

# Digital Transformation: Why and How to Build a Digital Future

An Altix Consulting Whitepaper on Digital Transformation  
For Industrial Companies

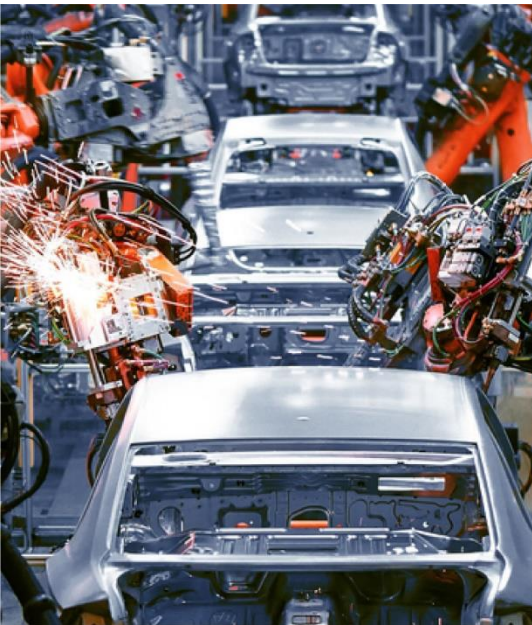


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# What is Digitalization?

Digitalization is an evolving process that took roots several decades ago. The first business computers and data storage units emerged in the 1950s. In the 1960s, companies invested in databases and automated processes to make reservations and plan materials or to gain easier access to schedules/inventories, MRP was born in response to the Toyota Production Systems and Methods. In the 1970s, banking experienced its first digital advancement with the invention of ATMs, which ignited a major digitization trend across industry sectors banking, finance, retail, hospitality....

Digitization was the first global trend that pushed companies to widely use computers and is defined as the process of transforming paper/physical documents into digital solutions. By doing so, companies can archive their documents, go paper-free, and are able to communicate with clients and collaborators instantly and globally often at lower transaction costs and in better quality.

## \$100 trillion

The World Economic Forum reckons that digital transformation has the potential to create upwards of \$100 trillion for businesses.

Digitizing is a profitable investment and transition for companies; The World Economic Forum estimates that Digitization has the potential to create \$1 trillion in value for oil and gas firms alone (World Economic Forum, 2018).

Digitalization is the evolutionary next step, where the data collected through the digitization of documents, and gathered by sensors, provides the basis for the overall Internet of Things (IoT). Digitalization paves the way for new opportunities such as improving human-machine interaction, connectivity, analytics, and intelligence. An age of smart devices and smart factories is in the making and the transformation happens at an unprecedented pace and intensity. Only two options are presented to companies in an industrial revolution – transform or die!

### Which camp will you choose?

## Digitalization in Industry 4.0

The industrial world is changing at an ever-accelerating pace. Nowadays, companies can no longer afford to think of digital transformation as anything less than a necessity. It is critical for leaders in industries to understand the functional and overall operational value-added by digital transformation and how it impacts the competitiveness of any company. For more information about Industry 4.0; please refer to [Industry 4.0: The Future is Now by Andre Tello and Yannick Schilly](#).

