



INDUSTRY 4.0
SUMMIT & EXPO
Manchester, UK, 10 - 11 April 2019

Panel discussion

"Industry 4.0 in the context of Manufacturing Engineering, with an example of an electrification project"
10 April, 16:30 - 17:15



Industry 4.0 Summit and Expo

Panel Discussion

Industry 4.0 in the context of Manufacturing Engineering, with an example of an electrification project

"The Automotive industry is going through significant upheaval, our products, our customer base and the way we drive is changing. This highlights the need for us to be smarter and faster, and the manufacturing engineering process needs to change to support this".

This was the key theme running through the recent panel discussion by members of the E:PriME consortium at the Industry 4.0 Summit and Expo, where the group discussed the adoption of digital technologies to support the manufacture of complex systems at a time when getting things wrong and being late to market can have significant consequences.

Industry 4.0 is revolutionising the way the manufacturing engineering sector integrates digital technology, and this panel session focused on one of the key objectives of E:PriME, to create unique capabilities for ultra-high-volume manufacture of next generation powertrains using the digital twin.

Dr Axel Bindel, Executive Director at HSSMI, opened the panel session by introducing a [short video](#) which allowed attendees to understand the E:PriME journey so far. "Electrification requires new skills and new processes, which all need support from digital technologies" but what really is a



Dr Axel Bindel, Executive Director at HSSMI

digital twin and what does it mean for manufacturers?

“Everyone will have a different view on what a digital twin is” said Andy Hodgson, Strategic Sales Lead for Digitalisation at Siemens. However his view was clear, that if we are to manufacture electric drivetrains, we must use the tools and processes available to us to establish a digital twin that can help to simulate and understand how we can move from concept all the way through to a finished line.

James Carruthers, Product Design Lead at Signal Noise, explained how his organisation was focused on helping their customers to understand what they have and digging into the data available to them. “The digital twin is a tool or collection of tools where we don’t know what it will truly look like in 5-10 years’ time, but we need to start understanding the way people share their data and the way they will work with a digital twin”.



This was a common viewpoint throughout the session regarding the need to use tools, like the digital twin, to remove the barriers so often found throughout the supply chain, therefore enhancing the process of collaboration and supporting everyone to achieve their own goals.



Ian Constance, CEO of the Advanced Propulsion Centre, the funding body for the E:PrIME project, explained that he thought the programme was terrific given “There is not enough understanding of how to scale things in the manufacturing context and now this project operates in the very heart of that”. Ian expressed that he thought the UK was very inventive and very innovative, however often fails to put this to work in industrialisation, meaning that so many of our innovations go overseas – we must work instead to build a sustainable and collaborative UK supply chain for the future.



Ilan Constance, CEO of
the Advanced Propulsion Centre

Chris White, Electrification Manager – European Powertrain Manufacturing Engineering Group at Ford Motor Company, spoke at length about the more intense collaboration that a digital twin will allow. “When presented with a digital version of a factory before it is built, you can see what’s wrong, what could be better, what you want to improve and what could be changed. Driving this to a decision quickly will become a critical skill that will be supported by using digital twins in multiple locations, with suppliers and customers – basically throughout the entire supply chain”.

But what does this truly mean for a supplier and how does this affect their business model and day to day operations? “Collaboration like this can be a challenge for us” said David Wells, Managing Director at JW Froehlich UK, “Giving over the full CAD model of our equipment automatically shares our IP. It’s critical that we can find a way to give enough information for the tools to work but ultimately protect our IP.” David also discussed his organisation’s need to look at the human side of this technology before fully adopting it into everyday life.



Chris White, Electrification Manager at
European Powertrain Manufacturing
Engineering Group at Ford Motor Company



David Wells, Managing Director
at JW Froehlich UK

This was a message echoed by all members of the panel, a digital twin effectively changes the way that people will work together. It will change the immediacy of decisions and could potentially be incredibly complex, people will need to understand the decisions and recommendations that a digital twin provides before being able to truly put these into action.

Andy Hodgson expressed his pride at being a part of a project which allowed a ‘sand pit’ for the consortium to find out how to achieve their end goal. He also reiterated

that although the technology and appetite for a digital twin was there, what is missing is the induction for those technologies – what you do with the data is so important and it's about learning how to bring people in and upskill them to allow them to adopt the use of a digital twin.

All of the panelists were in agreement that the project was making the benefits of a digital twin hugely apparent, from quicker and more transparent decision making to support for first time through and a level of detail and accuracy that was not previously available.

As the Lead Partner on the project, Ford had underestimated the strength and benefit of the network that becomes available through such collaborative projects. "Ford can be quite insular" said Chris White, "but this made us work in a completely different way. What is normally a customer/supplier relationship is now migrating to be fully collaborative, and the network of people in this country with capabilities around EVs is far greater than expected".

It is clear to see that the main message of the day was that no one is unaware of the benefits and opportunities that a digital twin creates. However, people must recognise that currently the digital twin is not all encompassing and is only as useful and credible as the data that goes into it. To be a true representation of reality, there are a number of incremental steps that a business must go through before it can understand just how beneficial this technology can be.

Watch the full panel debate, which also looked at other topics besides the digital twin and discussed barriers to Industry 4.0 in manufacturing engineering, [on YouTube here](#).

To stay up to date with E:Prime's journey into upskilling teams in the adoption of digital tools and technologies, visit <https://www.eprime.info/>.