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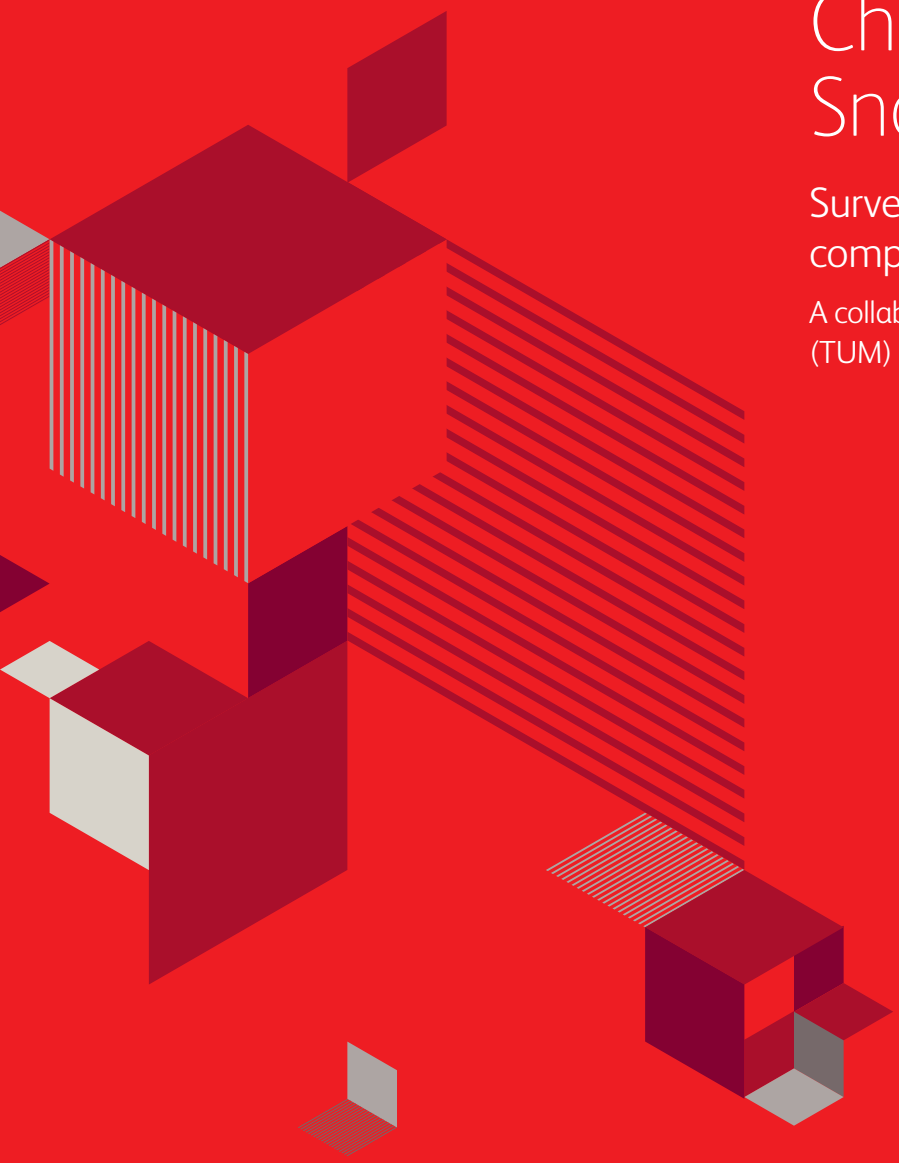

# China Productivity Snapshot 2016

## Survey among manufacturing companies in China

A collaboration between Technical University Munich (TUM) and BearingPoint China

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## In this red paper

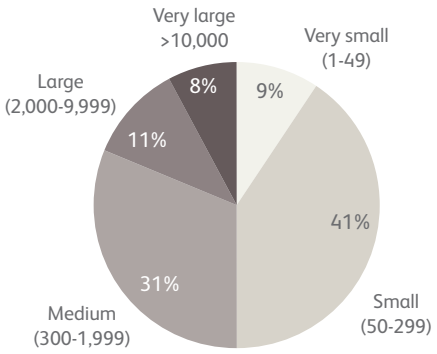
# The Challenge

China's "New Normal" of lower economic growth rates, and the country's orientation towards higher value-added production and stronger domestic consumption entails a transformation process that comes with new challenges for foreign-invested companies in China. The country is no longer the extended workbench of the world. Companies that want to succeed in China need to focus on the domestic market.

