Gründung der deutsch-chinesischen Forschungsplattform SILO
Development of GAMI and KIT China Branch

Tobias Arndt
Bonn, 2017-11-21
Agenda

1. Introduction to Project SILO
2. Current Status of GAMI and KIT China Branch
3. Summary and Outlook
Project SILO (2011-2014)
Targets and Focus

- Targets
  - Conceptional design of a Sino-German production science research platform
  - Developing necessary infrastructure / research structure
  - Establishment of a Sino-German training center
  - Establishment of a student exchange program
  - Development of a KIT incubator in China

- Focus
  - Collaborative research projects with German SME in China
  - Education and training programs
  - Student Exchange
Project SILO

Challenges Phase 1 (2011-2012)

- Concept with a long-term growth and development perspective
- Attractiveness for Chinese partners to cooperate
- Hiring of Chinese staff
- Ability to conclude contracts in China, for example for office space
- Billing in China
- Compliance requirements of German project partners
- Legal appearance in China
- Positive perception towards potential project partners

Foundation of SILU Ltd. (Wholly Foreign-Owned Enterprise) as structure for long term development
Project ResQ
Exemplary Applied Research Project 2012-2014

Sponsor
Federal Ministry for Economic Cooperation and Development

Steering Committee
(SILU/GAMI)

Strategic Alliance

WÜRTH  BOSCH  SIEMENS

GILDEMEISTER  B/S/H/

ResQ-Trainings
Mind-Setting trainings for resource efficiency

ResQ-Workshops
Resource efficiency workshops

ResQ-On-Site
supplier-quality audits and supplier development

Applied research work together with German partners and Chinese companies in the supply chain
Project SILO
Challenges Phase 2 (2013-2014)

- Expansion of the research platform from institute level to university level
- Relatively clear leadership function on the German side, with several and changing university partners on the Chinese side
- Installation of permanent employees in China for the development of the project idea
- Structural and organizational anchoring of the research platform in the German organization
- Long-term funding
- Personnel continuity, since especially in China a relationship building is very time-consuming and tedious

Foundation of KIT China Branch in order to enhance visibility and brand recognition in China
KIT China Branch

Goals

- establish sustainable networks with partners from the SIP and the Higher Education Town for joint projects and activities
- increase visibility and empower activity of KIT in Suzhou / surrounding region
- assure the flow of talented recruits by implementing additional training and course programs on-site
- support the active partnership between Jiangsu and Baden-Württemberg
- set up a beneficial frame for joint activities

Grand opening of KIT China Branch in 2014
KIT China Branch
Grand Opening in May 2014
Agenda

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Location

Suzhou Industrial Park (SIP)

**Industrial Layout**
- GDP (2016): 215 billion RMB
- 5,800 Foreign Enterprises
- 10,000 Domestic Enterprises
- 156 Projects from Fortune 500 companies
- 2,000 European and American companies

SIP provides optimal infrastructure and surrounding for KIT China Branch

**Suzhou Education Innovation District (SEID)**
- 25 km² Planned Area
- 28 Universities + 1 national institute
- 182 Science & Technology Platforms
- 78,500 Students
- 20,000 Postgraduates and PhDs
Vision & Missions

**Missions**

**Research**
- Being a knowledge leader in smart and global manufacturing

**Industry**
- Enhancing the level of smart and global manufacturing capabilities

**Training**
- Developing high quality people and organizations

**Vision**
Deliver individual strategies and solutions for our partners to reach operational excellence and create a long-term and sustainable benefit by researching, consulting and training in close cooperation with KIT as a partner for joint Sino-German innovation.
The research background of GAMI enables the development of innovative solutions.
**GAMI Industry Structure**
Enhancing the level of smart and global manufacturing capabilities

