Preface

Dear partners and friends,

2017 has been a very eventful year. Many companies have successfully implemented strategies and concepts for the digitalization of their plants and supply chains. GAMI extended its unique Industry 4.0 Demonstration and Innovation Center with additional showcases and smart training hardware. Furthermore, we supported many companies in developing their individual roadmap towards a smart factory. It could be seen, that a Sino-German cooperation is essential to meet future challenges and successfully master the transition to Industry 4.0.

Especially with our university background we provide our partners with advanced methods and concepts to reach operational excellence and create a long-term and sustainable benefit. Besides our industrial partners we serve Sino-German research and innovation programs in the context of Smart Manufacturing. In this context our Industry 4.0 Demonstration and Innovation Center serves not only as a high-level training facility but also as an incubator for Sino-German entrepreneurship.

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

News

wbk was honored as one of the 100 for Industry 4.0 in Baden-Württemberg

Production-technological laboratory at wbk Institute of Production Science at KIT was honored as one of the “100 Places for Industry 4.0 in Baden-Württemberg”
Industry 4.0 is one of the major trends in the manufacturing industry. "Many approaches are still rather theoretical and less pragmatic," says Gisela Lanza, professor at the wbk Institute for Production Technology at KIT. In order to make the most diverse Industry 4.0 applications directly visible and approachable, wbk has set up a production-technological laboratory: At numerous test bays and plants that deal with both manufacturing and assembly, the scientists develop appropriate solutions under industry-related conditions.

In the learning factory "Global Production", wbk demonstrates a wide variety of assembly applications and makes them tangible in game rounds. The factory consists of a real industrial assembly line for electric motors, equipped with Industry 4.0 elements: Depending on requirements, the assembly steps can be designed manually or automatically, there is a decentralized safety and control system and a station for human-robot collaboration. The digital shop floor displays recorded data and information directly and analyzes them.

Allianz Industrie 4.0 Baden-Württemberg has named the wbk production-technological laboratory as one of the 100 locations for Industry 4.0 in Baden-Württemberg. Above all, the jury emphasized the learning factory: As the worldwide only one with this thematic focus, it deals with challenges that characterize production on global networks, such as how individual locations differ in terms of cost structure, degree of automation or employee qualification.

For more information related to our collaboration with wbk, please contact Tobias Arndt (arndt.tobias@silu.asia) or visit our website www.silu.asia.

2017 Technical Seminar Week - Global Production & Distribution Systems

From 4th to 15th September 2017, the ‘Technical Seminar Week’ jointly held by KIT HECTOR School of Engineering and Management and GAMI took place in Suzhou and Shanghai. The HECTOR School, Technology Business School of the KIT, provides its professional participants with the unique opportunity to gain state-of-the-art know-how in Global Production & Distribution Systems as well as smart automation solutions directly on-site in China.

The seminar week was composed of a compact knowledge transfer in lectures, case studies as well as company tours. Prof. Juergen Fleischer and Dr. Benjamin Haefner from KIT, Mr. Tobias Arndt, General Manager of GAMI, and Mr. Yang Shun, Dean of KIT China Branch, delivered the lectures, which were complemented by tours to leading companies and research centers in Suzhou and Shanghai, such as Bosch, MTU, HTS and Zeiss. By providing a state-of-the-art knowledge transfer on-site, the participants used this platform to communicate with professionals and executives working in China. Global players have continually extended their production sites in China. Therefore, the demand for engineers with highly developed technological know-how and the ability to meet the different on-site requirements is rapidly growing. Applicable knowledge to master these challenges is delivered during this two-weeks course.

We have already scheduled the next technical seminar week for professionals with more than three years of working experience for September 2018.

For more information related to our services or other inquiries, please contact Mr. Yang Shun directly (yang.shun@silu.asia) or visit our website www.silu.asia.
Robotics and Intelligent Manufacturing: New cooperation with SUDA

The digital transition is in full swing and affects not only society but also economies world-wide. New, intelligent technologies and applications are changing the structure and processes of production, and companies must react to this. Therefore, KIT China Branch has launched a cooperation with Soochow University (SUDA): Together with the Xiangcheng Institute of Robotics and Intelligent Equipment (XIRIE) of SUDA a close collaboration especially in the fields of robotics and intelligent manufacturing shall be established. In this, XIRIE will integrate an industrial robot as well as an automated guided vehicle in the Industry 4.0 Demonstration and Innovation Center in Suzhou. Here, GAMI will do research on how to integrate AGVs in global and intelligent production systems. Through the exchange of technology, knowledge and experts, the partners want to conduct projects that address the challenges of the digital transition in Germany and China.