One key area affected by these massive changes is the production function. Even though the annual growth of manufacturing is lower than GDP growth, wages in this sector are still rising quicker than in other sectors in China. China's cheap rural labor supply – one of its former competitive advantages – has decreased rapidly in recent years. Moreover, the competition in China's manufacturing sector is intensifying. The "Made in China 2025" campaign, initiated by the Chinese government, seeks to promote more innovation, digitalization and Industry 4.0 practices among all Chinese companies to improve their competitiveness.

Many foreign-invested companies in China are part of the manufacturing sector and are deeply impacted by the current transformation. After years of growth, to remain competitive, they need to consolidate their operations and focus on internal efficiencies more than ever.

PARTICIPANTS BY COMPANY SIZE (NO OF EMPLOYEES)



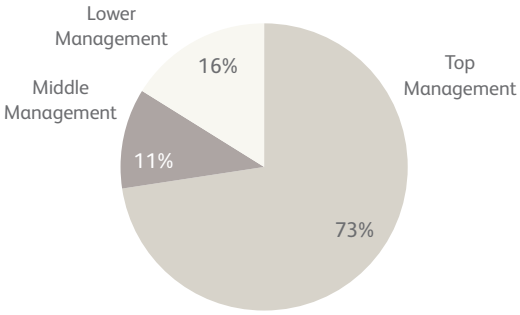

# Survey Approach and Goals

The strong presence of foreign-invested companies in the Chinese manufacturing industry and the big challenges within the industry motivated the study team to take a closer look at the status quo of productivity issues of these firms in the production area.

The main goals of the study were to answer the following questions:

1. How important is it for manufacturing companies in China to increase their productivity?
2. How satisfied are companies with their current approach and methods to tackle productivity issues?
3. What are key barriers and challenges that need to be addressed in order to improve productivity in the production area?
4. What are methods and solutions that helped companies overcome their productivity challenges?
5. How can companies evaluate their current productivity and define appropriate solution concepts in a structured way?

PARTICIPANTS BY MANAGEMENT LEVEL (TOP, MIDDLE, LOW)




64 companies participated in the survey, and four of them agreed to showcase their measures to overcome productivity challenges.

## Case Studies

**Nedschroef Fasteners (Kunshan) – Mentor Program**
How to overcome workforce management productivity issues.

**Polar Postpress Machinery Shanghai – Supplier Collaboration**
How to enhance productivity through strong external collaboration.

**SGL Carbon – Employee Empowerment**
How to benefit from employees' expertise by getting them out of their comfort zone.

**TMD Friction – Standardization**
How to standardize ways of measuring, capturing and solving problems.

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## Key Survey Results

Our survey results confirmed the high importance of the topic. 86% of participants thought that improving the company's productivity is of high or very high importance for their production. But only 37% of participants were (very) satisfied with their current productivity levels – two-thirds were undecided (23%) or (very) unsatisfied (40%).

Insufficient workforce skills, unreliable demand planning and the lack of adherence to process definition were regarded as the major productivity barriers. Those participants who were undecided about their level of productivity perceived productivity barriers very similarly to those participants that were unsatisfied.

A cross-analysis between the group of unsatisfied and satisfied revealed that they face different challenges. While insufficient workforce skills were the biggest productivity barrier for the unsatisfied participants, satisfied participants struggle most with unreliable demand planning.

The survey was structured around three areas that we believe are central for productivity in manufacturing:

**Area 1:** Workforce (How efficiently is work being accomplished?)
**Area 2:** Equipment (How efficiently are machines used/how effectively do they work?)
**Area 3:** Planning (How high is the ability of the company to efficiently plan and execute?)

When asked, our participants considered all of these suggested areas highly relevant to improve productivity. Improving workforce performance was seen as a slightly more important lever to improve productivity. This is consistent with their improvement efforts: While 81% are already improving workforce productivity, only 63% are improving equipment performance and the planning process.

Overall, there is space for increasing improvement efforts. More than 60% of participants did not find their improvement efforts fully sufficient. This is also reflected in the use of KPIs. While 86% defined them, one out of four did not update them regularly, coordinate them across functions or use them for decision-making and controlling. Almost 30% thought that their KPIs do not capture the factors most relevant to their production productivity. Improving the use and management of KPIs can have a huge impact on productivity, as our Case Study of TMD Friction revealed. The manufacturer of friction materials introduced an effective KPI management, including training for employees, and was able to reduce quality issues and accelerate the detection of errors.

