AWARDS CEREMONY

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OF THE 4th INDUSTRIAL REVOLUTION

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汇聚激情 *WHERE PASSION*

追求理想, *AND AMBITIONS MEET,*

表现卓越 *PERFORMANCE FOLLOWS*

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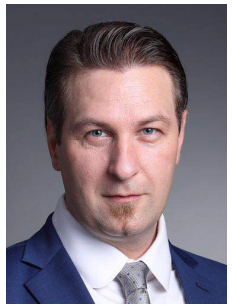
JURY

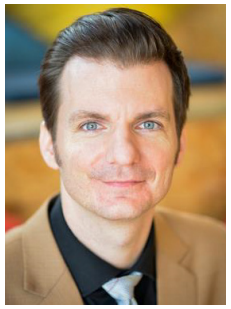
PROF. XIANGQUN CHEN
BEIJING UNIVERSITY

JAMIE LIN
ADVANTECH

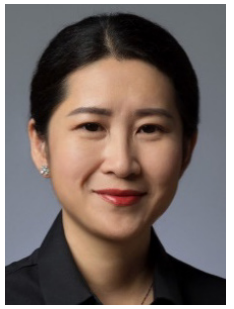


MICHAEL HACKL
INFOTEAM

GEORG STIELER
STM



TIMO SCHNEEMANN
ROI



LORA XIE
RINGIER

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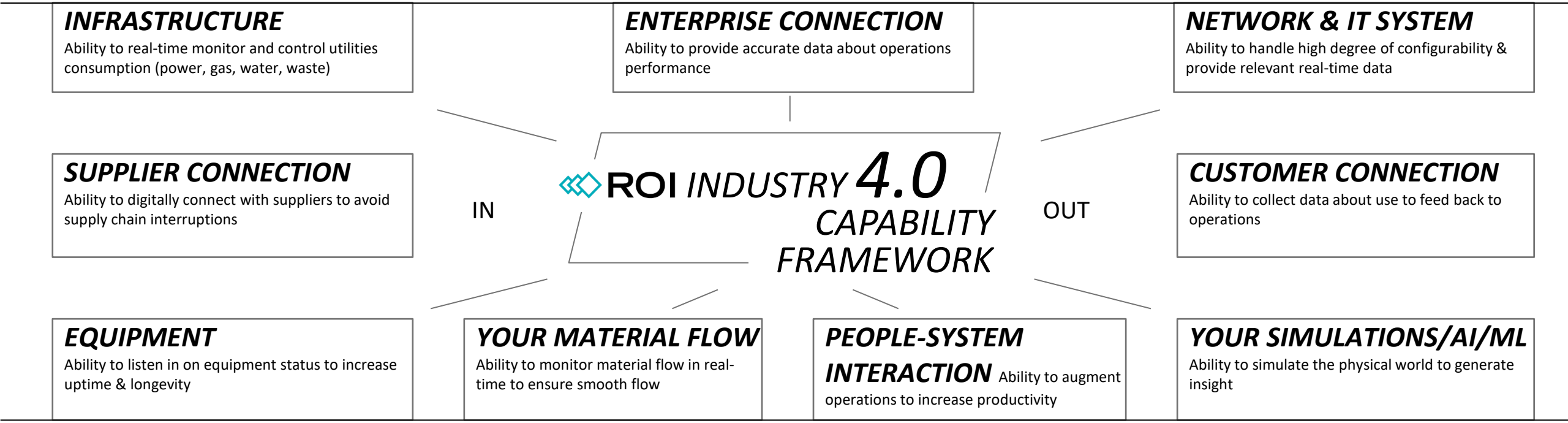
Scoring reference



