offering, numerous independent blogs provided the lifestyle and food sections, and Craigslist took on the classifieds.

Founded in 1995, Craigslist provided an online aggregation platform to connect buyers and sellers, offering all of the functionality of a printed newspaper classified section in a more appealing low-cost digital product. With limited need for infrastructure, Craigslist could charge minimal fees for postings—in most categories postings were free—effectively demonetizing the industry. Craigslist, together with other specialized online aggregators (for example, Monster.com, cars.com) removed nearly $15 billion, representing roughly 75 percent of the revenue formerly generated by classified ads and 31 percent of total ad revenue, from the newspaper industry (excluding major players such as the New York Times, Wall Street Journal, and USA Today) between 2000 and 2012.29 As a percentage of total newspaper ad

“...We’re in the top 10 companies in [customer] traffic with a staff of 24, whereas the other companies on that list have staffs of more than 10,000.”

—Craigslist CEO Jim Buckmaster,28

29

unbundled online classified product was more appealing because it was accessible for posting or searching 24x7, continuously updated, and offered visibility and access to a much larger set of potential buyers and sellers. Users could engage with free classified content without purchasing the extraneous newspaper material, and sellers gained lower costs and the ability to adjust pricing, descriptions, and other information as often as necessary rather than waiting for the next publication cycle. The filtering capabilities allowed buyers and sellers to search by region, product, service, price, and other attributes, enabling a high degree of relevance and customization across nearly all geographies. Customers were quick to adopt and use Craigslist and other online aggregators because of the convenience, flexibility, and savings it offered. A one-time, five-line classified ad in the New York Times (15–20 words) cost nearly $300,31 while the majority of Craigslist postings are either free or cost less than $25.32

Print newspaper incumbents have struggled to respond to the overall unbundling of their product. In 2009 alone, 105 newspapers closed, 10,000 newspaper jobs were lost, and print...
ad sales fell 31 percent.33 For incumbents, not only would shifting to an online model directly compete with and cannibalize the revenue from the pre-existing print product, but it would require adoption of a different business model to account for the near-zero cost structure. If incumbents unbundled and digitized the classifieds section, they would not have been able to earn enough revenue to support the non-digitized components of the newspaper which were previously subsidized by advertising revenue. Alternatively, if they

**Figure 4. US newspaper ad revenue ($ billion)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ad revenue</th>
<th>Classified ad revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$48.6</td>
<td>$19.6</td>
</tr>
<tr>
<td>2008</td>
<td>$37.8</td>
<td>$10.0</td>
</tr>
<tr>
<td>2012</td>
<td>$22.3</td>
<td>$4.7</td>
</tr>
</tbody>
</table>


**Figure 5. US newspaper industry’s “help wanted” classified ad revenue**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues (in $Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$9.7</td>
</tr>
<tr>
<td>2001</td>
<td>$8.7</td>
</tr>
<tr>
<td>2002</td>
<td>$7.6</td>
</tr>
<tr>
<td>2003</td>
<td>$6.5</td>
</tr>
<tr>
<td>2004</td>
<td>$5.6</td>
</tr>
<tr>
<td>2005</td>
<td>$4.7</td>
</tr>
<tr>
<td>2006</td>
<td>$3.8</td>
</tr>
<tr>
<td>2007</td>
<td>$2.9</td>
</tr>
<tr>
<td>2008</td>
<td>$2.0</td>
</tr>
<tr>
<td>2009</td>
<td>$1.1</td>
</tr>
<tr>
<td>2010</td>
<td>$0.0</td>
</tr>
</tbody>
</table>

transitioned to a fully digital model, existing and expensive assets, including printing machines and manufacturing facilities, would be rendered obsolete and eventually forced to be written off.

