

Growth Engine  
Machinery Sector  
Four scenarios for a  
successful future in 2030

Content

# Executive Summary

Four realistic future scenarios –  
and what you can learn from them

Imagine a world where the vision of big tech firms like Google, Amazon and Baidu becomes a reality – what would that mean for industrial manufacturing? For your company in particular? What would have to happen for this vision to become a reality? And how can industrial manufacturers remain competitive in this future world?

No one can predict the future – but scenario thinking allows us to understand, plot and compare possible future developments and to ultimately create a “future realm” that encompasses all of the challenges we (potentially) face. In this study, we turn our attention to scenarios for the industrial manufacturing sector in the DACH region. Top-class experts from renowned industrial companies consulted with us for the study, and we are extremely grateful for their insight.

The four industrial manufacturing scenarios we developed, which are illustrated in Figure 1, form the basis for our study. Essentially, we are exploring the impact that digitalization will have on industrial manufacturing (in both macro and microeconomic terms) and assessing which companies will be in a better position

to create value under what circumstances. If there is one thing our scenarios show quite clearly, it is that the future of industrial manufacturing is global.

**None of these scenarios is the “most likely” – and industrial manufacturing can survive in every one of them**

Some of the scenarios have a negative undertone at first glance, but after further analysis and our discussions with subject-area experts, there are clearly opportunities in each of the four scenarios for DACH-based industrial manufacturers to stay afloat – albeit to varying degrees. Our industry experts did concede, however, that the current situation is quite fragile.

Our scenarios do not attempt to cover every eventuality in this industry – nor could we if we tried; the reality is too complex to distill it down to a few select parameters. Instead, we have created four compelling alternative narratives that are within realistic boundaries.

These four scenarios are different from each other, but have a number of similarities, enabling

us to recommend a set of initiatives that will help today’s players respond regardless of what the future holds. Industrial manufacturers can and should implement these initiatives as quickly as possible. They must continue to monitor current trends moving forward and factor them into their broader planning process. As the future becomes more tangible, companies will have to keep adjusting their core strategic options. Like that old joke says: “Making predictions is difficult, particularly about the future.”

“Industrial products manufacturing will continue to be the growth engine for the DACH region in 2030, but achieving that growth will require a great deal of effort and an even greater willingness to adapt and collaborate.”

**Oliver B. Bendig, Partner und Machinery Sector Lead, Monitor Deloitte**

# The scenario thinking approach

Conventional strategic analysis tries to use experiences from the past to predict the future, which will ultimately result in a range of outcomes along the “best case” to “worst case” spectrum. However, if you are forecasting more than three to five years into the future, this approach falls flat. Longer-term trends tend to progress in a non-linear way. Think of areas like advertising, technology, the economy or regulation, where trends that were unthinkable just a few years ago suddenly have the power to redefine and disrupt the world as we know it.

That’s where scenario planning comes into play. Scenarios offer a set of plausible futures, ideally

as distinct as possible from one another, which show a range of potential developments that are realistic from today’s perspective. Scenarios do not typically predict future events; instead, they describe relevant, opposing trends. It is a kind of storytelling that takes place in alternative future settings, which are designed to reveal possibilities as well as implications – and quite simply, to make you think.

When it comes to corporate strategy, scenarios have the added benefit of highlighting the opportunities and risks of specific strategic options. This helps business leaders develop a response that could prove effective in all of the future scenarios.

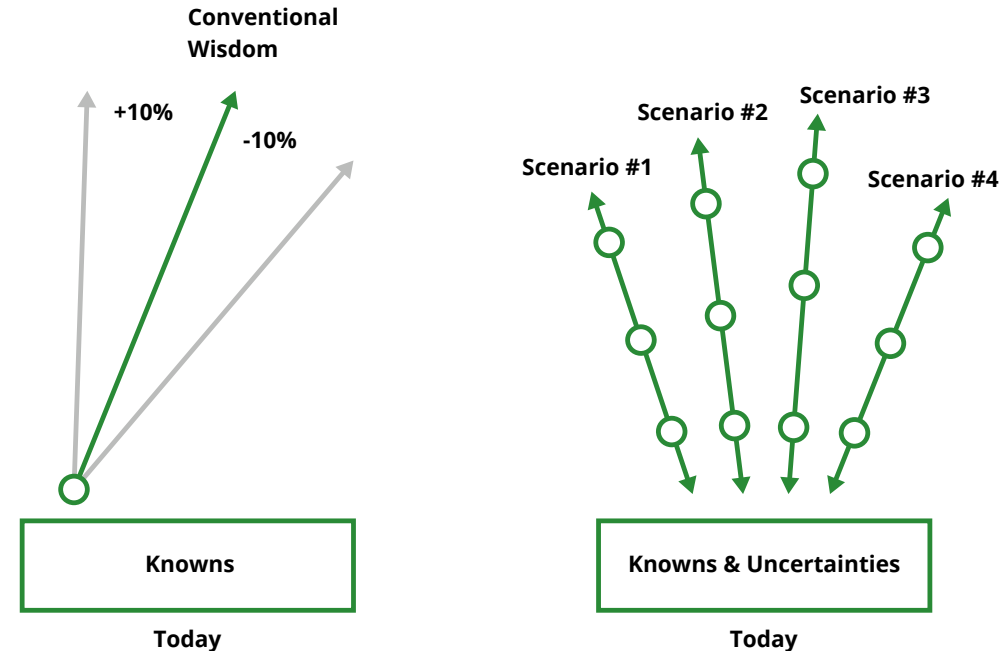
“Scenarios show us a range of possible developments that could become a reality in the future. Thanks to scenario thinking, we can leverage the uncertainties that inevitably exist in the market to develop our strategies in a meaningful way.”

Florian Klein, Director, Center for the Long View

**Fig. 1 – Conventional thinking vs. scenario thinking**

Conventional approaches to planning yield conventional and often unsurprising answers ...

... whereas scenario planning challenges assumptions and provides organizations with more options to make better decisions



# The right way to read scenarios



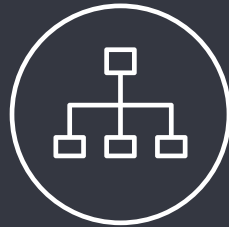
**Think of scenarios as smart conceptual models that are designed to activate your imagination.**



**Don't get hung up on individual details; it's all about the big picture.**



**Resist the temptation to go for the "most likely" scenario.**



**For each scenario, think about why it could happen and what that would mean for your company or sector.**

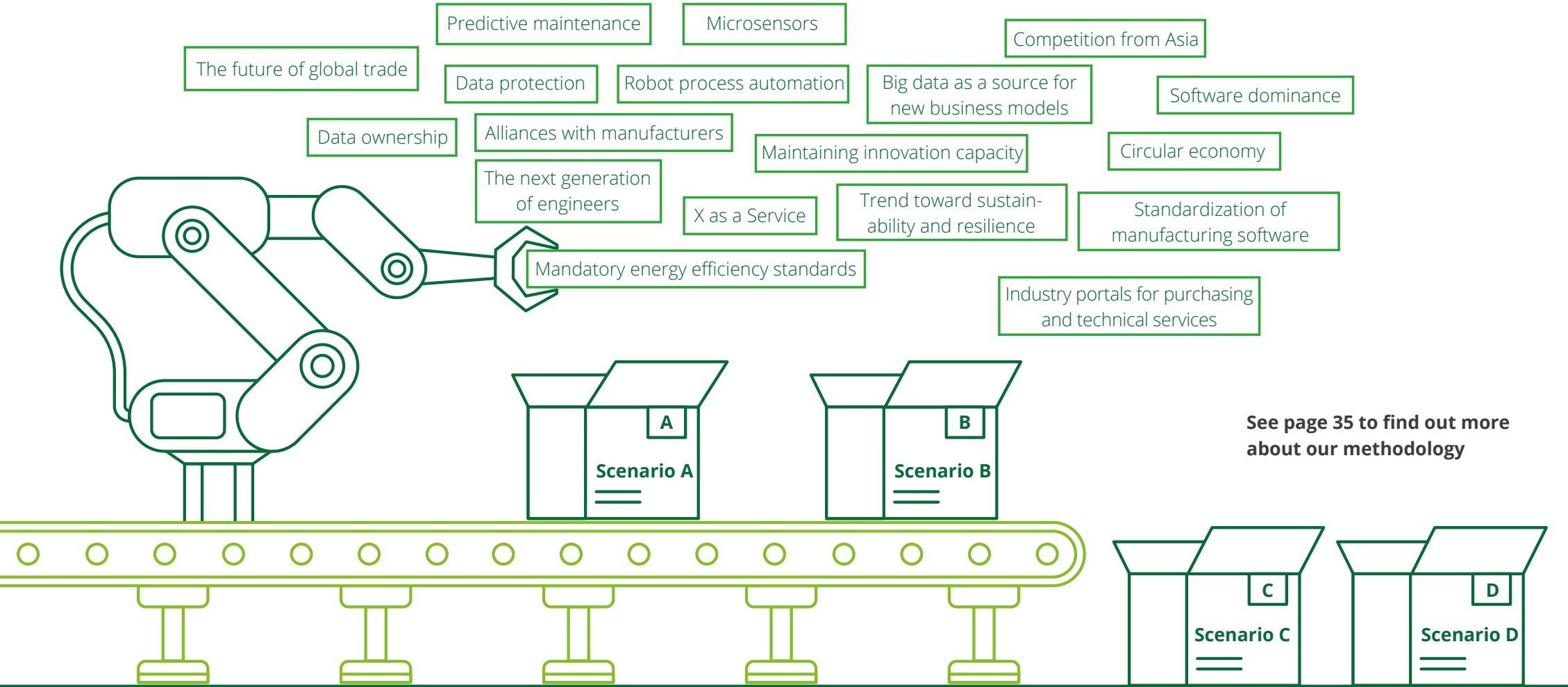


**No matter how likely or unlikely each scenario might seem, focus on what it would take for industrial manufacturers in the DACH region to thrive in that world.**

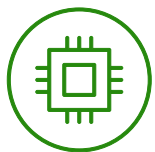
Fig. 2 - Scenario drivers

No one can predict the future...

... but we can imagine a range of possible futures!



## Eight future initiatives that will prepare you for every scenario



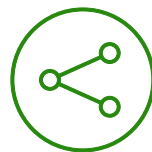
### Digitalize your core processes

The future of industrial manufacturing is both mechanical and digital, which is why companies in this space need to expand their traditional expertise to include digital competencies. Focusing only on mechanical mastery is a huge risk factor for industrial manufacturers today.



### Design for resilience

Industrial manufacturing has always been a cyclical business, but we can expect even more uncertainty on the global stage in future. This relates to economic volatility as well as other unforeseen events that could impact the sector. Every industrial manufacturer should be working on becoming more resilient. Every industrial manufacturer should be working on becoming more resilient. Every company in the sector should be working on becoming more resilient.



### Cultivate a partner network

Smart machinery and next-generation service models are impossible to achieve without a functioning ecosystem of cooperating companies. Bringing the right partners on board at the right time is an absolute must.



### Develop a robust Asia strategy

Asia is not only the biggest sales market for industrial products; it has also become one of the DACH region's most dangerous – and, more recently, one of its most innovative – competitors. For many industrial manufacturers, their Asia strategy will make or break their future prospects.



### Think globally

Regardless of the scenario, industrial manufacturing looks set to remain a globally-oriented business in the future – even the strict global trade barriers in some of our scenarios did not really slow down globalization.



### Capitalize on sustainability

The concept of sustainability was born in Europe, and sustainability solutions are more sophisticated here than anywhere else in the world. We believe industrial manufacturers across the DACH region can elevate sustainability to a shared success factor – a USP for all of the region's players.



### Maintain and expand access to customers

Customers are an industrial manufacturer's most important resource when it comes to engineering expertise and product development. A company that leaves direct customer contact to brokers and other intermediaries is effectively giving away its most important asset.