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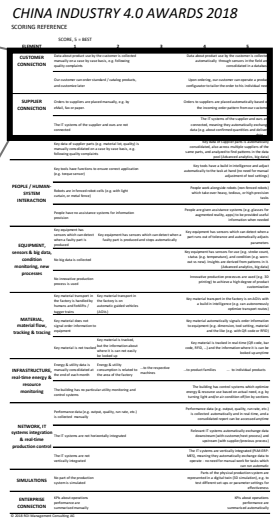
ELEMENT	SCORE, 5 = BEST 1	2	3	4	5
CUSTOMER CONNECTION	Data about product use by the customer is collected manually on a case by case basis, e.g. following quality complaints				Data about product use by the customer is collected automatically through sensors in the field and consolidated in a database
	Our customer can order standard / catalog products, and customize later				Upon ordering, our customer can operate a product configurator to tailor the order to his individual need
SUPPLIER CONNECTION	Orders to suppliers are placed manually, e.g. by eMail, fax or paper.				Orders to suppliers are placed automatically based on the incoming order pattern from our customer
	The IT systems of the supplier and ours are not connected				The IT systems of the supplier and ours are connected, meaning they automatically exchange data (e.g. about confirmed quantities and delivery date, …)



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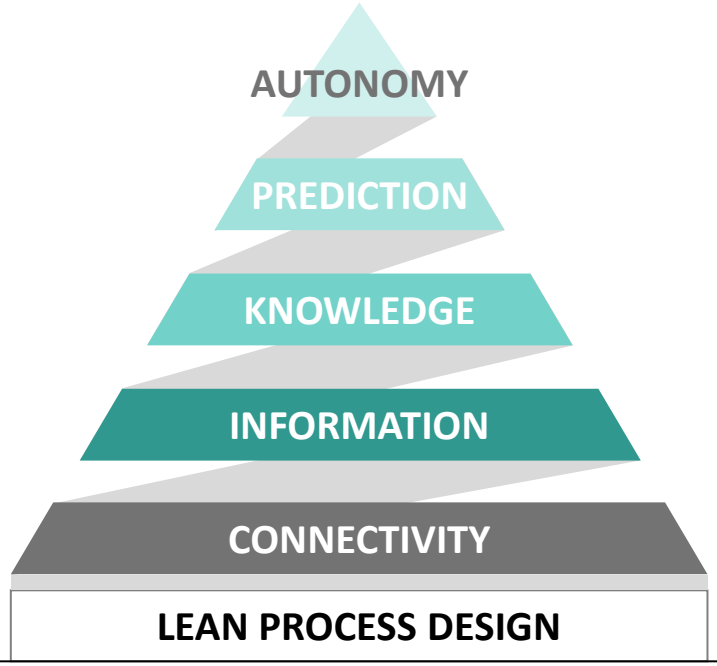
Capability levels



The system runs **without intervention** within operating range

It is possible **to make predictions**

Data is automatically consolidated to **generate insight**

Data is **easily accessible** for the people who need it

Relevant machine & process data **is collected**

Value. Challenge. Right first time. Flow. Takt. Pull.

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2018

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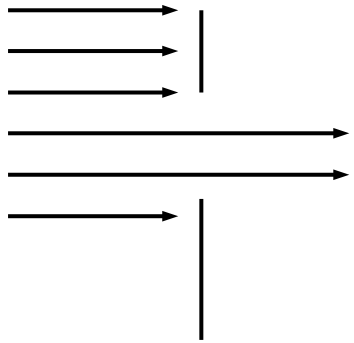

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Jury evaluation

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CHAMPIONS OF 2018

Mercedes-Benz 北京奔驰汽车有限公司 BEIJING BENZ AUTOMOTIVE CO., LTD. GOLD	BOSCH GOLD	IKD 爱柯迪 GOLD	rexroth A Bosch Company GOLD	JCTIMES 精诚 From dreams to reality SILVER	HAITIAN PLASTICS MACHINERY SILVER
SMART FACTORY *CATEGORY BEST MAINTENANCE*	***SMART FACTORY*** *CATEGORY BEST USE OF DATA*	***SMART FACTORY*** *CATEGORY BEST DATA ACCESSIBILITY*	***SMART FACTORY*** *CATEGORY BEST ENERGY MANAGEMENT*	***SMART FACTORY*** *CATEGORY IT SYSTEM INTEGRATION*	***SMART FACTORY*** *CATEGORY INTELLIGENT AUTOMATION*

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Mercedes-Benz
北京奔驰汽车有限公司
BEIJING BENZ AUTOMOTIVE CO., LTD.

