

A background network diagram consisting of a complex web of thin, light brown lines connecting various circular nodes. The nodes are also light brown, with some appearing slightly larger or more prominent than others. The overall effect is a sense of interconnectedness and digital infrastructure.

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Agnes Erben
Ralf Schulz
Franziska Sperl

40 **PROCUREMENT**

**A survival guide
in a digital,
disruptive world**

campus

Procurement 4.0

h&z is an employee-owned management consultancy founded in 1997 by Rainer Hoffmann and Dr. Thomas Zachau. Today h&z has over 300 professionals in all major markets and is among the leading consultancies for procurement and supply chain management. From SMEs to global players – more than 500 companies trust h&z to boost their procurement function to serve as a strategic success factor in global competition. Following the philosophy of »Consulting with Head, Heart, and Hand«, h&z works closely with its clients to create maximum impact. h&z combines thought leadership with an understanding of the client's particular corporate culture. This enables h&z to master the transition from great concepts to operational implementation success.

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Procurement 4.0

A survival guide in a digital, disruptive world

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CONTENTS

Overview of interviews	7
Preface	9
A letter from Procurement Leaders by David Rae	11
The survivalists guide to Procurement 4.0	15
Discover your blind spot beyond tier 1	25
Stop groping in the dark for innovation	45
Solving the 4.0 leadership challenge	99
The truth lies in the cloud	121
Push the button	165
Abbreviations	167
About the authors	169
Notes	171
Index	173

OVERVIEW OF INTERVIEWS

Discover your blind spot beyond tier 1

»Digitization comes second – process design comes first«

Matthias Krause-Uhrmann, Director, CPO, BP Europe SE

»Typical Apple users have to feel comfortable with procurement tools«

Andreas Abrath, Director, Project Head »Complexity Reduction in Procurement«, BASF

Stop groping in the dark for innovation

»Supplier satisfaction is the key to improved supplier interaction«

Prof. Holger Schiele, Technology Management – Innovation of Operations, University of Twente

»We will raise the relationships with our suppliers to the next level«

Dr. Thomas Papke, VP Corporate Sourcing, Lufthansa

»We're going to the edge – to get our digital strategy ready by the end of the year«

Jochen Weyandt, EVP, Head of Group Business Services & CPO, OC Oerlikon Corporation AG

»We got the wake-up call some time ago«

Martin Austermann, Senior Vice President Group Sourcing, Husqvarna Group

Solving the 4.0 leadership challenge

»Procurement is about to reach new heights as an end-to-end solutions provider«

Dr. Michael Nießen, CPO, Deutsche Post DHL

»From good to great – we supply for success«

Dr. Johann Wieland, Former Head of Indirect Purchasing, BMW Group, now CEO of BMW Group and Brilliance Automotive (China) Holding

»Unleash the power of data«

Dr. Armin Beckert, VP, Head of Supply Chain Strategy & Business Support, Airbus Defence v& Space

The truth lies in the cloud

»Speed is the real deal«

Claus Habne, VP Corporate Procurement, ProSiebenSat.1 Media AG

»Digitization of procurement is spot on what we are doing«

Jacob Gorm Larsen, Director of Digital Procurement, Maersk

»Time is money – we need to accelerate the speed of procurement processes«

Dr. Turan Sahin, CPO, Allianz Managed Operations & Services SE

PREFACE

Procurement is without a doubt at an important turning point and might have to redefine itself in terms of its role as a business function or even regarding its reason for being. In such uncertain and fuzzy times, it can be helpful to stop for a moment and freeze the status quo.

At this special moment in time, we from h&z decided to write a book on »Procurement 4.0«, addressing the huge challenges procurement will have to face. There will not be fewer tasks, but definitely different ones in terms of what we buy and how we buy.

With this book, we dare to take a glimpse into the future while broadening the overall picture: »Digital« is only a small aspect of Procurement 4.0, even more challenges lie, for example, in the organizations we need to design for tomorrow or the people we need to choose, leveraging the supply base while creating winning value chains.

And, as one CPO put it recently: »We want Procurement 4.0, but we have Staff 2.0 and even Leadership 1.0.«

Fortunately, we didn't have to go all the way on our own. We'd like to thank the contributors from leading industrial corporations for sharing their opinions and insights in the form of interviews and use cases.

Stefan Aichbauer
Managing Partner at h&z

A LETTER FROM PROCUREMENT LEADERS BY DAVID RAE

Challenges ahead – an outlook by Procurement Leaders

There has been a great deal of debate over recent years about how the ongoing march of technology might undermine our way of life; with robots stealing our jobs, computers driving our cars and artificial intelligence (AI) systems surpassing human intelligence on their way to taking over the world.