### Find creative ways to recruit and retain talent

The talent market has changed – and industrial manufacturers will have to step up their game if they want to develop a sufficient talent pool of technicians, engineers and digital technologists.

**Fig. 3 – The four scenarios at a glance**

**Scenario D:  
“Played by the Ecosystem”**

This scenario could occur if industrial manufacturing continues to be successful in its current form, while external players succeed in capturing much of the added value from industrial manufacturing. They range from software developers, industrial service providers and purchasing platforms to IT and financial services providers. Advanced service models such as “X as a Service” and “Engineering Consulting” dominate in this scenario, relegating industrial manufacturers to the role of suppliers. As such, they are expected to produce machinery at optimized costs and according to specifications defined by third parties – unless, of course, industrial manufacturers from the DACH region manage to join forces and take on the all-powerful software and platform giants from overseas, working together to create a European counterweight.

**Scenario C:  
“Paradise Lost”**

This scenario also describes an “Industry 4.0 world”, but it isn’t the DACH-based industrial manufacturers that have turned their vision of a digital future into reality, but rather the big manufacturing software developers and platform providers. Just as in Scenario B, we have digitalized, modularized and standardized industrial products here, but software functionality is what determines how efficient and/or specialized it is. Europe has moved to the fringes of the industrial manufacturing landscape, and the industrial manufacturers of DACH, as their counterparts in Scenario D, have been relegated to interchangeable suppliers of machine components that face tough competition from across the globe.

**Highly specialized  
industrial products**

**Scenario A  
“A Fragile Paradise”**

This scenario is a progression of the current landscape. By 2030, industrial manufacturers in DACH have succeeded in identifying and filling market niches with highly specialized, customer-specific products, supported by global trade liberalization and a strong, stable EU. Their competitors in industrial manufacturing – particularly in China – are grappling with rising wages, and tech firms are slow to enter the industrial product market. That said, with all of today’s threats still looming, this “industrial manufacturing paradise” is still quite fragile – disruption is always just around the corner.

**Scenario B:  
“Success at the Price of Transformation”**

DACH-based industrial manufacturers have “grabbed the bull by the horns” in this world, taking their own initiative to digitalize, modularize and standardize production. In essence, the dream of Industry 4.0 has become a reality. The DACH region’s players have not only outmaneuvered their Chinese competitors, but also the manufacturing software developers and platform providers. Thanks to its evolution into the world’s workbench, Europe is on an industrial upswing. But that success is only achievable – and sustainable – through cost leadership. As this technology rapidly goes global, salaries, wages and pricing structures in DACH are under serious pressure.

**Highly standardized  
industrial  
products**

**Third-party driven**



**Power structure**



**What makes DACH industrial manufacturers competitive**



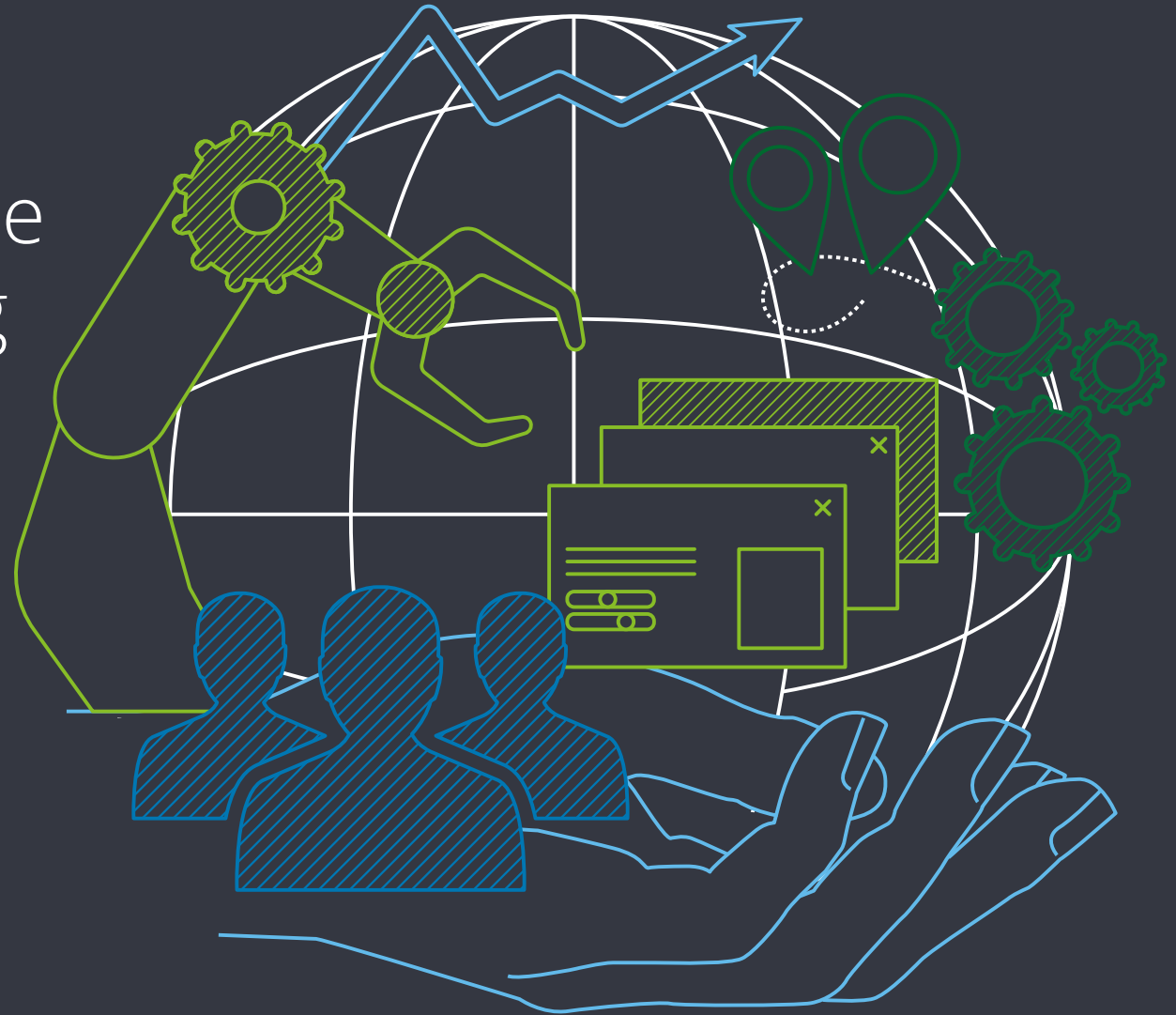
**within the ecosystem**

**Driven by DACH-based  
players**



# Join us to explore four possible scenarios for the industrial manufacturing industry in 2030

Germany, Austria and Switzerland (referred to collectively as "DACH") are among the highest-profile players in global commerce, not least because of their export-oriented industrial manufacturing. Among the developed industrial economies, only few nations have an industrial manufacturing sector at a comparable scale.



And yet, the DACH region's successful industrial manufacturers are under threat: new competitors from emerging Asian markets as well as big software companies and internet platforms are muscling into the core business. Growing "country first" tendencies across the world are giving rise to fears of trade barriers. Disruptive new digital technologies and business models can completely transform the industry at any time – to name just a few of the potential threats on the horizon.

The COVID-19 pandemic has shown us that even the most unlikely threats have to be taken seriously, threats that can permanently change the way we think and act virtually overnight. That only increases the number of factors we need to consider when we assess possible future scenarios for the industrial manufacturing sector.

In cases as complex as these, scenario analysis can often give us a better idea of possible future developments than traditional analytical methods. It may be impossible to predict the future, but scenario planning allows us to create different narratives about what the future might hold. We can disregard certain complexities and focus instead on potential opportunities and risks, helping decision-makers develop informed yet flexible strategies for the future.

The four scenarios we developed with the help of renowned industry experts show how much can change in this sector over ten years. Before we walk you through our four possible worlds, we would like to first address the so-called uncertainty factors; in other words, the underlying dynamics that may determine the direction industrial manufacturing will go.

On closer inspection, even our experts had to agree that none of these scenarios is entirely negative. The industrial manufacturing sector clearly has a role to play with all of the assumptions we made, and there are winning strategies in each scenario, albeit to varying degrees.

**Join us on this exciting journey of future discovery!**

**Fig. 4 – DACH regions**



# Scenario drivers

What makes the industrial manufacturing world go around?

Change is part of the human condition. Most of the changes we experience are man-made, brought about by societal trends, technical innovations, entrepreneurial ideas, military advances, macroeconomic dynamics, political conflicts and environmental factors.

In order to identify the relevant change factors (referred to in the following as “drivers”) for the industrial manufacturing sector, we used Deloitte’s proprietary analytical method, which is described in more detail on page 35. We then asked a panel of industry experts to weight and sort the drivers we identified.

This left us with a curated list of drivers that have both a major impact on industrial manufacturing as well as a high degree of uncertainty in terms of their future development. We then allocated 29 of the 31 so-called critical uncertainties we found to five separate clusters.

“Europe plays a critical role in global industrial manufacturing today, with the only real competition coming out of Japan. In a new world order where China and the US share dominance, Europe will have to defend the position we worked so hard to achieve – by making Europe strong politically as well as economically.”

**Ernst Bärtschi, Chairman of the Board of Directors,  
Bystronic AG**

1

### **Cluster 1: What makes DACH industrial manufacturers competitive**

The main uncertainty here is technology leadership and innovation capacity – the issue at hand is whether industrial manufacturers from abroad, particularly those in China, will be able to outperform DACH manufactures in the future. Other critical uncertainties in this cluster include the ability to make decisions quickly within an organization, the capacity to secure strategic expertise and the extent to which sustainability acts as a competitive differentiator.

2

### **Cluster 2: Shifting power dynamics in the industrial manufacturing ecosystem**

The uncertainty around new competitors forms the initial focus of this cluster. One of the biggest issues in this cluster is the future role of software developers and platform providers in the industrial manufacturing market, from manufacturing service portals to engineering software developers. The second focus concerns issues of future data ownership and exchange. Other topics here include supply chain complexity and the availability of raw materials and rare earth metals.

3

### **Cluster 3: Speed of business transformation**

The critical uncertainties in this cluster focus on whether an industrial manufacturer can provide sufficient cyber security, to what degree its IT infrastructure is standardized and how resilient it would be in the event of a crisis.

4

### **Cluster 4: Access to required talent**

The main uncertainties in this cluster relate to human resources. Will there be enough engineers with the right qualifications in the future? How quickly will we change what we expect from new recruits? What impact will automation have on staffing needs and are there other implications we should consider? Will the DACH-based industrial manufacturers have enough appeal in the future to recruit and retain top talent?

5

### **Cluster 5: Changes in the global economy and global trade**

As the broadest cluster in this analysis, market conditions at the regional and global level are at issue here. These critical uncertainties focus mainly on the development of export markets – the future trading environment and the volatility of global markets, possible trade disputes and the trend toward protectionism, and the willingness of all participants to honor their commitments under future international trade agreements. This cluster also addresses a range of other questions about the future business environment in DACH. Will Europe be able to secure a suitable environment for industrial manufacturers in the DACH region? Will the EU respond to future threats quickly and coherently? What impact will the plans to introduce carbon taxes have on international trade? The final critical uncertainty here focuses on the Asian markets: Will industrial machinery made in Europe still be attractive for Asian manufacturers in the future?

