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Conscious
Factory

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Nokia's 'conscious' factory of the future





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Unveiling its groundbreaking 'conscious factory,' telecoms giant Nokia is truly ready for the fast-changing manufacturing needs of the future

Several years ago, Nokia set itself an ambitious objective: to envision and create the 'factory of the future'. Fast-forward to today and the telecoms giant has made this distant future a reality with its state-of-the-art concept – 'the conscious factory'.

With every industrial revolution, factories have evolved to create something unlike anything that has come before. Now, in the midst of Industry 4.0, analytics, robotics, and 3D printing are just some of the emerging trends that are redefining the manufacturing space at large. By harnessing the potential of these technological trends, Nokia's Conscious Supply Network is ushering in a new era of supply chain transformation and battering down the hatches for Supply Chain 4.0.

Nokia's vision was a simple one: to transform its factories into 'the conscious factory' – an agile and intelligent manufacturing service that is fully-automated, green, self-learning, and able to predict and prevent supply flexibly.

To make this hi-tech network a reality, the Finnish giant zeroed in on four crucial areas: digitisation, analytics, robotics and transparency. It leveraged tools such as cloud computing, Internet of Things (IoT), analytics, machine learning, robotic process automation (RPA) as well as augmented and virtual reality. In doing so it has created an end-to-end supply chain solution that is more visible, adaptable, and smarter than anything before.

A conscious supply network

It has been a mammoth task for Nokia, but it is one which the team believes will revolutionise manufacturing forever.

"It's a complete game changer." With over 30 factories worldwide, Nokia's supply chain is a far-reaching one spanning several continents. However, the Finnish company only owns three of these factories with the rest being outsourced. Instead of focusing on owning bricks-and-mortar, Nokia is concentrating on owning the information, the data, and knowledge behind it. By understanding how the industry is connected together, the organisation is creating a conscious supply network, an end-to-end ecosystem built on end-to-end understanding and knowledge.

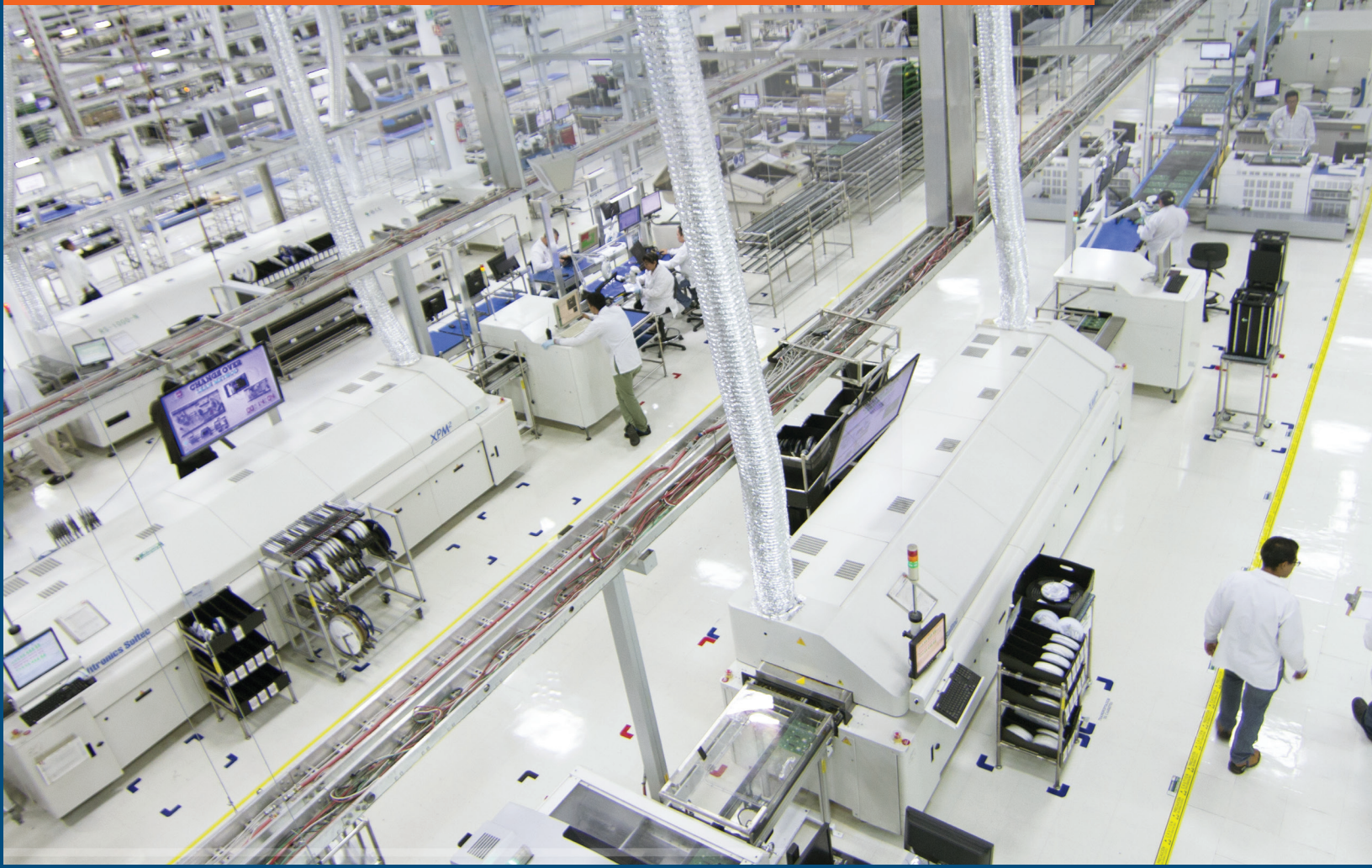
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42Q is Proud to be a
Solution Provider for
Nokia's Conscious Factory
and Factory in a Box