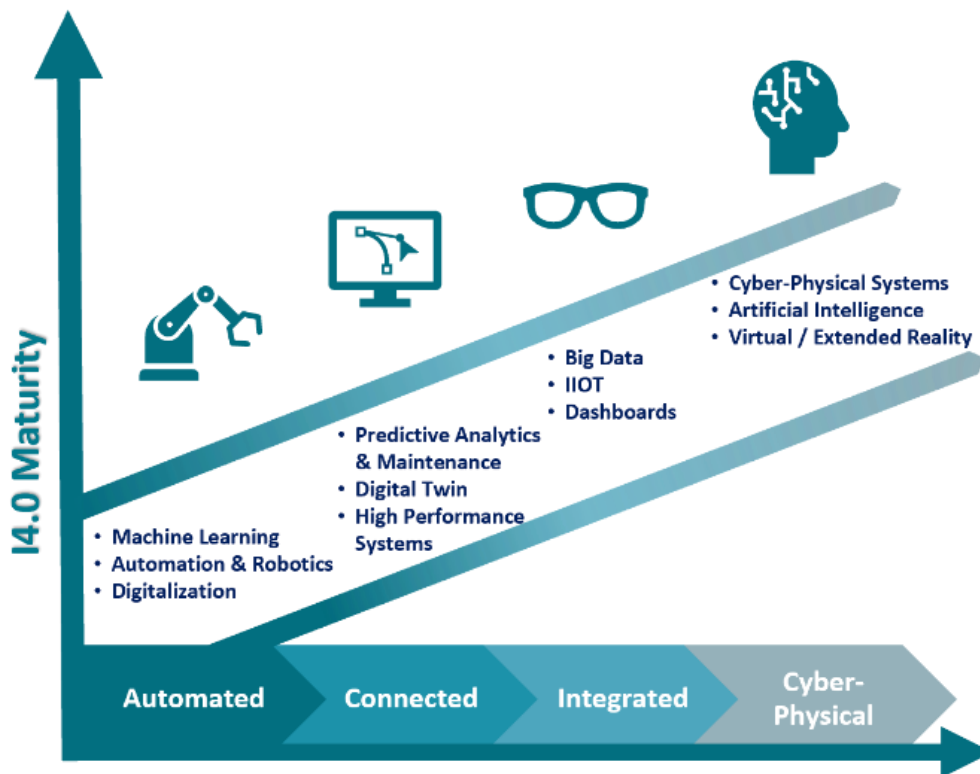


Figure 1 - Digital Transformation Industry 4.0

Companies realizing a significant gap on their digital journey at times decide to embark on a digital transformation (DX) often triggered by an increasing burning platform. A digital transformation is generally described as the adoption of digital technologies, and in the context of a manufacturing company, it refers to the planning and design of a digital integrated architecture of processes, systems, and data supporting people to perform in optimal conditions. The goals of companies embracing a digital transformation are to gain competitiveness and develop a scalable business architecture.

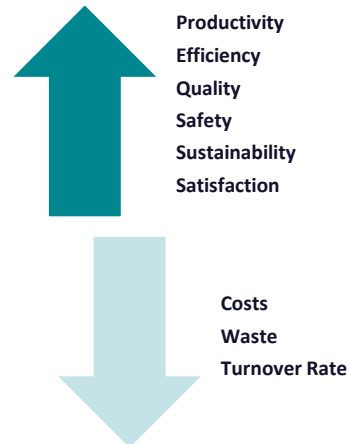
A digital transformation will occur in multiple steps and companies will reach different levels of maturity, the essential is to develop the awareness and embark on the journey with a strategic plan and roadmap in mind. Like every transformation, a digital transformation is most of all a change management journey. Its importance shouldn't be underestimated as 70% of all DX fail!



# Why Embark on a Digital Transformation?

Digital transformation will accelerate a company's growth and optimize its operations by:

- Optimizing operations & increasing productivity
- Increasing customer satisfaction
- Ensuring data safety, integrity, and cyber security
- Smart decision-making through data analytics
- Greater sustainability and profitability
- Increasing flexibility & scalability through the cloud



The top five priorities for decision makers to consider investing in a digital transformation are (Ezell, 2018):

- Improving operational efficiency (92%)
- Customer growth (87%)
- Customer retention (85%)
- Supply chain integrity (81%)
- Operational resilience (81%)



More recently, digitalization played a major role in companies' ability to adapt and work in the height of the COVID-19 pandemic outbreak. The pandemic created a digital boom as companies had to shift priorities and invested heavily in automation to deal with worker shortages and a volatile global supply chain landscape.