GOLD

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SMART FACTORY CATEGORY
BEST MAINTENANCE

Innovation & development of iTPM to increase uptime

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BOSCH

GOLD

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SMART FACTORY CATEGORY
BEST USE OF DATA

Predictive analytics to improve tool utilization

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IKD 爱柯迪

GOLD

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SMART FACTORY CATEGORY

BEST DATA ACCESSIBILITY

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Real-time information at point of use to empower system operation

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rexroth
A Bosch Company

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SMART FACTORY CATEGORY
BEST ENERGY MANAGEMENT

Real-time utility monitoring to optimize resource utilization

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JCTIMES 精诚
From dreams to reality 创 您 所 想

SILVER

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SMART FACTORY CATEGORY
IT SYSTEM INTEGRATION

Vertical integration to provide order information in real-time

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HAITIAN
PLASTICS MACHINERY

SILVER

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SMART FACTORY CATEGORY
INTELLIGENT AUTOMATION

Automated manifold production for high productivity

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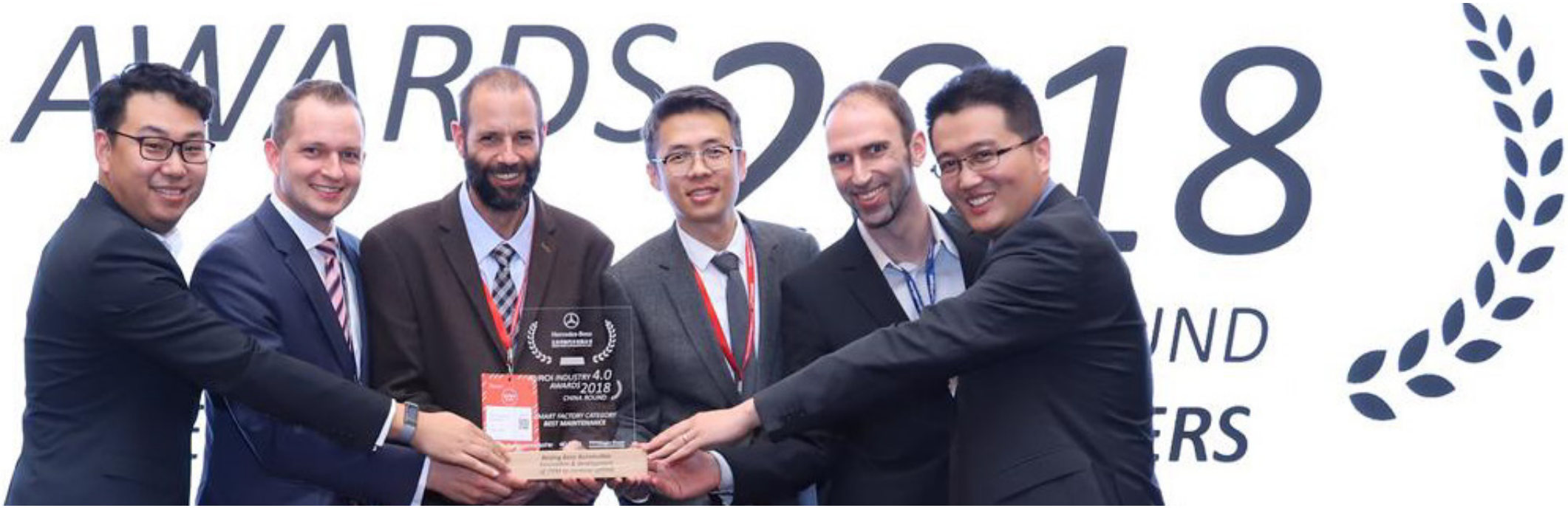