While much of this debate is fueled by headline-loving journalists' and entrepreneurs' intent on creating a feeding frenzy around a particular trend or technology, the fact remains that we are living through an intense and unprecedented period of change. Not only is technology advancing at an astonishing rate, when coupled with other trends such as population growth, rapid urbanization, climate change and an intense and increasing energy dependency, we face some interesting challenges ahead.

The advances made in technology, of course, are in many cases a commercial reaction to the challenges we face as a society. Tesla CEO Elon Musk's vision and determination to disrupt both the energy and automotive sectors are a good example; but so are the advances made in the pharmaceutical and healthcare sectors on disease control and the focus on genetically-enhanced farming methods. All direct responses to current and emerging global trends.

The point here is that the commercial sector is as responsible for solving our future challenges as our governments. We are living through a period of social entrepreneurialism; where, for many, a desire to make money is matched by a desire to solve the most pressing issues we face as a society.

So, why is this important to procurement?

The reality is that the pace of change and scale of challenge that we are faced with demand a new approach to how we do business. Call it what you will; but in simple terms it demands gaining a greater understanding of our world through advanced data analytics, being quick to react to situations as they arise and being more open to collaboration with third parties to help solve those challenges. In each of these areas, digital technologies are a key enabler and in each of these areas, CPOs must assess their own capabilities and approaches and determine how they can support and contribute to the overall strategy.

Knowledge is power

There are many examples of how procurement can make better use of data, both in the traditional sense through improved spend and category analysis; but also in new and emerging areas such as advanced data analytics and the Internet of Things (IoT).

Advanced data analytics can be used to provide more visibility to the business for planning and forecasting purposes, using real-time data such as commodity and labor prices to help predict individual-product production costs on an ongoing basis. In theory, this can help companies work to rolling forecasts and mean procurement can be much closer aligned with, and supporting of, sales and marketing tactics.

Meanwhile, the impact of IoT continues to be felt, with the supply chain a key playground – visibility of individual goods and components in the supply chain can be greatly improved, with a subsequent improvement in efficiency, which in many cases can lead to a significant cash benefit. At the recent Procurement Leaders World Procurement Congress, Flextronics' CPO Tom Linton provided a good example, explaining how taking five days out of his 65-day supply chain through enhanced visibility provided \$350 million in cash to the business.

Speed is of the essence

The same thinking can be extended to agility and the benefits that come from being able to react to market conditions and opportunities. Being

able to easily ramp up or slow down production to take advantage of peaks and troughs in consumer demand without holding large quantities of inventory is a growing differentiator in corporate performance and, ultimately, shareholder return.

Being able to react quickly to global events – whether positive or negative – is another key differentiator, and something CPOs can look to digital technologies for to help solve. For example, digital dashboards that offer a real-time view of a supply chain and suppliers, and how wider political and economic issues are affecting them, can help drive faster, more effective decisions.

However, perhaps the largest, or, at least, most widely experienced, impact of digital technology over the past 20 years, is in the world of communication. Thanks to this technology, we are permanently connected with and have immediate visibility into the activities of billions of individuals all across the world, which brings with it fundamental opportunities.

Entire business models have naturally been built on these opportunities, but for traditional businesses, and therefore the procurement functions that serve them, the impact of this revolution is more subtle.

The end of not invented here

Although individuals are now accustomed to sharing and being open with the entire planet, the corporate world is slower to adapt. But adapt it has to, and one of the ways in which procurement has a major role to play comes with the breaking down of traditional corporate boundaries.

Chrysler's Extended Enterprise model and its famous Supplier Cost Reduction Effort (Score) from the 1990s are both well-known approaches to supply management that have been the subject of many articles and academic theses.

But while predominantly focused on cost control, companies today are looking to break down corporate barriers to access new technologies, new solutions and new product developments. This is different and new, and procurement has the opportunity to manage and facilitate the process with suppliers, and potentially other third parties.

Because procurement sits in the privileged position of having visibility

of relationships with thousands of suppliers, as well as connections with the entire business, we are perfectly placed to manage the processes that enable advanced collaboration between otherwise autonomous organizations.

We can increasingly rely on technology to manage much of the procurement process, freeing up time and resources to spend on more strategic and value-adding activities. Rather than having a conversation with suppliers on price, or even total cost, procurement should be facilitating a wider discussion around opportunity and capability. Rather than viewing third-party spend as a cost that needs to be reduced, we should be looking at it as an investment that demands a return.