**How did the pandemic crisis impact your own automation and digitalization efforts?**

# Challenges

A digital transformation is a complex and often strategic companywide set of initiatives and brings several significant challenges with it:

- **Managing Change** - Managing and driving change are the biggest challenges companies face when introducing digital transformation projects. Even as manufacturers recognize the need to change and to transition to more advanced digital manufacturing, studies show that approximately 70% of them get stuck in the pilot phase.
- **Lack of Experience** - The ability to transition smoothly and successfully requires experience and expertise that are not always available inside the company. At times, outside resources are needed to give strategic direction, provide required capabilities, and adapt this process to the IT infrastructure.
- **Culture** - Digitalization is a technical process, but cultural change is at the core of any business transformation, and that remains one of the most underestimated challenges companies face.
- **Leadership Commitment** - Digitalization is complex and requires unwavering support and strategic patience from the executive team in terms of sponsorship, budget, time, and cultural transformation. Executive teams will need to set the vision, motivate their team, and demonstrate the benefits of such a complex endeavor. Strong leadership is needed to make sure that the system deployed will be flexible and scalable to meet future needs.
- **Project Organization** – Bringing people from different business units and functions to collaborate on a single project is challenging for companies of all sizes. When implementing a digital transformation project, it is critical to set up cross-functional teams into a matrix organization that reports to executives in a steering committee.
- **Communication** - Digital transformation needs to be clearly understood and communicated to the entire organization, via a roadmap. Implementing an MVP (minimum viable product) allows the organization to rally around a step-by-step approach for a successful long-term outcome.
- **Level of Investment** – While the duration, and the investment levels depend on the initial assessment of the starting point and maturity level of the company, most companies struggle with visibility to the time, effort and cost required and/or lack the resources to successfully implement a digital transformation.

Note: The figures below are for reference only and represent industry averages.

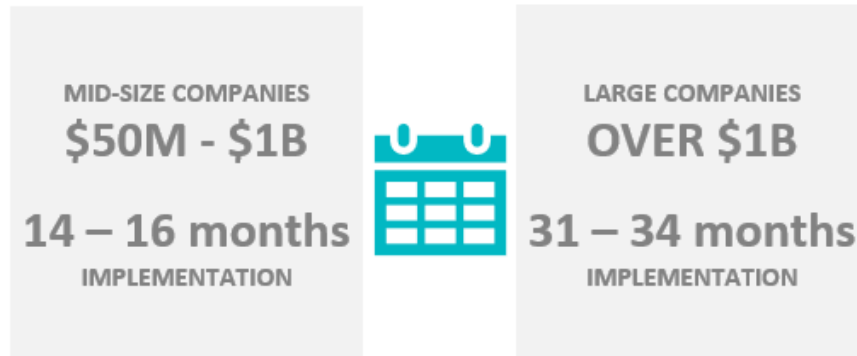


Figure 2- Implementation Duration

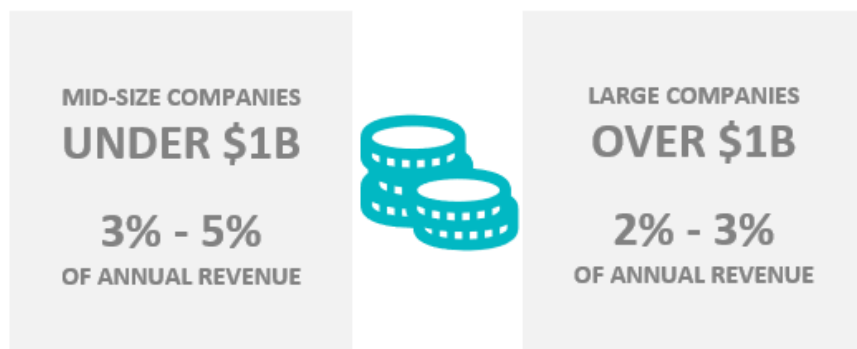


Figure 3 - Implementation Cost

There is no silver bullet to successfully plan and implement a digital transformation. A full commitment from the leadership as well as qualified internal and external resources are required to envision, plan, execute and improve, sustain.