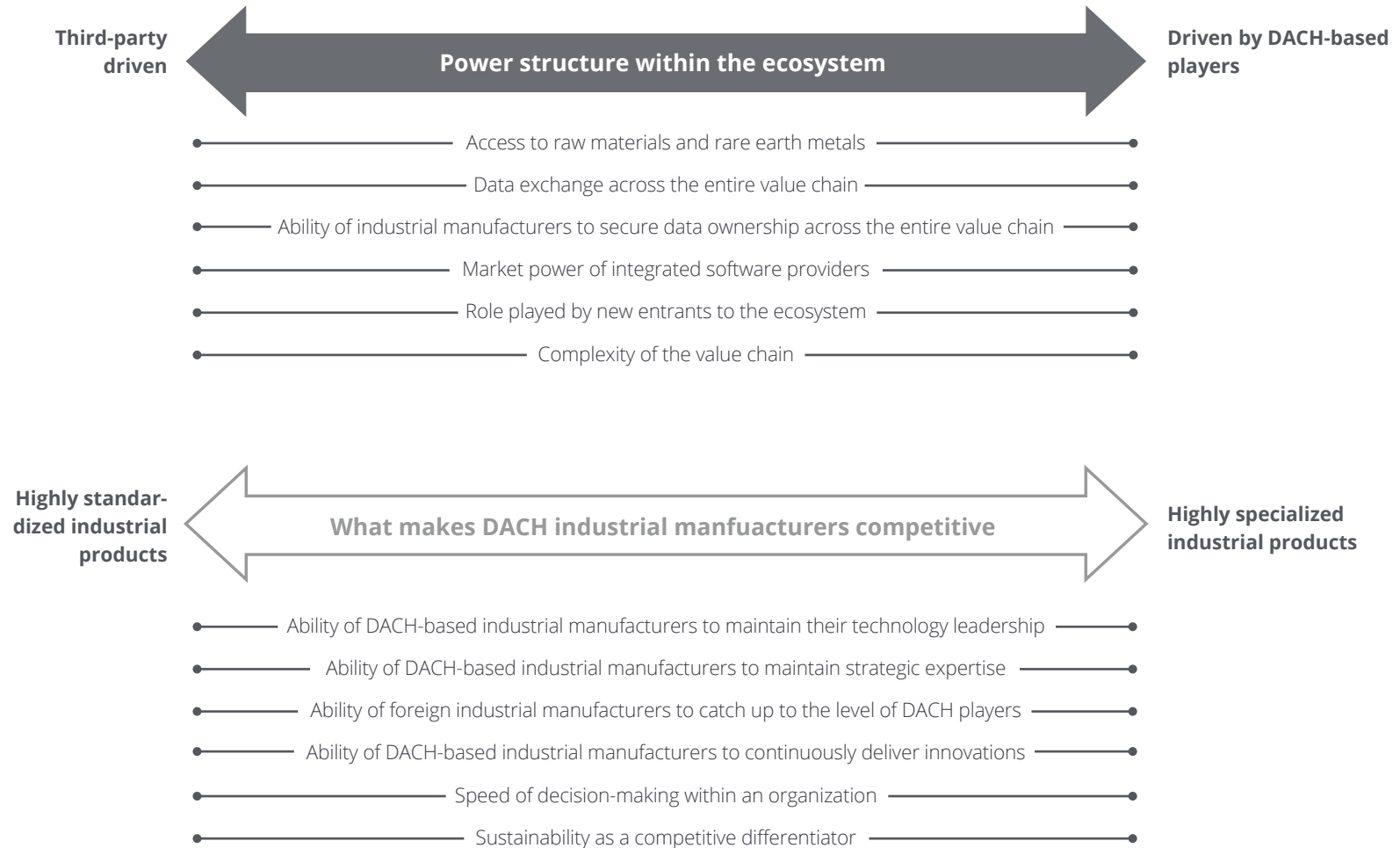
### How did we select the scenarios and what do they reveal?

We selected Clusters 1 and 2 to develop the four future scenarios in our study, because this is where we could expect the most diverse and dense set of scenarios. If we had, for example, selected two highly interdependent categories such as Clusters 1 and 3 – i.e., competitive advantage and speed of transformation – the result would have been a relatively bland and inconclusive set of scenarios.

Our scenarios do not attempt to cover every possible eventuality in the industry – nor would that even be possible; reality is much too complex to distill it down to a few individual factors. Instead, our four future worlds offer compelling alternative narratives within realistic boundaries.

In contrast to traditional empirical studies, scenario analysis doesn't deal in probabilities – in other words, it isn't about looking at the study subject based on an indicated degree of likelihood. Scenario analysis is more focused on creating a framework in which to explore different ideas with challenging yet plausible narratives.

Fig. 5 – The critical uncertainties of Clusters 1 and 2



## Scenario A

# “A Fragile Paradise”

Thanks to the favorable socio-political environment, industrial manufacturers in the DACH region can maintain their market leadership through continuous innovation and a focus on finding highly lucrative niche markets. Major players have built strong regional supply chains with a high degree of resilience as well as transparency and are seen as the global standard in terms of innovation. This success also gives industrial manufacturers in the region an edge when it comes to attracting more young talent. At the same time, competitors from Asia are battling rising labor costs, and software developers and platform providers are still slow to enter the market. That said, disruption is looming around every corner in this scenario – it remains a very fragile paradise.



## Scenario characteristics



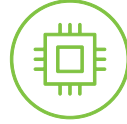
### **Business model disruption: low**

DACH-based industrial manufacturers have a strong market position and are holding their own as global market leaders in engineering.



### **Pressure to adapt: manageable**

DACH-based industrial manufacturers can continue to defend the status quo, the pressure to transform is low.



### **Software competencies: available**

Digitalization is spreading rapidly among industrial manufacturers, which enables them to generate added value from data processing capabilities.



### **Competitive dynamics: manageable**

These companies can successfully defend themselves against competition from overseas, whether they are rivals from Asia or major software developers and platform providers.



### **Regulatory protection: strong**

Lawmakers recognize the strategic relevance of the industrial manufacturing sector and steer clear of international trade conflicts.



### **Young talent: available**

Thanks to their image as global leaders in innovation, DACH-based industrial manufacturers can attract highly qualified talent and pay competitive salaries.



### **Macroeconomic environment: strong**

The global economy is growing, and investor confidence is high, giving companies easy access to capital and good conditions for business expansion.



### **Business freedom: strong**

Industrial manufacturers and politicians trust each other, allowing companies to remain flexible and free, while keeping bureaucracy in check.

“This fragile paradise could become a reality, if we can keep doing the successful things we’re doing now.”

**Dr. Guido Hild,**  
**Managing Director, MAX Automation**

## **Innovation**

Since the turn of the 20th century, innovations from the DACH region have been at the forefront of technology development. Between 2000 and 2020, software players mainly based in the US have taken the lead. Industrial manufacturers across the globe have been very successful in the adoption of digital processes; DACH-based industrial manufacturers in particular have set a new global standard in terms of the efficiency of complex machinery and production processes. With their ability to consistently identify and occupy lucrative niche markets, players from the DACH region are also generating better returns than their overseas competitors.

The present: And yet, this new world is also much more volatile, as global industrial manufacturers, IT companies and software developers start to pull ahead and pose a serious risk for DACH-based players. They are exploiting the potential of software solutions and digitalizing their core processes, which gives them more opportunities to turn machine-generated data into valuable insights and profitable services.

Major digital software developers and platform providers continue to be the standard-setters in terms of the practical use of data. The technologies they develop make it possible to produce highly-flexible yet generic machinery. The new manufacturing platforms are still threatening to displace traditional sales. Industrial manufacturers from abroad remain hard on the heels of their DACH-based competitors, continuing to pose an existential threat.

## **Collaboration**

One of the core strengths of DACH-based industrial manufacturing has always been its long-term horizon planning, a feature of the region's primarily family-run businesses. This enables companies to stick to their strategies even when times are tough and to resist the urge to chase every trend. In this scenario, DACH-based businesses have managed to maintain a high level of consistency, even as the world around them starts to spin faster and faster, increasingly threatening to derail their stable growth curve. In this respect as well, the "paradise" in the DACH region is becoming more fragile.

Thanks to their close relationships with other manufacturers as well as clients at home and abroad, DACH-based industrial manufacturers have worked together to develop a flurry of innovations. This has been and still is a major source of the value creation and market power of these regional players. The resulting range of high-quality, specialized machinery and services is sold to customers across the globe.

## **Competition**

Competitors overseas are feeling economic pressure due to rising labor costs and the failure of government expansion initiatives. Major software developers and platform providers are also under pressure, but it is political pressure in their case – the general public is standing up against unfair data piracy and the abuse of market power, while antitrust authorities have started to impose limits on big tech firms.

Industrial manufacturers in the DACH region have been at the forefront of sustainability and energy efficiency for decades – and those efforts are finally paying off. Regulators and society as a whole are establishing clear standards, increasing the lead DACH-based business have over their global competitors.

## **Politics**

Politicians in the DACH region have recognized the macroeconomic and strategic relevance of the industrial manufacturing sector and set cross-border regulatory standards to promote industry integration across the EU. The EU's foreign policy includes fair trade legislation that is effective in constraining protectionist tendencies and trade disputes. There has also been a shift in the EU's economic policy, moving more toward advocating for emerging global market players from the member states.

Education policy in the DACH region has placed a focus on practical needs, including new elite engineering and science universities as well as new vocational offerings in technical fields. DACH is becoming an incubator for innovative thinking and providing the industrial manufacturing sector with a prime pool of young talent. Rapidly increasing investment in education and vocational training is yielding returns. Numerous patents and Nobel Prizes are still being awarded to people from Germany, Austria and Switzerland, while Zurich's ETH, Munich's TUM and Aachen's RWTH rank among the most sought-after universities in the world.

## **Global economy**

Strong growth in the global economy and a stable investment climate make it easy for companies to secure fresh equity or debt capital, giving them the flexibility to adapt their research and development efforts as well as their production capacities to their needs. Family-operated companies in particular continue to succeed by sticking with their prudent financial philosophy and far-sighted strategies.

## **Talent**

The strong capacity for innovation in the industrial manufacturing sector along with competitive wages and salaries have further increased the region's appeal for job-seekers. Ambitious "high potentials" and skilled workers in a variety of disciplines are flocking to the sector. This not only helps manufacturers to provide customers with specialist support wherever they need it; having a top-quality pool of young talent also allows companies to pick up the pace of their digital transformation.



# Implications and success factors for Scenario A “A Fragile Paradise”

## What customers expect

**Implications:** Leading industrial manufacturers in the DACH region see the advantage of becoming a fully-integrated solution provider and a “one-stop-shop” for their customers. A wide range of service, seamless customer support and high-level integration is on offer, complete with remote diagnosis and online software upgrades. Customers will also likely expect personalized service.

### Success factors:

- Adopt a customer-centric mindset at every level of the hierarchy
- Make reliability the main service focus
- Collaborate with other industrial manufacturers and IT service providers based in DACH
- Set up online collection and continuous integration of machine data

## Where the innovation focus is

**Implications:** In this scenario, DACH-based manufacturers set the technology standards. Their development goals need to focus on interoperability in the industrial environment and intuitive operation. Customers should recognize the manufacturer’s USP in every product. Innovations are developed primarily in partnership.

### Success factors:

- “Everyone makes mistakes” mindset
- Focus on core competencies
- Collaboration with customers to advance innovation
- Promote open innovation on an interdisciplinary basis
- Make risk capital accessible to encourage start-ups and innovators

## Collaboration with partners and suppliers

**Implications:** Strong alliances are beneficial and perhaps even necessary in this scenario. Components – even critical ones – can be developed in partnership. Cost pressure is leading to more consolidation within the sector. DACH-based players need to work together to establish common standards. Client partnerships are designed as long-term commitments.

### Success factors:

- Build reliable relationships within the DACH region
- Create a supply chain that is transparent for all partners
- Forge strong partnerships between hidden champions

## What we need from the next generation of talent

**Implications:** In this scenario, DACH-based industrial manufacturers are the most successful worldwide. Players have to adopt an engineering mindset, while also expanding their thinking to include other areas where the focus is not only on engineering – especially software development. Continuous investment in further engineering training for staff is also essential.

