GAMI Newsletter

2020 - 01

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Dear partners and friends,

In 2008, the wbk Institute of Production Science of Karlsruhe Institute of Technology (KIT) founded GAMI after years of experience in industry and research projects in China. Ever since, GAMI strengthened its competencies in global production and built up manufacturing knowledge. Today, it offers consulting and further education services for international partners in China in the competence fields Supplier Development, Quality Management, Production and Supply Chain Management as well as Industry 4.0. Furthermore, we serve as an incubator for other KIT activities in China und the roof of the KIT China Branch.

Over the last challenging months the importance of digitizing production and supply chains became probably stronger than ever. Therefore, we conducted several of our training courses online to share our knowledge and to give our partners ideas on how to increase their production efficiency and resilience in difficult times. But in line with the general improvement of the situation, we were very thankful to be able to return to our practice-oriented face-to-trainings and conducted for example summer schools for students from two universities aimed at giving these young talents insights into current challenges and best practices in manufacturing. Besides, we are very happy to start the development of a new Industry 4.0 training platform together with other renowned partners to further support Chinese and German companies in their digital transformation.

With our regular newsletter, we would like to keep you informed about our current industry projects, training services as well as our events. I hope you enjoy reading and discovering something new in this issue.

Sincerely,

Tobias Arndt

Dr. Tobias Arndt spoke in the 2020 ZGC forum in Beijing

Under the topic “cooperation innovation and meeting challenges head on”, the 2020 Zhongguancun Forum was opened in Beijing on September 17. During the two-week event, four blocks of conference, exhibition, transaction and release were conducted, and totally over 50 activities held. At the main forum and over 20 parallel forums, participants shared and exchanged ideas on topics such as global science and life health, sustainable development and innovation as well as activating the city with creativity and creating the future with technology.

By means of live broadcast, holography, 5G and other technologies, the 2020 Zhongguancun Forum was presented to the global audience in the cloud for the first time. More than 200 well-known experts and scholars, more than 400 famous entrepreneurs and investors, more than 150 government officials from China and abroad and more than 40 heads of international organizations of top academic institutions met in Zhongguancun online and offline together with political and business representatives from all over the world.

Dr. Tobias Arndt, GM of GAMI, was invited as one of the guest speakers on the forum entitled “Innovation and Cooperation Dialogue of well-known Polytechnical Universities”. In his speech, Dr. Arndt shared insights on the technology transfer mechanisms of KIT in Germany and China as well as best practices from conducted projects in both countries.

Dr. Tobias Arndt delivering his speech at 2020 ZGC forum

Dr. Tobias Arndt was honored as one of the excellent educators during 2019 - 2020 in SIP, Suzhou

This September, the SIP Work Committee honored Dr. Tobias Arndt with the title ‘Excellent Educator’ for his outstanding performance in during 2019-2020.

Since 2017, when Dr. Tobias Arndt joined GAMI, he has been focusing on bringing German advanced manufacturing concepts and know-how to Chinese and international partners and customers, delivering valuable knowledge to local partner universities and industries through Sino-German cooperation projects, engineering as well as training services.

By offering training courses in the areas of production, quality and supply chain management at our Industry 4.0 Demonstration and Innovation Center and Artificial Intelligence Innovation Factory, GAMI contributes to the preparation of staff and managers of producing companies in China for the country-specific requirements of the fourth industrial revolution. Since its opening since 2015, more than 3,000 visitors from Sino German enterprises, government departments and academic institutions have visited and learned here.


荣誉证书

Tobias Arndt 同志：

被评为2019-2020年度“苏州工业园区优秀教育工作者”。

中共苏州工业园区工作委员会
苏州工业园区管理委员会
二〇二〇年九月

Dr. Tobias Arndt and the certificate

ProTalent project for training local talents in the supply chain of German companies was successfully closed

In global supply networks, it's no longer sufficient for companies to optimize their internal processes based on local interest. On the contrary, what really matters is the continuous improvement of the entire supply chain. Especially the focal company of a supply chain should also help to further develop their suppliers in order to increase the overall performance of the entire supply chain and enhance their own competitiveness. With the support of Sequa gGmbH, a global non-profit organization that carries out development projects and programs in collaboration with the German industry, an advanced development program for Chinese suppliers was launched in 2017, called ProTalent. Aimed at training Chinese engineers according to the standards of "German Engineering", the program combined production-related Industry 4.0 and Smart Manufacturing contents with development-relevant aspects such as resource efficiency, environmental protection, occupational safety and corporate social responsibility. GAMI's long-term partners B/S/H and Wuerth joined this program.

