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Increased productivity despite shortage of skilled workers

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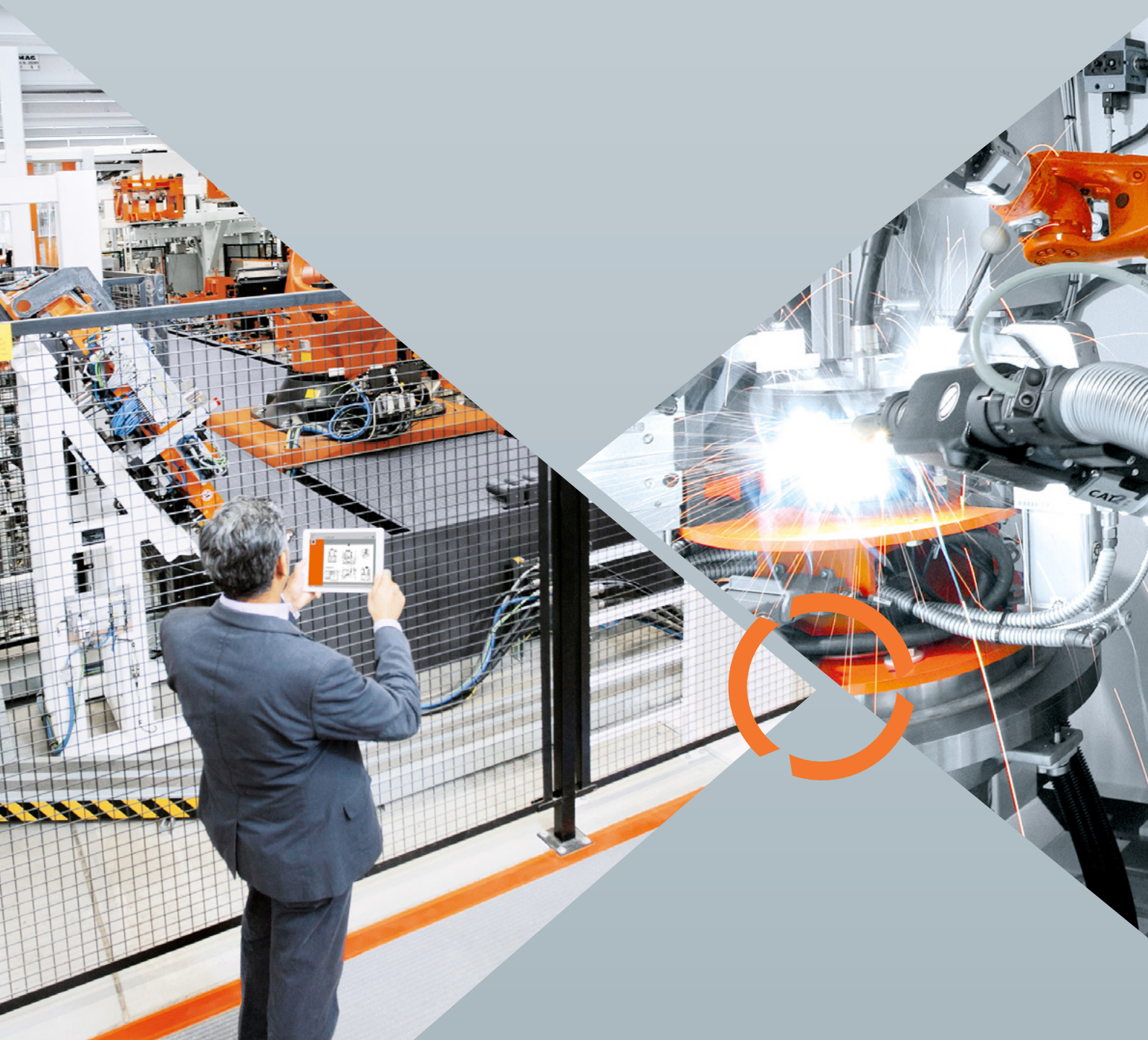

Increased productivity despite shortage of skilled workers

How the metalworking industry remains competitive through automation with the KR QUANTEC

Finding qualified employees; In today's manufacturing industry, this is a difficult under-taking. The gap between vacant jobs and skilled applicants is widening all the time. Such trends are reflected in metalworking, in particular in tool and mould making. In addition, the situation for SMEs in the metalworking industry is aggravated by globalization and changes in market demand for more individual products. It is important to find appropriate solutions so that small and medium-sized enterprises can remain competitive. The automation and digitalization of production is one way of keeping pace with this development. Automated processes are crucial and the first step towards a smart factory: This enables manufacturers to ensure product quality and increase productivity at the same time. Nevertheless, there are always questions to be asked: Can medium-sized companies afford to change their production methods? What about the return on investment? How quickly can solutions be implemented and how flexibly can they be used? First of all, it is worth considering adopting automation. If you know the market and have the right solutions, your investment will quickly pay for itself.

