

Case study

Nissan

From its base in Cranfield, Nissan Technical Centre Europe leads the way in the automotive sector



Nissan Technical Centre Europe (NTCE) is responsible for the development of some of Europe's most popular electric and crossover vehicles. It handles the production preparation of all Nissan models built at plants in the UK and throughout mainland Europe. NTCE's home has always been Cranfield in Central Bedfordshire, a place it has helped make synonymous with advanced engineering and technical innovation.



When global car maker Nissan established its purpose-built European Technical Centre in Central Bedfordshire in 1991, the company hadn't long been manufacturing cars for the European market at its production plant in Sunderland. The Centre's new home, Cranfield Technology Park, was effectively a greenfield site and the automotive industry landscape was very different to what it is today. Diesel-engine cars were unusual, and all-electric or hybrid-engine cars were far from being considered as viable propositions. How dramatically things have changed in the ensuing decades, and how much more dramatically things are going to change in the decades to come.

Matthew Ewing, VP Vehicle Engineering at Nissan Technical Centre Europe (NTCE), has worked at the Centre from the start, as well as for two years in Japan with the parent company. We spoke with him in depth about NTCE – its key role and capabilities; why Cranfield was chosen and its location benefits; the technological challenges the organisation faces and its plans for the future.

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A full-scope capability

Cutting-edge automotive design and development demands a complete range of world-class technical competencies, and the 1,000 strong workforce at NTCE brings them all. The Centre's expertise includes car body, chassis, electrical system, powertrain, materials, performance planning, and extensive simulation and testing capabilities. Other critical business functions are also based there, including purchasing, legal and finance, and customer satisfaction.

The car as we know it is in many ways being redefined and the team here at NTCE, Cranfield will be at the heart of development.

Matthew Ewing
Vice President of Vehicle Engineering at NTCE.

Matthew explained, "NTCE acts as the voice of Nissan's European customer base, reflecting local market needs, trends and preferences during the early vehicle development phase. We then lead the production preparation for all models produced at our manufacturing plants within Europe, and manage the on-going product life-cycles. As a result, we contribute strongly to Nissan's global research and advanced engineering activities, and customer satisfaction."

Current Nissan car models within NTCE's extensive remit are the Leaf, Juke, Qashqai, Micra, X-Trail and Murano, manufactured at the company's European plants in Sunderland, and St Petersburg. It is to say the least an impressive, market-leading line-up.



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Why Cranfield?

Matthew said, "The original choice of Cranfield for NTCE reflected the UK automotive industry at the time. Considering activity in Coventry, Luton and Dagenham for example, we were locating ourselves at the sector's centre-of-gravity. It effectively placed us at the intersection of the country's traditional automotive engineering centres and its supply chain, enabling us to forge strong relationships with a range of expert companies."

"This physical, face-to-face connectivity counted then and still very much does today. Being located in Central Bedfordshire means we can be in London by train in 40 minutes. It's half an hour to Luton Airport, and an hour to Heathrow – if you're lucky with the traffic. Good road links mean a stronger, more responsive relationship with key suppliers, whether they're prototyping, re-engineering, researching or testing."

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Matthew Ewing
Vice President of Vehicle Engineering at NTCE.

Being the first to move on site at Cranfield Technology Park also meant that NTCE had Cranfield University as its nearest neighbour. This proximity has made it very easy for the two to collaborate, and led to mutually beneficial engagements on a variety of different levels. A great example of this is the recent HumanDrive research project.



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The focus of an international consortium led by Nissan, and backed by the UK Government, HumanDrive explored the future of human-like autonomous vehicle control. As part of the project, an autonomous Nissan Leaf successfully completed a complex 230-mile journey from NTCE to the Nissan car plant in Sunderland. Cranfield University played an active role in the consortium and its ground-breaking achievements.

Like any class-leading technology employer, NTCE selects graduates from universities across the UK and Europe. Quite naturally it can boast a number of Cranfield University alumni, including its Director of Electrical and Electronic Engineering, with an MSc in motorsport engineering from the 2000s.

The government's apprenticeship levy scheme has also provided NTCE with the opportunity to partner with the university on an MBA programme, and with other local academic organisations on a CIPs programme for Nissan's purchasing professionals.



1,000

world-class technical workers
at NTCE, Cranfield.



NTCE has successfully developed
three generations of Qashqai,

**the award-winning
crossover SUV**

Globally, this model alone has sold more than

2.7 million units

so far.



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At the heart of UK's knowledge economy

Almost by design it seems, at its base in Central Bedfordshire, NTCE finds itself at the heart of what is today regarded as the UK's high-performance technology cluster and the Oxford Cambridge knowledge economy – an area that has grown dramatically in importance and influence since the company moved in. This has brought with it a wide range of benefits.

Notably for a business involved in fast-moving automotive research, design and development, NTCE is located within easy reach of strategically important supply partners. When lead times are tight, having direct access to specialist skills in parts prototyping, small volume component manufacturing and toolmaking offers significant efficiency advantages.



