



Dr. Bernhard Angerer,

CoC Electric Motors and Motor Control at BMW, spoke with Automotive IQ Editor Will Hornick.

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What are the biggest challenges to the automobile industry currently and over the coming years?

Dr. Angerer: The biggest challenge from our end, I think, for the upcoming years is definitely the fuel consumption, whatever the right solutions are, the mix in conventional combustion engines and electric vehicles and hybrid electric vehicles, I think this is one challenge from near to mid-term and from a longer-term I think the mobility concepts, in principal, have to be requested... so I don't know if in twenty or thirty years everyone will buy a car, or if we have more to rent them, use them, use different modalities in mobility and what role the OEMs will play in this changed world of mobility.

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Do you see something like SmartGrids coming up in the future, where all cars are all part of the same transportation grid?

Dr. Angerer: I think the car-to-car communication is an interesting field from the research to field application. Also, information technology, I think, will play a big role in choosing the mobility modalities.

Up to now, you can rent a car with your mobile phone and I think these solutions will really grow up in all mega cities in the future.

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And specifically, how are you guys working to overcome some of the early challenges you mention at least, you know, looking through the next ten years?

Dr. Angerer: (Laughs) A big question. What we've already started and what we always focus on - we call it efficient dynamics. We try to save fuel and build cars that are a joy and fun and I think this strategy will be continued with all the ideas that are in the company under this name, on one hand. On the other, we will launch in 2013 our electric-borne vehicles, so the sub-brand BMWi and this has the potential to start a mobility program for the next decades. Whether, they are rented or bought, whatever, because in electric mobility, from my point of view, the interesting point is that any exhausts are not in a big city. They are not at the same location than the vehicle, that's the advantage of these systems. We deal with that through our electric-borne vehicles and carbon structure and all this is interesting for the future.

Automotive IQ

And do you think it's still really important to imprint the company DNA into those electric vehicles?

Dr. Angerer: Yah, of course. It's very important for us as a premium OEM. It's very important to have our own DNA in all our different vehicles so that means BMWi must not have the same DNA as BMW and not the same as the MINI, it must have its own BMWi DNA. This DNA will be in all these vehicles and will be continuously developed and adapted and everyone that sees the car, that uses the car and sits in the car, should really notice that it's a BMWi.

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That's exciting. It's also a type of fresh start. This is maybe toward the consumer experience, but could you discuss the potential of EPS on driver experience and safety for example?

Dr. Angerer: Ok. The aspect of EPS...well, what I see is that EPS is already or will become the standard steering system, so hydraulic systems will ramp down for normal vehicles because especially in electric vehicle there must be an electric steering system. The potential is to build in a lot of functionalities for the driver. What we have started right now, is lane keeping, park manoeuver assist, etc. and I think these will come up a lot. Also in safety functions: we have much more possibility with navigation to know on which route the vehicle is, which curve is ahead, the speed of the vehicle, perhaps weather information and so on. The vehicle and also the steering system can react so it's almost an information integration and EPS will be one of the actuators that can react on this integrated information. There are a lot of others but the EPS is one of them.

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Thank you for that. And as an OEM, does the ISO 26262 affect you directly?

Dr. Angerer: Yes, it does, because we deal a lot with that since the homologation is also relevant for us and therefore we need to understand what's going on there and we need to understand how to interpret and how to use the ISO 26262 for steering systems and for all high-voltage batteries, for all braking systems, for all these things that are in the vehicle on the different levels of ASIL A, B, C and D.

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So a lot more potential conferences, a lot more topics to discuss with regards to the ISO?

Dr. Angerer: Yeah, I think so.

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Okay, well since you've had one day at the conference so far, what's the one thing that you'll most take away from it or still hope to take away from it?

Dr. Angerer: What I see is that the direction we work and the thoughts we have are not only ours but more broadly in the industry. To see what's going on with these rare earth topics etc. Of course, all the contacts, and a lot of people I know already so it's always good to meet them again and to have some discussions and to network with contacts of course.

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Well, thank you very much for your time.

Dr. Angerer: You're welcome.