# What is your Company's Digital Maturity?

As described in the introduction, digitization is the first step that leads to digitalization (Industry 4.0). Similarly, to a student beginning as a freshman and transitioning year by year to a senior, a company needs to follow a similar 4 level path towards a higher level of digital integration (Apiko, 2021):

- **Level 1:** No industry 4.0 initiatives – No resources have been assigned to manage digital transformation processes and no vision has been formulated. There are no well-defined processes or supporting systems to prevent financial or resource overruns.
- **Level 2:** Departmental level – The digital transformation is addressed as a technical, local, or production problem and might be handled at a department level with minimal digitization. This approach will not provide a global vision to coordinate and synchronize targeted activities. In-house IT/Production/Engineering departments are starting the industry 4.0 adoption process.
- **Level 3:** Organizational level – The digital transformation is being managed as a business problem with a company-wide vision, multilayer framework, and integrated vision. All departments are involved in this transformation and contribute to setting the vision, defining clear goals, and sharing their needs.
- **Level 4:** Inter-organizational level - The digital transformation also includes outside partners as supply chain partners can share information that can be integrated into the company's systems. The business issue is regarded as multi-level and covers the overall value chain. The industry 4.0 vision is followed by considering the complexity, needs, and weak points of the value chain partners.

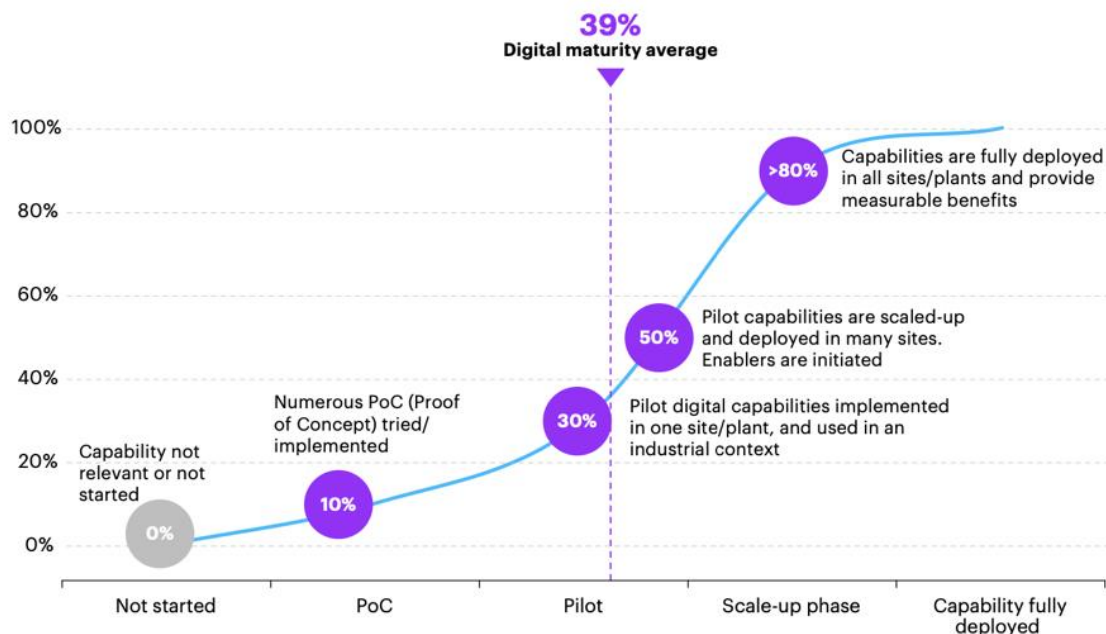


Figure 4 - Digital Maturity Index from PoCs to Scaling Up (source: Accenture) (Source 5)



As a point of reference, the industry digital maturity average is estimated at 39%. Most companies that embark on a digital transformation fail to complete their journey as they hit a number of challenges as described in the above section. Most companies underestimate the cultural transformation dimension as well as the duration and level of investment required to complete a digital transformation. This demonstrates the correlation with previous findings, as the challenge is on managing change, people, and resources which results in companies getting stuck in the Pilot phase.

