Roland Berger
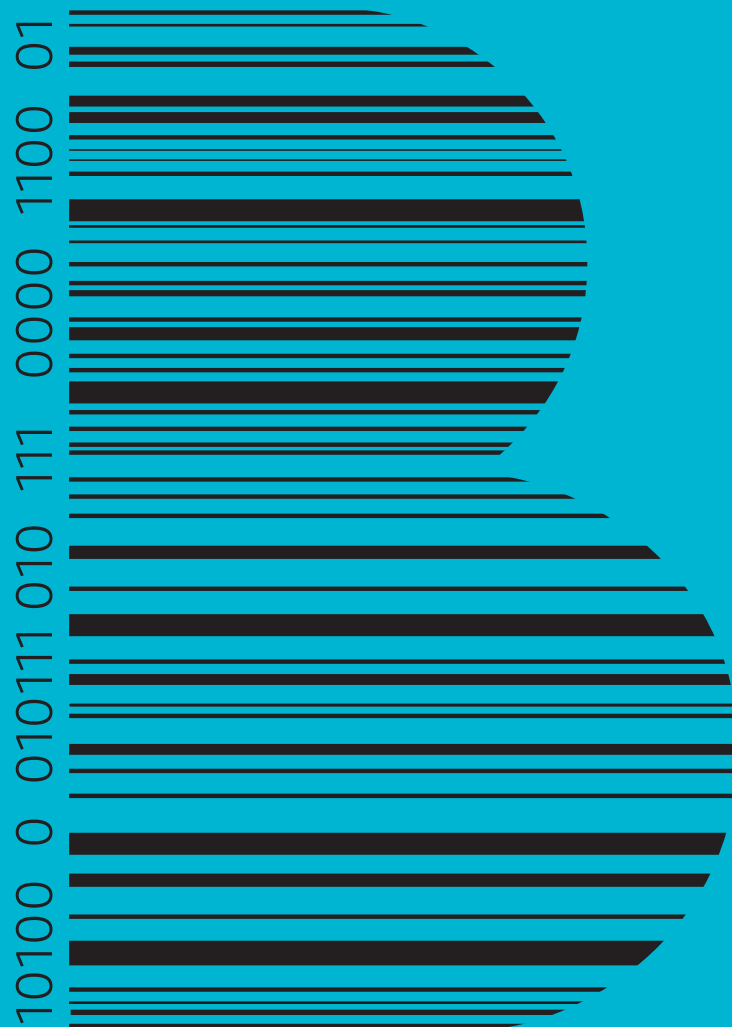# Focus

Digitalization and beyond
The future of procurement in the age of artificial intelligence

Roland Berger

Contents

1. Continental drift:
How digitalization is changing the procurement landscape

"To create a new standard, it takes something that's not just a little bit different. It takes something that's really new and really captures people's imagination." These words from Bill Gates, initially related to the Macintosh PC, could serve as a summary of the serious challenges and fascinating opportunities that will accompany purchasing in the coming years. Procurement is in the midst of a process of disruptive transformation that will change its face forever and create a completely new corporate function, empowered, determined and shaped by technology. In other words, procurement is living up to a radically new standard. This process is mainly due to three parallel developments, which we call the procurement endgame. First we have the comprehensive digitalization of purchasing and complete transparency of the value chains, from the raw material producer to the end customer. Second, as a result of this development, a pro-

found automation of the majority of tactical, operational and even strategic procurement processes will take place. Intensive use of artificial intelligence and specialized bots will affect a large part of classic operational purchasing, boost transactional efficiencies and reduce staffing levels. And finally, there is the commoditization of large parts of the purchasing processes and their reallocation to specialized service providers, which is an unavoidable consequence of automation.

This means procurement will need to change. Embrace the technology to drive automation and efficiency on the one hand, and provide more insights and steering in an increasingly complex value chain on the other. But this task cannot be resolved using the same methods and tools that have worked so far. Radically new challenges require radically new solutions. These are the things that have to change.