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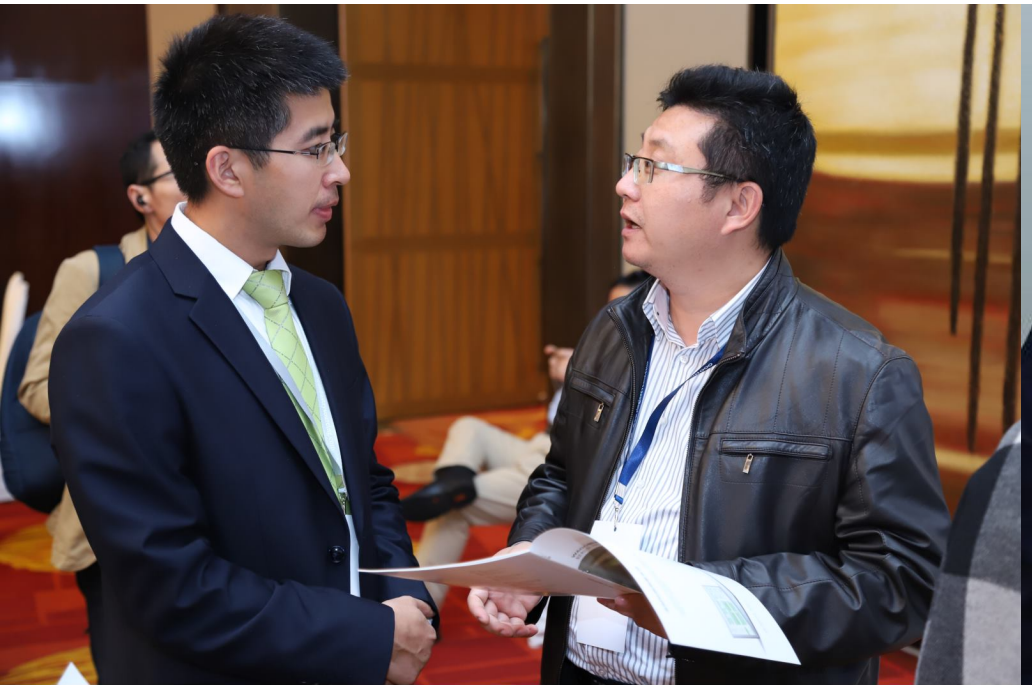

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CATEGORY
NANCE

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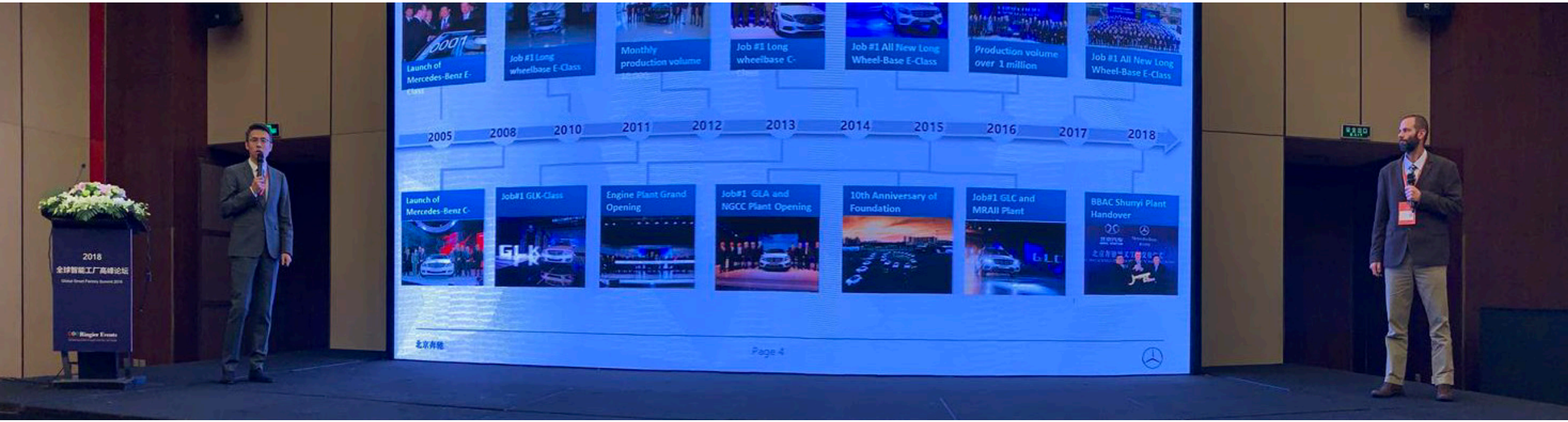