Together with the suppliers of B/S/H, mainly two topics were covered. One was to improve the packaging situation in order to lower shipment costs. Before the project started, the utilization of one container to be shipped to Germany was only about 80%. To increase the container's capacity, a new stacking method in the container was introduced, so that the Chinese supplier could increase the utilization to nearly 90% without any further costs. Additional considerations suggested a redesigning of the packaging size, what could further increase the capacity of a container. The second topic was to improve the current factory layout. In a first step, the status quo was analyzed and the raw material supply as well as the material flow between the production lines were detected as critical. Therefore, GAMI worked out a new layout that stabilizes the material supply and enables a more concise material flow.

Together with the suppliers of Wuerth, GAMI focused mainly on the topic of work safety and traceability. Work safety was selected as a main topic, since the European Union (EU) has set very strict requirements for the use of personal protective equipment in the production environment, which should also be fulfilled over the whole supply chain. In order to better detect and avoid quality problems, Wuerth also set higher requirements to their suppliers regarding traceability. To ensure these new standards, the whole process and related documents at the supplier side, from raw material to final delivery, were reviewed at first. That way, the current status was understood and based on that, trainings and workshops to derive improvement actions were derived accordingly.

The ProTalent project was finally closed in 2020. During the last 3 years we have conducted in total 48 workshops for 93 days with suppliers of both companies. 112 trainees joined the trainings, 93 of which got their participation successfully certified.

Onsite impression of the project

Successful development of a practical Human Robot Collaboration demonstration station

From November 2019 until July 2020, GAMI was developing a scalable assembly station to demonstrate the potentials of human-robot collaboration for one of our partners. The objective of the overall research project was to introduce forward-looking concepts, advanced technology applications and best practices from various industries related to smart manufacturing to Shandong province. Thereby, technology benchmarks for different industries were created to help local enterprises in Shandong to develop and upgrade their manufacturing capabilities was well as to and attract high-end talents and enterprises to settle down in the area.

GAMI's integrated human robot collaboration fountain pen assembly line officially settled in the Artificial Intelligence Building in Shandong High-tech Zone on June 19. The human-machine collaborative intelligent production line system is based on actual production scenarios. Through scalable automated assembly stations, small and lightweight human-machine collaborative robots that integrate sensor technology, intelligent control technology and advanced software technology, it shows the potential and feasibility of human-machine collaboration in modern industrial production. Through the cooperation of robots and operators in the discrete manufacturing process, as well as the perception and adaptation to the surrounding environment, it reflects the features of high flexibility, safety and intelligence of collaborative robots. At the same time, the assembly line is used to demonstrate the application of advanced manufacturing technologies and concepts, such as RFID and artificial intelligence, human-machine collaborative control, digital poka-yoke and safety assurance in the actual operation processes. This provides solutions and new inspirations to enterprises in the era of Industry 4.0 to deal with new challenges and problems such as changing customer needs, increasing customized products, and short product life cycles.

The HRC system consist of four modules from a macro perspective: assembly module, collaborative robot module, safety assurance module and information system module. Using industrial ethernet connection, it is easily compatible with other information systems in the innovation center for information exchange. At present, this system is applied to the assembly of fountain pens, which can realize the production of 128 different models of fountain pens.

The station and the project team

GIZ Project Industrie 4.0 Learning Platform

In light of the rapid digitization of the economy and society, Germany has raised the concept of Industrie 4.0, which combines production methods with state-of-the-art information and communication technology. In the mirroring attempt, the Chinese government has proposed the China Intelligent Manufacturing initiative as the national strategy to promote comprehensive industrial upgrade. The two governments have strengthened cooperation and identified a sufficient supply of skilled workers as well as availability of upgrade scenarios for SMEs as crucial to the sustainable industrial advancement.

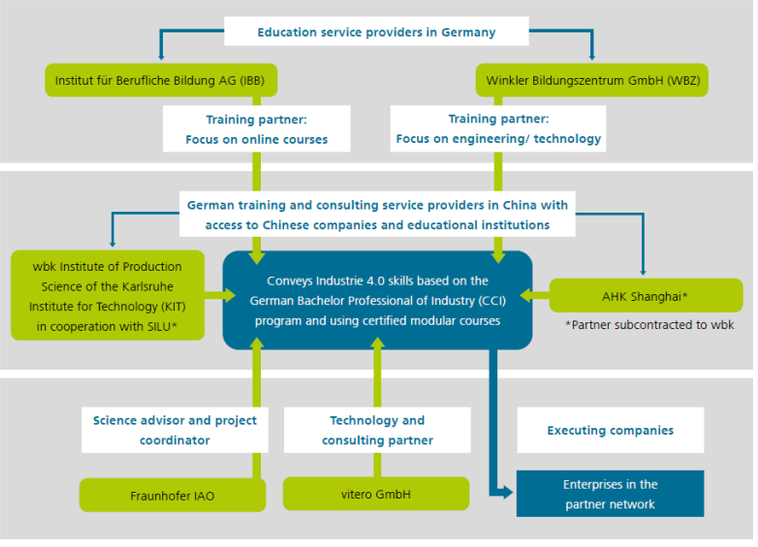
However, many cities in China have been confronted some challenges that hamper the full fulfillment of production potentials. It is getting more difficult for local workers to find jobs due to the lack of digital mindset and skills to operate in the increasingly digitalized environment. The limited access to educational resources further exacerbates the situation. Local SMEs find it hard to locate workers equipped with the required skillset for their digitalizing production environment. Many SMEs also still lack application scenarios on how to realize digital transition on the shop floor. From the perspective of the German industry, the untapped potential of many cities in China also hinders German industries from optimizing their market opportunities, especially for high-end manufacturing products and equipment.