2. Riders on the storm:
Procurement as a driving force of AI

The disruptive developments that accompany digitalization mean that the question of how to strategically and operationally reinterpret the strategic role of purchasing needs to be asked. In the operational arena, the combined use of RPA (robotic process automation) and AI (artificial intelligence) in particular can prove to be an important efficiency lever. That is because there is large potential for automation in highly integrated, complex and globe-spanning value chains. Software robots can perform particularly repetitive and standardized tasks (such as verifying invoices), which works by mimicking human interaction with user interfaces without needing any comprehensive architectural changes in IT.

In Roland Berger's survey of 87 CPOs of Global Fortune 500 companies, 67% of the CPOs ranked AI as one of their top 3 priorities for the next 10 years. The Executive Vice President & Chief Procurement Officer of Philips Electronics, Fredrick Spalcke, summarized the key rationale for AI as follows: "The CPO is the 'CEO of spend' and needs to think end-to-end, from the consumers to the suppliers. AI is the only way to manage this end-to-end, because it is overwhelming for individuals to manage that amount of data without these tools."

Already clearly recognizable, the trend toward the automation of procurement operations will be further intensified with the use of artificial intelligence in considerably less standardized tasks. The consequences of

this development and of the outsourcing of entire process chains to external service providers will be great leaps in efficiency. But there will also be a reduction in the need for human resources in the operational arena.

The upshot of this is that procurement professionals will gain the opportunity not only to strengthen the strategic role of their function, but to deal with purchasing on a new and merely strategic level. This calls for a paradigm shift that describes the position of purchasing in the company's global network as a data expert and the owner of data-enhanced strategic decision making. This initially surprising view can be justified very easily. Today, purchasing is the function with the most external and internal interfaces. These include partners and a wide range of suppliers around the world, regulators and internal compliance, R&D, finance, production, logistics and, of course, customer management – all of whom are connected to procurement via physical and digital transaction and communication paths. The complexity and diversity of this environment, the large number of transactions and the large amount of data make purchasing a central player in the corporate transformation – and a sovereign manager of the digital storm. The treasure trove of data gives procurement the opportunity to position itself within the organization as a provider of business insight and business foresight – thus having a significant impact on the overall performance of the company. However, better and more precise decisions, strong operational excellence, quality, compliance and cost reduction are only fully possible if a holistic approach is followed. This means focusing on the entire process landscape of purchasing, leveraging the full spectrum of IT tools and executing a mind shift in the procurement organization. Or, in other words, defining the triple impact as a strategic objetive. → **<u>Case study 1</u>**

CASE STUDY 1

RPA: Getting a quick fix to automate repetitive tasks

A global company from a process industry was working in a consistent global ERP environment with limited customization of its specific processes. Communication with suppliers was in many cases based on emails and calls. As a result, the buyers had to frequently update orders manually due to changing raw material prices and delivery dates, resulting in repetitive, error-prone work and taking away time from much-needed strategic category work.

The client opted for an RPA supplier with a very easy to use and learn interface, so no IT specialist or integrator was needed to set up the robot – this could be done by a procurement employee. With only a few weeks of preparation and a handful of days of programming effort, a working pilot was presented. The tangible value convinced employees and management alike to roll out the tool globally. A Center of Excellence was established to ensure selected employees were trained on the tool across all regions and to install the required governance.

3. The triple impact:
Leveraging artificial intelligence

Detlef Schultz, Chairman of the Board of Directors at Vodafone Procurement Company, is in no doubt that "The traditional procurement function as it is today will not survive. CPOs need to decide if they want to deliver business insights and business foresights, or if they want to stay in the traditional camp." The use of AI and RPA in purchasing can create value in many ways, namely at the level of the management processes, the core processes and the support processes. → **A**

1. HOLISTIC PERSPECTIVE ON PROCESSES
The central prerequisite for success is a comprehensive view of all three process levels in procurement. Today, both the digitalization initiatives and the purchasing budgets typically focus on tactical, at best, operational processes. In the future, these areas, whose maturity level is already relatively high, will be outsourced as commodities to external service providers. However, the potential for efficiency and, above all, opportunities for differentiation from the competition are low here. By contrast, the use of high-performance AI tools, which position strategic issues on the level of purchasing management processes in a company-wide framework of business insight and business foresight, offers a significant impact. So far, however, they are rarely the focus of CPOs and software providers.