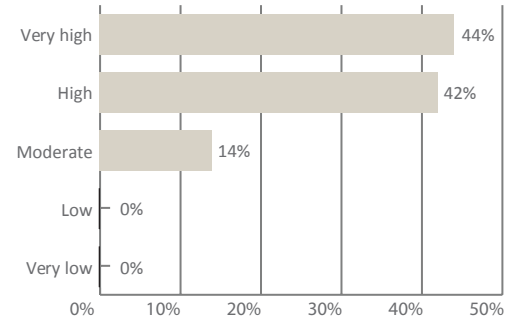
Regarding the importance of workforce effectiveness for overall productivity, we were wondering about the biggest transformation barriers in that area. More than half of our respondents stated insufficient commitment and motivation of employees as their biggest transformation barrier. Refusal and active resistance to change, as well as a lack of sufficient training also ranked high.

However, there are substantial differences in this area between companies that are satisfied with their productivity and those who are not. While 65% of the latter have problems with an insufficiently committed workforce, only 15% of the satisfied companies see this as a major problem. Other differences between those groups are their level of activities to improve productivity and their view on the matter – satisfied companies see more opportunities to improve. Participants who were satisfied with their productivity levels thought that by tackling their biggest productivity challenge, they could (on average) improve productivity by 35% - a much higher number (on average) than that of participants who were unsatisfied/undecided (21%).

Common effects of an insufficiently committed workforce are increased quality issues, delayed detection of errors and a lack of in-house improvement ideas. It is therefore important to improve the cultural alignment of the workforce in order to increase participation and engagement in the organization.

One successful example regarding employee empowerment that we encountered was the mentor program at Nedschroef. Here, experienced employees share their knowledge, skills and experience with the mentee, and coach the mentee in a way that

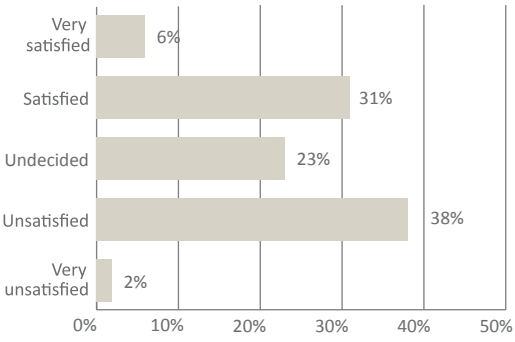
HOW WOULD YOU RATE THE OVERALL IMPORTANCE OF IMPROVING THE PRODUCTIVITY FOR YOUR COMPANY'S PRODUCTION IN CHINA?




- 44% of respondents stated the importance of improving productivity in their company's production as very high.
- 42% said improvement is of high importance.
- None responded with "low" or "very low"

Figure 1: Importance of improving productivity

HOW SATISFIED ARE YOU WITH THE OVERALL LEVEL OF PRODUCTIVITY IN YOUR COMPANY'S PRODUCTION?




- 6% of respondents were very satisfied and 31% satisfied
- A surprisingly large amount of participants (23%) were undecided regarding their current productivity.
- A large number of respondents (40%) were unsatisfied or very unsatisfied with their productivity.

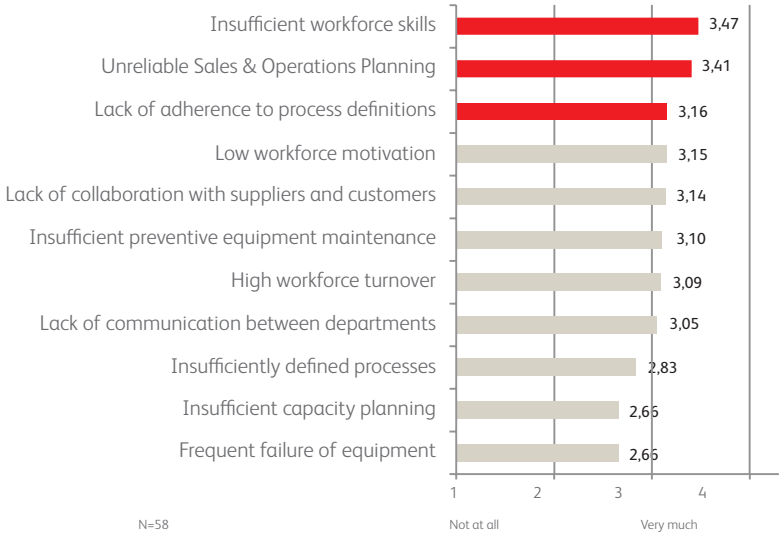
Figure 2: Satisfaction with productivity levels

specific skill development goals can be achieved. Through this experience, the mentor's leadership abilities are improved, the mentor title creates a form of recognition, and both the mentor's as well as the mentee's ties to the companies are strengthened. Additionally, it created a low-cost method for the company to reduce the bottleneck of highly skilled talent.