Market Overview

Automation and digitization play a decisive role within the metalworking industry in general, even in medium-sized tool and mould making. Originally just a topic for the big OEMs in the automotive sector, other industries and smaller companies are now increasingly having to deal with it as well. The reason? The original market conditions have changed. According to the World of Tooling study, which was developed in cooperation with the WBA Aachener Werkzeugbau Akademie GmbH and the Chair of Production Systems at the WZL Laboratory for Machine Tools and Production Engineering at RWTH Aachen University and the Fraunhofer Institute for Production Technology IPT, two main reasons are particularly responsible for this. On the one hand, product derivatization is increasing and product life cycles are decreasing at the same time. On the other hand, globalization has led to an internationalization of production sites. This means that more tools are needed at different international locations in a shorter time and at lower cost. Of course, the quality should also remain high. Traditionally, manufacturing quality depended on employees. Experience was critical to success. However, the shortage of skilled workers means a rethink is necessary. Automated processes are becoming a vital criterion for the survival of businesses.

A comparison of the countries in the toolmaking sector shows that Germany is the leader in Europe and, with almost 4,000 companies and over 50,000 employees, ranks behind China in terms of numbers. There, 40,000 companies with 1 million employees can produce more tools in less time. However, technological know-how is often lacking. In the USA, on the other hand, the industry is benefiting from the changed legal situation: outsourced value-added volumes are returning home. However, qualification and automation measures will be needed in the future to compensate for demographic changes in the country. Japan is at a very high level of technological quality. Complex tools and a high innovative power are characteristic for this Asian country. But demographic change is also having an impact here. Italy has a long tradition in toolmaking, but has suffered from the economic crisis and many companies went bankrupt. According to the World of Tooling study, the prognosis for the market in the further course of the year is difficult to estimate. Portugal stands for high quality in the field of injection moulds and would like to position itself as a leading supplier in this field. Small to very small businesses characterize the market. The tools are highly valued internationally due to their high complexity.

Alternatives for the lack of young talent

Automation and digitization are increasingly finding their way into production halls and changing manufacturing processes. What lies behind this, however, is not just the goal of increasing efficiency and keeping pace with changing market demand, but to also ensure quality – and all this without a sufficient number of junior staff. According to the MINT Report, at the end of October 2018 almost 500,00 jobs were vacant in Germany in the field of STEM occupations (science, technology, engineering & maths). The proportion of skilled

workers, foremen and technicians is just under 70 percent. Compared to 2017, this represents a further increase. The study sees the reason for this, among other things, in the fact that many STEM employees are about to retire or are already retired and their successors are missing. At the same time, the shortage of skilled workers is exacerbated by the increased demand resulting from increasing digitization. More and more IT experts are needed here. But they're missing. Medium-sized companies in the tool and mould making sector are also clearly aware of this. Here, the change towards Industrie 4.0, digitization and automation is still not quite as advanced. Under the given conditions, however, it will be necessary in order to remain on the market. The question that arises in the industry is how and whether this is financially feasible at all as a medium-sized company and whether this might not be miscalculated. However, this concern is unjustified if you know the market and are looking for the right partners. Applying automation has to be considered, and carefully. A single measure will not transform your operations. One of the prerequisites for successful automation is a well thoughtout concept.