At Procurement Leaders, we call this new focus supplier-enabled innovation (SEI), and at its core it means handing your company the keys to the expertise, collective brainpower and R&D budgets of the supply base. Of course, it isn't one-way traffic – for true SEI to take place, suppliers must benefit significantly and fairly from the collaboration in order for the partnership to be effective. Neither is this a short-term win; companies must invest for the long term in SEI and supplier partnerships in order to see a return.

But if you were to ask me what the biggest impact is that CPOs can make to their organizations over the next 20 years, my answer would be straightforward – to provide the means by which their companies can work with leading suppliers collaboratively and benefit from their expertise, capabilities and solutions.

Digital technologies will be a key enabler for this shift – and it's a shift that will allow procurement to facilitate the collaboration required to solve some of the biggest problems our societies have yet faced.

David Rae

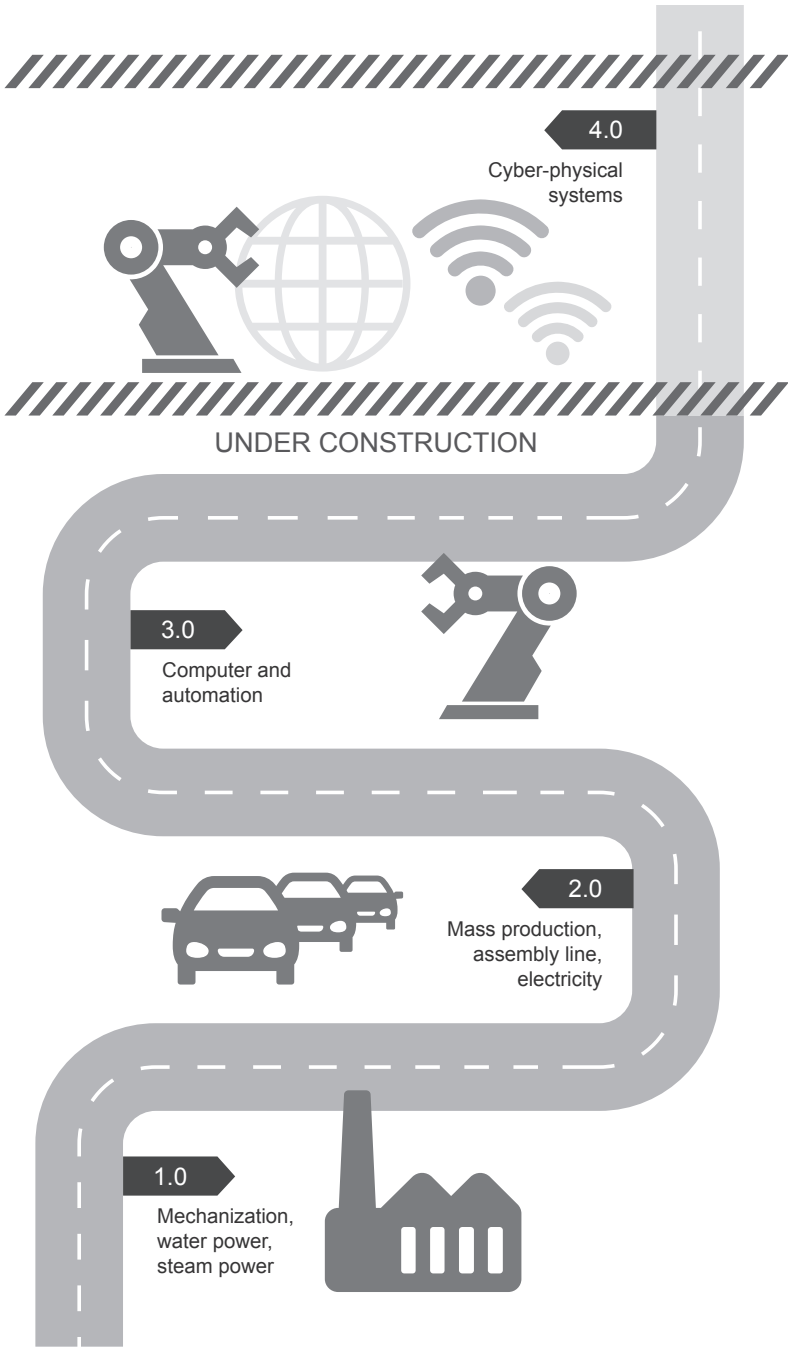
Content & Community Director at Procurement Leaders

THE SURVIVALISTS GUIDE TO PROCUREMENT 4.0

Industry 4.0, or the fourth industrial revolution, is well underway. There is a lot of talk surrounding this latest industrial trend where digital technologies, including cyber-physical systems, the Internet of Things, cloud robotics, 3D printing, sensor technology and big data, are dominating the agenda and reshaping industry and the way we work. A search on Google for »Industry 4.0« will reveal about 116 million sources, so there is clearly a strong community building up around this topic, offering ideas, insights and support.

