

Leeds University Business School – Research and Innovation Podcast

Episode 32: The future of the automotive industry

Speakers: Dr Gary Graham and John Barnett

Gary: [00:00:00] Hello, welcome to this Research and Innovation podcast. My name is Gary Graham, an associate professor here at the Business School. And with me today is John Barnett. John, can you tell us a little bit about yourself before entering the world of academia? For instance, what work did you do? Some details on your career and maybe give us some reasons why you've worked in the auto industry for such a long time.

John: [00:00:35] Hi everyone. As Gary said, my name's John Barnett, and up until December 2020 I worked in the automotive industry for 30 years. 40 years in total in manufacturing, 30 in automotive. During that time, I worked through engineering, into plant management plant director. My final role over the last few years was senior vice president for manufacturing for a global automotive supplier that had 145 plants on a global basis. And I was responsible for manufacturing strategy and operations and supply chain.

Why the auto industry? It's very dynamic. It's very fast moving. It's a very complex and complicated, but very rewarding industry to be in. And I've thoroughly enjoyed it for the 30 years that I was, that I was in that industry.

Gary: [00:01:34] John - we taught a module which is entitled technology and innovation management and students really enjoyed it. I just wonder John, if you could give the audience a little sense of, or a flavor, of those four lectures, which you taught and some idea of their content regarding the auto industry.

John: [00:01:56] The auto industry - everyone knows the auto industry. You [00:02:00] know, it's not, you don't have to come from an engineering background. Everybody knows cars and automotive. So I think everybody can relate to it. And it's at a turning point now in terms of electric vehicles, electrification, et cetera. And so the four modules that we looked at were: electrification, an electric vehicle, whatever that is, and connected and autonomous vehicles or, you know, driverless vehicles, et cetera. Then we looked at manufacturing processes. So how companies actually make things for that industry. And finally, the supply chain, because the supply chain is huge, right? From, a manufacturer such as a Nissan or a Jaguar Land Rover through to all the different suppliers. And it's a global, it's truly a global supply chain. I think they were really well-received because [00:02:53] actually it's fact that we're speaking about and it's facts that are relevant to today you know, it's information from the last six months of automotive and also everybody hears it on the news, and understands what's happening, to a certain extent.

And it really grabs people's attention because it's today and it's relevant. And it's going to affect them in the future. However that is, so that's why I think they were, they were well-received.

Gary: [00:03:21] During that module, we had some great discussions regarding the COVID-19 crisis. Could you just give us a brief recap of the main impact of COVID-19 on the auto industry in the UK throughout 2020 and into the first quarter of 2021.

John: [00:03:41] Absolutely Gary. And at this point, if you remember, back to the small narrative on my career, I was senior vice president for manufacturing, 145 plants, including operations and supply chain, and in the preparation phase, you know, we got some issues, or had issues, around [00:04:00] China because that's where the pandemic started.

And we saw a real kind of grind to a halt of the industry. Now for a global company, we kind of kept an eye on that, but we really didn't realize how big it was going to be. And then almost within kind of a one-month period, it crashed right around the world, in the preparation phase. And that caused a lot of parts, supply issues, tooling issues, stock delays and we really started to see sort of some big issues in the plants and quite significantly the customer.

So car manufacturers were basically seeing that the world was grinding to a halt, so nobody was going to buy any cars. So what do they do? So that preparation phase really happened very, very quickly. The response from around May to September was the fact that, we had a lot of plants globally, which literally closed down. 145 plants we had and at one point we had 100 plants that were closed down, primarily because the customer - the car manufacturer - was closed down as well. Now that obviously brought huge issues with cash because there was, there were no goods to sell. There was no income. So cash generation and cash preservation was, was absolutely key and the business model moved from making parts and selling parts, to then what money can we retain in the business? Or how can we get further money into the business.

Everyone knows about the UK furlough scheme. Those were worldwide. It wasn't just the UK that had furlough. So what money could we get in the business to keep the businesses going? From September onwards it recovered, it recovered and the car manufacturers started to make cars again, they needed parts.

But then there were the operational issues around all of, and this is still today, around the COVID issues. Around actual COVID that that employees had, towards the self-isolation, et cetera, you know, and the automotive industry relies on people to make things. So [00:06:00] that was the issue. And then we came to the end of that year, the end of 2020.

And because the supply chain, it stopped dead within about a month, it ground to a halt and that, to restart that is huge. So we had huge amounts of port dealers, containers held up in ports, and this is not just automotive. This is every single industry, felt that the same phenomenon all the way through that.