### Success factors:

- Worldwide recruitment efforts
- Provide further training for in-house mathematicians, scientists and engineers
- Reward loyalty
- Cultivate an image as a good employer
- Continue to sponsor elite EU-based engineering universities

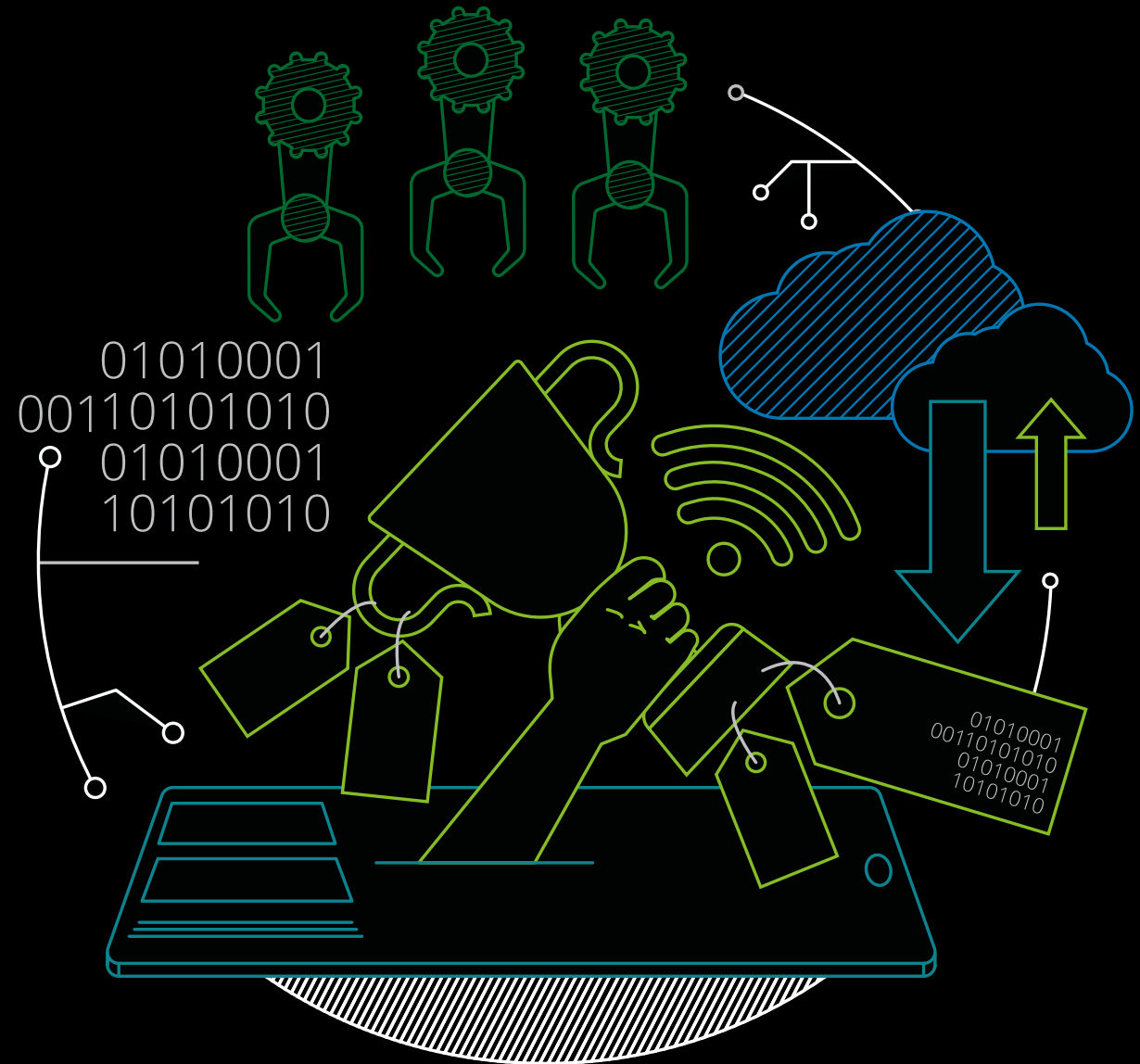
“Today’s ideal industrial manufacturer makes hardware that is innovative, software that is reliable and data services that add value.”

Hans Hess, former president Swissmem

## Scenario B

# “Success at the Price of Transformation”

Industrial manufacturers in the DACH region have taken their own initiative to become digital champions, leveraging expanded software functionality not only to achieve operational excellence but also to develop new standardized and highly-flexible industrial products. This has given rise to new service-based business models that help keep major software developers and platform providers at bay. Other key competitive differentiators in the DACH region are smart factories and data ownership. Competitors from overseas are finding it increasingly difficult to match the operational excellence of DACH-based industrial manufacturers. In this world, manufacturers are no longer creating innovative products in close collaboration with clients (or by leveraging deep customer insights), but through flawlessly designed processes. Pricing has become the key factor in this scenario's competitive environment.



## Scenario characteristics



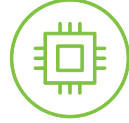
### **Business model disruption: strong**

The industrial manufacturing sector is focused on optimizing processes and making production more flexible. Service-based business models are gaining traction.



### **Pressure to adapt: strong**

“Smart” factories require stable supply chains and perfect after-sales service. Even minor disruptions can lead to massive losses.



### **Software competencies: available**

Data ownership and software skills have become must-haves for industrial manufacturers and a key element of their core competencies.



### **Competitive dynamics: manageable**

Competitors are almost exclusively focused on unit costs and volumes. There is not much room for innovation in industrial machinery (or products).



### **Regulatory protection: moderate**

Patents do not offer sufficient protection for smart factory owners, particularly when there is little to no public interest in the issue.



### **Young talent: available**

Jobs in industrial manufacturing are in demand, but wage levels in the DACH region are too high. The industry has come under criticism because of low-cost production with foreign workers.



### **Macroeconomic environment: weak**

The global economy is becoming increasingly volatile. Customers are demanding cost-effective and highly flexible standardized machinery.



### **Business freedom: limited**

Restrictive regulations are in place to mitigate potential social tensions caused by the advance of automation.

### **Innovation**

DACH-based industrial manufacturers have been successful with their digitalization initiatives and have developed a new generation of highly innovative mechatronic production systems. These systems are standardized yet flexible, supporting sophisticated service-based business models from pay-per-use to end-to-end production services.

In this world, advanced sensor technology and image processing are widely used at every stage in the value chain. 3D printing has progressed to the point of becoming a competitive production method. This makes production equipment more universal, but also makes investors more cautious. As a result, customer-specific machinery and capital-intensive business models are progressively losing market share.

With the market for specialized production equipment becoming more and more niche, leading industrial manufacturers are starting to make process efficiency and scalability the prime focus of their innovation strategy.

### **Collaboration**

The close collaboration within and outside the sector has been one of the critical success factors for DACH-based players. Industrial manufacturers, IT companies, banks and insurers work closely together to drive innovation.

### **Competition**

Industrial manufacturers from overseas can't keep up with DACH-based competitors selling production equipment that is simply more flexible, faster and more cost-effective as well as offering better service models – in other words, perfectly aligned with the buyers' priorities.

Homogeneous IT architecture and sound data strategies play an important role in maintaining this competitive edge. Smart factories are fast becoming the norm and industrial manufacturers in the DACH region are staying ahead of the pack by investing in network capabilities, cloud integration and ecosystem building. Deep expertise in these areas is the only way to prevent major software developers and platform providers from muscling in.

### **Politics**

EU economic policies are still supporting global free trade, while antitrust authorities become weaker and weaker. As a result, medium-sized industrial manufactures are finding it more difficult to occupy niche markets. Wave after wave of consolidation among DACH-based industrial manufacturers has followed, with increasing production volume becoming a core feature of almost every business model in the sector.

### **Global economy**

Exports from the EU's industrial manufacturers are booming; after all, customers around the globe want to profit from the DACH region's highly competitive production equipment. However, the global economy is increasingly volatile in this scenario, prompting customers as well as investors to prioritize investments in cost-effective, highly flexible production equipment that can easily be reconfigured for new products.

### **Talent**

Global price wars are putting pressure on wages in the DACH region. Companies don't need as many highly qualified employees to operate standardized equipment, so there is an ample talent pool to choose from. The region is also very appealing to low-cost guest workers from across the EU and even the world. As DACH-based manufacturers mainly live from low-cost production for the global market, this will only provoke another round of price wars.

“Scenario B sounds like a threat to engineers focused on specialized machinery, but it can also be an opportunity. However, regional players will have to invest significant effort to achieve the best of both worlds: masterpieces of German engineering on one side and standardized machinery on the other.”

**Jonas Janik, Manager, Monitor Deloitte**

# Implications and success factors for Scenario B

## “Success at the Price of Transformation”

### What customers expect

**Implications:** DACH-based industrial manufacturers in this scenario are setting new standards. From the customer’s point of view, they want their new production equipment to be flexible and to offer uniform interfaces, components and software. European quality should be noticeably different from that of their Chinese counterparts without a significant price premium. And last but not least, customers want to have a significant impact on the end product (sold as a package with machinery and service).

### Success factors:

- Offering the best solution without charging a premium
- A clear-cut USP compared with Asia-based competitors (e.g., sustainability)
- Controlling customer access, e.g., by collaborating on product development
- Smart personalization
- Cost-savings in after-sales service

### Where the innovation focus is

**Implications:** In this scenario, the DACH region’s industrial manufacturers are reinventing the production process with large-scale automation and critical process optimization. To reduce costs, a modular design makes the most sense; to deliver interoperability, the systems have to integrate and leverage data from various sources. And with end-to-end services as the future of complex production equipment (e.g., Equipment as a Service), manufacturers need to come up with lifecycle solutions.

### Success factors:

- Personalization and software solutions as competitive differentiators
- Modular systems
- No “overengineering”
- Strict cost transparency across the entire supply chain

### Collaboration with partners and suppliers

**Implications:** Alliances and partnerships are necessary in this scenario as well, helping manufacturers cover large sections of the value chain and offer scalable solutions. To avoid challenges, manufacturers can develop, implement and invoice joint offerings in a joint venture with a partner from the DACH region. We can also expect mergers and significant sector consolidation in this scenario.

### Success factors:

- Innovation partners and networks
- Creation of a large-scale industrial manufacturing network
- Resilient supply chains with total cost transparency

### What we need from the next generation of talent

**Implications:** The highly innovative DACH industrial manufacturing sector in this scenario is extremely attractive for specialists in the region and abroad. IT and licensing expertise becomes more relevant along with several new skills in and around pure engineering knowledge.