Digital Factory Transformation. Now.

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Proven solution, deployed in over 60 factories in 15 countries worldwide



We are putting thousands of sensors in our factories and connecting all our manufacturing and logistics assets together so that they can talk to each other," he continues. "With that, we are creating what we call a 'conscious factory', where all transactions are visible in real-time in a controlled centre. With that, you can optimise throughput, inventories, quality, and you can apply machine learning to it. It helps you automate the entire process, it helps you ensure quality, it helps you to reduce cost in inventories, and it helps you be more flexible in adapting your supply chain. But having one conscious factory is just the start of it. We want to create an entire network."

Presenting the 'factory in a box'

This is just the beginning of Nokia's vision for the future; it is also resigning the idea of large manufacturing locations to the past. Unveiling its 'factory in a box', Nokia is anticipating the fast-changing manufacturing needs of the future, by creating a conscious 'Lego' building block factory.

"It is a step towards a modular supply chain factory," says Giloth. "A big problem in the manufacturing space is that R&D and manufacturing should be close together because then you have an immediate feedback loop.

"Every time I have a factory request, whether it's in Nigeria or elsewhere, I cannot create a factory there and demolish it after a year. With the factory in a box, you can ship that modular container there, produce the product and when it's ready for mass production, you go elsewhere."

A global company with a local focus

"This will not only transform the supply chain landscape at large, it will also create opportunities for unique regional players," explains Bo Jensen, Head of Delivery Operations Asia Pacific & Japan at Nokia.

Sitting in Nokia's gleaming regional office in Singapore, Giloth and Jensen passionately bounce back-and-forth as they talk about the latest exhibitions where they will showcase this ground-breaking concept. Sitting in the epicentre of the bustling business district, Nokia has firmly cemented itself as a major player in the manufacturing space. The 'conscious' factory may have seemed futuristic but it is possible - and Nokia made it happen.

However, this state-of-the-art concept didn't come about in an instant. It is the result of over a decade's work, and it is just one step in what has been a complete root-and-branch transformation of Nokia.