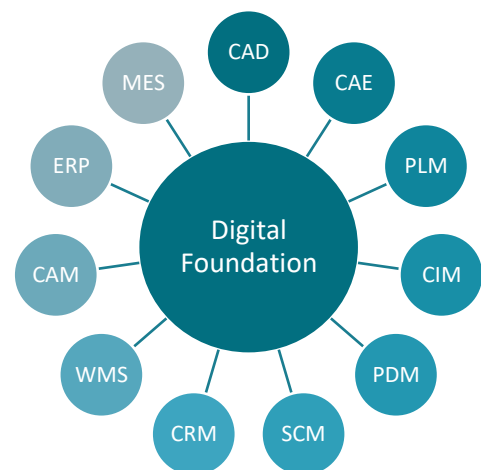
Please note also that early adopters are often performing in hyper-competitive industry segments like automotive, electronics, and consumer goods with a high level of automation and/or highly sophisticated supply chains. From a company size standpoint, larger companies tend to start prior to smaller companies due to the complexity drivers as:

- Size
- Global footprints
- Product complexity
- Supply chain network complexity
- Customer network complexity
- Global trade and compliance requirements
- ...

## What are the Tools Available?

A Digital Transformation is a considerable overall change for any company. To make the process successful, there are different tools that can be used. While digital transformation implies IT tools, IT is a resource rather than the lead in a digital transformation. The function of IT is to support the architecture and infrastructure set by the vision of such digital transformation. A successful digital transformation requires a customized digital foundation solution.

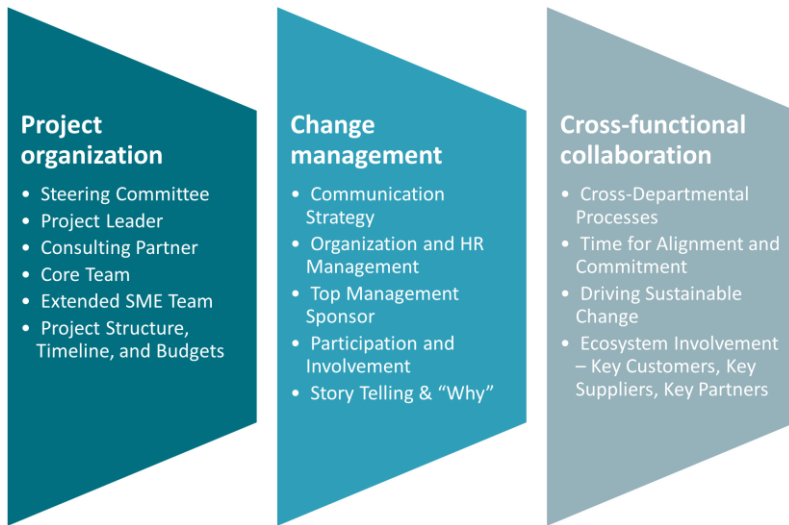
Below is a list of software tools/technologies to consider that will help increase efficiency, productivity, profitability, and customer satisfaction.



*Figure 6 – Tools and Process of a Digital Transformation*

Technology	Enables	Technology	Enables
<b>Computer-Aided Design (CAD)</b>	Use of computers to aid in the creation, modification, analysis, or optimization of a design.	<b>Computer Integrated Manufacturing (CIM)</b>	Use of computer-controlled machinery and automation systems in manufacturing products.
<b>Computer-Aided Engineering (CAE)</b>	Computer Software to aid in engineering analysis tasks.	<b>Product Data Management (PDM)</b>	Business function often within the product lifecycle management that is responsible for the management and publication of product data.
<b>Product Life Management (PLM)</b>	Management of the data and processes used in the design, engineering, manufacturing, sales, and services of a product.	<b>Customer Relationship Management (CRM)</b>	Process in which a business or organization administers records of interactions with customers, typically using data analysis to study a large amount of information.
<b>Warehouse Management System (WMS)</b>	A software application designed to support and optimize warehouse functionality and distribution center management.	<b>Manufacturing Execution System (MES)</b>	Computerized systems are used in manufacturing to track and document the transformation of raw materials to finished goods.
<b>Computer-Aided Manufacturing (CAM)</b>	Software and computer-controlled machinery to automate a manufacturing process.	<b>Enterprise Resource Planning (ERP)</b>	Integrated management of main business processes in real-time and mediated by software and technology.