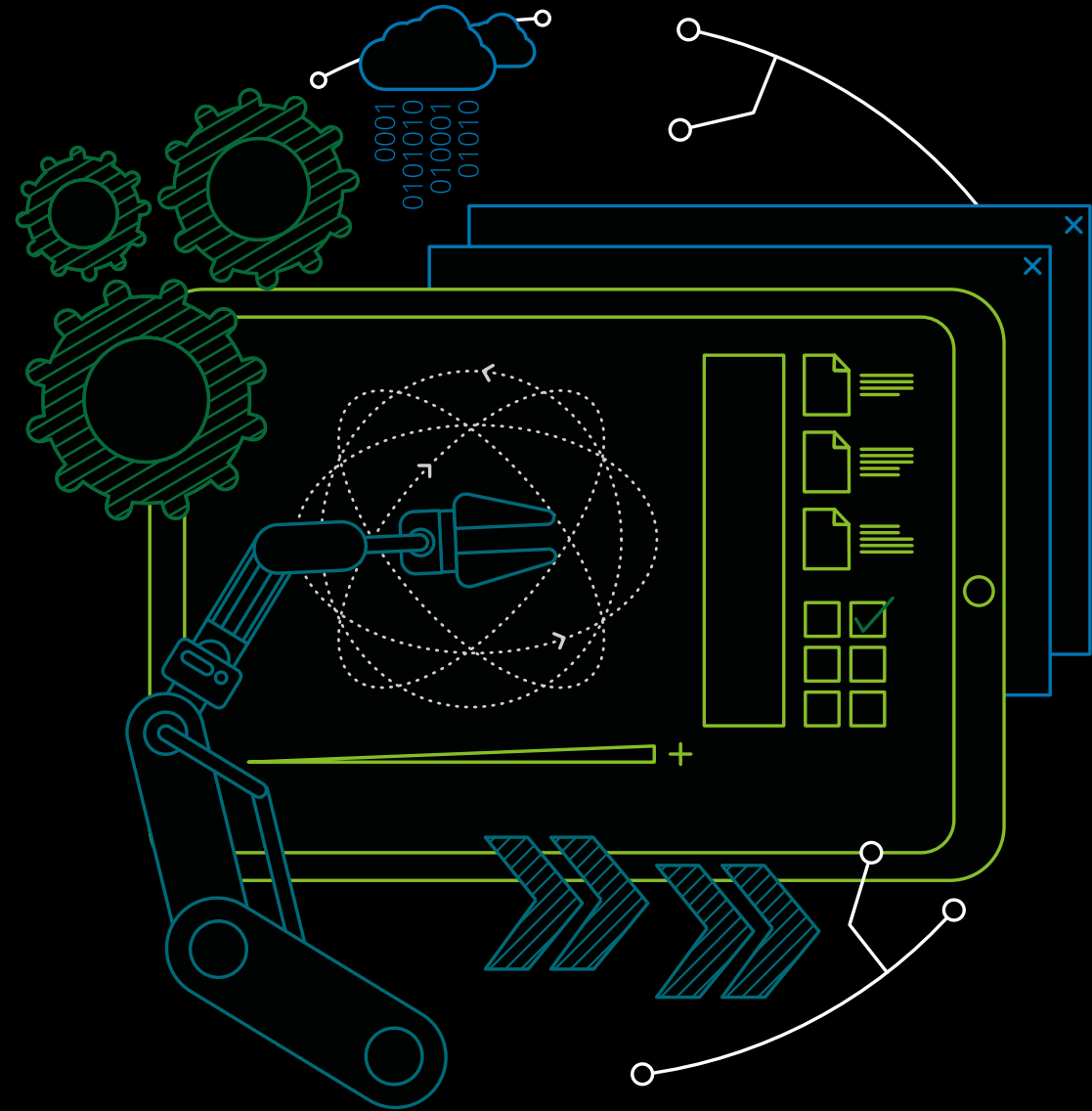
### Success factors:

- Globally competitive salaries
- Outsourcing of administrative tasks
- Recruitment of innovators who combine technical skills with customer insight

## Scenario C

# “Paradise Lost”

The dream of the software developers and platform providers has become reality: standardized yet flexible machinery and standardized digital offerings such as sourcing and service platforms have taken over large swathes of today's market for industrial products. Manufacturing companies have mainly lost their direct contact with customers and have been relegated to one of many interchangeable suppliers for the digital platforms. Europe is still a global market player, but with the status of a supplier, while most of the value creation potential in industrial manufacturing has shifted to Asia. Manufacturers in the DACH region are forced to compete on price. Next-generation engineers are becoming increasingly scarce and mainly concentrated in Asia and the US.



## Scenario characteristics



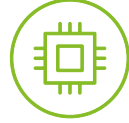
### **Business model disruption: strong**

The business model has been relegated to the supply of standardized machines and components to integrated service providers.



### **Pressure to adapt: strong**

DACH-based industrial manufacturers have to focus on staying ahead of the competition in terms of operational performance. To compete with Asia-based players, they will need to undergo a major transformation.



### **Software competencies: scarce**

Software expertise is highly concentrated, largely the domain of integrated software providers that control the data flows and dominate the industrial manufacturing sector.



### **Competitive dynamics : intense**

The competitive environment is impacted by intense cost pressure in general and by competition from China-based industrial manufacturers in particular.



### **Regulatory protection: limited**

Global trade regulations are being dictated by the US and China; protectionist tariffs restrict market access for EU-based companies.



### **Young talent: unavailable**

Engineers are becoming increasingly scarce in Europe, while highly qualified talent is being poached by Asia or US-based competitors.



### **Macroeconomic environment: rather weak**

The global economy is growing, but mainly in North America and Asia. The EU is finding it increasingly difficult to make an impact in international trade.



### **Business freedom: limited**

Other companies largely dominate business and innovation, DACH-based industrial manufacturers have been relegated to the role of supplier.

“In Scenario C, we see very clearly how important it is for today’s players to actively shape the industrial manufacturing ecosystem – before it starts reshaping them.”

**Thomas M. Döbler, Partner and German Energy, Resources & Industrials Lead, Deloitte**

### **Innovation**

China-based industrial manufacturers have acquired European expertise and enterprises, allowing them to expand and enhance their product portfolio. They have surpassed the industrial manufacturers in the DACH region as a result, where R&D investments are down, and medium-term global leadership is only possible on the margins.

At the same time, big software developers, platform providers and new start-ups are developing novel business models for the industrial product market. Engineering software developers and industrial service platform providers build direct links between customers and manufacturers to dominate the lucrative service and spare parts markets.

In the DACH region, it is increasingly rare for industrial manufacturers to be primarily innovation-focused. That said, domestic players have succeeded in leveraging process automation software from the big tech firms to maintain cost leadership. “Made in DACH” has evolved from a symbol of quality and innovation to one of low costs and operational excellence.

### **Collaboration**

The restrictive business climate has taken a toll on the solidarity and collaboration among partners in the DACH-based industrial manufacturing sector. The challenge now is to win contracts with Chinese competitors and manufacturing-focused software developers and platform

providers – even if the terms are less than ideal. Transitioning to this new business model isn’t easy for many manufacturers based in DACH. They are profoundly reluctant to accept the new normal; decision-making has slowed to a long, drawn-out process.

At the end of this painful progression, the European industrial manufacturing industry is left with only two types of target customers: very profitable, often market-dominant and mainly US-based software developers and platform providers or emerging market leaders in industrial manufacturing primarily based in China.

### **Competition**

In this scenario, Asia is the dominant force in global demand for industrial products. Strong Asia-based competitors with the ability to create value over the long term will ultimately push most DACH-based industrial manufacturers out of their domestic markets, aided by trade barriers for European imports.

Manufacturing in the DACH region is, however, still able to capitalize on its operational excellence and remain viable as suppliers for both Asian competitors as well as the industrial purchasing portals operated by software developers and platform providers. This puts them in direct competition with other manufacturers from Southeast Asia.

### **Politics**

In this scenario, economic growth in Europe has fallen behind that of the US and Asia. EU member

states have grown dissatisfied as a result, locked in a political stalemate that prevents the EU from pursuing coordinated trade and economic policies as a bloc.

In order to protect its internal market, the EU imposes tariffs and CO<sub>2</sub> border taxes on foreign imports. Asia and the US respond quickly in kind, raising the price of European imports.

### **Global economy**

Global trade is concentrated between the US and China, with Europe losing its once strong position; former export industries no longer have easy access to global markets. DACH-based industrial manufacturers have been relegated to offshoring partners for Chinese and American businesses. By 2030, their core business is essentially making standardized parts and components for overseas industrial manufacturers as well as spare parts for industrial service portals.

### **Talent**

In their new role as suppliers for the global economy, DACH-based industrial manufacturers are finding it increasingly difficult to recruit qualified employees. Talent is flocking to their strong Chinese competitors instead, as Asian business takes on a more dominant role.



# Implications and success factors for Scenario C “Paradise Lost”

## What customers expect

**Implications:** In a world dominated by software, customers expect uniform, end-to-end standards in machinery, components, interfaces and software platforms. Reliability is high; online platforms simplify user access. The total cost for customers (at least in their perception) is minimal.

### Success factors:

- Cost benefits achieved within predefined standards
- Seamless integration in the relevant platforms
- Hassle-free delivery and ramp-up
- Focus on basic functionality
- Customer communications highlighting the simplicity of everything

## Where the innovation focus is

**Implications:** Maximum efficiency and across-the-board usability are the most essential development goals in this scenario. Every mechanical component has straightforward functionality; gimmicks come at an unnecessary expense – after all, most of the real functionality is software-generated. In this world, innovations come from new components and new processes.

### Success factors:

- Leading role in the automation processes, even if decentralized
- Consistent focus on modularized production
- Short development cycles, fast time-to-market
- Specialization in small niche markets for components

## Collaboration with partners and suppliers

**Implications:** In this scenario, the only data available to industrial manufacturers is the customer and machine data that the dominant software developers and platform providers let them to have – in other words, the platforms only permit their certified partners to get in the game. Manufacturers of mechanical components have to compete on cost; M&A-driven consolidation is the sensible solution for the industrial manufacturing sector.

### Success factors:

- A highly-curated, flexible partner network with the right competence mix
- A high-level of partner transparency as well as deep market and customer knowledge
- Good niche strategies and insight into winning international tenders
- Advocacy for strong European players

## What we need from the next generation of talent

**Implications:** Industrial manufacturers are only in demand in this world as suppliers of standardized mechanical components, which means the sector needs reliable, well-trained manufacturing and development talent above all. Salaries are under pressure. Most developers and planners will go where the innovation is happening.

### Success factors:

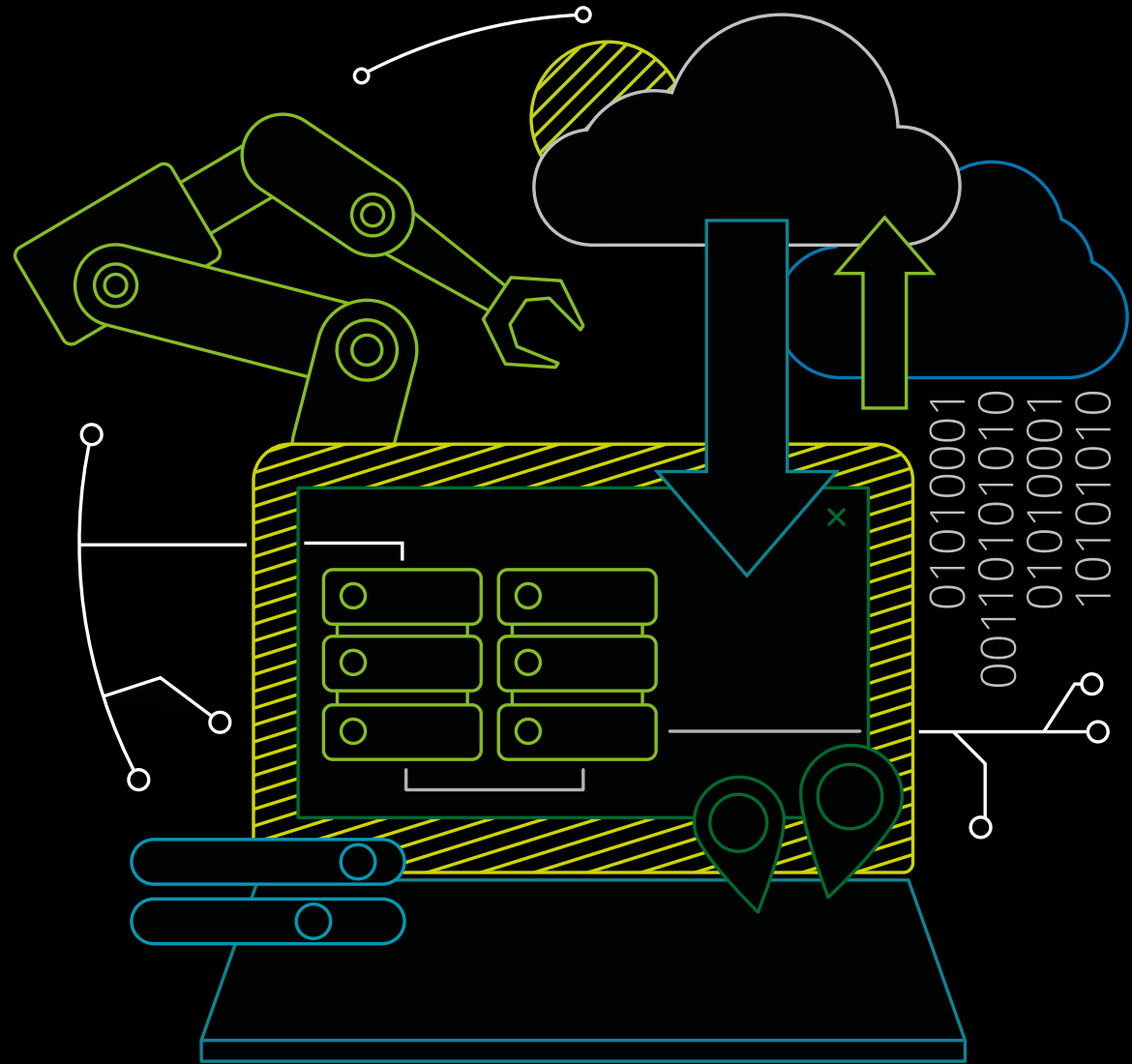
- Broad-based employee development strategies to secure a wider range of placement opportunities
- Transformation of the manufacturing culture toward maximizing efficiency
- Global communications elevated to a key skill or even system feature
- Virtual collaboration becomes the norm (also for reasons of efficiency)

“For me, the highly standardized purchasing and service platforms are the biggest threat – they could cost us our margins, our sales and direct access to our customers (data).”