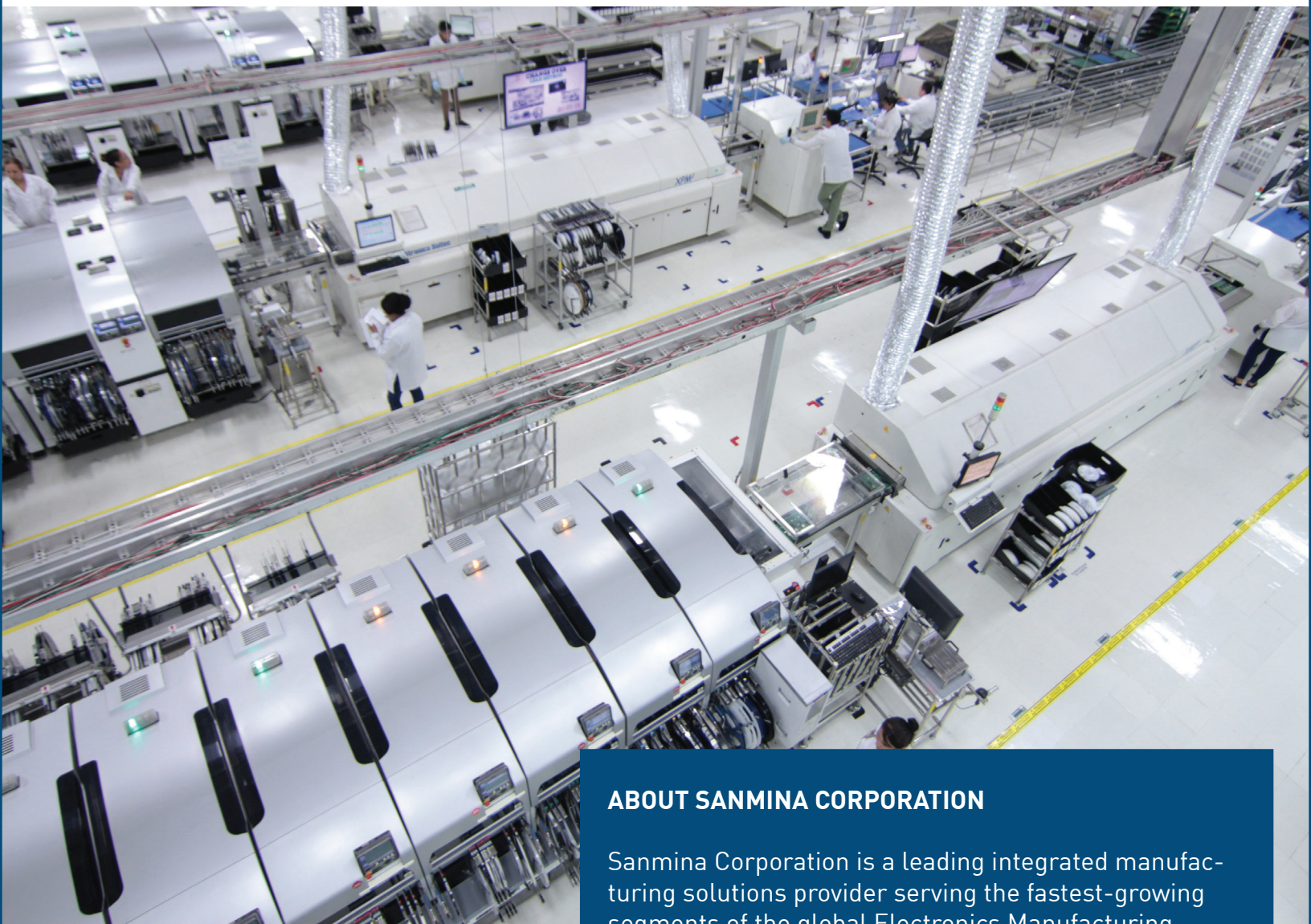
A high-level supply chain transformation

On this journey, the organisation faced three successive challenges that created what Giloth called an 'existential moment' for Nokia - one which would bring about one of the biggest supply chain transformations in the industry. In the past two years, Nokia jumped from 101st to 15th in Gartner's Top 25 Supply Chain ranking, an extraordinary turnaround that the research firm hailed as 'triumphant.' It has been a lengthy process for both the company and its people but Nokia is keen to keep up this momentum.



"Having one conscious factory is just the start of it. We want to create an entire network"

Johannes Giloth, Senior Vice President of Global Operations and Chief Procurement Officer at Nokia



ABOUT SANMINA CORPORATION

Sanmina Corporation is a leading integrated manufacturing solutions provider serving the fastest-growing segments of the global Electronics Manufacturing Services (EMS) market. Recognized as a technology leader, Sanmina provides end-to-end manufacturing solutions, delivering superior quality and support to Original Equipment Manufacturers (OEMs) primarily in the medical, communications networks, defense and aerospace, industrial and semiconductor systems, multimedia, computing and storage, automotive and clean technology sectors. Sanmina has facilities strategically located in key regions throughout the world.

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