2. THE DIGITALIZATION GROWTH PATH
The value-adding use of AI in purchasing requires a solid technological foundation, which must first be created. Here we envisage a multi-stage process that successively creates the necessary level of maturity. → **B**
a. Initially, this means making the right data accessible across the entire procurement organization. The typical problems, such as fragmented IT systems, data silos or poor quality, can be mastered with modern tools and systems but the effort required for data integration must not be underestimated.

b. In the next step, the focus will be on the basics of workflow automation, whereby a combination of (cloud-based) ERP systems and state-of-the-art SRM suites usually makes sense.
c. On top of these standard applications, robotic process automation can be used to quickly automate repetitive tasks without a lot of programming effort. State-of-the-art solutions come with central monitoring tools that allow a large number of robots to be orchestrated with little effort.
d. Once these foundations have been put in place, the platform is created on which truly cognitive artificial solutions can be used. In particular, it is about the interaction of big data and AI to provide support for complex, strategic issues. Even without the use of AI, the analysis of large amounts of data can add value – be it in forecasting processes, in issue predictions, in scenario development or in risk management.
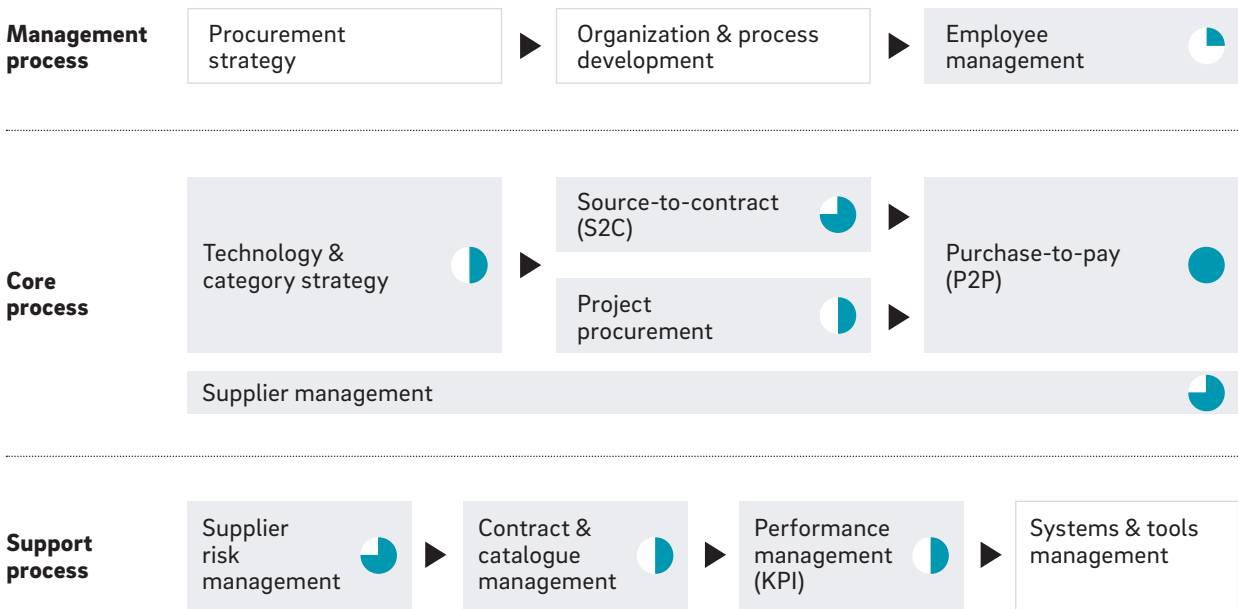e. The combination of big data and artificial intelligence can result in more disruptive effects on purchasing. Especially in the areas of category insights and strategy, market research and category intelligence, contract analysis and information sense-making, there are pioneers who have proven the power of this new technology. The integration of AI with SCM opens up new horizons that can boost efficiency and performance in purchasing. → **Case study 2**

