

### The future of aerospace manufacturing is digital

The future of aerospace manufacturing is digital Feature 14 July 2017. How can the aerospace industry use new manufacturing techniques to manage the current boom and keep up with production demands in the face of an ever widening skills gap?

The future of aerospace manufacturing is digital Adapting the traditional supply chain, and embracing the latest digital manufacturing and prototyping services, will support the expansion in aerospace predicted over the next decade and beyond Nick Ismail. At the Paris Air Show recently, a host of aircraft deals were announced which are set to contribute a massive £35 billion to the global economy, and £3.3 billion to the UK alone.

This is positive news for the aerospace industry, which has already undergone significant growth, with analysts forecasting further global growth of 5.1% over the next decade. The sector has had to make cutbacks in recent years however, which have raised concerns over whether aerospace manufacturing businesses are ready and able to make the most of this upturn in demand.

Aerospace fuel efficiency software Skills shortage By way of example, recent studies have shown that the aerospace sector is currently

experiencing a shortage of skilled manpower.

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Your New Surgeon May Be Robotic Sponsored By Connatix The "Da Vinci" is a new robot used in medical practice, that is controlled by surgeons. This new technology can reduce surgery time from 2 hours to only 2.5 minutes. There is concern that the average age of workers in the sector has dramatically increased whilst, at the same time, the education system is not producing the next generation of skilled workers. To compound this, there is less excitement or desire today to work in aerospace engineering - which was once perceived as a high-profile, showcase industry.

According to a recent report, three in five employers (59%) in the aerospace industry are concerned that a scarcity of skilled engineers could pose a threat to their business in the future.

The report also revealed that a third of engineering vacancies (32%) are considered 'hard to fill'; around twice the national average. In addition, almost half of engineering businesses (48.3%) suggested that issues around recruitment had caused delays in developing new products, and had increased operating costs.

The tangible effects of this skills shortage are likely to be felt well into the future if the deep-rooted-issues around engineering education aren't addressed, with Engineering UK's annual report suggesting that 56,000 engineering technicians will be required every year until 2024, just to keep up with demand.

Digital transformation

The advent of Industry 4.0 has seen significant modernisation across the manufacturing sector as a whole, as businesses introduce a range of digital manufacturing processes. While the move towards digitisation may not be the overarching solution to the manpower challenges faced by the industry, the demand for more software and hardware engineers to operate these processes may certainly help to attract more talent into the industry.

3D printing, for example, is a particularly exciting technology which, even three decades into its existence, still continues to evolve. Product developers across a range of industries are utilising 3D printing to rapidly produce high-quality prototypes suitable for presentations and assembly tests.

In the automotive industry, for example, entire cars can be produced using the technique. However, while 3D printing can also be used to build production-ready parts, only a small number of companies are taking

advantage of this method of production at present.

For the aerospace industry, where the requirements fluctuate significantly from business to business, 3D printing can assist by enabling the production of single components through to production-ready parts. What's more, this capability can reduce the amount of administration previously experienced in aerospace R&D and increase the effectiveness of a manufacturer.

Advancements in 3D printing are already delivering tangible benefits to aeronautical manufacturers as a means of reducing material and labour costs, enabling them to test small parts and components such as those critical to the construction of engines and landing gear.

Breaking through

Achieving the projected growth will require an increased focus on innovations that allow for greater customisation, as well as improved longevity and cost reduction, without having to compromise on comfort or safety. Businesses face a need to find new means of reducing weight, cutting down on emissions, and increasing cargo and cabin capacity.

What's more, the entire industry is being shaped by customer demand, with an increasing expectation for rapidly produced parts to be made

readily available within a matter of days.

To support its complex supply chain, the aerospace industry can utilise digital manufacturing processes to benefit from acceleration in production processes, including increased efficiencies, and greater cost savings.

>See also: The enemy within: data thieves lurk within an organisations' ranks Advancements in rapid prototyping and on-demand production capabilities have revolutionised the mind-set of product developers. The ability to quickly and cheaply deliver the necessary parts has made the development cycle significantly smoother, for example. Being able to physically hold production-quality parts faster than ever before has proven to be a catalyst for certification and testing processes.

Many businesses within the aeronautical industry are already considering new manufacturing techniques and technologies that will help them meet demands for greater efficiency and innovation while, at the same time, work within ever tighter budgets.