# How Should a Mid-Size Manufacturing Firm Approach Digital Transformation?



As described in the challenges section, 70% of companies get stuck in the pilot stage. To manage and drive a successful transition, companies need a clear roadmap and project strategy to help guide and deploy their solutions successfully.

Created from real-life experience and research, Altix digital transformation roadmap is a proven tool and method that, combined with guidance from Altix seasoned experts, supports the successful digital transformation of mid-size industrial companies.

Figure 7 - Digital Transformation Pillars

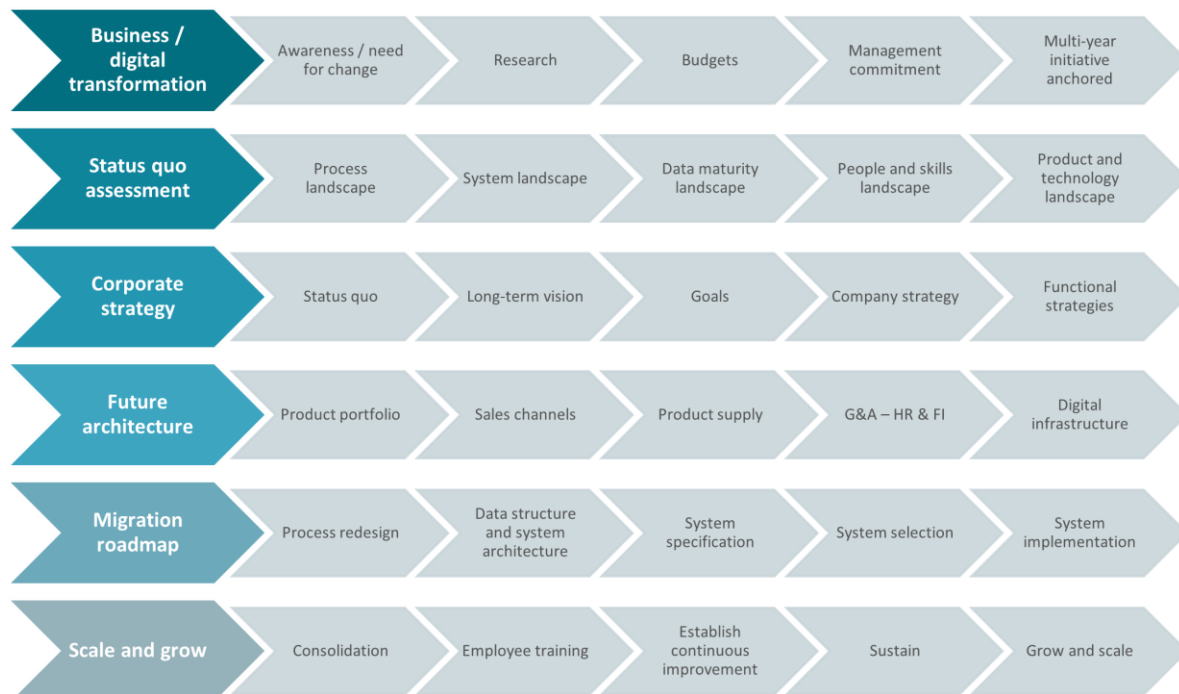


Figure 8 - Digital Transformation Roadmap

## Cases

To help companies identify themselves with possible scenarios, we share those two cases of small and mid-sized companies. Read column by column from top to down.