For more information related to our services or other inquiries, please contact Tobias Arndt directly (arndt.tobias@silu.asia) or visit our website www.silu.asia.

Sustain Project Come Together Meeting on Oct13th, 2017

With the strong support of our project partner Shuangliang Corp, GAMI, as the project conductor, held the yearly SUSTAIN meeting together with our partners Siemens and Wuerth to review the project performance. After Mr. Tobias Arndt, General Manager of GAMI introduced the background and the target of the project, Dr. Siegfried Beichter, Wuerth Group Quality Management Head, cited some application cases in his keynote speech and stressed that the best adapted supply chain will win in the new retail business. Ms. Cai Qiying, Chief Procurement Officer of Siemens Greater China, emphasized the importance of intellectualization and digitalization and showed future development trends. She also mentioned, that for Siemens sustainability means acting responsibly on behalf of future generations to achieve economic, environmental and social progress.
After the achievement reports by representatives from Siemens, Wuerth and Shuangliang, we also visited Shuangliang Air Cooler workshop to see the onsite 5S improvement made during SUSTAIN project. During the highly successful meeting the improvements of all 20 partners in the SUSTAIN project were demonstrated, which were achieved due to the intense collaboration with the GAMI team. We delivered individual strategies and smart solutions in production and supply chain management in order to create a long-term and sustainable benefit for our project partners.

For further questions regarding our project approach and success please contact Tobias Arndt (tobias.arndt@silu.asia) or visit our website www.silu.asia.

Integration of NEW Technology and Equipment - Innovation Centre Upgrade

Establishing a continuous improvement process (CIP) is one of the well-known methods in lean production, which aims at the never-ending optimization of production systems. This counts for the era of Industry 4.0 as well. That's why GAMI team is so engaged to update our Industry 4.0 demonstration and innovation center in Suzhou. Together with our partner Wuerth, we recently installed two pilot applications (iBox and ORSYmat), which increase the intelligence in company internal as well as external supply chain management.

iBox belongs to the C-part management system of Wuerth and is based on the principle of the Kanban system. The rolling two-bin system ensures, that C-Parts are provided "just-in-time" directly at the point of use. Each bin is equipped with RFID tags, so that when putting an empty bin into iBox, this movement is captured and documented automatically. This way, information about the status of Kanban system is accessible at any time and an instant replenishment can be ensured by the supplier. Furthermore, the data can be used to schedule all C-Parts close to the point of use, to optimize stock levels and monitor the consumption of a warehouse regularly. For a customer, it’s also possible to access all the data saved on a server and get further support regarding a standardized supply chain management of C-Parts.

The ORSYmat is particularly suitable for managing consumables such as personal protective equipment, tools or machines with irregular, unpredictable requirements. They play a significant role in a company’s cost and efficiency balance sheet. It is not so much the cost of the materials that makes an impact, but rather their procurement or a shortage of operating supplies. An ORSYmat can be customized to be suitable to individual requirements - from 8 to 48 boxes per layer, where up to 384 different products can be stored. That means that small and medium sized products are especially suitable for the distribution through this variation of vending machine. The boxes provide a secure storage of the products, whereby it is possible to fill them with a single article, regardless of the packaging unit. The consumer can log onto the machine using his personal identification card and either remove or rent a product. This information is stored centrally on a server, so that the consumption of specific products or persons can be analyzed in detail.

The Industry 4.0 Demonstration and Innovation Center is a platform for integrating advanced technology and applications related to Industry 4.0. We are continuously working with our partners to upgrade both software and hardware in order to support our visitors in getting a deeper insight into Industry 4.0.

For more information related to the Industry 4.0 Demonstration and Innovation Center, please contact Tobias Arndt directly (arndt.tobias@silu.asia) or visit our website www.silu.asia.
Developing methods and tools to improve production performance

GAMI successfully closed an operational performance plus project at a leading local company for personal protective equipment. Through the former ResQ project GAMI showed their professionalism to the customer, and therefore has gained a good reputation and has attracted interest of customers for a further project. Target of this project was to develop methods and tools for improving production performance. In the first working package we firstly defined the Mission, Vision and Strategy together with our customer, in order to establish a clear guide for choosing current and future courses of action. Based on the strategy we defined the critical operational KPIs for the customer. After the data for the KPIs were collected, the project team immediately focused on the on-time delivery since it showed the highest potential for optimization. The order handling process was analyzed from receiving customer enquiry until delivering the products to customer. The potential causes for the unsatisfying on-time delivery rate were also analyzed by using an Ishikawa Diagram, and classified by department. Afterwards three factors were identified as critical for improvement: Tracking, Order review and Inventory. Then through developed methods and tools the internal and external feedback was increased, such as between sales and production planning, between suppliers and purchasing department, between production planning and production. In the end, the on-time delivery rate could be raised significantly.

