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Procurement 4.0

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Are you ready for the digital revolution?

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About the authors

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Executive summary

Some call it "digitalization," some call it "smart manufacturing," and others call it "the next industrial revolution" or "Industry 4.0." Whatever term you use, a combination of new technologies — from big data analytics to 3D printing — is revolutionizing companies' operational and administrative processes and creating innovative digital products and services.

Reflecting the effects of Industry 4.0's cutting-edge technologies and data management on strategic and operational procurement, the additional concept of "Procurement 4.0" has recently emerged. What does Procurement 4.0 entail? And should it be the strategic compass for chief procurement officers in the foreseeable future? There are many opinions, and every company will ultimately require its own strategy and trajectory as it takes on both the challenges and the opportunities that come with advanced procurement.

In industries across the board, however, companies need to consider the way digital innovation will disrupt not only the way their organizations work today, but the entire value proposition of procurement to their suppliers, customers, and internal process partners. In this report we offer a framework for adapting to the organizational changes that a 21st-century approach to procurement will require.

The new framework

The Strategy& Procurement 4.0 framework encompasses six areas (*see Exhibit 1, next page*):

1. New procurement value proposition

2. Digital category and service procurement

3. Digital supply chain and supplier management

4. Innovative procurement data utilization

5. Digital processes and tools

6. Organization and capabilities

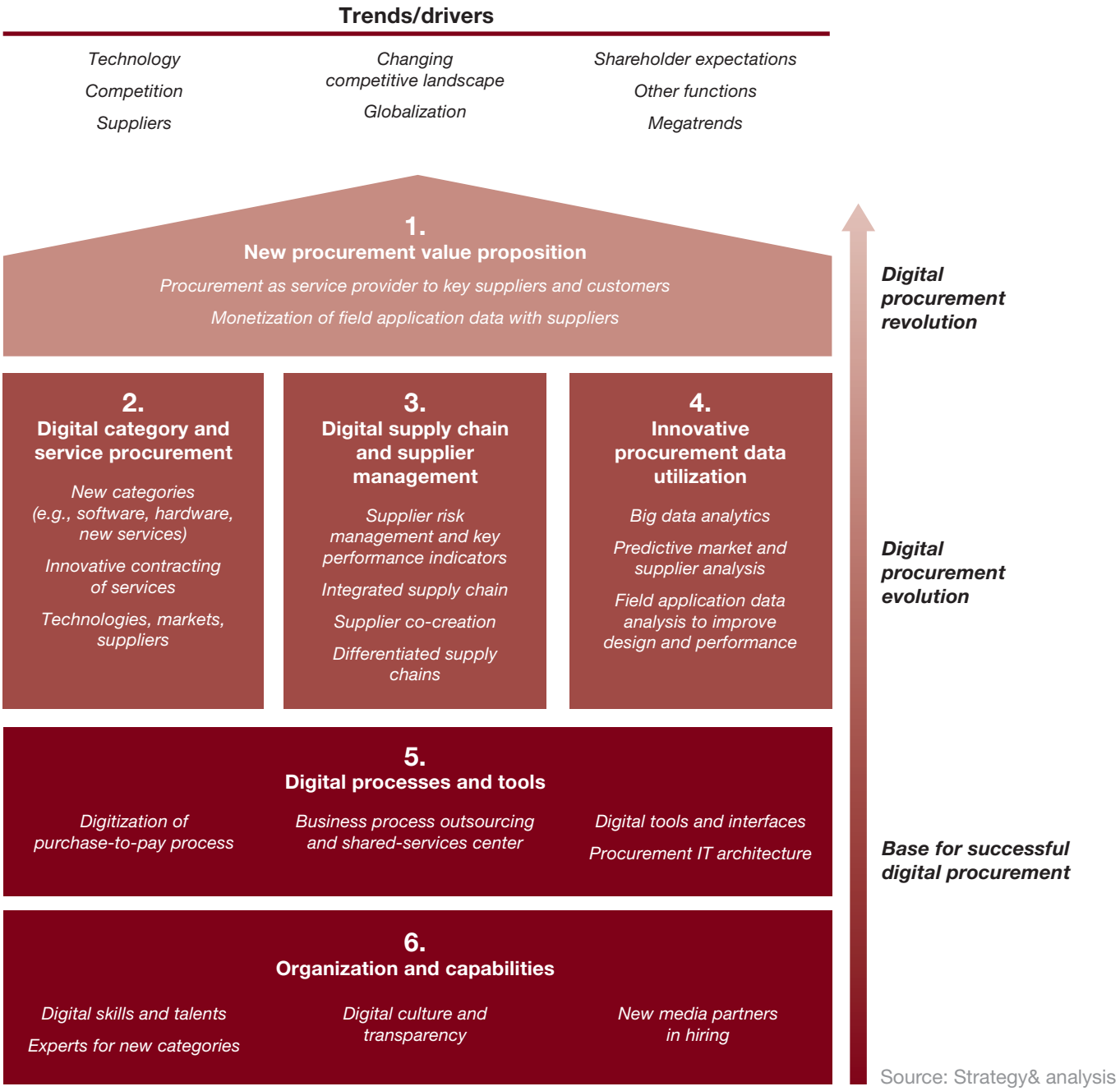
1. New procurement value proposition

In the context of Procurement 4.0, chief procurement officers need to rethink the value added by procurement within the company. With the new opportunities provided by digitalization and big data, traditional organizational boundaries between research and development, manufacturing, procurement, and, in some cases, the entire supply chain will become increasingly blurred, as indicated by our Industry 4.0 survey of 235 European industrial companies (Volkmar Koch, Simon Kuge, Reinhard Geissbauer, and Stefan Schrauf, "Industry 4.0: Opportunities and challenges of the industrial internet," Strategy&, 2015).

The procurement division, as the primary owner of the supplier interface, can keep — and even increase — its distinctive value proposition within the company by seizing some of these new opportunities. It can create new business models for itself and move from being a cost center to a profit center. This is possible because procurement possesses strategic know-how about suppliers and their markets and a deep expertise about the goods and services that are