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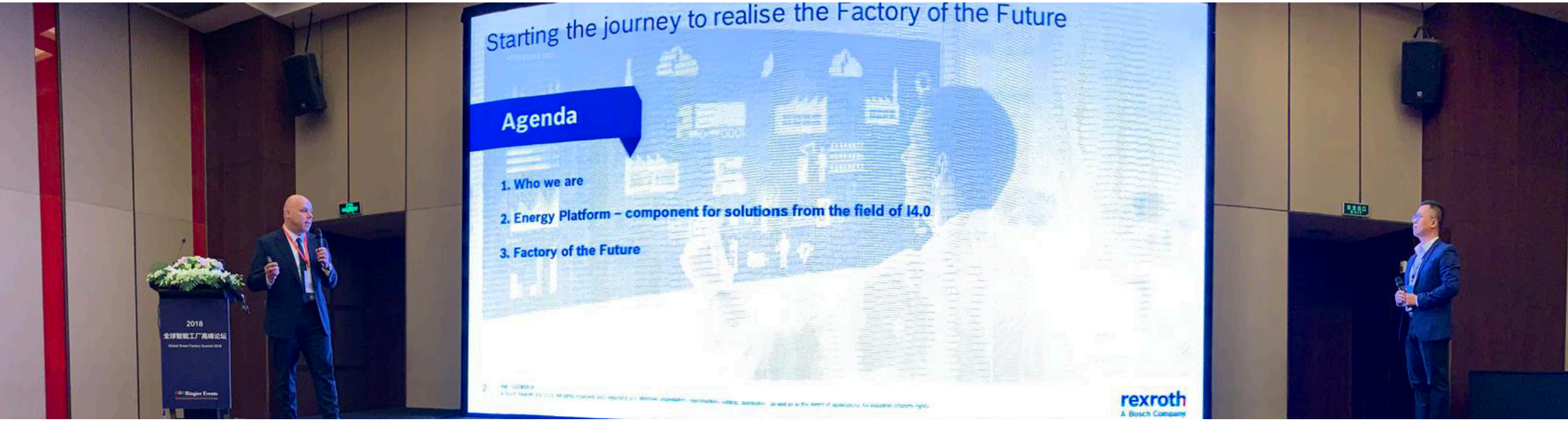

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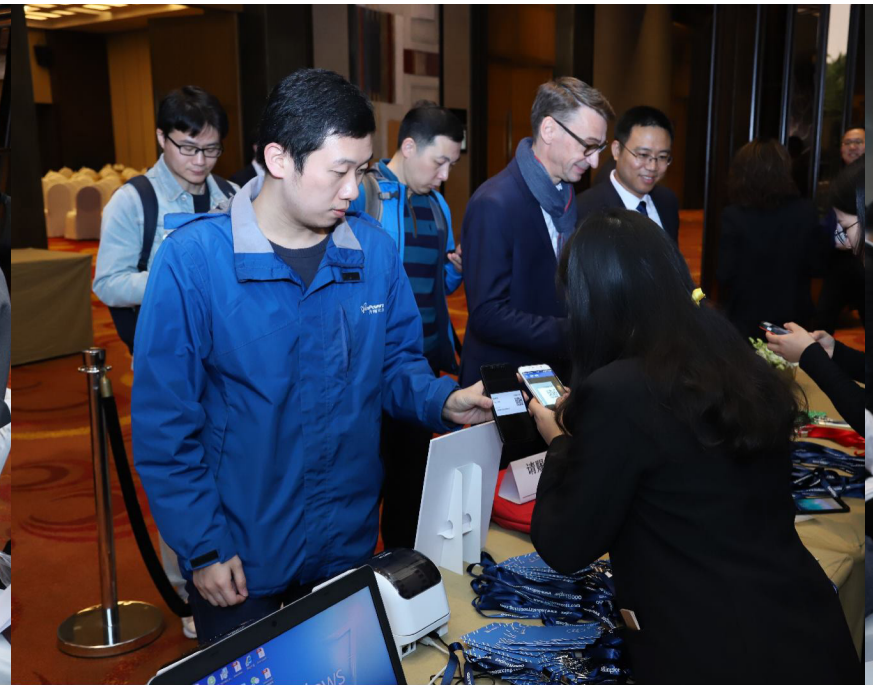