Company	Situation	Measures	Results
<b>Country/Location</b> <b>Germany</b>	Around 200 employee's production unit (100 in fabrication and 100 in assembly)	Organization re-design	Time to market reduction by 30%
<b>Sector</b> <b>Industrial Goods</b>	Over 50 new products are launched every year High mix/low volume	Process re-design	Efficiency increases by 40%
<b>Engineer to order</b>	Lack of data and resources management	Implementation MES system	Asset utilization increased by 30%
<b>Tailor-made Customized solutions</b>	Poor digital infrastructure	Implementation PLM module within ERP system	Reduction of quality cost by 20%

Company	Situation	Measures	Results
<b>Country/Location</b> <b>China</b>	1000 employee's company	Post-M&A integration team	OTIF adherence >95%
<b>Sector</b> <b>Industrial Goods</b>	High vertical integration	Process landscape re-design	Efficiency increases by 20% per year over 10
<b>Post-M&amp;A integration</b>	Outdated management systems	Re-design of digital infrastructure ERP/PLM/MES	Acceleration of new product supply footprint
<b>Supply chain base in Greater China</b>	Outdated digital infrastructure	Business transformation and lean management introduction	Strong ROI case

## Conclusion

The industrial world is changing drastically at lightning speed. Companies can no longer afford to think of digital transformation is optional. The time for action is now. It is critical to understand the functional and overall operational value added by a digital transformation and how it impacts your competitiveness in the market. Re-imagine how you use technology to steer your operations, train and enable your people to drive competitive advantage, and become a market leader in your industry. Altix is the strategic partner to help set you apart from the competition and shape the future of your industry.



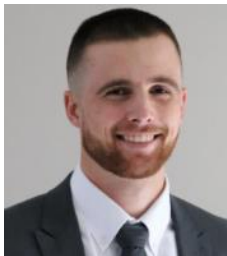


## About the Authors



**Yannick Schilly** | [yannick.schilly@altixconsulting.com](mailto:yannick.schilly@altixconsulting.com)

Yannick is the cofounder, president, and CEO of Altix Consulting. He is an Industrial Engineer and holds an MBA in General Management and Global Business with an outstanding background and a proven track record in automation and industry 4.0. His global experience and broad knowledge make him a recognized advisor to help companies reach their full potential.



**Damien Berthenet** | [damien.berthenet@altixconsulting.com](mailto:damien.berthenet@altixconsulting.com)

Damien is a Junior Associate at Altix. He holds an MBA and a bachelor degree in IT architectures and software development and his experience and expertise include database management, database development, data analysis, and customer relationships and satisfaction.



Altix Founders: Yannick Schilly and Anne Cappel

## About ALTIX CONSULTING

**Altix** is the middle market international industrial champions' management consulting partner who specializes in Industry 4.0 and advanced manufacturing.

Altix provides business strategy, technology and innovation, and operational excellence support, in the world of advanced manufacturing and international supply chain.

Altix can help you reach your full potential. For more information, visit: <http://www.altixconsulting.com>

## Altix Industry 4.0 Experts



*Yannick Schilly*

**Yannick** is an industrial engineer and senior management executive with more than 25 years' experience developing and executing complex global expansion strategies throughout Germany, China, and the US.

Yannick's unique expertise includes all aspects of global and international business, market entry, industrial best practices and excellence in advanced manufacturing, industrial engineering, logistics and multi-national supply chain management. During his successful career as Chief Operating Officer for a leading German based, international industrial technology company, Yannick established and managed regional production and logistic centers in China and North America.

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*Thomas Lichtenberger*

**Thomas** is a senior management executive with more than 25 years' experience and a leadership track record of generating sustainable sales growth and EBIT in the dynamic global automation technology marketplace, having led major organizational transformations in Germany, Canada, and USA.

Thomas is passionate about innovation and technology and equally dedicated to bringing businesses to the next level by developing and implementing targeted growth strategies and optimizing the P&L.

Thomas Lichtenberger has dedicated his career to advancing the global automation industry. As CEO of Festo Didactic Inc., a leading provider of advanced solutions for technical and industrial education, Thomas was responsible for all market and sales activities in North America. As an advocate for career and technical education, he possesses unique skills and experience to improve workforce development and Industry 4.0 career-readiness.