## Scenario D

# “Played by the Ecosystem”

Technology leadership is determined by software functionality. Software developers as well as platform and service providers are grabbing a large share of the added value in industrial manufacturing as a result, forcing manufacturers into a submissive role. Novel business models ranging from X-as-a-Service to engineering consulting dominate the market. That said, standardized machinery is not yet a one-size-fits-all solution; industrial manufacturing is still a customer-specific business. Growing expertise and rising salary levels in foreign markets have led to more and more innovations coming from outside Europe. Manufacturers in the DACH region are finding it increasingly difficult to recruit qualified engineers and other specialists, as these cost-sensitive businesses offer less attractive salaries.



## Scenario characteristics



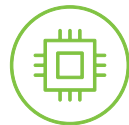
### **Business model disruption: strong**

Traditional business models in the industrial manufacturing sector are being displaced by standardized machinery with customized software solutions.



### **Pressure to adapt: strong**

New business models demand fast operational transformation and novel processes, while the pressure to achieve operational excellence remains.



### **Software competencies: scarce**

Integrated software vendors dominate in terms of software functionality, and they also own the machine data.



### **Competitive dynamics: intense**

The sector is consolidating, and the race is on to find the most attractive partners, with the biggest competition coming from China.



### **Regulatory protection: moderate**

Europe and the DACH region have become a pawn for the strong Asian and US economic blocs, who dictate the rules for global trade.



### **Talent: scarce**

Qualified recruits shy away from working for DACH-based industrial manufacturers due to their lack of technological and business autonomy as well as their weak margins.



### **Macroeconomic environment: moderate**

The global economy is growing, but mainly to the benefit of US and China-based companies; the European economy only plays a peripheral role.



### **Business freedom: limited**

Instead of DACH-based industrial manufacturers making their own business models and innovations, third parties are now calling the shots.

### **Innovation**

It is becoming more difficult for EU-based enterprises to keep up with the pace of innovation in North America and Asia. Big software vendors, platform providers and Chinese industrial manufacturers are giving the manufacturing sector in the DACH region a run for their money.

On the customer side, production processes are becoming more modularized with standardized interfaces. This is increasing demand for modular machinery, but also highly specialized equipment, making X-as-a-Service models the new standard. Hardly any companies buy machinery outright anymore; even leasing has become a rarity.

Production and process innovation is dominating the industrial manufacturing sector, which has all but replaced traditional innovations in products and solutions. A lot of DACH-based industrial manufacturers have found this transition process extremely difficult, and it has been a tough test for legacy firms in particular who see their identity as engineers first and foremost. In a world with one-size-fits-all machines, there is still added value in implementing customer-specific solutions – but software functionality is the source of most added value. And that software is being developed by big tech firms in this scenario, not the industrial manufacturers or the software SMEs they collaborate with.

### **Collaboration**

Partner networks have become a critical success factor for DACH-based industrial manufacturers.

Financiers and risk bearers (banks, leasing companies, insurers) provide up-front funding and cover risks ranging from machine breakdown to payment default. Specialist IT service providers deliver big data solutions and transparent billing for X-as-a-Service offerings.

As a rule, big software vendors and platform providers not only offer software platforms; they often customize the software for the customer as well and/or manage customer access via industrial purchasing portals. There is not much scope for DACH-based industrial manufacturers to do business in this scenario, unless they can play a larger role in the ecosystem of one of the big software developers or platform providers. Alternatively, they could all join forces and set up a broad-based, pan-regional ecosystem themselves under a “DACH Industrial Manufacturing AG” brand.

Collaboration in this scenario is and will likely remain a tense endeavor, particularly as the big software developers and platform providers have seized the access to machine data for themselves (and often the access to the customers as well), effectively preventing their partners in the industrial manufacturing sector from leveraging this valuable resource.

### **Competition**

Software developers and platform providers have already established good relationships with manufacturers through their engineering and automation software as well as their industrial purchasing and service platforms. Now they are

developing more and more practical applications for their software to add value to manufacturing machinery, which shifts the profit zone further and further away from the actual machinery and toward manufacturing services.

Industrial manufacturers in Asia – and particularly in China – have caught up with their European-based competitors thanks to acquisitions of high-tech companies across the globe, state-financed research and development, and a rapidly growing pool of young engineering talent. In comparison to their DACH-based competitors, Asian enterprises still have an edge with lower wages and long-term government subsidies and have outperformed many manufacturers in DACH as a result.

This trend provokes a wave of consolidation in DACH’s industrial manufacturing sector, which is only partly driven by economic necessity. Manufacturers also focus on being able to provide customers and partners with the broadest possible range of mechanical expertise. With the scale of the manufacturing giants now emerging in DACH, the business has become even more capital-intensive than before, and players are often deeply in debt.

Companies that do not consolidate often transition from actively manufacturing industrial products to consulting for other manufacturers. Engineering consultants from the DACH region have even managed to gain traction on the Asian market.

### **Politics**

By consolidating political and economic power, North America and Asia in particular have succeeded in profiting from the increasingly globalized economy. These regions use asymmetrical economic policies to protect their successful industries.

### **Global economy**

Globalization continues to spread throughout the world in this scenario. Global players with the strongest positioning have succeeded in creating extremely favorable conditions for their domestic businesses – through both international trade agreements and government subsidies for strategically important sectors. Exports are increasing disproportionately as a result, especially for companies from the US and China.

### **Talent**

The ability to recruit young engineers is still a major challenge for industrial manufacturers, even though society’s growing focus on technology has produced an ample supply of qualified engineers. Working for low-margin industrial manufacturers is less attractive to job seekers than the prospects offered by software developers, platform providers or consulting firms.

The competition for talent continues to strain the relationship between industrial manufacturers and their partners in software development, platform engineering and IT services.

# Implications and success factors for Scenario D “Played by the Ecosystem”

## What customers expect

**Implications:** In this scenario, customers expect maximum value for money from their industrial manufacturers – and sophisticated end-to-end solutions that are perfectly tailored to the customer and their needs. They are also looking to reduce complexity through comprehensive package offerings with seamless service and total transparency.

### Success factors:

- Direct customer contact is the only way to gain the necessary customer insights.
- The sector leaders in your customer base are your most essential partners.
- Above all, new business models are what will generate new revenues.
- Industrial manufacturers must find new opportunities along the entire value chain.

## Where the innovation focus is

**Implications:** In this scenario, DACH-based industrial manufacturers are deeply embedded in complex, international business ecosystems that are dominated by software developers and platform providers. Competition is no longer between individual companies, but between these broader ecosystems. Manufacturers will not survive unless they keep advancing their digital transformation, as machinery becomes more modularized. Industrial manufacturers are focused on innovations in smart services within the new ecosystem business model.

### Success factors:

- Knowledge is power – innovation provides the opportunity to regain power.
- Continuous adaptability will secure a company's position within the ecosystem.
- Active participation in business model development within the ecosystem.
- Strengthening employee creativity through incentivization

## Collaboration with partners and suppliers

**Implications:** In this scenario, what opportunities are open to individual companies will depend on the scope and competence of their respective regional/global ecosystem. Competition is also a factor within the ecosystem: after all, cooperation, partnerships, rivalries and alliances are dynamic in nature. It is essential to establish clear-cut rules for relationships between ecosystem players, and this applies in particular to interfaces and data exchange. Ideally, DACH-based industrial manufacturers would join forces and create their own ecosystem. With a focus on top-class, end-to-end solutions and the cohesiveness of the group, they may be able to keep the power of the software developers and platform providers in check – or perhaps even build a joint platform and create their own software solutions.

### Success factors:

- Create platforms that offer fair access and fair value sharing to all players
- Lean operating models with high transparency and control over the supply chain
- Early inclusion of other players within the ecosystem (e.g., financial services providers)

## What we need from the next generation of talent

**Implications:** Solutions-oriented thinking will determine how much value an individual company can contribute within their ecosystem. The search for talent is therefore a very high priority, with generalists especially in demand – attractive pay packages are a must. Employee development is also a priority task; staff need to adopt an entrepreneurial, global and digital mindset.

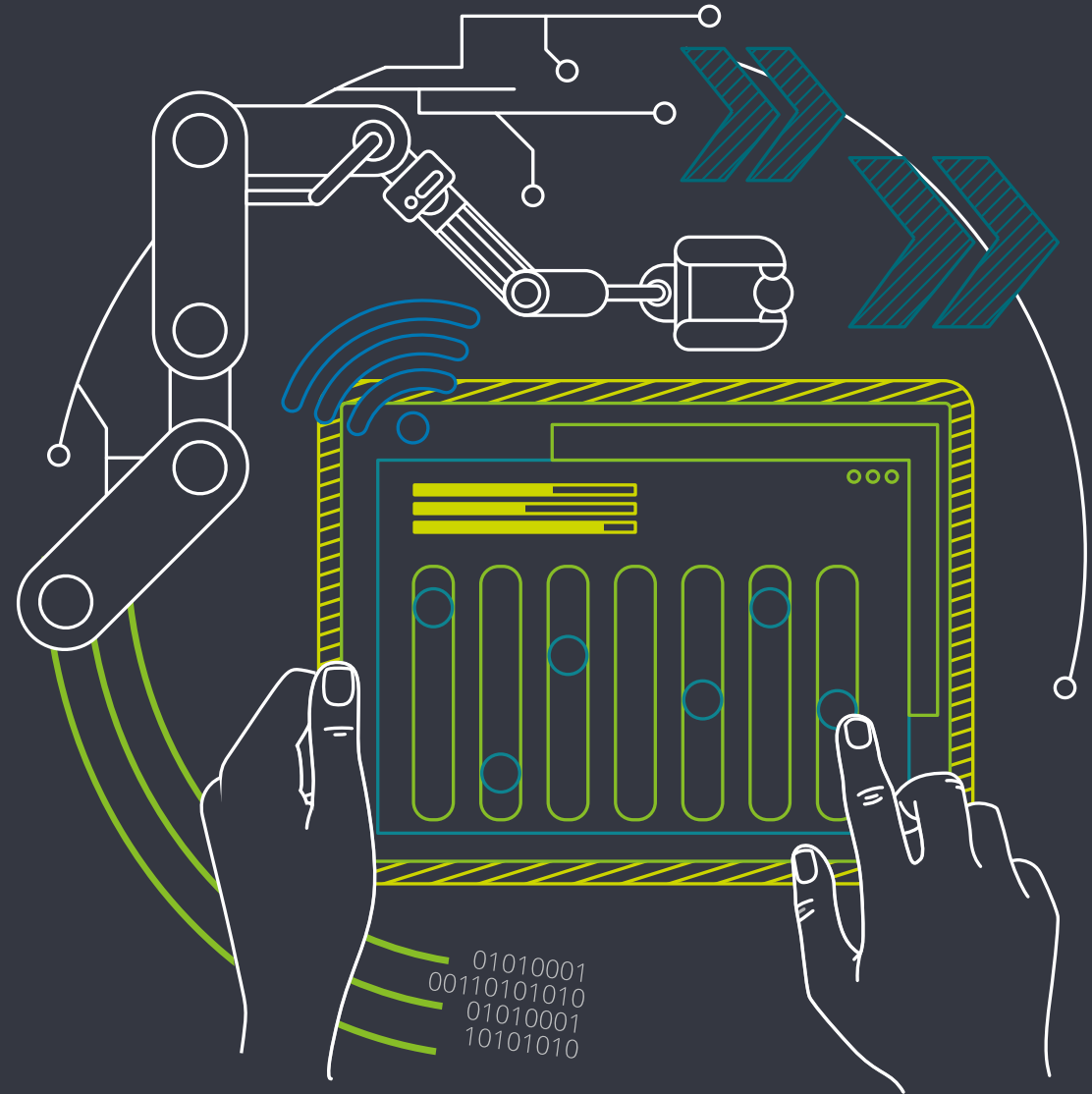
### Success factors:

- Attractive, dynamic corporate culture with a clear corporate mission
- Focus on top-class talent to become a leader within the ecosystem
- Joint training and development strategy to secure top talent for the DACH industrial manufacturing sector, covering a variety of tasks and offering a career path moving between companies in the sector.
- Global mindset and English as the corporate language

# Recommended course of action

## Eight initiatives you will not regret

Regardless of what the studies say, we really have no idea what the future holds. Who would have thought in January 2020 that the coronavirus outbreak in China would have such a devastating impact on the global economy? There will always be outlying factors that no one has considered or events that have massive consequences virtually overnight – and companies are only now rediscovering how important it is to be resilient. We recommend taking the following initiatives, many of which are quite simple, to make sure your company is better prepared for the future. Or should we say, better prepared for the somewhat foreseeable future.



**Digitalize your core processes: a marathon, not a sprint, that requires strategic focus**

The basis for every digital transformation is thoughtful process design. Any unsuitable or overly complex processes in your system will not magically improve with digitalization. An ideal process design focuses on customers and their tasks/challenges, but also reflects your company culture and your specific circumstances. On the way to achieving your overall digitalization goals, you should have meaningful interim targets that each unlock potential in a targeted area. Establishing a uniform IT environment is equally important, not as a goal per se, but rather as way to achieve the other goals.

Manufacturers that build smart production machines need to master the basics of collecting machine data from customers. But then you have to do something with that data – ideally in a way that benefits your customers. They will definitely want something in return for that data, for example regularly scheduled and meaningful analyses. They will also want assurance that their data is in good hands, so every industrial manufacturer will need to guarantee responsible and transparent data ownership, perhaps through blockchain technology. The primary goal of all data collection must be trust-based and deep-rooted relationships with the customer.

**Think globally: an old slogan that is more relevant than ever**

Smaller industrial manufacturers in particular will have to adopt a more global mindset moving forward. Even though the sector already operates – and above all sells – on a global scale today, in the future we expect remote solutions to emerge for more steps in the value chain. Manufacturers need to make sure they don't lose touch with their customers' on-site technicians, despite convenient options like remote diagnosis.

“We are all on a journey of digital transformation, and there are precious few shortcuts. ”

**Valentin Vogt, President of the board of directors, Kistler Instrumente AG**

Thinking globally may be even more essential in the future – we could conceivably have employees working remotely from all over the globe, for example, or set up offices for local development

teams near their key customers. Companies that regularly recruit talent in neighboring countries or even overseas will have a much higher chance of finding what they need, but only if they put effort into overcoming cultural barriers.

**Stay resilient: investing in business stability**

Traditional corporate culture – as often practiced by industrial manufacturers in the DACH region – certainly has its strengths. During the COVID-19 crisis, we found that companies have generally fared better and continue to fare better in these challenging times if they have local suppliers, well-stocked inventories, a cushion of financial reserves and facilities they own outright. These are all descriptors that generally apply to industrial manufacturers based in the DACH region. Many of them took a proactive approach to looking after and supporting their suppliers – in some cases by refusing to take any discounts. In our opinion, we don't think DACH-based manufacturers should radically dismantle these virtues any time soon – i.e., financial prudence and being a partner in the truest sense – especially not in the name of squeezing out every last cent of profit.

Protection against cyber-attacks is one aspect of resilience where industrial manufacturers have a lot of catching up to do. Operational resilience – i.e., the ability to quickly adapt to changing

circumstances – may also be a worthwhile pursuit. Adopting a continuous improvement culture and breaking down hierarchical, siloed structures are two key hurdles on the way to achieving operational resilience. In terms of IT services, operational resilience is about quickly solving every problem that arises.

### **Build in sustainability: the future USP for DACH-based industrial manufacturing**

A lot of companies see sustainability as a luxury that only the most profitable market leaders can afford, but the story is quite different coming from companies that actually take sustainability seriously. They often generate significant savings. Targeted, small investments – in lighting, heating/cooling or compressed air to name a few – generate rapid results and good returns. With pumps, for example, you can often achieve energy savings in the double-digit percentage range with a few small changes to your machine settings. Manufacturers can often find cheaper substitutes for expensive raw materials as well, without compromising on product quality or reducing the product price.

Finally, sustainability may also offer manufacturers unexpected opportunities in the medium to long term if they can get ahead of the competition in this area. In this study, we see sustainability as a chance for DACH-based industrial manufacturers to create a unique competitive advantage for themselves over their competitors from abroad. The DACH region has been working on sustainable solutions for much longer and much harder than any other global region. It is clear even today that industrial products made in DACH are more energy-efficient, use fewer raw materials and offer a longer service life than comparable products from Asia or the US. “Zero Footprint Engineering and Production” could become a decisive competitive factor and give the DACH-based industrial manufacturing sector a key differentiator worthy of a price premium.

### **Create an ecosystem: no one can master the digital future on their own**

As technology and service offerings become more complex, our study shows that it takes an ecosystem filled with very different companies to stay in business and remain relevant for customers. A few examples of ecosystem players could be:

- IT and software partners for cloud services and big data analytics
- Banks and insurance companies to provide funding and carry risks
- Independent service providers to measure and invoice usage in “pay-per-use” models
- Consulting firms to identify and implement best practices across the value chain
- Universities to facilitate early collaboration with key talent

These are not nearly enough players to complete an entire ecosystem. Other possible partners could be in research and development, sourcing and recruiting talent or production networks. The fact that the DACH region has been able to maintain its global leadership so far is due mainly to its uniquely coherent network of engineering-focused companies. This gives regional players a locational advantage with no cultural barriers to overcome, and they should take more advantage of this in the future.

“Sustainability is a particularly relevant topic for us – it could give us the new USP we need to compete with our Chinese rivals.”

**René Gudjons, Managing Director, Bauer Maschinen**



**Build and maintain access to customers: the only way to sustain core capabilities over the long term**

Services and spare parts account for more than half of the profits generated by the industrial manufacturing sector today. In this study, we have noted several times that close collaboration with customers is the best way to develop new services. One of the biggest threats facing today's manufacturers are industrial service portals (e.g., from Amazon), which are already capturing a large share of service tenders and spare parts purchasing. Industrial manufacturers not only lose margin in this scenario, but also their direct contact with customers – that means they cannot get the data and insight they need to develop more advanced service offerings. Manufacturers should establish alternative customer channels in the near term to ensure that their services appeal to customers for the foreseeable future.

As an additional threat to customer access, the customer relationships manufacturers once cultivated in person are being replaced with online services, e.g., remote training for new machinery, online spare parts sales or service hotlines. On the one hand, it is sensible and necessary to save

time and effort with as many online services as possible for customers. On the other hand, fewer in-person contacts with customers often means less customer loyalty. It is essential for manufacturers to consider these issues and design their virtual services in a way that keeps the customer relationship close.

Certain companies in the industrial manufacturing sector may know who originally bought their machines, but not who bought it on the second-hand market or even how many machines in this category are still in operation. Manufacturers could opt to set up a customer web shop in this case, but not on a standalone basis; opening a web shop makes more sense as part of a broader business strategy. The service hotline and the web shop have to work as a coherent whole if they want to help customers order spare parts more easily, faster and at a better price. They can place the spare parts order online without first having a prolonged conversation with a service hotline employee to figure out the part number. Manufacturers should take this into account and give customers an incentive to buy online, whether with a discount, a higher level of service or other goodwill gestures.

“The more quality levels converge among the world’s industrial manufacturers, the more urgent it is to gain deep customer insight across all functions. That also includes analyzing what makes customers successful with their customers.”

**Markus Koch, National Sector Lead Industrial Products, Deloitte Switzerland**

### **Put an Asia strategy in place: Asia-Pacific is becoming a more mature, more sophisticated market**

There are a lot of diverse markets in Asia, from industrial economies such as Japan to emerging markets such as Indonesia. China plays an outsize role and can no longer be categorized as a developing country – the B2B landscape in China has become more mature and is more technologically advanced than DACH in some respects, even when it comes to production machines.

Manufacturers should reconsider issues like the following: Are we in a position to keep up with competitors in local market? If so, which segments and which products should we focus on? And then there is the issue of communicating your specific expertise – in other words, your USP – in a way that helps customers become aware of your brand and truly understand what you do. We know of at least one EU-based manufacturer of construction machines that is running an aggressive and successful marketing campaign on the Chinese social media platforms Weibo and WeChat. Companies that cannot travel to China themselves for the job need to find suitable local partners who understand the market and the language to manage both sales and service.

### **Find creative ways to recruit and retain talent: the future belongs to employers with smart job and career offerings**

In the past, each industrial manufacturer was on their own when it came to battling for technical and engineering talent. These days, we don't

expect many young engineers to spend 20 years in R&D on a single machine – and there aren't many technicians excited about doing maintenance on the same machine for the same customer for 30 years. Job seekers today want a little variety in their lives and DACH-based industrial manufacturers would have a better chance recruiting them if they could work together on education, training and recruitment as well as the job placements themselves.

To develop a promising talent pool, it is never too early to start recruiting. Close contact with and cultivation of young talent in schools, universities or clubs is essential, ideally on an ongoing basis as part of a mutually beneficial partnership. It would naturally be easier to maintain a partnership like this if all sector players work together. A joint training initiative for apprentice technicians sponsored by a diverse group of industrial manufacturers could be more attractive to prospective apprentices than signing on with a single highly specialized manufacturer.

We also need to find employment contracts and employment models that allow employees to be more flexible in their private lives, while also giving manufacturers greater flexibility when it comes to meeting their employment needs. In a world where employee turnover is the rule rather than the exception, setting up an alumni group, for example, is a proven way to win back employees several years after they left.

If there is one thing we have learned during the COVID-19 crisis, it is that all your employees do not need to live in the same place – virtual workplaces can work well! There is no reason a manufacturer cannot move a small R&D team to an attractive urban center where it is easier to find promising talent. Similarly, not everyone who works for you needs a permanent contract – a lot of today's smart young people would rather be more or less freelance, "hopping" from one project to another rather than being on the payroll of a permanent employer. Companies such as Hyperloop are already working with a team of specialists located across the globe, just over 100 of whom are under permanent contract. Many even have purely outcome-based remuneration – if the project fails, they go home empty-handed.

“What surprised me the most was how resilient we can be. DACH-based industrial manufacturers are likely to survive no matter what – provided we are flexible enough to adapt to the realities of any given scenario.”

