GOING REGIONAL: THE WAY FORWARD?

Sweden's next act as global companies rethink the geography of manufacturing

THE CASE FOR REGIONALISATION

Speed and agility are essential criteria for today's manufacturers. As the race to redraw the supply chain map intensifies, does Sweden hold a trump card in the shift toward regionalised production?

Over three decades, China was the undisputed 'factory of the world' providing Western industrial economies with a reliable way of keeping product prices low. But as wages in China accelerated in the 2010s and automation gathered pace, change became inevitable. Today, a wide range of disruptive factors are prompting global companies to rethink the geography of manufacturing. The march of digitalisation, climate change, volatile trade barriers and the vulnerabilities exposed by the Covid-19 pandemic are just a few examples.

MOVING CLOSER TO CUSTOMERS

Is the low-cost business model and outsourcing trend that peaked in the 1990s definitively outdated? As a recent Business Sweden study pointed out (*Manufacturing changes course, 2019*), instead of exporting low-cost products to far away regions, China is "shifting its position to becoming a production powerhouse for the Asia region."

This development is occurring worldwide as the technology race and customer expectations on shorter lead times accelerate. Regional manufacturing hubs are now emerging on every continent. As such, the imperative to decentralise and bring manufacturing closer to customers has never been stronger.

SPOTLIGHT ON SWEDEN

How can Sweden – ranked the EU's most innovative country – help shape the new ecosystems as the regionalisation trend takes hold? In this report we explore the rising role of near-market manufacturing through a collection of viewpoints from experts in Sweden's industrial frontline.

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NEED FOR SPEED SHAPES A NEW ERA

Changing the dynamics of global supply chains is hardly a straightforward task. So why are manufacturers of all sizes busy doing precisely that? Here's a look at the forces shaping tomorrow's strategies.

The outsourcing boom of the 1990s saw Western companies scaling up the share of products manufactured in China for worldwide export. Back then, business leaders were happy to wait patiently while goods were shipped across the oceans.

This stands in stark contrast to today's reality. The centralised manufacturing model (dominant since the Industrial Revolution) is being challenged as digitalisation makes its way into every facet of industry – changing both customer behaviour and expectations on delivery.

Bringing out innovative and customisable products as fast as possible is the focal point of today's strategic thinking. In 2020, manufacturers also learnt a hard lesson: besides the threat posed by trade barriers, a global health emergency can wreak havoc with supply chains.

Lennart Söderberg, Researcher at the Department of Industrial Economy at Gävle University College, explains the new rules of competitiveness in simple terms: "Customers today will not wait four to six weeks to get goods delivered from China when they can get them in a week or even less time."

SLASHING LEAD TIMES

One of the biggest gamechangers of late is the adoption of 3D printing, or additive manufacturing, which opens up new possibilities for manufacturing components with complex designs for a wide range of applications. Calculations have shown that additive manufacturing can slash lead times by up to 90 per cent.

As industry goes digital, Söderberg points out that companies need to ensure fast customer response at all times and continuously boost their local presence.

Manufacturing is the single largest contributor to Sweden's GDP (12%). Industrial clusters are spread across the country. Above examples:

- Automotive, (west coast) machinery & equipment (central region), base metals (north), ICT & electronics (Stockholm region).

"For some, this means building capacity to be able to deliver within 24-48 hours. With 3D printing it doesn't matter where in the world you locate your production capacity. The cost stays the same," he says.

How then should supply networks be reimagined? Söderberg is convinced that the key to success is to find the right mix of conventional manufacturing and digital methods and then build a regional network of suppliers to match needs accordingly.

In this context, recent developments in Sweden's manufacturing sector provide a glimpse of the future.

SIEMENS POWERS UP

A good example of how 3D printing has created a new booming market for spare parts manufacturing and repair can be found in the Swedish locality of Finspång, some 180 km south of Stockholm. This is where Siemens Energy – one of the world's top three manufacturers of gas turbines for power generation – inaugurated a €20 million facility for additive manufacturing in 2016.

Siemens Energy's decision to upgrade capabilities in Sweden instead of outsourcing abroad helped the company pioneer new ways of working in the gas turbine industry and cut lead times, particularly for European customers.

"I believe 3D printing machines will be located everywhere in the future, wherever cutting, milling and turning machines are used today," says Mikael Ekinge, Procurement Director, Siemens Energy.

"Our European business is growing. By investing in our Swedish plant where we have knowledge intensive operations, we can control the material flow and keep lead times to a minimum. The port of Norrköping is just one hour away from our Finspång site," he continues.

The supply networks that Siemens Energy relies on are also undergoing change as the organisation moves to consolidate its purchasing volumes. This, too, with a regional strategy in mind.

"The parts and materials we buy must be of the highest quality. Our local Swedish suppliers give us that

SWEDEN: THE EU'S MOST INNOVATIVE NATION

In 2020, Sweden ranked #1 in the European Innovation Scoreboard (published the EU Commission) for the fifth consecutive year.

"The reason why Sweden is a top achiever in innovation is our open mindset, flat and non-hierarchal company structures and high-quality education system, combined with a funding system that promotes innovation and partnerships between academia and industry."