While most newspaper companies have been significantly impacted, several companies have transitioned their focus and strategies in attempts to stay afloat. While some rely on strong local readership, others have implemented tools such as pay-walls to recover revenue in alternate ways, and merged to increase the value of advertising space and eliminate redundant processes and positions. It remains to be seen whether brand and quality can be used to maintain some version of the bundle.

Short story

Corporate education

Two-year MBA programs are being challenged by on-the-job management training programs and other personal and business development programs that are offered internally by corporations as well as other third-party providers. The traditional two-year MBA program is expensive because the university has to maintain physical real estate, proprietary knowledge from valued professors, and high-quality brand names. It is also expensive in terms of commitment from the student who must commit time and forgo earning while in the program. While business schools have designed a variety of accelerated, part-time, and low-residency options over the past two decades to make the MBA program more appealing to a broader audience, the bundle of lecture, practice, community, network, accreditation, and career placement has largely remained intact and anchored to schools with their extensive physical and academic infrastructures.

Other education and learning providers have capitalized on the ability to distribute content and training virtually or through nontraditional settings such as corporate learning centers. The cost to deliver management training is further reduced because the expert knowledge required is less proprietary, and offered by more practitioners who can use virtual assets to supplement gaps and enhance the content. Corporate training programs have been on the rise, growing from just over 400 stand-alone corporate learning centers in the beginning of the 1990s, to over 4,200 in 2015. In addition, a broad array of new entrants are emerging to offer elements of the traditional business degree program and offer them in more customized, more affordable, or more on-demand products. A variety of MOOC platforms offer lectures, while specialized alternative institutions such as Singularity University as well as certain incubators offer entrepreneurial training or sector training in addition to access to networks for guidance, capital, and career opportunities.

MBA programs show signs of pressure: In 2012, applications for two-year, full-time MBA programs declined for the fourth year in a row. In 2013, Clay Christensen called attention to this trend, saying that educators and MBA programs “need to stay tuned because it’s happening to the Harvard Business School … and nobody at Harvard even thinks about it.” This trend continues in higher education with more experimentation around on-demand lectures (for example, MOOCs), augmented with live instructor-facilitated opportunities to apply learning, challenge-focused meet-ups, study groups, and intensive, short-term “bootcamps” for coding that might be replicated for other disciplines. Universities that respond by catering to MOOCs or corporate education programs would siphon demand away from their longer, high-margin two-year programs, and potentially create a substantial and lasting customer mind-set shift away from the value of two-year MBA programs. This is a case where the power and cachet of the brand behind the product (that is, the two-year degree program) may slow down the effect of unbundling, but in an environment of ever-evolving customer expectations and evolving models to leverage educational technology, the pattern in higher education is still developing.
Is my market vulnerable?

**Does your product have multiple capabilities, with uneven use of the capabilities?**

Given a choice, customers gravitate toward purchasing only those offerings they prefer and use frequently rather than products that come loaded with a variety of unwanted capabilities. By purchasing only what they want, customers may save money and gain value through a simplified product experience. If customers disproportionately use a particular part of the product offering, new entrants may be able to use technology to offer the capability to customers through a stand-alone product.

**Does the user base have a diverse set of needs?**

Customers with specific, diverse needs may not be satisfied with bundled offerings that are generally characterized by standard, middle-line products and do not provide much choice to users. These customers may be more likely to switch to products with more variety and use cases that better address their personalized needs and preferences. Current customers may be dissatisfied with the performance of the current product and willing to switch if new entrants could satisfy demands by unbundling existing products.

**Does my current manufacturing/distribution process rely on converged products for efficiencies?**

Products that require bundling to achieve distribution or manufacturing scale are at risk of disruption from entrants that capitalize on technology advances to reduce those and other infrastructure costs, in effect eliminating the need for the original converged product. To this end, incumbents should examine whether they are in markets in which entrants can use technology to reduce supply costs and support cheaper product development, allowing them to create simpler, specialized products that are still cost efficient to produce and distribute.