Key results and conclusions can be summarized as follows:

1. The awareness for the topic is very high. Many companies engage in regular improvement projects but only 39% consider their efforts sufficient.
2. Executives assess improvement potential to more than 25%. Companies that have a defined approach to continuous improvement are more satisfied with their productivity.
3. The performance of workforce proves vital to increase productivity. Participating companies mention the lack of commitment, motivation and adherence to process standards as main barriers to transform their organization. They confirm ongoing efforts in finding effective incentives to strengthen the performance of their workforce.
4. Interviewees pointed out how cultural differences and language made them struggle to communicate, enforce and achieve their objectives.
5. Many companies under review face difficulties in establishing a collaborative, supporting and knowledge-sharing environment within the company.
6. For almost everybody – independent of the productivity level –the reliability of demand planning and the performance of suppliers is a constant reason for worry.
7. Performance data are extensively collected, but only the right set of KPIs and an adequate analysis allows a company to draw conclusions.
8. The increasing pace of changes in customer requirements and fierce competition in their industry are forcing many companies to accelerate their operations and improve the flexibility of their production process.
9. Automation and real-time machine data collection become increasingly important to reduce the impact of labor cost and human error in production. Currently, companies in China, including foreign-invested firms, are only at the starting point to leveraging the existing potential of digitalization.

WHICH OF THE FOLLOWING CHALLENGES DO YOU CONSIDER AS PRODUCTIVITY BARRIERS FOR YOUR COMPANY'S PRODUCTION?




- Insufficient workforce skills and unreliable Sales & Operations Planning were seen as the largest productivity barriers.
- A lack of adherence to process definitions was stated as third-largest inhibitor to improve productivity.
- Among workforce-related issues low motivation and high personnel turnover were mentioned most frequently.
- Regarding the equipment, insufficient preventive maintenance was identified as the biggest challenge.

Figure 3: Production Productivity Barriers in China

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SIX CHINA PRODUCTIVITY ASSESSMENTS

- Alignment
- Degree of Formalization
- Effectiveness
- Control and Enforcement
- Continous Improvement

- Big Data Monitoring
- Advanced Analytics
- Automation
- Internet of Things
- Smart Factory


- Internal and External Goal Alignment
- Internal and External Information and Data Exchange
- Internal and External technical and data support

- People Empowerment
- Ergonomics
- Skills
- Communication

Figure 4: Six Productivity Essentials

# Six China Productivity Essentials

The survey results and further analysis revealed that existing productivity challenges in the production environment can be met by addressing six factors:

1. Employee Motivation
2. Cultural Alignment
3. Internal and External Collaboration
4. Standardized Processes and Activities
5. Flexibility
6. Digitalization

## Our Approach: The China Productivity Assessment

The six factors proved for many companies essential to increase their productivity. This is why we call them Productivity Essentials. TU Munich and BearingPoint developed an approach to measure the maturity of each factor through a structured approach, the China Productivity Assessment:

In three steps, the China Productivity Assessment aims to help companies with the evaluation of their productivity and guide the formulation of suitable improvement measures. During step 1, 15 Focus Topics across eight business units are evaluated through structured interviews with operational managers. The managers rate the status quo of their business unit on several items and define desired targets. The results are mapped in a maturity model on a four-level scale – one for each Productivity Essential. In Step 2, the interview and mapping results are consolidated and mapped against each other. This allows intuitive and easy identification of gaps between status quo and desired target on different levels of detail. With this overview, weak spots and their interrelations, as well as larger challenges can be identified and addressed as part of Step 3 with suitable measures.

The detailed results of the China Productivity Snapshot 2016 can be downloaded from www.bearingpoint.com/chinastudy

For more information regarding the China Productivity Assessment and how this approach can support you and your company in China, please contact Yvon Donval (yvon.donval@bearingpoint.com) or Jan Bernstorf (jan.bernstorf@bearingpoint.com) or send a message to china@bearingpoint.com