Therefore, the target of the Industrie 4.0 Learning Platform project, sponsored by GIZ and joined by GAMI, SAP China, the Beijing Mechanical and Electrical Research Institute and the Institute for Automation and Industrial Technology is to share Industrie 4.0-related knowledge, technologies and application scenarios, catering particularly to the learning needs of cities in China in demand of skilled personnel and digital transition. The platform will feature an information portal, technical courses, management courses and an exchange forum as its main functions. The project was successfully kicked-off in September 2020 and is planned to last until 2023.

INWICA Project

Since September 2019, GAMI has been joining the research project INWICA together with the German Chamber Shanghai and several German partners from industry and academia. The INWICA project has set out to develop a training program for German manufacturing companies with plants in China. Aimed at offering the opportunity to obtain advanced qualifications for the production workforce, this program is to become a fixture of the Shanghai region's training ecosystem.

INWICA learning content draws on the German qualification portfolio and the Industrie 4.0 Specialist certification course endorsed by the German Chamber of Commerce and Industry. Topics will be selected from both curricula to meet the given training requirements. To this end, INWICA wants to identify and serve the needs of manufacturing companies with facilities in the Shanghai region. The INWICA initiative addresses the question of how German training service providers can make their offerings attractive and readily accessible to the Chinese market.



Structure and partners collaborating in INWICA

TRAINING

Last round open course training program in 2020

Overview of GAMI Open Training Courses 2020			
	Training Topics	Days	Date (First Round)
1	Intelligent Production Planning & Control	1	2020.10.16
2	Digital Quality Management	1	2020.10.23
3	Improve maturity of your manufacturing process to 6 Sigma	3	2020.10.28-30
4	Lean & smart internal logistics management	1	2020.11.13
5	Industry 4.0: From Roadmap to Realization	1	2020.11.20
6	Digital Shopfloor Management	1	2020.12.04
7	Business models in the era of intelligent manufacturing	1	2020.12.11

The latest open course training topics offered by GAMI in 2020 are shown above. All training sessions will take place at GAMI's Smart Manufacturing Labs. A unique learning environment by combining theory and practice as well as a platform to exchange knowledge and ideas with experts is offered. Moreover, our coaches' know-how and their industry expertise ensure the most efficient knowledge transformation. The training program consists of ten training sessions related to topics such as production management, quality management, lean logistics and Industry 4.0 application solutions. Please refer to the flyer for details: <2020 GAMI Training Course>

Quality tools introductory workshop

In the third quarter of 2020, GAMI conducted a Quality Tools Training together with a leading company in the wind industry. The program consisted of introductory trainings regarding 8D and FMEA implementation, followed by practice workshops. The aim of the training was to develop competence with partner's process owners as well as function teams in applying standard quality tools, in order to further improve the quality and efficiency in its value chain.

During the training, the trainees were provided with all relevant theories, methods as well as use cases. They have also applied the knowledge which they learned to solve real problems in their value chain. In the FMEA training for example, own processes were taken to identify potential risks and effects, followed by defining detective actions and preventive measures. That way, the participants could understand the methods thoroughly and know how to use them in their daily work.

Industry 4.0 and Smart Manufacturing training program

In collaboration with Harmontronics Smarter Automation, GAMI conducted a training program for engineers from Harmontronics, which is a high-tech company devoted to research, development, design, manufacturing, sale and after-sale services of automatic equipment. This 1-day training program “Industry 4.0 and Smart Manufacturing” took place on August 7th, 2020 with 19 participants joining this training. This tailor-made training program gave the engineers deep insights into smart manufacturing know-how and technical solutions, which can support their company on its way towards operational excellence.

TRAINING

Smart manufacturing trainings for universities students in China

Its partnership with KIT and the resulting advanced know-how in production science enables GAMI to be an optimal partner to deliver industrial insights to university students. Therefore, we have cooperated with 2 famous schools of Xi’An Jiaotong – Liverpool University and Nanjing University to share our knowledge of Industry 4.0 and related advanced manufacturing science.

