

*smartFactoryeu*

# **REBIRTH OUT OF THE CRISIS**

**MAKING EUROPE STRONGER**



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For many years, the manufacturing industry has faced severe challenges to the way its business operates. Customers can now order goods online and expect to receive them in days, rather than weeks. The internet has enabled the easy personalization of products, forcing the industry to refocus from mass production in low cost countries, to more regional supply chains that react faster to changing customer demands. Such developments have accelerated the need for more flexible and effective production technologies and strategies. Industry 4.0 - invented in Europe- is a synonym for the rich combination of advanced new technologies that help manufacturers respond to today's fast changing world.

**But now the manufacturing industry is facing its biggest challenge for almost 100 years: the COVID19 crisis!**

This crisis is deeply affecting not only customers, but the entire manufacturing industry worldwide. Over recent decades worldwide production networks have become increasingly connected by long and complex supply chains. Products are designed in one part of the world, produced by a complex network of multiple suppliers in often distant, lower cost countries, and then delivered in large volumes to customer markets elsewhere around the globe. But today's crisis has made the problems of such complex networks clearly visible. If only one or more suppliers or links in the chain fails, these complex supply chains break down with massively disruptive results.

This combination of challenges will inevitably force us to redesign our production strategies. From complex worldwide supply chains with many inherent risks, companies must now move to more regional supply chains with reduced risk and much higher flexibility to serve customers' individual needs.

While this may be easy to say, it is difficult to achieve. In Europe, labour costs are relatively high, our supply chains are still too unmanageable, and our automation approaches are too complex and lack the design

efficiency we now need. Furthermore, we have to ask ourselves what pricing penalty for redundancy and local production are we willing to accept? And the need to support our advanced environmental standards raises other important questions, such as the impact of CO<sub>2</sub> Pricing. But we have to find new answers. The whole world will change in many ways over the next decade and Europe needs to be ready and able to respond.

Yet the current crisis is also a great opportunity for Europe! We have a huge and diverse market and we have strong economies with proven, high-quality expertise in manufacturing. But now European manufacturing has to be tailored to the new market needs and supply structures. We have to define a **European Industrial Recovery Plan, compliant with the European Green Deal initiative**, which focuses on investing in innovation, new skills, and new technologies to ensure Product, Technology, and Digital Sovereignty in Europe.

## **1** *Accelerate digital transformation*

An acceleration in the digital transformation of products and production environments is needed and, more specifically, the digitization of all processes along the supply chain must be pushed forward. Industry 4.0 approaches provide a solid framework for this digital transformation, but many companies are just at the start of their transformation journey to Industry 4.0. Smart manufacturing, invented in Europe, must be broadly installed in the European industry, in both large corporations and SMEs. Yet industrial companies of all sizes still face significant challenges to adoption.

Slow decision making is hindering Industry 4.0 implementation in large corporations, while SMEs typically have fewer financial resources and think more short term, so are lagging behind in their own transformation efforts. Yet the internet has made both the corporate and the consumer worlds more global for all these companies. That has increased the pressure and the importance of highly efficient and high-performing manufacturing environments to remain competitive, and has made the need for urgent action critical to future success.

## **2** *Strengthen networks of suppliers*

We need to strengthen our networks of suppliers. That involves three key elements: working with multiple suppliers to ensure continuity amid disruption; building closer collaboration with suppliers and customers for better and faster product design and more effective production environments tailored to

needs; and finally, strategies that are able to cope with high wages by creating flexible, agile, lot size 1 manufacturing environments based on the latest digital technologies. This will not only make it easier to setup agile production processes but also help SMEs to connect and learn from the frontrunners.

## **3** *Harness research and innovation*

We must support these changes by harnessing Europe's research knowledge. Europe already has strong leaders in the research sector and by rapidly transferring research results into industrial applications we can help support successful industrial conversion. This accomplished tradition of innovation is of paramount importance to making the leap to a new world of manufacturing. Only the best is good enough and the majority of companies

have to become frontrunners or fast followers in this process. For this reason, it is important to (1) connect research institutes to industrial companies, (2) foster collaboration between research institutes, (3) encourage companies to participate in local industrial networks, and (4) create strong local digital transformation ecosystems that can positively impact the economy and the well-being of the companies involved.

## **4** *Create agile, fast learning, data rich businesses*

We need to create agile, fast learning organisations, production environments, and businesses that can take full advantage of all the means that digitalisation has to offer. This means: (1) embracing connectivity and new communication networks to help create large data lakes enabling data driven business models, (2) rethinking business models that better fit the current market and customer needs, (3) maximizing the use of

automation to create adaptable production environments based upon the use of data, and by employing algorithms to support decision making and create actionable intelligence about manufacturing environments processes and beyond, and (4) last but not least, creating an environment in which humans can work together comfortably, safely, and productively with machines.

## **5** *Build digital talent and digital cultures*

A new focus on strengthening digital talent and establishing digital cultures in companies will be needed to fully capture the benefits of the transition to digitally enhanced manufacturing environments. The war for talent is still going on and the efficient use of those talents will be needed to cope with any shortages. To this end, creating a digital culture in companies will be instrumental

for acceptance, faster adoption, and the successful roll-out of digital technologies. Human-machine interaction will continue to increase on the shopfloor as humans are still the most flexible and agile of resources, driving the need to create more sustainable, flexible, human-machine manufacturing environments for the future.

## **6** *Deliver the European Green Deal Plan*

Companies and research institutes should advocate, support, and help drive the roll out and realization of the European green deal plan. Actions that actively increase sustainability, a manufacturing industry able to manage an intermittent green energy supply, climate neutral manufacturing strategies, enabling a circular economy, minimising and optimising energy, and reducing the use of natural resources wherever possible, need to be fundamental

aspects of every innovation or digitalisation trajectory to ensure that the European industry makes the maximum contribution to advancing both regional and global environmental sustainability. To support this goal, we propose a coordinated activity to install environmentally-conscious European production networks to set a leading example of sustainable industrial best practices in action.

## **Strength through collaboration**

Together, we are stronger as a community than as 27 individual countries. This joint initiative is designed to harness the power of that community to strengthen the European innovation ecosystem as a global leader in advanced 21st century manufacturing by:

- connecting manufacturing and digital transformation research and demonstration centres
- providing a unified and cohesive common voice towards the EU
- sharing and promoting a common vision and roadmap to enable and accelerate Industry 4.0 adoption
- connecting people and key players across borders within Europe
- sharing best practices between actors of different regions to accelerate the take-up
- serving as a reference point for the future of sustainable, inclusive, and climate neutral manufacturing
- supporting the creation of digital talent across the region

Nearly all EU member countries have already established joint initiatives across industry and research to identify and support the transition to smart factories. Now, the new Smartfactory-EU EEIG association is starting to build a network to connect these important national initiatives.

**Let us join our forces and innovate our way forward out of this crisis.**

**[www.smartfactory.eu](http://www.smartfactory.eu)**