Ultimately, the latest developments in on-demand production capabilities, coupled with a range of advanced manufacturing technologies, offer aerospace manufacturers the time and budget saving options they need.

Adapting the traditional supply chain, and embracing the latest digital manufacturing and prototyping services, will support the expansion in aerospace predicted over the next decade and beyond.

Sourced by Stephen Dyson, head of Industry 4.0, Proto Labs . The UK's largest conference for tech leadership, Tech Leaders Summit, returns on 14 September with 40+ top execs signed up to speak about the challenges and opportunities surrounding the most disruptive innovations facing the enterprise today. Secure your place at this prestigious summit by registering here Integrating virtual reality into mobile property platforms will significantly improve the user experience for both renters and landlords Businesses have seen significant change in the property industry over the past few years, mostly thanks to the technological innovation within the industry. However, there is so much still to be done, and AR and VR will be at the front of solving many of the common problems associated with renting Nick Ismail Possibly the most important thing a prospective renter can do before signing a new tenancy is view the property. When it comes to finding a place to live, nothing beats seeing the place in person.

However, finding time to visit lots of different properties before they're taken off the market is challenging for

the time-strapped and money-starved renter. Not only is this putting many renters off actually moving, it's also reducing the renting pool for landlords.

>See also: Digital transformation: VR and AR will revolutionise the office A number of PropTech companies have recognised this problem and are exploring the options of integrating Virtual Reality (VR) and Augmented Reality (AR) into existing property platforms. The aim is to use this exciting new technology to help both renters and landlords in the long-run. Integrating VR into property

Time is money - or in this case, the dream rental property, especially in fast-moving university rental markets. By integrating VR into property platforms, renters will be able to 'view' available places at anytime and anywhere, without anyone needing to be physically present at the property. Taking this idea further, joint viewings of properties with prospective housemates could be enabled by sharing the VR streams on different social media platforms.

Not only will introducing VR into the rental ecosystem help renters to decide between properties quicker than before, it will also reduce costs for everyone involved, eliminating often high travel prices. Further, it will widen landlord's geographical reach to attract potential tenants from further afield.

For international students and landlords who rent their properties to students from overseas, this is a real game-changer. Many foreign students face the mountainous challenge of finding somewhere to live when based abroad, and have relied on pictures or word of mouth for too long to find accommodation. The most common outcomes for these students are either extortionate travel bills or having to live in poor-quality houses for an academic year. However, with VR-enabled property platforms, these common issues will be overcome.

At the moment, VR is fully immersive - users can't interact with others experiencing the same VR simulation nor can they switch between simulations seamlessly. In the coming years, VR will have advanced to the point that users can cross over from one VR environment to a different one and users will be able to interact with each other.

In terms of renters searching for a house, groups looking to move in together will be able to experience a viewing simultaneously and explore the neighbourhood the property is in at the same time. This will present a more holistic experience for house hunters. The next level is augmented For all the headlines hailing VR to be the next big thing, it is its lesser covered cousin Augmented Reality (AR) that will ultimately take the property market to the next level. The biggest obstacle to VR adoption so far

hasn't been just price. Concerns around health and safety in this fully immersive experience are right to be raised.

Let's say an interconnected VR network of whole neighbourhoods and individual properties was created - we'd have to be aware that users would be walking around the physical world blinded by a virtual one.

AR overcomes these obstacles by layering supplementary data onto the real, physical world. Instead of locking people into a 'virtual' world, AR brings the real world to life and makes it significantly more tangible. AR is also a shared experience. So, groups of friends could view properties together and discuss how they could make the space their own with regards to furniture and decoration.

Technology is revolutionising the property industry. Another positive to AR over VR is that it can show renters real-time unbiased factual information relating to the property they are seeing. As they view the property, the

AR could bring up key information about existing gas, water and electric suppliers and bill costs as well as giving an accurate picture of the state of the building.

These are things renters, student renters in particular, wouldn't necessarily think of when viewing a property for the first time. For landlords, the AR would bring up a prospective tenant's rental history, ensuring they have the right tenants in their property.

Businesses have seen significant change in the property industry over the past few years, mostly thanks to the technological innovation within the industry. However, there is so much still to be done, and AR and VR will be at the front of solving many of the common problems associated with renting.

From cutting the costs for renters and landlords to increasing the number of properties available to view and put on the market, harnessing AR and VR is the future of the rental market.