– Peter Wallin, Program Director, RISE Research Institutes of Sweden

"

Our European business is growing. By investing in our Swedish plant, we can control the material flow and keep lead times to a minimum."

– Mikael Ekinge, Procurement Director, Siemens Energy

reassurance, and they are also very good at project management. This is essential for our bespoke solutions that require design and construction expertise," Ekinge explains.

THE NEARSHORING FACTOR

Further west on the outskirts of Gothenburg, Sweden's second largest city, the forklift manufacturer Logisnext, which was acquired by Nissan in 2007 and then by Mitsubishi a decade later, has spent many years reorganising its supply network.

It would be tempting to think that forklifts are built in a limited range of models using standardised production lines, but a visit to the Logisnext plant in Mölnlycke would make anyone reconsider. This site is one of 11 manufacturing facilities in total spread across Sweden, Finland, USA, China and Japan, in a global organisation employing some 10,000 people.

Martin Björkroth, the company's Managing Director in Sweden, highlights the growing complexities brought on by mass customisation. Today, he points out, the company sources just one single component from China.

"Our entire portfolio is customised from start to finish," says Björkroth. "We don't stock any parts in warehouses and only configure the forklifts once orders are received. There is no way we could wait up to eight weeks to get all our components shipped from Asia."

From its Swedish plant which employs around 250 people, Logisnext services major customers in materials handling in the European market competing against the likes of Toyota and Jungheinrich. By bringing the supply of intermediate goods back to Sweden's shores from low-cost countries, it has transformed its just-in-time performance.

"There is no business value today in outsourcing cabling, welding and so on. Our criteria is that sub-suppliers can travel to our factory in Sweden on the same day to ensure a high level of customisation, quality and fast deliveries."

"All of this would be compromised if we purchased parts from China," Björkroth adds.

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Our criteria is that sub-suppliers can travel to our factory in Sweden on the same day to ensure a high level of customisation."

– Martin Björkroth, Managing Director, Mitsubishi Logisnext Europe

INNOVATION AT THE CORE

Reducing lead times, adapting more quickly to market changes and cutting transport costs are all major drivers of regionalisation. But there are more factors at play.

In the umbrella of facilities owned and run by Mitsubishi Logisnext, there are only two sites that can pride themselves on having integrated R&D into their operations. One facility is located in Finland and the other is the Logisnext factory in Sweden.

This emphasis on keeping R&D close to home unites forward-thinking business leaders across Sweden's manufacturing sector. According to Erik Stenfors, CEO at HANZA which provides customers with tailor-made manufacturing solutions, it's all about recognising today's "invisible elastic band" between production and R&D.

"Manufacturing needs to go regional for many reasons, not least cost competitiveness. But if you move manufacturing capacity today, you also need to move your R&D operations," says Stenfors, who has spent his career perfecting the art of supply chain planning.

"Customers expect both faster deliveries and more innovative and affordable products. That is why you need to have close proximity to both customers and R&D teams," he continues.

> *"Sweden's biggest asset as an industrial nation is not mining reserves or vast forests, but innovative minds."*
>
> – Erik Stenfors, CEO, HANZA

Siemens Energy's 3D printing workshop in Finspång, Sweden.
Image: Siemens Energy

BESPOKE SOLUTIONS

Hanza is headquartered just 20 minutes outside central Stockholm and adopts a made-to-measure approach, using local manufacturing clusters in Europe and Asia to provide customers such as ABB and Epiroc with flexible and streamlined manufacturing solutions. The company's main production facility is located in the Swedish community of Årjäng in Värmland County.

"Sweden's biggest asset as an industrial nation is not mining reserves or vast forests, but innovative minds. Sweden has more innovations per capita than any other country," Stenfors enthuses.

With looming uncertainties over Brexit, the US-China trade war and the pandemic, he believes that Sweden offers both vibrant opportunities and stability for companies who want to leverage new business models and digital supply chains. He also points out that Sweden is one of the few countries where globalisation has only been beneficial.

"The uncertainty around trade barriers is likely to continue which should at least give companies pause for thought," he adds.

"There is nothing you can't manufacture in Sweden today. The country attracts top talent, automation competence is high and digital infrastructure is very advanced. The collaborative and cross-disciplinary way of working will be critical going forward, and this culture is already engrained in the DNA of Swedish companies."

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Sweden attracts top talent, automation competence is high and digital infrastructure is very advanced."

– Lennart Söderberg, Professor, Department of Industrial Economy, Gävle University College

SWEDEN'S ADVANTAGE AS NEAR-MARKET MANUFACTURING GROWS

Sweden is an open economy that is seamlessly integrated with Europe. Exports account for 50 per cent of GDP and are the nation's economic engine. Around half of these exports come from foreign-owned companies.