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COMPANY ***Beijing Benz Automotive Co., Ltd.***

TOPIC **SMART FACTORY:** CATEGORY BEST MAINTENANCE
Innovation & development of iTPM to increase uptime

WINNER INTRODUCTION

The maker of premium cars impressed the Jury with digitalization in central maintenance which makes use of modern IT solutions for data gathering, analytics, reporting, and process improvement to increase equipment uptime. It covers a wide array of topics, from process & machine data collection, real-time monitoring of energy consumption, automatic leakage detection, a collaboration system for topics & actions management, to condition monitoring of gantry motors to predict failure modes.
Moreover, with the Award the Jury recognizes Beijing Benz for the strong process foundation in the form of a custom-tailored total productive maintenance system, the deployment of IT solutions to interconnect relevant systems, the deep integration with production, the use of smart glasses for remote support, and for making advances into 3D printing of spare parts.

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公司 ***北京奔驰***

主题 **智慧工厂:** 最佳维护类
杰出案例: 创新开发iTPM系统提高设备正常运行时间

介绍

这家高端汽车制造企业实现了数字化集中式维护，利用先进的IT解决方案进行数据收集、分析、报告和流程改进, 极大的提高了设备的正常运行时间，给评审团留下了深刻印象。该案例涵盖了诸多内容, 包括过程和设备的数据收集, 实时监测能源消耗, 自动泄漏检测, 一套管理行动内容和进度的协作系统, 监测龙门电机状态并预测失效模式等。

此外，评审团对北京奔驰建立的强大的过程基础深表赞许，具体体现在定制化的全员生产维护系统，通过部署IT解决方案实现相关系统互联，与生产深度集成，通过智能眼镜进行远程支持，并在实现备件3D打印方面取得了进展。

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COMPANY ***Bosch Automotive Diesel Systems, Wuxi***

TOPIC **SMART FACTORY:** CATEGORY BEST USE OF DATA
Predictive analytics to improve tool utilization

WINNER INTRODUCTION

The maker of automotive diesel systems including common rail injectors and exhaust gas treatment components impressed the Jury with an outstanding level regarding the use of data throughout the factory to improve manufacturing performance. In particular, a unique model has been developed to improve the utilization of cutting tools with data analytics which is also capable of balancing tool costs against equipment downtime.
Moreover, with the Award the Jury recognizes Bosch Wuxi for their comprehensive upgrading strategy & roadmap which consists of 35 projects across all value streams, e.g. multiple instances of condition monitoring, a system to optimize utility consumption, the use of RFIDs for spare parts tracking, data mining for first pass yield improvement, scenario based load balancing, dynamic bottleneck analysis, and making advances into mixed-reality applications with smart glasses for operator guidance.

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公司 ***博世汽车柴油系统股份有限公司, 无锡***

主题 **智慧工厂:** 最佳数据应用类
杰出案例: 基于预测性分析提高刀具利用率

介绍

该汽车柴油系统制造商主要生产共轨喷油器和废气后处理系统组件等产品，评审团对其高水平使用数据系统提高工厂运营表现的案例印象非常深刻。特别是他们开发的独特模型来提高刀具利用率，模型中所使用的数据分析方法可以很好的平衡刀具成本与设备停机时间。

此外，评审团也非常认同博世无锡制定的全面升级战略&路线图，该战略包括覆盖整个价值链的35个项目，例如关于条件监测的多个应用实例，一个优化设施能源消耗的系统，使用RFID技术进行备件跟踪，数据挖掘提高一次通过率，针对不同场合的负载均衡，动态瓶颈分析，并利用智能眼镜为操作员提供指导, 进一步发展混合现实的实际应用。