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*Hong Zhou*

**Dr. Hong Zhou** is a senior global executive, with more than 30 years' experience developing and leading global operations and supply chain in advanced manufacturing.

Target driven, Dr. Zhou's global views, team spirit, and exceptional network bring valuable knowledge and proven results to industry champions seeking to establish and grow their international footprint in Asia. Working across cultures and continents, Dr. Zhou facilitates communication and fills in cultures gaps to ensure market development and project infrastructures are delivered in quality, in cost, and on-time.

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*Christian Leonhard*

**Christian** is a mechanical engineer and senior management executive with 30 + years' experience leading operations around the world for multinational companies such as BASF and P&G and family-owned industry leaders like Festo, based in France, Ireland, and Germany.

Strong, result-focused, and success-oriented technical leader, Christian led complex industry expansions and transformation across Europe, North America, and Asia. In his various roles leading manufacturing for global operations, Christian planned and executed numerous factory expansion(s) and relocation projects in Europe, Asia, and North America, developing and implementing new strategies including integration of acquired companies, introduction of fully integrated production systems, restructuring of product portfolio, harmonization of worldwide manufacturing standards.

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## Altix Supply Chain 4.0 Experts



*Ramesh Chandra*

**Ramesh** is a senior consultant with over 20 years of leadership experience with multinational giants such as GE Aviation, Cummins, and Carrier Corporation, designing and executing supply chain, logistics and product strategy for automotive, industrial, aerospace, transportation and retail industries across Asia, Europe, South America, and the US.

As a change leader, Ramesh has managed numerous global strategic and continuous improvement initiatives across a full spectrum of supply chain activities – strategic sourcing, procurement, inbound logistics, compliance, supply side risk management, manufacturing operations, quality, demand management, inventory planning, distribution center logistics, network design, supply chain technology, new product introduction and channel capability development.

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*Lucy Davila*

**Lucy** is a senior consultant with 20 years of leadership experience leading supply chain redesign, expansion and productivity projects for dozens of business units resulting in competitive advantages for two multinationals and multiple SMEs.

Lucy's experience across sourcing, manufacturing, distribution, and business planning for multinational industry leaders allows her to quickly understand the interdependencies inside the firm and opportunities with external partners. Lucy works collaboratively to implement a mix of proven tools and innovative supply chain solutions tailored to serve the particularities of the business needs.

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## Altix Lean Experts



*Liam Cassidy*

**Liam** is a senior advisor and consultant with a 40+ year track record of turning around poorly performing operations, supply chains and suppliers. His unmatched expertise in applying Lean Principles – without compromise – coupled with the leadership skills necessary to implement them and ensure long term success, has been recognized by major international institutes and journals.

Liam started his career in operational roles for General Motors in the UK, and eventually rose to become a Senior Operations Manager, as well as General Manager of Lean Practices for Gillette and Procter & Gamble where he created benchmark sites in Ireland, Europe, USA, India and China. This included a large operation in the USA mid-west that he was assigned to prepare for closure but instead led a Lean Transformation Program that within 2 years eliminated China & Mexico as threats and made it the best performing operation in the global organization.

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*Jim Schreck*

**Jim** is a senior manufacturing manager with 35+ years of broad-based leadership experience, and a track record of delivering site initiatives including organizational change, lean practices, and new product implementation and launch.

Jim started his career in the automotive industry working engineering roles at United Technologies Automotive. He later joined Gillette and the leadership team at the Oral-B Laboratories manufacturing site. His leadership accountabilities at Gillette, and post-acquisition Procter and Gamble, included operations, engineering, HS&E, product development, human resources, and facilities management.

Jim was a key member of the leadership team implementing a Lean Transformation Program that transitioned the site into a benchmark operation, delivering significant improvements across all key manufacturing measurables.

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## GLOBAL REACH





## AMPLIFIER FOR INDUSTRY CHAMPIONS



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