Dr. Konstantin Konrad, Coordinator of the EU-Score Project
Jakob Michelmann, Dr. Leo Wangler

Cross-sectoral competitiveness aspects of the European transport manufacturing industry

VDI/VDE – Innovation + Technik GmbH
Future Mobility and Europe
Steinplatz 1 | 10623 Berlin | Germany
LEADERSHIP UNDER PRESSURE

Societal trends shape demand

Individualization

Mobility-as-a-Service

Constant Connectivity

Servitisation

EU-TRANSPORT MANUFACTURING INDUSTRY

© oneinchpunch/Fotolia
LEADERSHIP UNDER PRESSURE

EU-TRANSPORT MANUFACTURING INDUSTRY

TECHNOLOGY

Additive Mfct.
Electrification
Digitalization
Automation
Artificial Intelligence

© Patrick P. Palej /Fotolia
LEADERSHIP UNDER PRESSURE

POLICY

Regulations

Automation

CO2/NOX

Infrastructure

Protectionism

EU-TRANSPORT MANUFACTURING INDUSTRY

© kichigin19/Fotolia
ENABLE COMPANIES & POLICY MAKERS TO CONCLUDE ON EFFECTIVE PUSH-& PULL MEASURES FOR FUTUREhifts
SELECTION OF CRUCIAL COMPETITIVENESS THEMES

AUTOMOTIVE

TECHNOLOGY ANALYSIS

Automation

Value Chain Dynamics
New players, new products, new services...

Qualified Workforce
There is a high necessity for qualified employees

New Paradigms
How does AI change CAD & TMI?

© pro500/Fotolia
© Roman Dekan/Fotolia
© ktsdesign/Fotolia
SELECTION OF CRUCIAL RESEARCH QUESTIONS

DEMAND ANALYSIS

Urbanization

How does urbanization influence ownership models and vehicle features?

© metamorworks/Fotolia

AUTOMOTIVE

COMPETITION ANALYSIS

Value Added

Uber, Tesla, etc vs. conventional OEMS

© scharfsinn86/Fotolia
Exemplary topic: Industry 4.0 for automotive production

Industry 4.0 is a topic with high relevance for industrial production today and in the future.

- Meta-Study of various publications
- European initiatives
- Comparison with status in the U.S. and China
- **SCORE**: Europe has a competitive advantage in comparison

Source: Digitising European Industry. Launch Smart Anything Everywhere Initiative.
Snapshot of the SCOREBOARD

www.transport-scoreboard.eu
Risk Analysis / Expert survey

Risk Landscape of the European Transport Manufacturing Industry

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>China as a Competitor</td>
<td>4.2</td>
</tr>
<tr>
<td>Shortage of Workers</td>
<td>3.9</td>
</tr>
<tr>
<td>New Entrants</td>
<td>3.8</td>
</tr>
<tr>
<td>Protectionism</td>
<td>3.8</td>
</tr>
<tr>
<td>New Business Models</td>
<td>3.7</td>
</tr>
<tr>
<td>Cyber Incidents</td>
<td>3.5</td>
</tr>
<tr>
<td>Border Taxes on Imports</td>
<td>3.4</td>
</tr>
<tr>
<td>Substitutes</td>
<td>3.3</td>
</tr>
<tr>
<td>Financial/Trade Sanctions</td>
<td>3.3</td>
</tr>
<tr>
<td>Failure of Critical Infrastructure</td>
<td>2.9</td>
</tr>
<tr>
<td>Negative Effects of New Technologies</td>
<td>2.6</td>
</tr>
</tbody>
</table>
Advanced Microsystems technological basis to secure competitiveness for European Manufacturing Industry

- Hydrogen-Powered Trains
- Urban Energy-Efficient Propulsion
- Autonomous Train
- Servitization...

- Alternative propulsion technologies
- Digitisation
- MRO Services
- Cyber physical systems...

- Chips for Artificial Intelligence
- Cyber-physical systems
- Energy Infrastructure
- Autonomous Driving...

- Deep sea mining vessel
- Hybrid propulsion
- Advanced Emission Abatement
- Smart Ship...
Main conclusions of SCORE

- Fundamental change in mobility demand
- China as an opportunity but also as a challenge
- Highly-qualified workforce
- Advanced Manufacturing Technologies
- Though-Life Engineering Services (Servitisation)
- Cross-sectoral collaboration

Expert survey results of SCORE illustrating the rising need for employees while already expecting a shortage of skilled staff.
How competitive is Europe?

SCOREBOARD – all modes
www.transport-scoreboard.eu

Competitiveness of the European automotive manufacturing industry, 100 pages (2018)
Konstantin Konrad/ Sebastian Stagl/ Edgar Krune/ Jakob Michelmann/ Beate Müller/ Mathias Müller/ Leo Wangler/ Guido Zinke
www.iit-berlin.de
Thank you!

Any questions?