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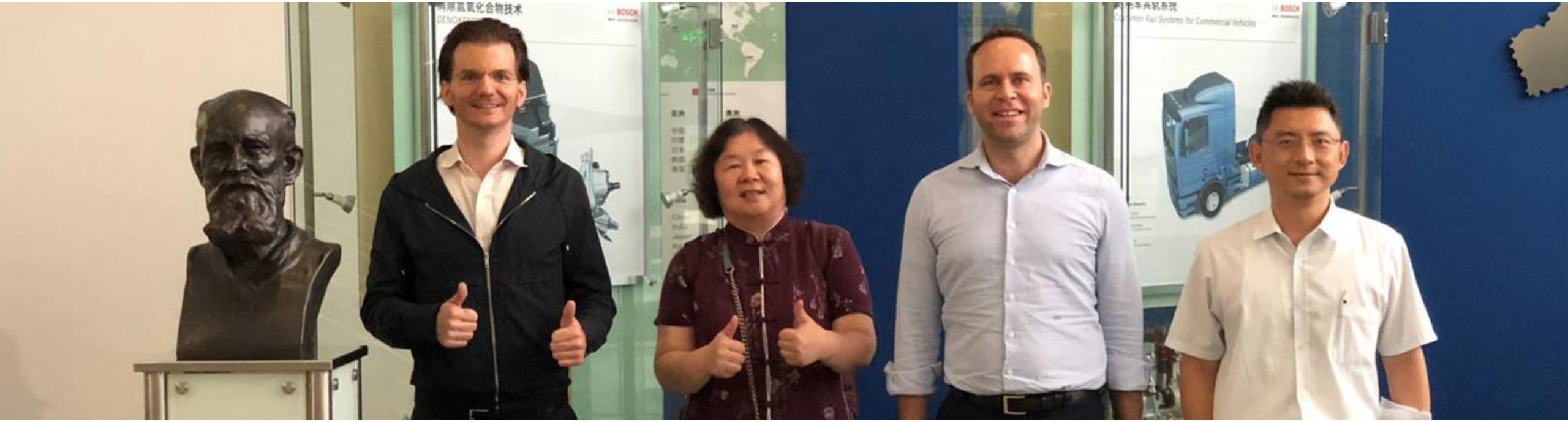

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COMPANY ***IKD, Ningbo***

TOPIC **SMART FACTORY:** CATEGORY BEST DATA ACCESSIBILITY
Real-time Information at point of use to empower system operation

WINNER INTRODUCTION

The maker of high-precision aluminum die casting components for the automotive industry impressed the Jury with a self-developed information system, succinctly called the TouchNet. 450 of these terminals are present throughout the factory and allow users to access real-time operations information through a user-friendly interface. The system is build on a strong foundation of thorough data collection, capturing e.g. 72 process parameter on one type of machine alone.

Moreover, with the Award the Jury recognizes IKD for their remarkable combination of lean process design with technology capabilities from the fourth industrial revolution, e.g. by having set-up one-piece-flow machining cells with networked machinery, robotics, and real-time monitoring of machine & performance data.

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公司 ***爱柯迪，宁波***

主题 **智慧工厂:** 最佳数据访问类
杰出案例: 现场实时数据采集助力系统运营

介绍

该企业主要面向汽车行业提供高精度铝压铸部件，他们自主开发了一套信息系统, 简称为TouchNet，该系统将厂内450个终端进行连接并显示其状态, 用户可以通过友好的界面实时获得运行信息，令人印象深刻。这个系统建立在完整的数据收集和采集的强大基础之上, 例如可对某一类设备监测其72个过程参数。

此外, 评审团对IKD将精益流程设计与工业4.0技术能力相结合深表赞许, 例如, 该企业建立的单件流机加工单元线实现了设备联网、引入了机器人, 并对设备&性能数据实施监测等。

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COMPANY ***Bosch Rexroth, Beijing Plant***

TOPIC **SMART FACTORY:** CATEGORY BEST ENERGY MANAGEMENT
Real-time utility monitoring to optimize resource utilization

WINNER INTRODUCTION

The maker of drives and controls for machines of any size impressed the Jury with a real-time utility monitoring system which is able to optimize resource provision & consumption throughout the entire plant. Built with network connected meters, real-time workload conditions are sensed and utility provision is regulated accordingly, e.g. for chilled water supply, compressed air, and electricity. This results in an exceptionally efficient and clean factory footprint with zero impact on the environment.

Moreover, with the Award the Jury recognizes Bosch Rexroth for their comprehensive industry 4.0 strategy & roadmap which covers all aspects of operations, e.g. product machine communication, RFID based material flow tracking, condition monitoring, and a unified user interface for data access and optimization called ActiveCockpit.