So those really are the three phases Gary and how it hit and it, and it really meant micromanagement, you know, senior vice president for manufacturing - I was on daily calls with the CEO of the business to see how we get through the next 24 hours. And that's

unprecedented in 30 years of automotive. I've never seen that level of micromanagement that we had to do, but we did. And we got through it.

Now there are still issues that are clearly issues still with, with self-isolation and people not being at work, et cetera. The supply chain is a little better now but it still feels the effect and it will do for a long time. And I think some things will change forever.

Gary: [00:07:03] There was quite some excitement amongst the students and also when we had some visiting speakers on the module, and they were interested in things like digitalization of the supply chain and the potential for reshoring and bringing in certain elements of production back to the Northeast. What were your thoughts on that, John?

John: [00:07:25] Digitalization, we definitely need. The ability to understand and know where all of the parts that you have in your supply chain are, and to understand that digitally. And what we found was that when the pandemic hit, they said within a month, we, every supply went "where are our parts?" are they in a port or the sea or in a port? You know, that digitalization and understand where every single part is.

It's really a, the number of times, you know, we've used the phrase outside of this. So with the students, is it kind of fast-forward five years into five months, you know, where things would have naturally happened [00:08:00] five years' time because of natural progression it's fast-forward that,

sort of, you know, the digitalization needs to be, to be much, much quicker. In terms of reshoring, there is this, the phenomenon by the, you know, build everything in one place and ship them across the world or building four or five different continents, et cetera.

And definitely it's had a real shift from automotive industry as to, do you then make the same part in North America and in Europe and in China and in Japan. When probably pre-COVID you would make them all in China or in the UK or wherever. So definitely there is this shortening of the supply chain because it will have to be more agile and it'll have to be more dynamic. So with that comes a huge opportunity for reshoring.

Gary: [00:08:53] One of the younger female students on the module, wrote us a lovely letter, thanking both of us for our work and helping her develop a career, and a CV, and her knowledge. And she was very fortunate to get a placement on a leading motor vehicle manufacturer's graduate school. I just wonder John, is this part of a changing vision of the auto-industry going forward John in terms of gender and diversity and trying to attract more younger people into it. I wonder what your thoughts are on that, John.

John: [00:09:28] Without a shadow of a doubt. I mean, when I came in to that, it was kind of two routes in - the apprenticeship or the graduate route through engineering. Okay. So those were the two routes and yes, you had other areas such as human resource and purchase, et cetera. While generally it was seen as a manufacturing and an engineering domain, which at that point was predominantly male dominated.

There's been a significant change in that. One is in the gender but secondly, also into the entry into, and what the market and what the industry will need [00:10:00] in the next 5, 10, 15, 20 years - it will be more digital focused. There will definitely have to be a move towards the digital sector becoming ingrained in engineering and then being in the whole of the automotive scope so definitely that brings in a whole range of other, in all the kind of sectors rather than just the engineering.

So as you said, Gary, business school or business study students are coming into that because they understand business and what it's about. You know, we've got the digital sector. So definitely a lot of the sectors are seeing the potential for, for not just jobs, but careers in the automotive industry. It's really for the, and exciting careers for the future, not just making bits for cars, you know, which primarily is what it used to be.

Gary: [00:10:46] The reaction to this module inspired us to put together a challenge application, which we were successful at in terms of getting funding to support a short three-month project. What I'd like to do now is to talk a little about the projects; its aim, activities and key findings and visions, et cetera, going forward. John, could you just tell us a little bit about the aim of that project?

John: [00:11:12] Yeah. After we'd done the module, as you said, Gary, we came up with the, the automotive industry is a turning point, and my background is in automotive, and in the Northeast of England around the Nissan and all of the suppliers, and I know those companies very, very well and all those people very, very well. So you're right. What we decided to do was use a cluster called the Northeast Automotive Alliance, which brings in a lot of the automotive suppliers, to then devise a questionnaire, send that out, analyze the results, and ultimately run a workshop with some key decision-makers. So suppliers, academics, the city, industry experts, et cetera, to then really say, "where are the gaps?" What does the Northeast [00:12:00] automotive industry need to work on, really to be there for, for the next generation? It's now two generations old. It started in the mid-eighties, but really, unless things move at pace and it keeps up, you know, it could be gone in a generation. Nobody wants that. So what does it need to be for the next generation onwards? So that was the kind of the concept of that. As you said, we ran a very, very successful workshop, to look at the outputs of that.