**Is it easy for a customer to curate the unbundled product offerings of their choosing?**

If customers are able to easily and cost-effectively curate a set of specialized products that meet their needs—the role once played by the converged product—standard products may be unable to compete to effectively satisfy individual needs. On the other hand, when the collection of product capabilities is expensive and difficult to reassemble, customers will be less likely to look for unbundled offerings because the requisite commitment to meet all of their needs offsets the value of not having some extraneous capabilities in a typical converged product.
Endnotes

1. We use the term “converged product” to include products that have effectively been converged from the beginning, in that the product has never been sold in a disaggregated form. From its inception, the product was assumed to be in its simplest viable form. In reality, converged products are composed of multiple product capabilities. Prior to “unbundling,” the converged product can only be purchased as a single physical unit. These converged products differ from convenience bundles, which are composed of stand-alone products that are sold together for reasons of marketing, savings, or convenience. The products that comprise a convenience bundle can also be purchased individually.


3. Ibid.


5. Ibid.

6. Some might argue that stripping the service of transportation from point A to point B out of the automobile is a form of unbundling. We believe that the disruptive potential of X-as-a-service derives from the access to capabilities priced per use without high fixed upfront costs more so than the decomposition of a product into more specialized product capabilities. We consider X-as-a-service in another pattern, align price with use.


10. Apple and iTunes are trademarks of Apple Inc., registered in the United States and other countries.

11. Misonzhink, “The day the music died.”

13. Covert, “A decade of iTunes singles killed the music industry.”


17. Williams, “The graying of the record store.”


19. Covert, “A decade of iTunes singles killed the music industry.”

20. OTT applications are network-agnostic delivery systems of digital services—they break the link between the carrier and the network that delivers the service.


24. Ibid.

25. Banks, “Here are some incredible facts about WhatsApp”; Whitfield, “The 1.5 trillion $ dollar story of SMS”; Langley, “There are more WhasApp than texts sent each day. A lot more.”


32. All Craigslist postings are free, except for job postings in selected areas—$15–75 (fee varies by area); brokered apartment rentals in New York City area—$10; therapeutic services in the United States—$10 (reposts of live ads $5); tickets by-dealer in the United States—$5; cars/trucks by-dealer in the United States—$5. Craigslist website, https://www.craigslist.org/about/help/posting_fees, accessed December 7, 2015.


36. Ibid.


Acknowledgements

This research would not have been possible without generous contributions and valuable feedback from numerous individuals. The authors would like to thank:

Philippe Beaudette  
Andrew Blau  
Peter Fusheng Chen  
Jack Corsello  
Larry Keeley  
Eamonn Kelly  
Vas Kodali  
Jon Pittman

Janet Renteria  
Peter Schwartz  
Dan Simpson  
Vivian Tan  
Lawrence Wilkinson  
Andrew Ysursa  
Blythe Aronowitz  
Jodi Gray

Peter Williams  
Chief edge officer, Centre for the Edge  
Australia  
Tel: +61 3 9671 7629  
E-mail: pewilliams@deloitte.com.au

Contacts

Blythe Aronowitz  
Chief of staff, Center for the Edge  
Deloitte Services LP  
+1 408 704 2483  
baronowitz@deloitte.com

Wassili Bertoen  
Managing director, Center for the Edge  
Europe  
Deloitte Netherlands  
+31 6 21272293  
wbertoen@deloitte.nl

Peter Williams  
Chief edge officer, Centre for the Edge  
Australia  
Tel: +61 3 9671 7629  
E-mail: pewilliams@deloitte.com.au

Giving you just what you want, nothing more
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*.

John Seely Brown (JSB) (independent co chairman, Deloitte Center for the Edge) is a prolific writer, speaker, and educator. In addition to his work with the Center for the Edge, JSB is adviser to the provost and a visiting scholar at the University of Southern California. This position followed a lengthy tenure at Xerox Corporation, where JSB was chief scientist and director of the Xerox Palo Alto Research Center. JSB has published more than 100 papers in scientific journals and authored or co authored seven books, including *The Social Life of Information*, *The Only Sustainable Edge*, *The Power of Pull*, and *A New Culture of Learning*.