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公司 ***博世力士乐, 北京***

主题 **智慧工厂:** 最佳能源管理类
杰出案例: 设施实时监控优化资源利用

介绍

该公司作为全球主流的液压产品及技术解决方案的供应商，主要为工程机械提供液压泵、马达、液压控制元件及减速机产品。他们在整个工厂建立了可以监测到设备/设施端的实时监控系统，从而优化整个工厂的能源供应和消耗，令评审团印象深刻。通过网络连接各种仪表, 可以实时检测设备能耗, 进而相应地调节能源供应设备的供应状况, 如冷却水、压缩空气和电力供应等。最终实现了非常高效和清洁的工厂排放, 最低程度地减少了对环境的污染。

此外, 博世力士乐北京工厂正在执行非常完整的工业4.0 战略和智能工厂升级规划, 该战略涵盖了生产运营的各个方面, 从产品及设备通信到基于RFID技术的物料流跟踪, 在线主轴振动监控等, 都被整合在统一的动态智能生产信息版中，实现了数据访问的实时性、友好性和通用性，这一系统正是博世力士乐自己研发的“ActiveCockpit”。

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COMPANY ***JC Times, Taizhou***

TOPIC **SMART FACTORY:** CATEGORY IT SYSTEM INTEGRATION
High degree of vertical integration to provide order information in real-time

WINNER INTRODUCTION

The maker of plastic extrusion dies like sheet/foil dies, hollow profile dies, and coating dies impressed the Jury with a strong vertical integration of its IT system which is capable of providing a wide array of factory information in real-time, e.g. order information and machine status. It consists of a self-developed data capturing and provisioning platform with fully customizable views and a user-friendly interface.

Furthermore, JC Times is recognized for its modern manufacturing site with state-of-the art infrastructure, for example a geothermal energy system to provide heating and cooling for the factory.

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公司 ***精诚时代, 台州***

主题 **智慧工厂:** 最佳IT系统集成
高度垂直集成实现实时订单信息提供

介绍

该企业主要生产塑料挤出模具, 如板片材/薄膜模具、中空板模具和涂覆模具等, 使评审团印象深刻的是, 该企业的 IT 系统具有强大的垂直整合能力, 能够实时提供大范围的工厂信息, 例如订单信息和设备状态等。该系统由企业自主开发的数据采集和配置平台组成, 可以实现完全可自定义视图和建立用户友好的界面。

此外, 精诚时代的现代化制造基地拥有的先进基础设施，例如配套了地热能源系统为工厂提供供热和冷却等，从而获得了大家的广泛赞誉 。

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COMPANY ***Haitian, Ningbo***

TOPIC **SMART FACTORY:** CATEGORY INTELLIGENT AUTOMATION
Automated manifold production for high productivity

WINNER INTRODUCTION

The maker of injection molding machinery impressed the Jury with an intelligent flexible manufacturing system for manifold production. It consists of an automated raw-material storage, high precision and multi-purpose CNC machinery, material transport on AGVs, and a strong IT system to provide real-time operations data to a control room with an array of 8 flat screen TVs. Furthermore, the machines are sensor-equipped to detect tool wear & tear, are capable of automatic changeovers, and therefore can run without human intervention for most of the time. Haitian also incorporated a cutting tool tracking & management system based on RFID tags for full and accurate recording of tool information over the entire lifetime.

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公司 ***海天塑机, 宁波***

主题 **智慧工厂:** 最佳智能自动化
自动化阀板生产线提高生产率

介绍

该企业是一家注塑机械生产商, 其智能柔性化阀板制造系统给评审团留下了深刻印象。该系统由自动化原材料存储、高精度多用途 CNC 设备、AGVs 物料运输和强大的IT系统组成, 在控制室可以通过8个屏幕实时监测运行数据。

此外, 其生产设备都配有传感器部件, 可以检测刀具的磨损和损坏, 还能够自动换型, 因此大多数情况下设备都可以在无人工干预的情况下运行。海天塑机还建立了一个基于 RFID 标签的刀具跟踪和管理系统, 实现了在整个使用寿命期内全面准确的信息记录。

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