Gary: [00:12:26] Now I'd just like to discuss some of the findings and key issues we have uncovered from the research activities so far. John, you frequently refer to the Northeast as a, as a manufacturer rather than a developer of EVs (Electric Vehicles). What do you actually mean here? Or what, what should happen, do you think, in that kind of relationship? Either you're a manufacturer or are you a developer?

John: [00:12:51] Within the Northeast, there are a number of significant Nissan suppliers as well as Nissan themselves. An 80/20 rule - 80% of the business is outside of Nissan; 20% is in Nissan because there is a huge supply base. Generally, those suppliers are global companies. You know, they're not North East-focused.

So what that means is they develop products globally, and then they will then send that product to be made at the most efficient manufacturing location, which luckily for the past 30 odd years has been in the Northeast for the vast majority of those products. But what we've never really done has been a true industry developer of products. We've been a manufacturer; we've made things, but where it needs to shift is that balance needs to move towards developing products for the future, because the products will be different from what they have been in the last 30 years. So that needs to be a combination of industry development, academic development, support from government, and support from cities.

So really, it's got a hold on its own future rather than relying on [00:14:00] a global company saying "Yeah. You will make that part in the Northeast of England because they could easily say, "we'll make that. We will make that part in Spain or in China or in Russia", et cetera. So it's really to bring, bring in-house that expertise of product development, not just product manufacture.

Gary: [00:14:18] Professor Rogers, the workshop from Birmingham University did a great visionary talk on the future of cities and what this means for the auto industry, going forward to 2050. I was just interested in John - what do you think about the role of the councils and the cities in terms of providing a future for their citizens? And what does this actually mean for the auto industry?

John: [00:14:44] It's a very good point because you know, the cities of the future are what the automotive industry needs to accommodate, not the other way around. You know, the cities don't accommodate the automotive industry because it will change. The role of the car will change, you know. And there is this kind of demand at the moment for EV infrastructure bringing more charging points for electric cars. Which is fine for this year, and next year, and maybe a little beyond that, but after then, what is the role of the car and what is the role of mobility? I think that's what Professor Rogers brought in is, you know, green corridors, you know, what are the actually people need for mobility, you know, what are the key points?

If you look at COVID response, how many more people now walk and cycle compared to, you know, 2019 and early 2020. So really the cities and the city infrastructure needs then to lead. What the automotive industry can provide for that. You know, so we've got, you know, ride sharing taxis that don't have drivers, you know, goods delivered by automated vehicles or drones et cetera.

But the city needs to kind of say, "this is what the city needs", and they will be different, you know, Newcastle, something will be [00:16:00] different to Birmingham and Liverpool, et cetera. They will all be different, but it needs that city vision for what the automotive industry needs to provide.

Gary: [00:16:10] And a final point. Are you optimistic or pessimistic John, about the UK auto industry from now going forward, because obviously there's this big deadline of 2030 and beyond? So just to 2030 and beyond what, what's your thoughts? Are you optimistic or pessimistic?

John: [00:16:27] I'm eternally optimistic, Gary. I do think towards 2030, the UK auto industry is relatively safe. It obviously depends upon the world or the UK demand. Bearing in mind that 80% of the UK automotive product - so cars - are exported anywhere. So it depends on demand, but that said, I think it's fairly safe to 2030. But, between now and 2030, there needs to be a huge amount of product development because they will change significantly. A car life cycle is six years, every six years a car changes, its look and the way that it is and the way that it drives, et cetera. That will be a huge change. So 2030, I think we'll be ok up to 2030.

We need that product development. To say, this is what the consumer wants, this is what we'll make, and where we will make it. So for the UK industry, that needs to be in the UK. And yeah, there's been a lot of publicity on Nissan battery plants, which has just been announced, Vauxhall in terms of their electric vehicles, et cetera.

That's the tip of the iceberg. You know, that's around the electric vehicles. The next stage is the connected and autonomous, the automated driving, et cetera. That's where the work needs to be done in the next five years to head up towards the next new model and where it will be built. And that will hopefully, for the UK manufacturers, would be built in the UK. And then hopefully the UK suppliers will supply those.

So, I'm optimistic Gary. But there's a lot of work to do. And we need a lot of the [00:18:00] talent that comes out of the academic institutions that we have, that then want to come in to the automotive industry to make those changes because they will make the changes. That's what has to happen. So, yeah, I'm optimistic and I think we need the academia to bring in the talented students for that.

Gary: [00:18:17] Thank you very much for joining us today. Our contact details will be made available with the podcast. Please feel free to contact us if you want to discuss further any of the issues raised in this podcast. Thank you.