OUR SOLUTION: CHINA PRODUCTIVITY ASSESSMENT

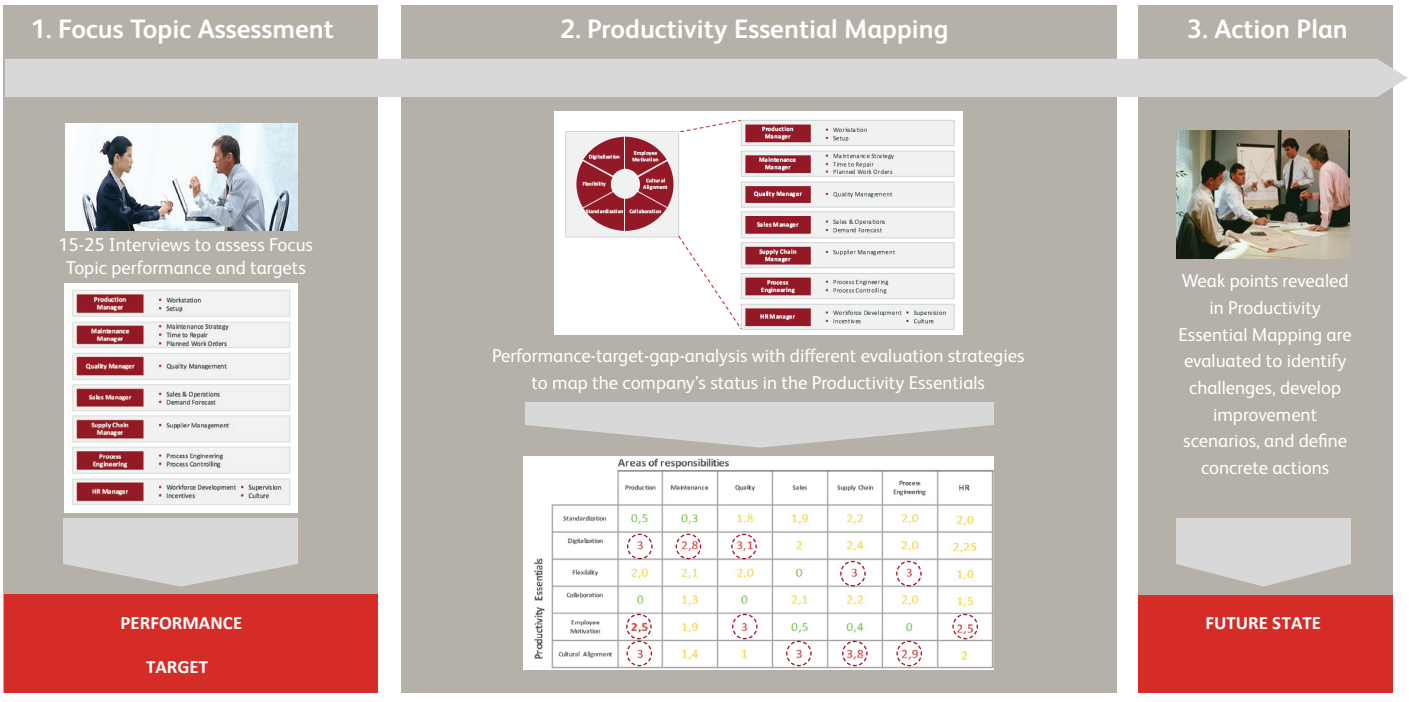


Figure 5: BearingPoint's China Productivity Assessment Approach

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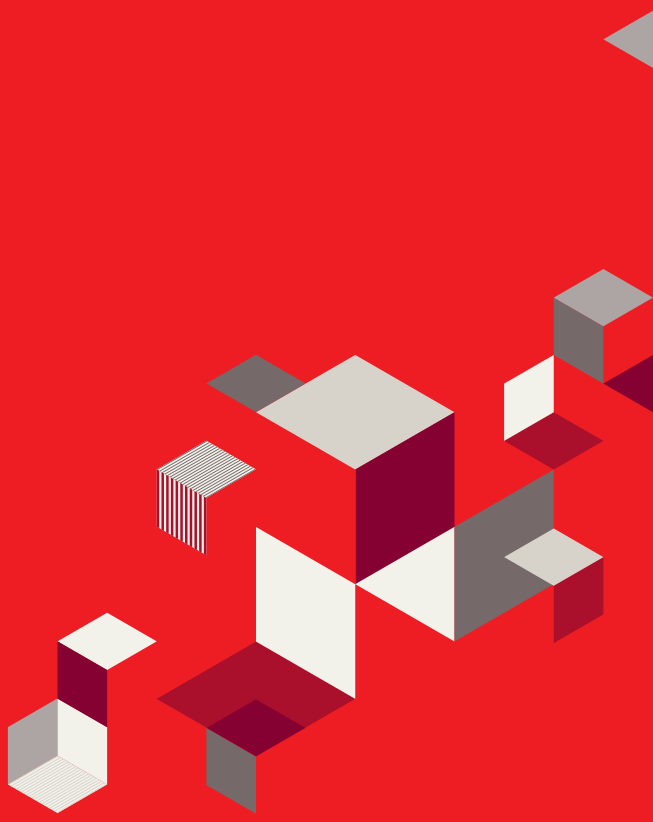

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