3. AI-MINDED PROCUREMENT
While many companies are launching pilots, they struggle to scale the solutions. The reason is simple: Though the technology is becoming more and more accessible, the required process and the cultural change remains as hard as ever. The necessary change affects both the technological and the organizational side. From a technological perspective, it is important to avoid dangerous pitfalls. Having overly high expectations of AI is foremost among these. AI in procurement can automate
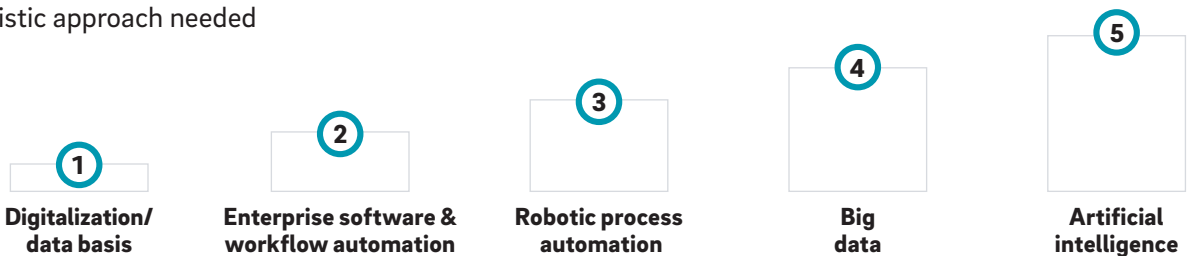
A: **Procurement process landscape**
Technology impact varies along the value chain

Management process	Procurement strategy		Organization & process development		Employee management

Core process	Technology & category strategy		Source-to-contract (S2C)		Purchase-to-pay (P2P)
			Project procurement		

Supplier management

Support process	Supplier risk management		Contract & catalogue management		Performance management (KPI)		Systems & tools management

Potential of RPA/AI solution: ● High ○ Low

B: **Five levels of process digitalization**
Holistic approach needed

1 Digitalization/ data basis

2 Enterprise software & workflow automation

3 Robotic process automation

4 Big data

5 Artificial intelligence

Source: Roland Berger

CASE STUDY 2

Leading-edge customization: Cognitive procurement platform

A global services company with the bold vision of making procurement the main value chain orchestrator decided to develop cognitive category management capabilities by using AI for market research and information sense-making. This was done by linking internal and external sources into one platform and connecting it to existing tools like the spend analysis. The platform would automatically filter relevant information for the buyer and show it in a personalized news feed. Moreover, the program would recommend certain activities, like renegotiation or volume consolidation and, by learning which activities were actually performed, fine-tune the recommendation engine continuously.

This also helped bring supplier and supply chain risk management to a completely new level – from a bureaucratic, periodic process to a real-time process triggered by the holistic range of sources, able, for example, to initiate proactive discussion of possible supply shortages given market developments. This groundbreaking innovation required procurement to adopt a truly agile and "failing forward" attitude and the fearlessness to disrupt themselves.

and augment a wide range of work, but it cannot replace human employees when it comes to exceptional, creative or complex tasks. Another mistake lies in over-reliance on generalized use cases. Because the more ambitious the goal setting and the deeper the integration into the organization, the more individual solutions are necessary that take into account a multitude of factors that together result in the configuration of the company. Closely related to this is the initiation of projects. If the pure technology or product perspective predominates, success-critical factors – cultural, political or organizational – are ignored. Soft factors can very quickly become hard showstoppers.