What has happened so far

It all started out with the invention of the steam engine, which was the birth of industrialization and which enabled the shift from an agricultural to an industrial economy. In the mid-19th century, the second industrial revolution was enabled by inventions like the combustion engine and assembly line, boosted also by electricity. As automation proceeded and computers offered completely new possibilities, the next industrial age was heralded. Today we are on the move into the so-called fourth industrial revolution, where more and more tasks will be executed by machines or artificial intelligence, which brings us back to the above-mentioned cyber-physical systems, i.e. connected machines.



Phases of industrial revolutions

And what about Procurement 4.0?

Try a Google search again, now for Procurement 4.0 and there are comparatively few hits, just over 12 million in fact – and even fewer for the global term of »procurement digitization«. When you consider that procurement is the function that manages the 70–80% of the external value add that most companies are looking for, this imbalance seems very disproportionate. It appears that procurement's role in Industry 4.0 is being overshadowed and that the focus is on other business functions that will be affected by this new industrial revolution. What does this suggest about the future of procurement?

Procurement will not be devoured by these digital technologies. On the contrary, as the business function with the most internal and external interfaces within the value chain, those who work in procurement will be confronted with new challenges and opportunities.

Are you ready for this new Procurement 4.0 environment?

Strip everything else away and it can be seen that at the very heart of Procurement 4.0 are questions about changes in what to buy and how to buy.

What to buy

Digitization enables new business models and therefore new product markets and categories. Customization beats standard product lines and generally there is a shift from plain products and services to whole ecosystems. The speed of innovation and time-to-market are accelerating. All industries and business models are affected by disruptive technologies. Simply the question how fast it will happen and how big the impact will be.

The automotive industry has been deeply affected by digitization and is a high-profile example that illustrates to what extent the scope of »what to buy« has changed. After 100 years of optimizing mechanically-oriented driving performance, the automotive industry is now focusing its considerable power on connectivity, electric motors and fully autonomous, self-driving vehicles. This has changed almost everything on the supply side. Huge players like Google and Apple are now suppliers to the automotive industry. The nature of supply-critical categories has changed,

as illustrated by the consortium of BMW, Daimler and VW (Audi) that bought HERE, a company for digital mapping. And because a car is no longer a car but a fully connected mobility solution, new categories like apps and software for autonomous driving are firmly on the automotive buyer's radar.

How to buy

Disruptive key technologies most often come from suppliers that require intelligent approaches to safeguard their own competitiveness by differentiating themselves from the competition. How that can be solved in a situation where an OEM works together with the same 1st tier suppliers is hard to answer in just one sentence. How do you identify and get in touch with innovative suppliers, establish an exclusive relationship and keep them away from your competitors? That's not an easy task. Internal and external collaboration models will have to be redefined.

On the other hand, opportunities born out of technology and market offerings for procurement systems and apps have never been better. Cloud technology has significantly reduced entry barriers for new market players, so there are more than 100 apps for Rfx out there and ready to be put to use. It's up to procurement professionals to harvest and leverage the opportunities to improve future competitiveness. New applications are being developed at breakneck speed and some early adopters are already using them. Nobody wants to talk about the »app-ification« of the system landscape and business processes yet, but the vision for this has been clearly outlined.

What does top management across the world think of Procurement 4.0?

A CPO's snapshot of »Procurement 4.0« in 2016

Obviously, Procurement 4.0 is in its infancy and the picture of the future is still blurry and uncertain. Speed will indeed be one of the decisive forces; so according to the maturity level of your procurement organization and other influencing factors, you might have to leapfrog one step



Word cloud from h&z Procurement 4.0 roundtable

or another to reach the top. Well-matured B2C apps, with their superior usability and better user experience design, are the benchmark for already available B2B apps which, however, are not broadly applied yet. In the B2C world, »Amazonization« has become the latest buzzword to describe customer-centric business, where the driving force is the desire to provide an increasingly excellent customer experience. Undoubtedly IT will be a building block for the future of procurement, but digitization should not be viewed as an enabler but as a driver of the changing environment. Procurement has to use digital technology to get better at what it does.