Exhibit 1

Procurement 4.0 framework



Source: Strategy& analysis

procured, as well as the alternatives on offer, including emerging innovations. All of this knowledge represents an asset that is gaining tremendous value in today's market.

In addition, procurement can use its valuable customer data to better manage transportation flows, inventories, warehouse requirements, quality inspections, and other parts of the supply chain. Capable procurement organizations can provide this value not only internally, to other functions, but also externally, to suppliers and customers. They might also monetize their field application and customer use data by selling it back to suppliers. These suppliers could, in turn, use this additional information about their products to generate more target-oriented specifications and applications, ultimately leading to the design of more cost- and function-efficient products.

2. Digital category and service procurement

New technologies will lead to new business needs, which will be reflected in new requirements for the procurement department. One of these requirements will be capturing, analyzing, and acting on real-time data, an activity at the heart of Industry 4.0. Increasingly, key data will be registered using sensors, analyzed in real time, and transformed into actions by actuators and other devices, all the while being made available in real time to value chain partners. Additionally, people, objects, and systems will be increasingly connected through data communications, transforming value chains into larger "value networks" — sets of connections between organizations and individuals interacting with each other to benefit the entire group. For procurement, this will primarily mean that certain items, such as intelligent sensors, communicating actuators, and associated controllers and software, will be sourced much more frequently than before. Certain categories of items such as electronics will grow, while others may shrink and even disappear.

Not only will companies change what they buy as they incorporate Procurement 4.0, but importantly, they will also change the ways in which they buy. The purchasing of services will increase dramatically, for example, leading to a need for many new and different contracting approaches to ensure that companies receive the best value for their money. In addition, there will be many intellectual property implications — not to mention regulatory issues — around ownership of the data collected by sensors when the end products are sold and in use. Who owns the rights to this data? The sensor supplier? The control system and software provider? The product integrator that sold the product to the customer? Or the customer itself?