Why Sweden attracts global companies:

- Leading digital economy with advanced manufacturing skills
- Powered by renewables: Sweden's energy grid is 98% carbon-free
- World class innovation system: Sweden invests 3.3% of GDP in R&D and has among the highest proportion of researchers in the working population (1.25%)
- More than 100 testing and demonstration facilities with accompanying ecosystems of experts and financiers
- Thriving startup scene and a collaborative culture across industry, academia and the public sector
- Key player in international research networks and funding partnerships such as EU Horizon 2020
- Pioneer in sustainable practices, clean-tech solutions, materials recycling and circular economy legislation

PAVING THE WAY FOR INDUSTRY 4.0 ECOSYSTEMS

While outsourcing certainly seems out of step with the times, the debate continues in Sweden around the future skills supply for Industry 4.0. A number of government-backed initiatives have been launched to train the next generation of engineers which have shown promising success.

Lennart Söderberg at Gävle University stresses that more efforts are needed at the educational level to keep pace with industry developments. But in terms of building new ecosystems in high-end manufacturing with sub-suppliers that are capable of crossing the threshold into the digital era, he is unequivocally optimistic.

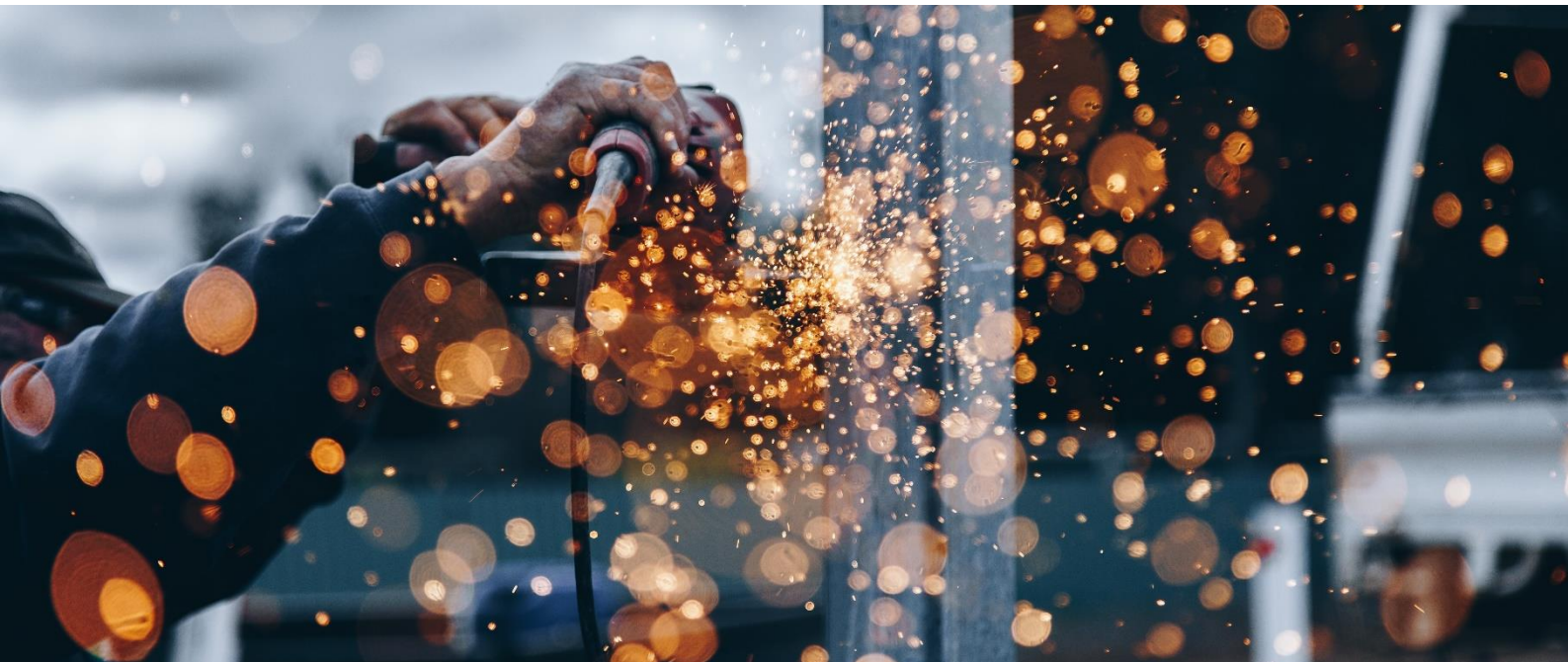
“Many factories and sub-suppliers are now upgrading their capabilities and the fact that Sweden has the highest broadband quality and highest share of renewable energy among the EU member states is a major advantage,” he says.

A STEPWISE PROCESS

Cost, talent access, digital infrastructure and sustainability aspects are all key considerations as the relocalisation of supply chains ramps up. Perhaps what encapsulates Sweden’s potential more than anything is the country’s dynamic innovation environment.

Both Söderberg and Ekinge agree that the most likely scenario going forward is that more companies will set up operations near R&D hubs to ensure that products exceed expectations, and then gradually build capacity closer to customers.

“Sweden has always been a competitive and advanced manufacturing nation that has pioneered the use of new technologies. Companies are now understanding that collaboration, not rivalry, is the way to drive value. This is being demonstrated as Sweden’s new supply chain networks take shape,” Söderberg concludes.



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