However, Procurement 4.0 must not be reduced to digitization. IT systems alone won't drive your company's competitiveness in the future.

Our point of view

»What to buy« and »How to buy« is changing. At h&z, we experienced these dimensions as a powerful and at the same time simple structure to discuss current and future challenges with procurement professionals. But final answers are still missing.

With Fukushima in 2011 and Volkswagen supplier struggles in 2016, the managing of value chains beyond tier 1 flushed onto the agenda of procurement. It's about designing competitive and reliable supplier networks or, in other words, value chains.

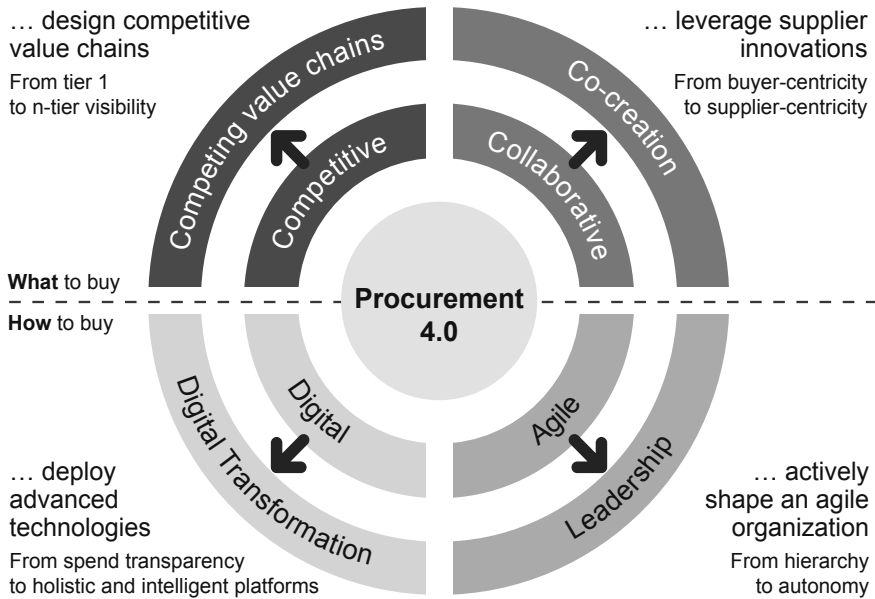
Disruptive technologies and shorter life cycles of products pose a severe challenge to many companies to staying competitive. It's about getting technology from the outside in, especially if intellectual property (IP) is with suppliers or internal know-how is limited to mechanical engineering. Additionally, many business models are undergoing dramatic changes from products, services and ecosystems to performance-oriented contracting and pay-per-use models. Are you ready to serve such »back-to-back models« from end customers to the supply base?

Let's pause for a moment and try to tie up some loose ends. Even if digital is the hype, Procurement 4.0 needs to be approached holistically.

- *»What to buy ...«*
 - ... within the value chain of a network itself
 - ... among buyer-supplier relationships to harness internal know-how and the know-how of selected suppliers with the power of co-creation
- *»How to buy ...«*
 - ... in agile networks by setting up a future-oriented organization, new roles, a digitally powered working model and a leadership approach
 - ... in an environment of increased (data) connectivity, process efficiency and collaboration by digital gadgets and a future-ready IT architecture

Have you ever thought about solutions in these four dimensions? We have – and put them together in the h&z Procurement 4.0 framework.

Competition creating competing value chains: Buyers are increasingly assuming the role of a value chain manager with a holistic view of the supply chain. This is because the design of the total supplier structure beyond tier 1 is crucial to the success and competitiveness of companies. This value chain determines the competitiveness of companies with competitors and their suppliers.



h&z Procurement 4.0 framework

Co-creation leveraging supplier innovations: Innovations are important in order to achieve differentiation. Procurement plays the lead role in identifying innovative suppliers and integrating them into the company’s product development process and lifting them up to a co-creational setting. The aim of strategic networking is to be the preferred customer and, as the favorite customer, to have exclusive rights to supplier innovations.