3. Digital supply chain and supplier management

It is a manufacturing dream for the ages: the ability to integrate all of the data from customers, distributors, captive production, and suppliers in real time to optimize supply chain performance — thereby reducing lead times and freight and inventory costs while improving the customer experience and even supplier performance. As of 2016, it is clear that this dream will not be realized by big ERP-centered providers. Instead, a host of agile specialized providers such as Kinaxis and Elementum will integrate ERP, manufacturing execution systems, and manufacturing and logistics data from all the partners in a given value chain. As this Procurement 4.0 data integration takes place, procurement will play an integral role in getting suppliers on board and optimizing the end-to-end supply chain.

Data integration will substantially change supplier management as well. A good example — one of many — is supplier risk management. Companies will be able to employ big data analytics, looking at enormous quantities of customer, financial, and external data — from the weather all the way to credit ratings — to predict changes in risk ratings. They will have the additional option of feeding changes in credit ratings automatically into the supplier risk management system.

4. Innovative procurement data utilization

Data analytics are probably the most important enabler for Procurement 4.0. Smart technologies and algorithms allow very large volumes of data from many heterogeneous sources to be aggregated, processed, and analyzed. The resulting analyses can be used to understand suppliers, markets, and customers; predict market trends; and look into machine and product failures. They can enable employers to make better and more informed decisions. And in some cases, they can automatically drive procurement decisions.

Analyzing data and using it smartly is therefore one of the key success factors for companies that want to make the most of the potential of Procurement 4.0. As noted earlier, for example, suppliers can be provided with field application data analysis to improve the design and performance of their products. Predictive information about where and when to expect the next failure will offer the opportunity to optimize maintenance services and the availability of spare parts.

It will be procurement's responsibility to ensure that all of the opportunities offered to the company through the analysis of big data are maximized, working with suppliers to allow both company and supplier to benefit from the resultant improvements in supply chain efficiency.

5. Digital processes and tools

Digital technologies will help procurement increase collaboration, analytics, and engagement using a spectrum of tools along the entire procurement value chain, from planning and sourcing to contract negotiations, order delivery, payment, and supplier management. These technologies vary greatly in their impact and current technological maturity, so companies will need to look carefully at both conditions as they lay out an IT architecture strategy that will specify the processes they want to support and the tools they want to use, based on a predefined road map. Whatever the strategy, we believe "must have" digital procurement processes include digital requests for quotations, supplier financial analysis, procurement risk analysis, e-signatures and verification, and digital procurement network collaboration.

Note that investing in new digital tools is a means to an end — not the end itself. Ideally, this investment will lead to digitally automated processes, even beyond the transactional purchase-to-pay, with only limited manual support required. Such digital tools and processes will additionally support business process outsourcing and shared-services centers, further boosting efficiency. Ultimately, however, the benefits will arise not simply from reducing costs, but also from freeing up highly qualified procurement resources from mundane, repetitive tasks so they can focus on delivering value to the business.

6. Organization and capabilities

It is clear that the first five elements of the framework — even if not all are relevant to every company — pose such a tremendous change to the way of working for procurement that they require a fundamental "rethink" regarding organization and capabilities, both of which will need to be reshaped over time. Companies will need to create new job profiles, for example, whether for buyers of new categories of items, contract experts on intellectual property, or data scientists for data maintenance, analysis, and mining. To find this talent, new sources must be unlocked with the help of procurement cooperation partners such as university partnership programs and research centers, along with social networks, social media, and "boomerang rehires" — top-performing employees rehired after a few years' absence. The largest companies should consider establishing their own procurement academies to conduct Webinars, cross-functional training, and supplier workshops. Only if procurement personnel are digitally capable can a company fully benefit from the opportunities provided through digitalization.

In addition, digitalization will increase globalization and speed up communications in an ever more closely connected world. Whereas it was once enough to have knowledge about certain supply markets such as China and Eastern Europe, Procurement 4.0 will require an organization that is truly global. For example, having the core of the procurement organization housed at headquarters might have worked in the past, but looking ahead, more and more buyers may need to be located in the most competitive supply markets for each category.

Conclusion

The introduction of Procurement 4.0 will mean developing new value propositions, meeting new business needs, and integrating data across functions and value chains. It will call for using this data proactively and intelligently, while introducing digital processes and tools. Perhaps most important, it will require fundamentally reshaping the procurement organization and its capabilities to take on the challenges and opportunities of the expanding global digital revolution.

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