<table>
<thead>
<tr>
<th>Competence Fields</th>
<th>Sourcing &amp; Localization</th>
<th>Supplier Development</th>
<th>Quality Management</th>
<th>Production Management</th>
<th>Logistics Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Huang Bin</td>
<td>Zhang Ningning</td>
<td>Guo Mengchao</td>
<td>Chen Lu</td>
<td>Shen Chunfeng</td>
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<table>
<thead>
<tr>
<th>Industries</th>
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<tbody>
<tr>
<td>Home Appliances</td>
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<tr>
<td>Machine Building</td>
</tr>
<tr>
<td>Electronics</td>
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<tr>
<td>Automotive</td>
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Smart Manufacturing and Industry 4.0

GAMI supports in the whole value adding process.
GAMI Engineering Services
Cooperation Partners

Sourcing and Localization  Supplier Development  Quality Management  Production Management  Logistics Management

GAMI relies on strong partnerships with international companies.
GAMI Training Programs
Developing high quality people and organizations

**Open Courses**
- State of the art training materials
- Integration of real project examples
- Games in realistic environment

**In-house Trainings**
- Customized training content to meet specific requirements
- Integration of local practices
- Case Studies in on-site production system

**Manufacturing Workshops**
- Customized training content to meet specific requirements
- ½ Training + ½ On-site Improvement
- Embedded in project work

- More than 500 trained days every year since 2011
- More than 30 days in-house Trainings every year since 2011
- More than 50 manufacturing workshops every year since 2011

+ University programs at KIT Hector School (Quality and Supplier Management) and IBSS of Xian Jiaotong Liverpool University (Global Production)

Combined educational approach (project work and training) is one of GAMI’s strengths.
Industry 4.0 Demonstration and Innovation Center
Application-oriented Trainings and Consulting
Industry 4.0 Demonstration and Innovation Center
Visitors in 2016

1190 visitors

- Companies: 56%
- Institutes: 14%
- Government Officials: 12%
- Others: 18%

Visitors in 2016

- Customized training programs
- Industry 4.0 Knowledge Sharing Events
- Innovation Center Open day
- Commercial & Technical exchange activities
Industry 4.0 Demonstration and Innovation Center
Collaboration Model – Partnership

<table>
<thead>
<tr>
<th>Current Partners</th>
<th>Benefits</th>
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<tbody>
<tr>
<td></td>
<td>Professional trainings</td>
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<td></td>
<td>- Application oriented training program conducted by highly experienced staff</td>
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<td></td>
<td>Customized solutions</td>
</tr>
<tr>
<td></td>
<td>- Adjusted case studies based on your technological solutions</td>
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<tr>
<td></td>
<td>Industry 4.0 concepts</td>
</tr>
<tr>
<td></td>
<td>- Knowledge and experience regarding state of the art Industry 4.0 solutions</td>
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<tr>
<td></td>
<td>Sustainable collaboration</td>
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<td></td>
<td>- Roadmap for implementation of smart manufacturing concepts in your production</td>
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An individual partnership model can be based on customized training topics and consulting services.
Ongoing Projects
DAAD StratP

- Nanjing University of Science and Technology – NUST
  Material-/ Nanoscience

- Tongji Universität Shanghai – TUS
  Mobility Systems, Production Sciences

- Soochow University – SUDA
  Social Sciences, Production Sciences

- Shanghai Jiao Tong University - SJTU
  Materials & Biotechnology

Setting up an innovation platform in Jiangsu and the metropolitan region of Shanghai
## Ongoing Projects

### Sustain: Corporate Social Responsibility and & Sustainability

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Operational Objectives</th>
</tr>
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<tbody>
<tr>
<td>High costs of supplied parts</td>
<td>Lever cost optimization potentials in manufacturing and logistics</td>
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<tr>
<td>Quality issues of supplied parts</td>
<td>Ensure fulfilment of planned quality targets with QM methods</td>
</tr>
<tr>
<td>Low supplier delivery capability and reliability</td>
<td>Ensure on-time-delivery through efficiency and quality monitoring</td>
</tr>
<tr>
<td>Newly introduced or intensified CSR policies</td>
<td>Ensure improvement in CSR-Maturity levels</td>
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### Objectives