Step by step towards Industrie 4.0

Dive into virtual realities with your smartphone, go online with your Smart Watch or store documents in the cloud: Digitalization has become a natural part of our everyday lives. This development does not stop at the industrial production halls either. Industrie 4.0 is the buzzword here: smart factories in which all processes are networked, control themselves and human beings have a controlling function. Flexible and adaptable solutions are required to meet individual customer requirements. But to what extent can the medium-sized tool and mould maker manage this digital transformation? One thing is clear: keeping everything as it is will not be beneficial for the metalworking industry in the long term. The new challenges already mentioned, such as globalization, rapid product cycles and the shortage of skilled workers, make a reorientation in the traditionally, still very strongly manmade tool and mould making within the metalworking industry inevitable. Those who want to work economically and efficiently have to stand up to their competitors. For example, by producing and delivering more complex products in a shorter time and of course with the highest quality. What can the industry do? More automation is the answer, and this is individually adapted to the respective company and its needs. It does not have to be a fully automated and networked production line. Rather, the repositioning should take place in small steps: starting with the strategy, continuing with the expansion of the new structures and the qualification of the employees through to the integration of new technologies. Step by step, small and medium-sized enterprises can thus also create changes into the future.

KR QUANTEC: a worthwhile investment
Flexibility, performance and cost-effectiveness: An investment in the KUKA KR QUANTEC is also an investment in the future. Over 100,000 robots have already been sold since their introduction in 2010. The bulk in the automotive industry. But it would be wrong to think that automation with this robot is just something for the big players on the market. Even medium-sized manufacturing companies can meet the new challenges on the market with the use of the new KR QUANTEC. As an allrounder, the robot offers great flexibility for a wide range of production applications, moves in the direction of digitization through the use of digital motion modes and is the number one in the high payload class in terms of total operating costs, which means that an investment pays for itself very quickly.

Like its predecessors, the KR QUANTEC offers the new generation the largest payload and reach portfolio in the high payload class: from 120 to 300 kilograms and from 2,700 to 3,900 millimeters. The use of the robot in the metalworking industry is versatile. It can manage handling tasks such as loading and unloading machine tools, but can also perform simple machining processes such as deburring components. The new revised generation also impresses with its interference contour reduced by ten percent, which makes it even more flexible in use and permits more economical and leaner plant and cell planning. Versatility and flexibility are the be-all and end-all in modern production. Here, too, the KR QUANTEC can score points: with the help of retrofittable digital plug-in motion modes. These are software add-ons that further improve process quality. Depending on the task, you can switch back and forth between Performance, Path or Dynamic Mode, for example. The Performance Mode is the allrounder among the different fashions. It is characterized by versatility and is suitable for a large number of processes. While Path Mode is the right add-on for train journeys where extreme precision is required, Path Mode is the right add-on. If you want to reduce the cycle time, select Dynamic Mode: Around ten percent is possible here. New generation, even lower operating costs. What are the benefits to you? First of all, energy consumption should be mentioned here. Compared to similar machines from competitors, this is ten percent lower. In addition, the training effort is low due to proven KUKA technology and commissioning can be accomplished in a short time.

In addition, the high technical availability of 99.999 percent and the extended operating life of more than 400,000 operating hours deserve special mention. Maintenance time was reduced by 75 percent compared to the predecessor and repair time by 50 percent. The KR QUANTEC can be used flexibly around the clock, contributes to optimizing capacity utilization and reduces errors and thus also rejects. This enables, for example, medium-sized companies to introduce an additional unmanned night shift and thus increase efficiency.

Summary
The market has changed. The new challenges must be met. Tool and mould making as well as the metalworking industry in general have to leave the old, familiar road and deal with the new conditions. Globalization, market demand for individual products, lack of skilled workers: the current conditions require action to remain competitive. The KUKA KR QUANTEC is a solution that can be integrated quickly. A solution that is flexible thanks, among other things, to motion modes, convinces with low operating costs and puts medium-sized businesses on the road to the age of digitization and automation. Only those who develop further and do not insist on conservative production measures will remain competitive.

Author:
Andreas Walbert
Business Development Manager
Division Industries
Business Unit Handling, Machining & Processing
KUKA Deutschland GmbH
Zugspitzstrasse 140, 86165 Augsburg/Germany
www.kuka.com
andreas.walbert@kuka.com
T 49 821 797 5443

About KUKA

KUKA is a global automation corporation with sales of around EUR 3.2 billion and around 14,200 employees. As a leading global supplier of intelligent automation solutions KUKA offers its customers everything from a single source: from robots and cells to fully automated systems and their networking in markets such as automotive, electronics, general industry, consumer goods, e-commerce/retail and healthcare. The KUKA Group is headquartered in Augsburg, Germany. (31.12.2018)

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KUKA Aktiengesellschaft
Zugspitzstraße 140
86165 Augsburg

Phone: +49 821 797-50
Fax: +49 821 797-5252
E-mail: kontakt@kuka.com