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## Recording Sino-German Economy: Digital Revolution Opportunities and risks at times of Industry 4.0 and Made in China 2025

Germany is an industrial country with more than 100 years of tradition. Products and machines are - Made in Germany – and because of their high quality and reliability internationally popular. With the official start of the federal program *Industry 4.0* the next industrial era was set in motion: the age of digitalization. The music industry and book trade are impressive examples of the rapid change and the revolution of old structures. Digitalization does not stop at long-established industries. The most recent example is the banking industry, which is experiencing the rise of Fintechs and new technologies such as blockchain. They have the potential to determine the rise and fall of entire economies.

The future plan of the German Federal Government presented in 2011 aims to link German core competencies in the fields of mechanical engineering,

automation technology and IT, capturing the spirit of time and is since 2013 in full swing. Big German businesses, as well as small and medium enterprises (SMEs) are now together involved with the establishment and the development of intelligent factories, all under the tag of "Industry 4.0".

The aim of Industry 4.0 is to digitally capture all the processes, starting with the development of a product, its manufacturing and service and link these with each other. Its potential is huge. According to the BITCOM industry association and the Fraunhofer-Institute, could with the arrival of the Internet of Things and cyber-physical systems in factories, the gross value added (GVA) increase up to proximately € 100 in Germany by 2025 (Statista, 2016). This value originates mostly from increasing efficiency and resource and cost savings. German innovations have the potential to launch global spillover effects.

"There has never been a time of greater promise, or greater peril" - Prof. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum.

But the competition from the Far East is not sleeping. New technologies are rapidly spreading in the Internet-savvy China and the most powerful supercomputer in the world Tianhe-2 (Milkyway) is currently in the metropolis of Guangzhou in southern China. China's internet giants such as Baidu and Alibaba are working under high pressure to own AI (Artificial Intelligence) solutions. The industrial revolution was also set in motion with the future-program "Made in China 2025" and large investments, though without exact official numbers. With a growing middle class and increasing competition from other Asian countries, are the days of cheap production in China over.

Made in China 2025 pursues very similar objectives. The program, however, is definitely more nationally aligned. The digitalization by 2025 is only the first step. As a symbol of a modernized and progressive era, aims the People's Republic to be the worldwide industrial nation's number one by 2049, right on time for her 100<sup>th</sup> birthday.

Under Made in China 2025 are 'national champions' established in the strategically most important industries and led to international success. Desired partner for this endeavor is Germany, because Made in China 2025 is based on the German concept Industry 4.0. It is certain that China's industry will be digitalized soon. The label "Made in China" is supposed to go from a simple brand to a seal of quality, just like Germany: and if it's not with German help, then with the services and products of international competitors.

The Chinese periphery presents a stark contrast to the ultra-modern, technologically-developed mega-cities. Today, there are already clever interconnected factories in China. All in all, the production in China is only limited automated. However, under Industry 4.0 are big Chinese corporations able to initiate a big jump and cheer on competition. On the other hand, it will take decades until the whole Chinese industry is digitalized

and the companies can catch up with German efficiency levels. The path to intelligent factory develops linear from 2.0 Industry (assembly line work and electricity) to Industry 3.0 (IT and electronics) up to Industry 4.0 (digitalization). Some 'national champions' with a high level of efficiency in the international markets are enough for the Chinese leadership to achieve global domination in selected sectors and to encourage the population in their claim to leadership of the Communist Party of China. The digitalization strategy ensures a modern attitude of the system and connects netizens with cadres of the old guard.

Since millennia is the Chinese society dependent on the ability of personal relations and mastered these to perfection. The networking expertise is now being taken to the next level and getting digitalized. Strategic partners are companies like Huawei. They provide a geographic and cultural bridge between young and old, urban and rural areas by means of technological aids. For many young Chinese their smartphone is the first computer they own and use.

Increasing digitization of the industry in China, set German flagship industries such as aerospace engineering, IT, and eventually also the automobile sector under pressure. An in-depth cooperation with the topic digitalization entails - in addition to a unique market opportunity for German companies - also unexpected risks.

Therefore, implementation measures and structures to ensure compliance of all parties on the subject of data security and business cooperation must be pursued. With the development of Smart-Data and Artificial Intelligence is data used in an entirely new way and demand crosses borders. Germany is playing a pioneering role in terms of cyber security, but does not take full advantage of its potential. There is a clear need for optimization.

Germany is forced to use experts of all political levels and promote the fastest possible infrastructural upgrades, to be able to shape long-term future success in digitalization - nationally and internationally. The first mover among German companies should therefore play a greater part in designing standards and not lose their generated competitive advantage.

The risks and rewards of Industry 4.0 and Made in China 2025 are enormous. The race for digital world domination began long ago. Winner will be whoever accommodates and uses innovative impulses, breaking new ground with the best thinkers at their sides.

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