Maggie Wooll (head of eminence and content strategy, Deloitte Center for the Edge) combines her experience advising large organizations on strategy and operations with her love of storytelling to shape the Center’s perspectives. At the Center, she explores the intersection of people, technologies, and institutions. She is particularly interested in the impact new technologies and business practices have on talent development and learning for the future workforce and workplace.

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.

**Leslie Chen** (former research fellow, Deloitte Center for the Edge) is passionate about exploring disruptive innovation in a global context with a focus on emerging markets. As part of Deloitte Consulting LLP's Strategy & Operations practice, she worked on location strategy projects, helping companies determine where to set up their global operations. During her time at the Center, she conducted research to define patterns, and explored how these patterns manifest in international markets.

**Andrew Craig** (former research fellow, Deloitte Center for the Edge) is passionate about exploring the intersection of technology, design, and social science as a way to understand and influence the drivers of business change. At Deloitte Consulting LLP, he works in the Strategy & Operations practice, helping clients realize growth in the face of dramatic social and technological shifts. At the Center, his research and analysis included the maker movement, the collaborative economy, manufacturing, and macro trends that drive disruptive change.

**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.

Brandon Lassoff (research fellow, Deloitte Center for the Edge) is passionate about customer and marketing strategy, particularly in developing cutting-edge and innovative customer engagement plans. As a consultant in Deloitte Consulting LLP's Strategy & Operations practice, he has spent the last three years working alongside leading high-tech and pharmaceutical clients, developing seamless customer experiences to address top CMO priorities.

Andrew Reeves (former research fellow, Deloitte Center for the Edge) is a consultant in Deloitte Consulting LLP’s Strategy & Operations group. He has worked with clients across the technology, financial services, and health care industries, focusing on topics ranging from innovation and growth strategy to process optimization, operational redesign, and supply chain innovation. At the Center, Reeves primarily focused on understanding disruption with regard to the development of platforms for accelerated learning, sharing, and product development.

Jay Rughani (former research fellow, Deloitte Center for the Edge) is passionate about developing new technologies that help people enjoy a better quality of life. His interests span issues ranging from resource allocation to cyber security to climate change. Today, he spends his time building technology-driven solutions to improve outcomes and reduce costs within the health care system.

Max Zipperman (research fellow, Deloitte Center for the Edge) is passionate about emerging technologies and their potential impact on the future of business and society. His primary interests revolve around questions of how best to structure public policy in preparation for unprecedented issues resulting from exponential technologies. At Deloitte Consulting LLP’s Strategy & Operations practice, he has helped large technology and insurance companies prepare for a dynamic future.
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.
About Deloitte University Press
Deloitte University Press publishes original articles, reports and periodicals that provide insights for businesses, the public sector and NGOs. Our goal is to draw upon research and experience from throughout our professional services organization, and that of coauthors in academia and business, to advance the conversation on a broad spectrum of topics of interest to executives and government leaders.

Deloitte University Press is an imprint of Deloitte Development LLC.

About this publication
This publication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or their related entities (collectively the "Deloitte Network") is, by means of this publication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser. No entity in the Deloitte Network shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

About Deloitte
Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. Please see www.deloitte.com/about for a more detailed description of DTTL and its member firms.

Deloitte provides audit, tax, consulting, and financial advisory services to public and private clients spanning multiple industries. With a globally connected network of member firms in more than 150 countries and territories, Deloitte brings world-class capabilities and high-quality service to clients, delivering the insights they need to address their most complex business challenges. Deloitte’s more than 200,000 professionals are committed to becoming the standard of excellence.

© 2015. For information, contact Deloitte Touche Tohmatsu Limited.