**Wolfgang Emmerich, Corporate Strategy, voestalpine**

# Methodology

The study and its interim results in detail

## Step 1: Defining the objective of the study

Germany, Austria and Switzerland are renowned for their capital goods. Industrial manufacturing is a so-called enabler industry here – the high density of industrial manufacturers in the DACH region favors the production of high-value capital goods like cars or turbines. With the shift in global production toward Asia and the spread of digitalization, new overseas competitors are emerging and starting to threaten the market position of DACH-based players. That is how we came up with the question “What does the future hold for the manufacturing industry in DACH?” as the starting point for this study.

## Step 2: Determining the sector's key drivers

We begin our study with an analysis of public debates on industrial manufacturing in specialist and business media published online and in print. We use AI tools to conduct two content analyses of all articles, blogs and news features published between December 2019 and December 2020. The first analysis focuses on publications dealing directly with industrial manufacturing, while the second looks at political and societal trends. We

collected a total of 19,300 data points in the first analysis and 34,500 data points in the second, enabling us to identify the issues industry players are talking about. The most important topics we found in the first analysis deal with industrial connectivity, the role of artificial intelligence and robotics as well as market developments in Asia. In the second analysis, the key topics are STEM education policy, sustainability, transparency and COVID-19 recovery measures.

## Step 3: Identifying the “critical uncertainties”

Using the results of Step 1 as a basis, we had intense discussions with 18 sector experts and enlisted 20 strategic experts from industrial manufacturing and related sectors to complete a written survey. At the end of that process, we had a curated list of 91 key drivers for the sector, which we then evaluated based on the extent to which they can impact sector development and the likelihood of that impact. Drivers that have a strong impact and are highly likely to have an impact at all are classified as “critical uncertainties”. We use them as a basis for the scenario modeling process.

## Step 4: Sorting the uncertainties into clusters and creating scenarios

The 31 critical uncertainties we identified are sorted into five clusters, which are explained in more detail on page 12. To create the “scenario realm” – in other words, the boundaries within which we develop our narratives – we select two clusters that are not dependent on one another in terms of impact or likelihood. The clusters for this study are “Power structure within the ecosystem” and “What makes DACH-base industrial manufacturers competitive”.

## Step 5: Developing the scenario narratives

As we draft our scenario storylines, the main goal is to show where the scenarios differ in their most extreme form. We start with all of the possible variables and select those critical uncertainties that have the biggest influence on the way the story unfolds. The best way to activate the imagination of the reader is to make these uncertainties both plausible and as distinct from the others as possible.

## Phase 6: Implications and recommended response

Developing extreme scenario narratives has another added benefit. When we highlight extreme examples of the critical uncertainties on the edge of plausibility, all of the possible future developments in between our two extremes are automatically included. Our set of scenarios not only describes four random worlds in a possible future, but rather an entire “future realm” within the boundaries of plausible expectations.

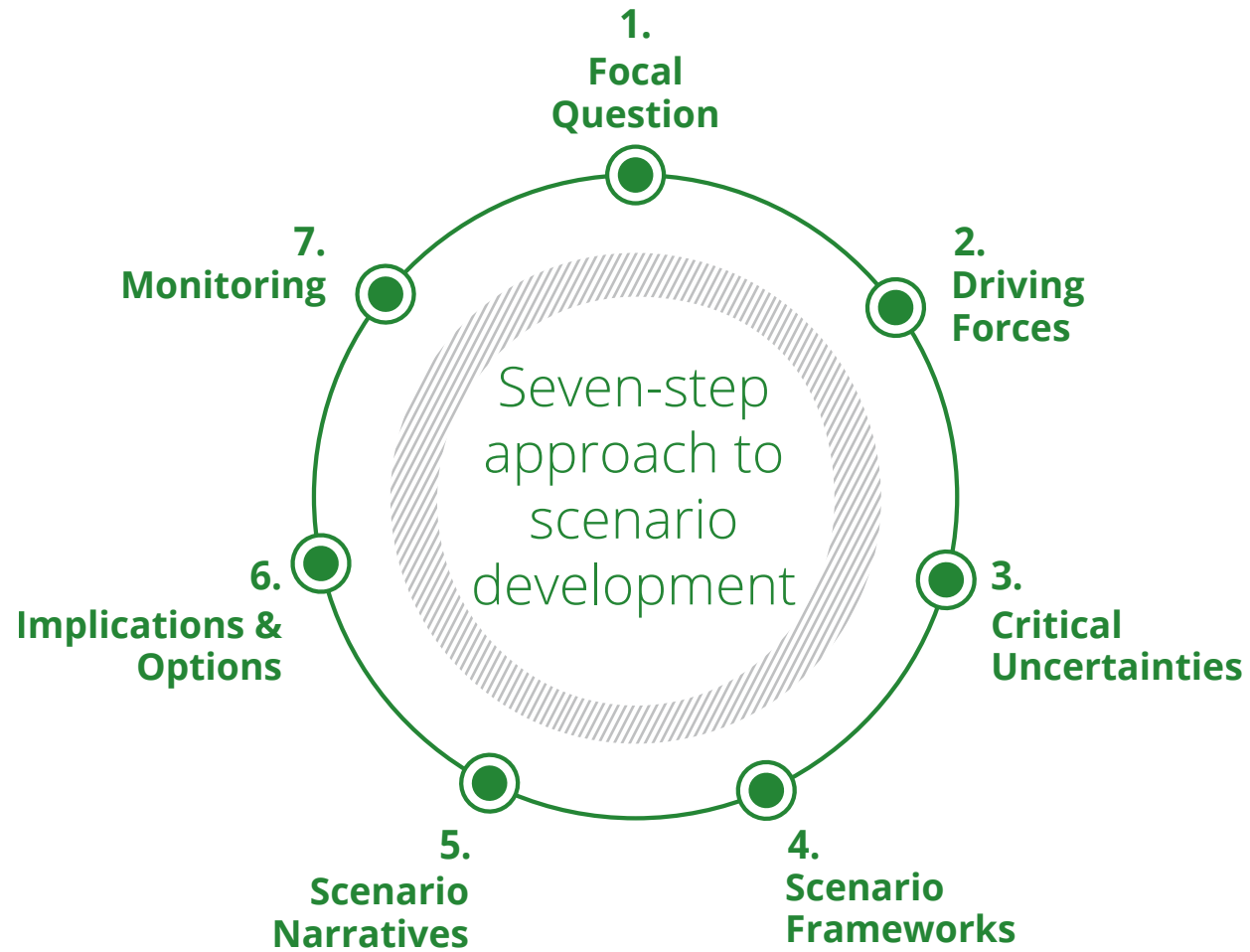
The objective in Step 6 is to identify initiatives that make sense for all of our alternative scenarios – or to recommend measures that focus on one of the possible futures, provided everyone agrees that trends are all moving in that direction.

### Step 7: Monitoring

In Steps 1 through 6, we create an objective, reliable and valid “scenario realm” and develop initiatives that could positively impact industrial manufacturers in all of the scenarios we analyzed (and in all future worlds that are somewhere in between).

During the monitoring phase, we observe the way the world is actually developing day by day, using parameters that have been carefully vetted. This allows us to realign our strategic initiatives and adapt them to real-world developments as we move forward.

Fig. 6 – Deloitte’s seven-step approach to scenario development

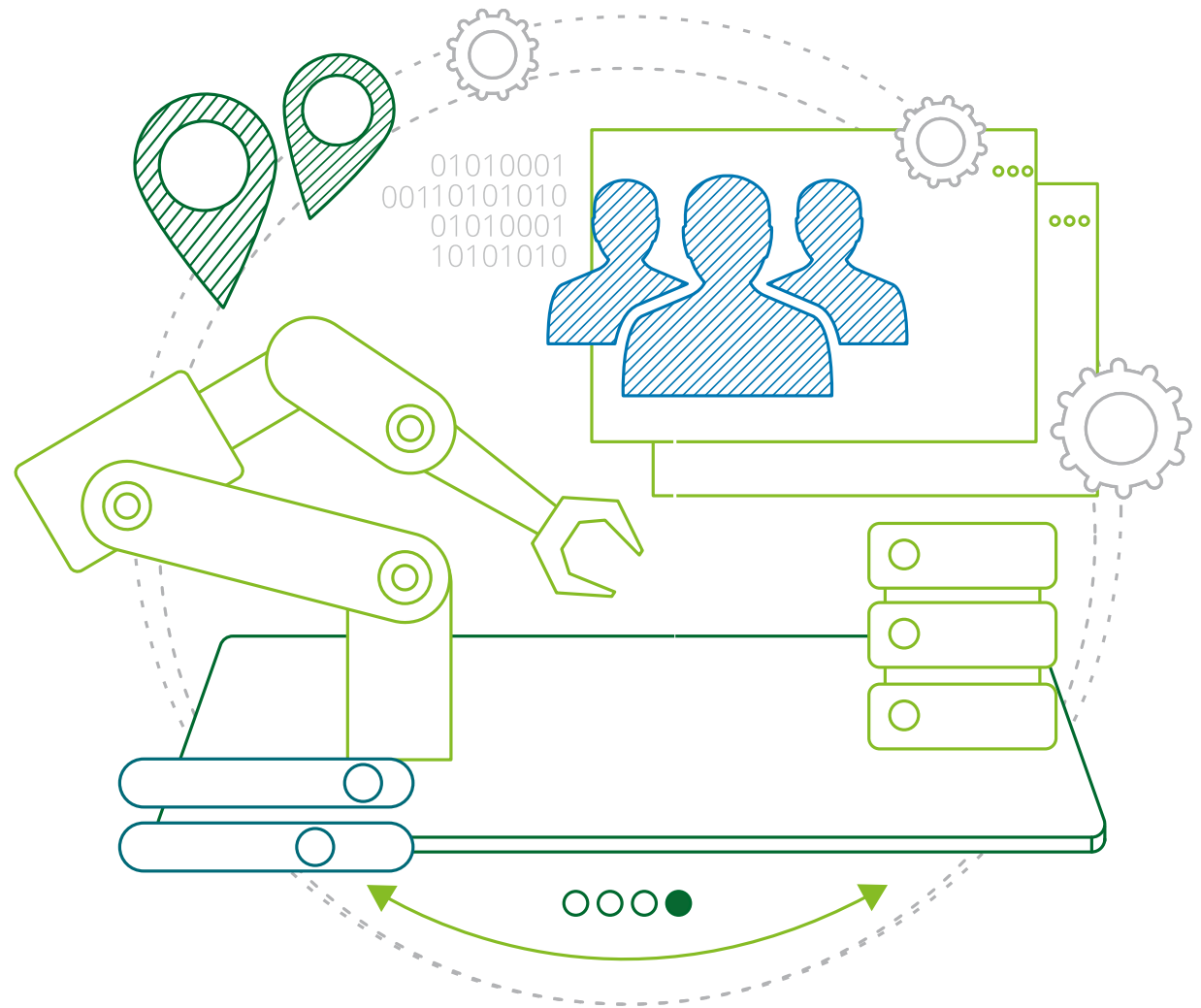


# The Center for the Long View (CLV)

The Center for the Long View (CLV) is Monitor Deloitte's Center of Excellence for the scenario-based Dynamic Strategy Approach. Our mission is to support decision-makers in the corporate and public sphere in developing dynamic, yet future-proof strategies.

Our approach combines traditional scenario planning and strategic thinking with innovative cutting-edge AI-powered research and real-time monitoring capabilities. Based on this well-established methodology, we tailor our approach to the specific needs and circumstances of the cli-

ent and empower decision-makers to cut through the complexity, embrace the uncertainty and be the first to identify and respond to market developments. Working with the CLV and its AI-based research tools enables Monitor Deloitte to adopt an approach that creates innovative future scenarios for clients. The scenario-based method uses elements ranging from conventional expert interviews to artificial intelligence to signpost the future, helping organizations develop strategies that are robust, resilient and successful whatever the future holds.



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