For more information related to this project, please contact Yang Shun directly (yang.shun@silu.asia) or visit our website www.silu.asia.

Flow Line Design for Assembly Station Layout

In March GAMI started a new phase in the SUSTAIN project with a leading company in voltage transformer industry. Specified topics include: CSR (Corporation Social Responsibility), flow line design and shortening of lead times. In the last months, especially flow line designing was focused. In accordance with the real condition of the supplier, a 7-step approach was followed during the improvement process.

- Phase 1 Objectives setting, including max capacity in the following 3-5 years
- Phase 2 Production basis data establishment
- Phase 3 Structure design and ideal concept planning
- Phase 4 Workstation design
- Phase 5 Realization
- Phase 6 Monitoring

After successful cooperation with 3rd party partners like equipment suppliers and external factory managers, the newly designed flow line is now working smoothly. With this new flow line, the operators can easily move the semi-product without bending or lifting and carrying. Furthermore, the production efficiency increased accordingly. The production capacity raised from 250 pieces per day to 400 pieces per day without any extra space.

With leading edge knowledge and proven consulting experience, we provided our partner with advanced methods and
concepts to reach operational excellence, which leads to a long-term and sustainable benefit.

For more information related to this project, please contact Tobias Arndt directly (arndt.tobias@silu.asia) or visit our website www.silu.asia.

Integrate Industry 4.0 roadmap and maturity model into current production system

In a current project GAMI is cooperating with a leading industrial company regarding the development of an Industry 4.0 production roadmap and maturity model to achieve the company’s goals and vision. Different maturity levels lead from “connectivity” and “visibility” to “transparency” and “predictability”. The highest maturity level of “adaptability” describes a smart factory where processes are self-optimized.

GAMI project team conducted 15 interviews with the company’s key function decision makers firstly to get a comprehensive understanding of their status on the industry 4.0 implementation. The interviewees were also questioned on their vision and goals as well as possible obstacles they foresee on the way towards the achievements of these goals.

In the following two-day workshop, at first a brief summary of the project partner’s current status together with a presentation of advanced case studies for their better inspiration driving was conducted. Through a group discussion which involved everyone to talk about their goals and vision on an Industry 4.0 production, a clear and approachable 5-year blueprint was generated afterwards. This determines the best understanding of how to achieve the developed goals.

The following steps in the project are the finalization of the roadmap and the maturity model based on their production principles. Several discussion loops between the company and GAMI project team will be required as well. The final outcome of this project will be a customized roadmap and maturity model related to the specific conditions of the company. With these tools the plant can focus on their activities in order to achieve the goals consequently, to manage the obstacles and avoid deviations on the way.

For more information related to this project, please contact Tobias Arndt directly (arndt.tobias@silu.asia) or visit our website www.silu.asia.

Training


This course was conducted by Zhang Ningning, one of GAMI project consultants. Participants of different field of production management and quality control joined this training.

FMEA is an analytical method of preventive quality assurance. The objective is to identify and evaluate risks in time, and to initiate or propose suitable actions for risk minimization. In FMEA, failures are prioritized according to how serious their consequences are, how frequently they occur and how easily they can be detected. As an important method in quality work, it is widely used in manufacturing industries in various phases of product life cycle.
During the training, key knowledge was delivered in the following fields: Reasons for conducting a FMEA, FMEA application, and FMEA assessments, scope, initiation and scheduling of FMEA, risk analysis (structure, function, failure) and actions for quality improvement. All fields were discussed thoroughly for a better understanding and future application in the respective companies.

For more information regarding the training course, feel free to contact Zhang Ningning (zhang.ningning@silu.asia) or visit our website at www.silu.asia.

Open Course Training Program of 2018, 1st Round

GAMI launched its Open Course Training Program for 2018. All training sessions will take place at GAMI’s Industry 4.0 Demonstration and Innovation Center. 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 table below for details (The first round):