From August 21st to August 29th, 2020 GAMI delivered a 3-day training program “Robotics and Intelligent Manufacturing” to 35 undergraduate students pursuing their major in Intelligent Robotics Engineering as well as Intelligent Manufacturing at Xi’An Jiaotong – Liverpool University. This training aimed at deepening the understanding of the students with regard to Smart Manufacturing by combining their theoretical knowledge from university with industrial practices introduced by GAMI. Furthermore, in practical case studies at GAMI’s Smart Manufacturing labs, the students could also gain additional practical skills.

In collaboration with Nanjing University and Dayton University, GAMI also delivered a 5-day training program with the topic of “Industry 4.0 and Intelligent manufacturing” to 26 undergraduates from the School of Electronic Science and Engineering. This tailor-made training took place in September and also aimed at deepening the practical understanding of the students in terms of Smart Manufacturing. According to their feedback, the students gained a lot from this international training program, especially from the case studies simulating different production planning concepts.

GAMI item joint Training – “Design your Production Line Lean and Intelligent”

Together with its partner item, GAMI held two rounds of the jointly developed training on lean line design on August 20th and September 24th this year. 20 participants from industrial customers joined this 1-day basic training.

Focus of the training are methods on how to systematically streamline a process in order to remove waste. The aim is to design assembly and logistic processes to maximize productivity and flexibility, as well as to minimize space requirements and throughput time. Workstation design and lean factory tools for line design as well as concepts for an optimized material delivery are provided. Finally, the connection of lean line design to Industry 4.0 is introduced, and methods how to automatically gather data and to use digital tools for a further optimization.

Conducted by GAMI, this topic is very suitable for industrial engineers, production planning engineers and managers, as well as for everyone who is interested in working in the fields of production management.

The next round will be held in November this year. Experiences gathered from the last several rounds will be shared besides the main contents. Please contact us, if you are interested in participating in this training!

2020 KIT Carl Benz Summer Engineering Academy

From August 3rd to August 5th, 9 students from different international schools took part in the 2020 Summer Engineering Academy, also part of the ProTalent project, to discover the world of mechanical engineering. The program offered a unique combination of challenging lectures and workshops as well as online activities. It was organized by the Carl Benz School of Engineering, the Mechanical Engineering College of the KIT in collaboration with GAMI. It aimed at introducing technically interested students from age of 16 - 19 to the field of engineering. Besides the workshops and lectures in the GAMI Smart Manufacturing Labs the participants learned also about studying in Germany. Furthermore, the students met people from all over the China and probably made new friends for life!

Online events to deliver popular topics and confidence to face the challenging of COVD-19

The outbreak and spread of the COVID-19 have caused a great impact on industry in the short term. The circulation of production factors such as raw materials and labor has been hindered, and normal business activities such as logistics, production, and sales have been seriously disrupted. So GAMI scheduled a series of online trainings at low cost to share our knowledge and to help our clients in increasing their production efficiency and resilience.

The first online training was conducted in March this year, when Dr. Tobias Arndt shared some ideas on changeable manufacturing for around 2 hours. Around 100 people dialed in for this event. After that, monthly online events with strong customer interaction on topics covering lean management, internal logistic management, quality management and smart manufacturing were following.

Online trainings offer a unique advantage to conveniently allowing customers to join and engage even from remote locations. Although not all topics covered by GAMI are suitable to be conducted online, especially the ones delivering more methodological knowledge are. So in order to keep our high standard, we selected appropriate topics and concentrated into 1-2 hours for each session. That way, our partners can get a detailed understanding on specific topics and an inspiration for their daily work in the future.

GAMI will keep conducting online activities regularly, with more popular topics to be shared. Follow us on wechat or LinkedIn to get to know more details.

GAMI events in cooperation with DUSA and European Chamber of Commerce (EUCC)

To keep close contact with our customers and potential partners, GAMI also held onsite events together with our associate chambers and associations. Specifically, topics with DUSA and EUCC on Value Stream Mapping (VSM), Six Sigma, and Changeable Manufacturing were conducted during the last months.

VSM for example is one of the most useful methods to realize Lean Manufacturing in a company. By systematically depicting production processes, business processes, as well as the material and information flow from the supplier to the customer, improvement potentials, especially in terms of inventory and throughput time, can be identified. By putting a particular focus on the information flow and visualizing lacks of transparency, media brakes or redundant data sources, additionally the foundation for establishing a Digital Transformation can be built.

During the event tools and procedures as well as practical examples on how to map a specific Value Stream were provided. The target was to enable SME to do a simple VSM on their own, identify improvement potentials especially with regard to inventory and lead time and to start with their Digital Transformation.

If you are interested in conducting events on specific topics together, feel free to contact us.

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