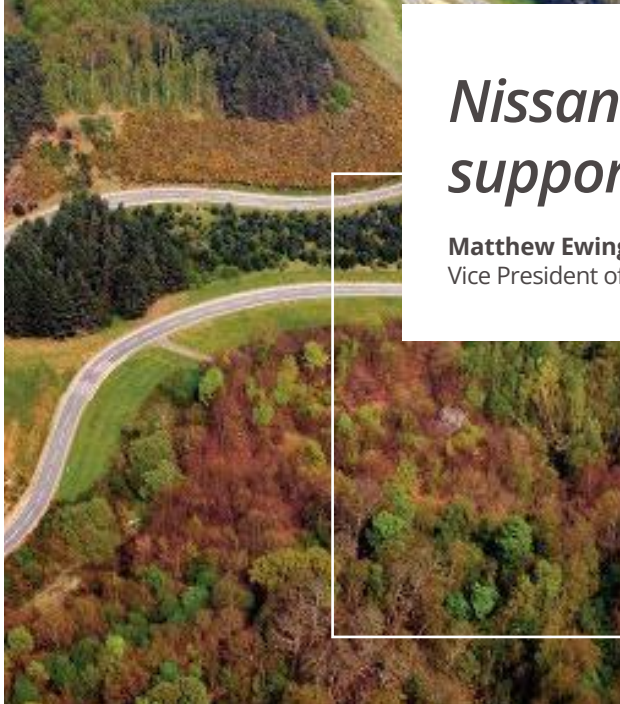
And when it comes to vehicle evaluation programmes, NTCE also benefits from having another illustrious near-neighbour, in the form of the Millbrook Proving Ground. Operated by UTAC, it provides a complete range of vehicle and component test facilities, with more than 70km of varied test tracks for autonomous, connected and electric vehicles.

The naturally diverse environment and road topography of Central Bedfordshire and the surrounding area is another benefit. Spanning cities, picturesque villages and open countryside, it just happens to be ideal for real-world vehicle evaluation on a wide variety of different urban and rural roads.

***Nissan in the UK
supports 35,000 jobs.***

Matthew Ewing
Vice President of Vehicle Engineering at NTCE.

People of course are any company's greatest assets, and NTCE's location within a technology cluster provides access to a highly skilled local workforce. Its central location within England, coupled with good road, rail and air links, attracts employees and their families from around the UK and overseas, and they find a warm welcome from the local community. As all successful global businesses have learnt, diversity in people is a key ingredient for innovation and growth.



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Social and economic contributions

It would be easy to quantify NTCE's contribution to Central Bedfordshire in terms of the number of high-value, highly-skilled jobs created at its Cranfield base since opening 35 years ago. But this would be far too simplistic. NTCE and its 1,000 local employees make a contribution that goes much further.

Supporting Nissan's manufacturing plants and supply chain firms throughout the UK and mainland Europe, NTCE helps the company to support more than 35,000 UK jobs. And, by attracting employees from around the UK and worldwide, it contributes positively to the area's tremendously rich diversity.

And then there's the product. NTCE has, for example, successfully developed three generations of Qashqai, the award-winning crossover SUV. Globally, this model alone has sold more than 2.7 million units so far. The Leaf EV, which was also developed by NTCE, has sold more than 0.5 million units globally. We could go on...

Matthew Ewing is rightly quick to point out the many other ways in which NTCE has contributed to the local Central Bedfordshire community. "One of the core values of the 'Nissan Way' is about respecting people and respecting society, and this is an aspect that makes me really very proud to be a part of the NTCE team."

"I see our staff making a real effort to contribute to their local communities after a busy day in the office. We have staff who are school governors, run food banks, volunteer on search and rescue teams, run youth groups, and play in community bands. They apply their business skills to such a broad range of volunteering and faith-based activities, and it's just so pleasing to see."



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Looking to the future

During the last few decades, the automotive sector has witnessed rapid moves from petrol engines to diesel engines (and back), and from hybrid engines to all-electric vehicles. In 1990, a Bluebird took more than 22 hours to make, today a Leaf takes just 10 hours.

Introduced in 2011, Nissan's all-electric Leaf was the very first mass market electric vehicle to be launched anywhere. Winning World, European and Japanese Car of the Year Awards, the plug-in car has been on the market now for two generations with a third on the way.

Such dramatic evolution is only set to continue into the future. Matthew says: "The decade ahead will see more change in the vehicles we develop and manufacture than in any period in automotive history. To meet the world's climate change challenges all internal combustion engines will be phased out. The drive towards electrification will only accelerate and battery technology will evolve more rapidly as a result."

"At the same time, as the number of climate-friendly vehicles on the road increases, there will be important initiatives to further reduce the stress of driving and make it even safer still. And so mass reduction, autonomous driver assistance systems, vehicle connected services, infotainment and vehicle cyber security for example will also become priorities."

"The car as we know it is in many ways being redefined and the team here at NTCE, Cranfield will be at the heart of developing all the technologies we need to support the exciting transformation that lies ahead."

Nissan has already announced that Ariya, its new all-electric crossover SUV, will enter European markets in 2022. It has also unveiled its plans for eV36Zero, a £1bn electric vehicle hub, creating a truly world-first EV manufacturing ecosystem.

Centred on the company's Sunderland plant, the hub aims to supercharge Nissan's drive to carbon neutrality and zero-emission motoring. Bringing together electric vehicles, renewable energy and battery production in the same place, eV36Zero sets a living and breathing blueprint for the future of the global automotive industry.

It's an incredibly exciting time for the automotive sector and the researchers, designers and developers at NTCE, Cranfield are going to be busy people indeed.

To find out more about Central Bedfordshire as the ideal location for your high-performance technologies business investment, contact our inward investment team at

becentralbedfordshire.co.uk

+44 (0)300 300 8272

info@becentralbedfordshire.co.uk



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