<table>
<thead>
<tr>
<th>No. (序号)</th>
<th>Training Topics (培训内容)</th>
<th>Duration [days] (培训时间)</th>
<th>Time Schedule (培训日期)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Improve maturity of your manufacturing process to 6 Sigma (提升企业制造流程能力达到六西格玛水平)</td>
<td>5</td>
<td>2018.03.05-09</td>
</tr>
<tr>
<td>2</td>
<td>Preventive Quality Assurance - Design and Process FMEA (预防性质量保证 - 设计和过程失效模式及后果分析)</td>
<td>1</td>
<td>2018.03.16</td>
</tr>
<tr>
<td>3</td>
<td>7 steps to effective problem solving for a high-performance team (高效团队解决方案的七大法则)</td>
<td>1</td>
<td>2018.03.23</td>
</tr>
<tr>
<td>4</td>
<td>Lean production enabled by Industry 4.0 (工业4.0环境下企业精益生产管理)</td>
<td>2</td>
<td>2018.03.25-30</td>
</tr>
<tr>
<td>5</td>
<td>Design your production line lean &amp; intelligent (让您的生产线精益化并智能化)</td>
<td>1</td>
<td>2018.04.13</td>
</tr>
<tr>
<td>6</td>
<td>Flexible production planning - The key to competitive edge (柔性生产计划 - 竞争优势的关键)</td>
<td>1</td>
<td>2018.04.20</td>
</tr>
<tr>
<td>7</td>
<td>Upgrade your internal logistics to lean &amp; smart (使内部物流精益化和智能化)</td>
<td>2</td>
<td>2018.04.26-27</td>
</tr>
<tr>
<td>8</td>
<td>Industry 4.0 roadmap (工业4.0路线图)</td>
<td>1</td>
<td>2018.05.11</td>
</tr>
<tr>
<td>9</td>
<td>Digital Shopfloor Management (数字化车间管理)</td>
<td>1</td>
<td>2018.05.18</td>
</tr>
<tr>
<td>10</td>
<td>Analyze your product cost structure systematically (系统化分析产品成本结构)</td>
<td>1</td>
<td>2018.05.25</td>
</tr>
</tbody>
</table>

For more information regarding the registration process, training outline or other issues, feel free to contact us by emailing training@silu.asia, calling Yin Yaxian under +86-(0)512-62967377 or visiting www.silu.asia.
Energy and Environment - the 2nd KIT Innovation Day in China

The careful use of resources such as water, air or raw materials, as well as the containment of global climate change are urgent challenges of society. The Intergovernmental Panel on Climate Change (IPCC) sees humans as the main cause: They release greenhouse gases, such as CO2, into the atmosphere, which leads to noticeable changes in the climate system. According to the European Commission, one of the main emitters of carbon dioxide is China. The second KIT Innovation Day in China was therefore dedicated to energy and environment. Five experts from Karlsruhe Institute of Technology (KIT) presented their work to raise awareness of current challenges. The aim was to create a dialogue on common research interests and cooperation opportunities. Topics included environmental and energy management at KIT, sustainable planning of cities, their buildings and industry, water quality monitoring methods, water treatment and resource management. Furthermore, it dealt with the safety of nuclear reactors, nuclear disposal, radiation protection and security vulnerabilities. Participants were also able to find out about some of KIT’s successful developments in the areas of energy and environment, such recycling phosphorus from wastewater, organic solar foils or a sensor that measures the fine dust concentration in the air via smartphone. In addition, Professor Yong Geng, Director of Environmental Science and Engineering at Shanghai Jiao Tong University, discussed the health effects of high levels of CO2 in major Chinese cities.

KIT Innovation Day aims at creating a network between current and future partners in order to connect them in a platform for new collaborations and in-depth discussions. The event took place at GAMI, since in addition to Industry 4.0, we focus on the resource efficiency of Chinese supply chains and social responsibility of German companies. GAMI holds events to share technology and information about the valuable topics regularly. For more details, please contact Ms. Wang Pei (wang.pei@silu.asia), or visit our website www.silu.asia.

Industry 4.0 Innovation Center OPEN DAY 2017

The last open day event of 2017 was held on November 30th, 2017. Around 30 attendees from 13 companies participated for a deep knowledge sharing regarding the topic of Industry 4.0 in order to get inspiration for the improvement of daily work. Afterwards, customized workshops for this topic have been conducted for several companies separately in the following days. Due to the manufacturing transformation requests in china, industry companies have been paying more attention on how to find proper solutions related to the topic of smart manufacturing to achieve their short or long terms goals.

We have organized this event quarterly since the setting up of our Industry 4.0 Demonstration and Innovation Center. Each time Industry 4.0 related knowledge was passed on to local Chinese customers who had high interests in this relevant topic.
The Industry 4.0 Demonstration and Innovation Center serves as a platform for advanced training sessions for Sino-German enterprises in the field of production management, quality management and lean logistics enabled by Industry 4.0. Industry 4.0 solutions are part of our consulting services to upgrade your production system to a cyber-physical production with guaranteed tangible benefits.

We will continue the event in 2018. If you are interested in participating, please send an email to info@silu.asia.