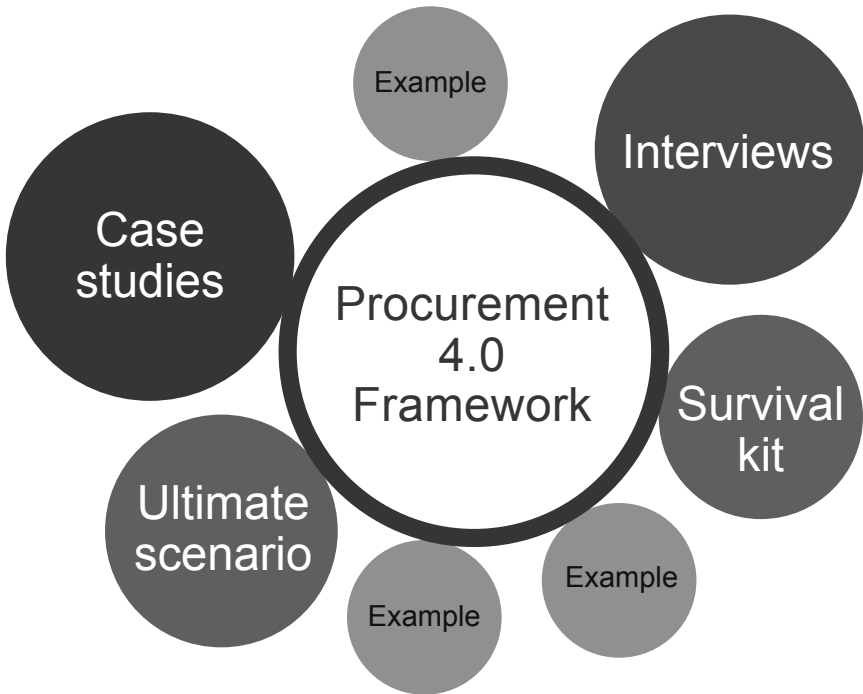
Leadership in an agile organization: 4.0 even requires new leadership models. Time-to-market innovation and localization needs are turning organizations into an agile working environment. Functions are dissolving towards swarm organizations.

Technology deploying advanced opportunities: The technical possibilities of data analytics, especially big data and the Internet of Things, go far beyond data introduced by e-catalog, eRfx or e-auctions.

This vital period of development for purchasing to take us into Procurement 4.0 is one of the key managerial tasks for CPOs. If procurement is not to miss the boat, it now has to take its first steps.

How we structured this book

We aimed to combine theory with as much practical input as possible. Each chapter is structured in a similar way, consisting of a brief review of the status quo, current trends on the respective topic, building blocks (i.e. what are the main aspects of the topic that need to be addressed), future scenarios and a summary of the crucial points for a quick start initiative. In addition, we individually enriched the chapters with case studies, examples and interviews.



To ensure easy reading, we added some icons for you:

The *tracker* will tell you to what part of the Procurement 4.0 framework the chapters belong to,

the *magnifying glass* marks industry insights ...

... and the *dialog symbol* flags interviews that we conducted with industry experts as well as academics.

Each chapter closes with a brief glance into the crystal ball and an »emergency plan«:

The section »*Think big: The ultimate scenario*« outlines the vision for professional procurement on the respective topic.

Finally, the *survival kit* provides you with a checklist of the most important points in order for you being able to kick-start actions on transforming your procurement organization towards 4.0.



DISCOVER YOUR BLIND SPOT BEYOND TIER 1



The metamorphosis from purchaser to designer

There is a generally accepted axiom in business that companies don't compete, it is value chains that compete. In fact, some would argue that the traditional model of individual businesses competing as solely autonomous entities gave way some time ago to the new model of competing value chains. It is of course based on the idea that a chain is only as strong as its weakest link, or thinking about it another way, everyone in the value chain needs to compete »as one« to gain maximum benefits for all. In some industries, digitization of products tremendously extends value chains.

Forward thinking companies that have already adopted this contemporary business model have done so because they see that value-chain-minded procurement functions can lead to substantial competitive advantage and business growth. Perspectives have changed tremendously from the days of cost cutting to looking at how suppliers can contribute to a company's product differentiation. As a result, insourcing key technologies has experienced a comeback at the expense of outsourcing.

Procurement has traditionally looked no further than its tier 1 suppliers to reap advantages but we now see, in the context of competing value chains, that this approach is too limiting. Procurement professionals need to look beyond tier 1 for the advantages they are seeking and, in fact, their role needs to change to one of value chain designers. It is this metamorphosis, from purchaser to designer, which we need to focus on in the future of procurement.

This focus on value chains, however, is not limited to the direction of tier structures up the road of one's own value chain. Procurement needs