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Learn Fast to Succeed in Digital Transformation

Exclusive stars interview with Dr. Horst J. Kayser, Chief Strategy Officer, Corporate Development, Siemens AG, Munich Germany. The interview was conducted by Dr. Sophie Xiyang Liu, on the sidelines of the 10th stars Switzerland symposium in September 2017 in Stein am Rhein.

Learn fast and find new business models

Sophie Liu: Facing the digital transformation and digital disruption, what are the major challenges that global leadership need to address in the next 5 to 10 years?

Dr. Horst J. Kayser: "Facing digital transformation and digital disruption, the most important thing for companies is to learn as fast as possible. They must be connected to their business ecosystems, including start-ups in their fields and most important, to their customers. Because customer expectations change quickly: they want faster time-to-market, mass-customization, efficiency gains and added flexibility. Today, it is critical for companies to be able to learn fast and to develop solutions, such as quickly developing and testing minimal viable products (MVPs).

Sophie Liu: How will the digitalization impact and change the strategy of large and global enterprises? Can you please take Siemens as an example to explain?

Dr. Horst J. Kayser: We as Siemens provide digital tools for our customers helping them to develop their products through digital twins. With this, our customer can simulate his entire product and associated value chain to achieve optimized machine design and operations. With the help of these digital tools companies today are fast enough to master the digital change. With that said, I recommend to be very careful - or even paranoid – about what new technologies can do to existing business models. As Andrew Grove put it in the 90s with his book, Only The Paranoid Survive¹.

Through our Strategy Program Vision 2020 which includes our Digitalization Strategy Siemens this year has started to set up internal units, called "Digital Application and Analytic Centres (DAACs): they work across traditional business units and focus on specific industries and customers. Ideally, they are located close to where the customer is. DAACs collect data via sensors from the customers' devices, store this data in the cloud and conduct various analytics and optimization based on the input. When they predict maintenance need of the equipment for the customer, they can pre-warn the customer two to three days before the equipment might have a problem.

In order to thoroughly understand where the problem is and to find a solution, we need both traditional engineers and data analysts to work together. Siemens has traditional mechanical engineers and electrical engineers, as well as more than 17,000 software engineers. During the last three to five years, Siemens has started heavily recruiting data scientists worldwide, looking for experts for our data science competence centre where we currently have several dozen of data scientists.

¹ Andrew Grove, Only The Paranoid Survive, Profile Books Ltd; Main. Edition (6 April 1998).

Companies need to understand that classical business models may disappear and they have to create value with new business models. Sometimes it is a disruptive change, such as the Uber case. But there are also more gradual changing processes. For example, we have seen that prices of much traditional engineering hardware, like turbines and gas turbines, experience increased pressure over the last years. The only profitable model is, while you are selling the equipment to your customer, you also provide maintenance service in the long-term, optimize the equipment and control it digitally to make sure the customer realizes the maximum productivity of his equipment. Being able to charge fees for services rather than just selling a piece of equipment alone is the actual change of business model. We call it servitization, which is happening in many industries now.”

Siemens strategy: EAD – electrification, automation, digitalization

Sophie Liu: What is the current strategy program of Siemens and what are the goals / achievements?

Dr. Horst J. Kayser: “Under our strategy program Vision 2020, announced in 2014, Siemens has the EAD focus - namely focusing on Electrification, Automation and Digitalization – at its core. The Electrification area is a mature market which is characterized by consolidation and low-cost competition. When we formed the merger between Spanish Gamesa and Siemens Wind Power it was one of the classical electrification industries where bigger scale was required to compete. With our JV there are now mainly big players active in this industry, such as General Electric (GE) Wind Power, Vestas Wind Power, Goldwind, while smaller players are having more and more difficulties. This merger proved to be very complementary: Gamesa focused more on onshore wind power, we on offshore wind power; Siemens Wind Power was strong in the European market while Gamesa had its biggest footprint in South America, India and China. Through this complementary merger we have created one of the largest wind turbine manufacturers in the world. This is a good example of a classical move Siemens has made in the Electrification field – gaining higher competitiveness by scaling up. Instead of investing, Siemens merged with Gamesa, owning ~60% of the new company but also enjoying potential profits while it grows.”

“The A – or Automation area – is a field we are already holding a strong leadership in the global market. We possess core expertise in industry automation as the global number one player in automation across verticals in successfully defined ecosystem. Therefore, acquisitions are more difficult and we try to develop organically, growing our market shares and our solution offerings that can be integrated in our product life cycle management software.

With our strength in Automation we can also be champions in Digitalization. The biggest growth opportunities for Siemens lie here, and we are investing significantly. Our EAD strategy is a deliberate programme to continue to invest and grow. The digital tools we are selling is already a 5 billion Euro software business, which makes Siemens the second largest software company in Europe following SAP and one of the top 10 software companies globally. With “next47” we also invest in startups. It is wholly-owned by Siemens with a funding budget of ~€1 billion for 5 years and operates in innovation hubs in Munich, Palo Alto, Berkeley, Boston, Tel Aviv, Beijing and Shanghai. “next47” acts as a venture capitalist, coach and adviser to founders and start-ups and is the bridge between the world of start-ups and the Siemens ecosystem. In a summary, we invest in established software companies to build the software business, as well as in different kinds of startups to find the future trends.”

Sophie Liu: How strong are the competitors in industrial digitalization? Who are your classic competitors and who are new?

Dr. Horst J. Kayser: “Siemens has a long list of competitors in its domain, like ABB from Switzerland, Schneider from France, Rockwell from the United States who is a specialist in factory automation, and Mitsubishi Electric and Hitachi from Japan. There are also many competitors from China, such as Shanghai Electric (Group) Corporation in the energy field, Chint who is in low voltage field and China Railways Corporation (CRC) in the railway business. Siemens often develops a cooperation (cooperation and competition) situation with its competitors. For example, CRC is a fierce global competitor for Siemens – however, meanwhile Siemens is also a supplier for CRC in the field of traction drive technology etc.”

Advice for young engineers

Sophie Liu: What are some tangible examples of how digitalization is impacting engineering and engineers? How should engineers (especially younger generation) be prepared for the challenges?

Dr. Horst J. Kayser: “Young engineers, especially those who are in product development area, should be extremely versatile with digital tools and new ways to manufacture products. For example, facing the next big wave in manufacturing industry, 3D printing technology, product developers need to design products differently to fully utilize the potential of 3D printing. There has not been a well-established design school for teaching how to design optimally for 3D manufacturing yet, which I think is an area where engineers can learn fast and qualify themselves to become competitive. Huge potentials are ahead of those engineers who have the skillset and knowhow in this field because manufacturing companies will choose 3D printing to produce instead of in any other manufacturing processes to find out how to produce better, cheaper or in a modularized way.

On the one hand, there are more and more digital products and digital solutions, which makes data science and data analytics an important area to enter, on the other hand, how to design digitally, in particular for manufacturing processes, is also an area with high growth potentials. Young engineers, who are still studying in universities/schools, will probably be introduced to these new technologies. However, engineers who have already worked for five to ten years need to make sure that they stay up-to-date and re-train themselves. Employers can also provide help and support on this point by providing seminars, training programs and creating internal communities where employees can try new ideas out. Learning-by-doing is an important approach for young engineers to develop their competence.“

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