Successful AI projects come with a completely new perspective on deployment. While classic SRM solutions and RPA can follow a "traditional" implementation logic, this fails for leading-edge AI applications. This doesn't mean that you can't start an AI-powered transformation with off-the-shelf solutions and gener-

ate value-creating results. But this doesn't work on the strategic level. The pioneers in this area are relying on a completely different approach. They are adopting a failing forward attitude, characterized by co-innovation with corporates, startups and technology providers. Implementing AI on a strategic level goes hand in hand with blurring frontiers between consumers and providers, technology specialists and business executives, internal and external teams. Moreover the traditional waterfall thinking doesn't work: The architecture has to be 'liquid' to stay adaptable to the numerous changes that come with progress.

The diversity and complexity of the technological fundamentals, their unprecedented deep integration into the processual, structural and cultural substance of the organization and the lack of plug & play solutions, especially for the strategic process level, require a specific approach: an approach to building an AI-driven organization.

4. In the endgame:
Building the AI-driven organization

The entry of artificial intelligence into our companies is a historical turning point. "Artificial intelligence in category management is disruptive for the procurement function and is positioning procurement for its future role", says Nathan Simon, Senior Director of Research at ALM Intelligence.

On the one hand, an AI-driven procurement organization relies on technological and methodological precursors. On the other hand, it requires a digital leap that is radically different from many established design principles. Playing with the tension between the existing and the radically new, the ability to ride out a storm is what characterizes excellent procurement organizations of the future. Our project experience shows that this mainly depends on six key elements:

1. Evaluation of AI's relevance for the organization and development of a high-level AI strategy based on a comprehensive AI readiness assessment. This creates the fundament for the identification of use cases and zero-based AI planning.

2. Quantification of the potential in terms of quality improvements, customer satisfaction, risk prevention or competitiveness.

3. Selection of the main AI levers with regard to the special challenges of the organization and its entire ecosystem. This requires an end-to-end view and tight collaboration with stakeholders inside and outside the procurement department and even outside the company.

4. Implementation and deployment through a series of sprints and loops. Also, it requires new technology to be embraced and the realization that, for the more advanced solutions, one cannot simply "buy" these things but actually needs to create them.

5. Closed circle: Intensive learning from successes and failures and ongoing improvement.

6. Systematic development of the cognitive skills of the strategic buyers. Talent development is crucial for companies to play the procurement endgame.

Innogy's CPO Ulrich Piepel knows what it takes: "We need to develop the digital skills of our strategic buyers." Creating new standards means that things have to change radically. The good news is that new standards don't have to grow in a green field – they can be thought ahead from our current point of view and they are composed of elements that already exist. And what can be thought ahead can also be created. It's time for procurement to get creative.

C: **AI and RPA use cases for procurement**
A steadily growing inventory

Continuous supplier identification and risk mgmt.

Self-learning bots to clarify vague demands

Automated check frame contract vs. spot price

Zero touch invoicing with RPA

AI-based rolling forecast

Automated maverick spending alerts with AI pattern recognition

Source: Roland Berger

Credits and copyright

AUTHORS

Oliver Knapp
Senior Partner
+49 711 3275-7213
oliver.knapp@rolandberger.com

Sven Marlinghaus
Senior Partner
+49 211 4389-2277
sven.marlinghaus@rolandberger.com

Switbert Miczka
Partner
+49 711 3275-7130
switbert.miczka@rolandberger.com

Michael Pleuger
Senior Partner
+49 30 39927-3311
michael.pleuger@rolandberger.com

Michael Zollenkop
Partner
+49 711 3275-7220
michael.zollenkop@rolandberger.com

Frederik Hammermeister
Principal
+49 69 29924-6407
frederik.hammermeister@rolandberger.com

About us

Roland Berger, founded in 1967, is the only leading global consultancy of German heritage and European origin. With 2,400 employees working from 34 countries, we have successful operations in all major international markets. Our 50 offices are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by 220 Partners.

Navigating Complexity
Roland Berger has been helping its clients to manage change for half a century. Looking forward to the next 50 years, we are committed to supporting our clients as they face the next frontier. To us, this means navigating the complexities that define our times. We help our clients devise and implement responsive strategies essential to lasting success.