- **Cost optimization**
- **Machine Efficiency**
- **Quality Tracking**
- **CSR-Maturity**

### Procedure

1. **Supplier Sourcing**
   - Customer consultation
   - Supply Market Analysis
   - Rapid Plant Assessment
2. **Supplier Assessment**
   - Short List
   - Nomination
3. **Supplier Enabling**
4. **Supplier Development**

### Partners

- **wbk Global Advanced Manufacturing Institute**
- **WÜRTH**
- **SIEMENS**
Ongoing Projects

DrAgon: Development of an advanced training system for China

**Project Target**

**Motivation**
- Shortage of skilled labor in China in production engineering areas
- Increasing demands on the qualification of employees
- Lack of education programs in the field of production
- High expertise in production in Germany
- High recognition of German VET systems in China

**Target**
- Development of a training and continuing education system on production engineering topics, offering certified degrees at various levels

**Approach**

**Analysis**
Market and requirements analysis for engineering education services in China

**Concept**
Development of a training portfolio and an associated infrastructure

**Implementation**
Market implementation of the portfolio after test run and evaluation of a pilot course

**Consortium**

**Industry**
- WBZ
- DLR
- vitero

**Sponsor**
- Bundesministerium für Bildung und Forschung

**Research**
- Fraunhofer IAO
- CCAD
- GAMI
- wbk
Ongoing Activities

Impressions

- Hosting of yearly KIT Innovation Day
- Conduction of alumni seminars
- Conduction of 1-week technical training for MBA course at KIT International Department
- Hosting of conferences on innovation and internationalization

KIT brand offers high recognition in China
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Summary

History of GAMI and KIT in China

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>2005</td>
<td>First projects in China were conducted by wbk</td>
</tr>
<tr>
<td>2008</td>
<td>Foundation of GAMI Global Advanced Manufacturing Institute as wbk-Representative at Linping, Hangzhou</td>
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<tr>
<td>2009</td>
<td>YADE Project: Supplier Development in Labor Safety and Quality</td>
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<tr>
<td>2010</td>
<td>SILO Project: Establishment of a Production Science Research Platform</td>
</tr>
<tr>
<td>2011</td>
<td>Foundation of Suzhou SILU Production Engineering Services Ltd., Co. and relocation to Suzhou Industrial Park</td>
</tr>
<tr>
<td>2013</td>
<td>DrAgon Project: Advanced Training Program for Production Management</td>
</tr>
<tr>
<td>2014</td>
<td>Foundation of KIT China Branch and relocation to Science and Education Innovation District</td>
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<tr>
<td>2015</td>
<td>Opening of Industry 4.0 Demonstration and Innovation Center and SUSTAIN Project: Corporate Social Responsibility</td>
</tr>
<tr>
<td>2016</td>
<td>SPPC Project: Lean Production and Smart Manufacturing</td>
</tr>
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</table>

The project SILO was a cornerstone of the success of GAMI and KIT in China
Outlook

Long-term vision for other KIT modules

- KIT China Branch (400 m²)
- Industry 4.0 Innovation Center (500 m²)
- For Rent (300 m²)
- For Rent
## Outlook

### 3rd party funded projects

<table>
<thead>
<tr>
<th>Industry 4.0 Factory Automation Plattform</th>
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<tr>
<td>- Joint Project between KIT and Tongji University for designing and evaluation turnkey production systems for the Chinese Market</td>
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<td>- Professional trainings on Industry 4.0 for Chinese talents in the supply chain of German companies</td>
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<th>KIT CuLTURE</th>
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<tbody>
<tr>
<td>- Training courses for KIT in order to increase the China competences of the associates in business, culture and language</td>
</tr>
</tbody>
</table>
Thank you for your attention!

Suzhou SILU Production Engineering Services Co., Ltd.

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