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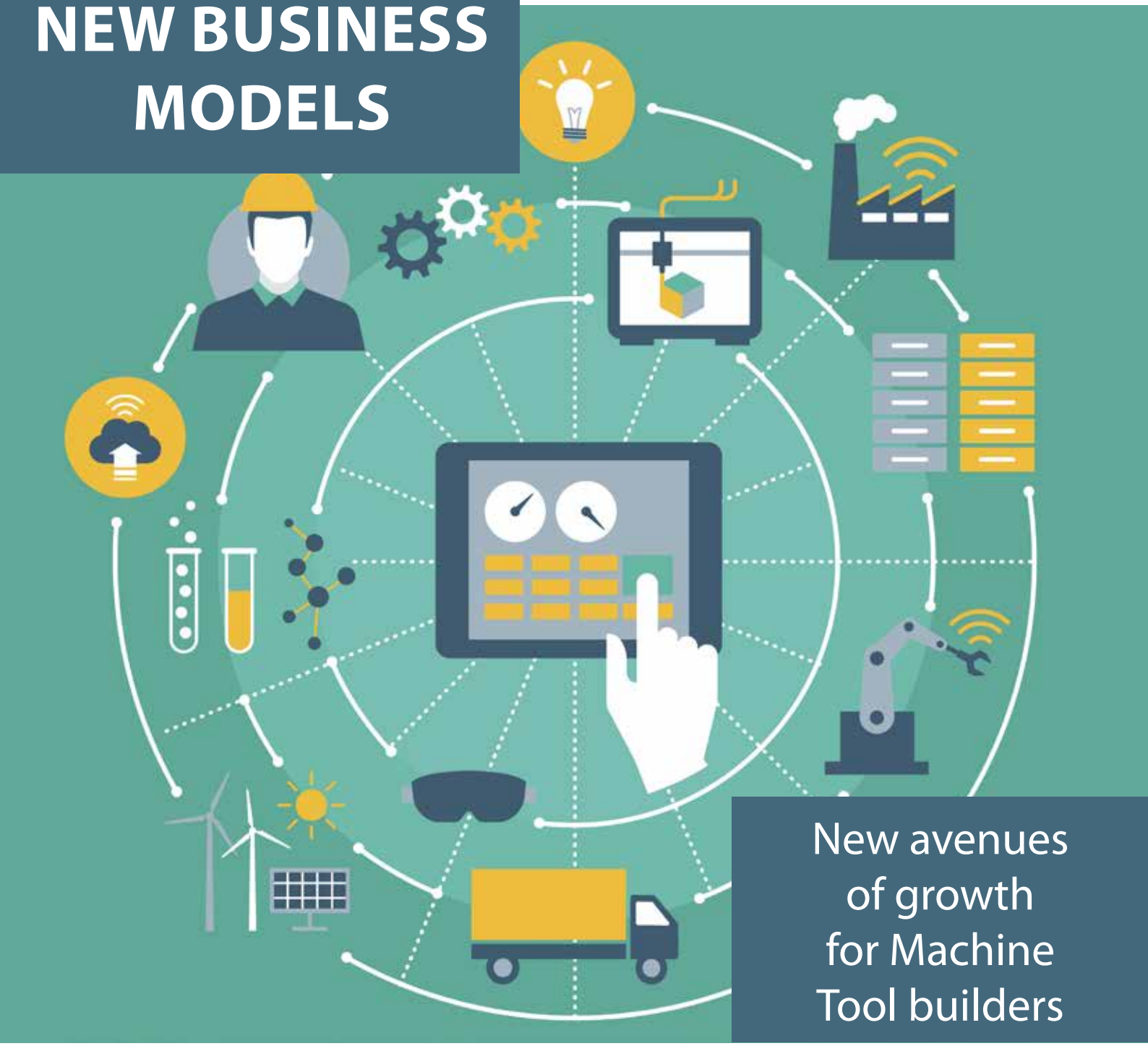
Where manufacturing begins

NEW BUSINESS MODELS



New avenues of growth for Machine Tool builders

Digitisation

Data-driven Business Models are on the rise

Industrial Policy

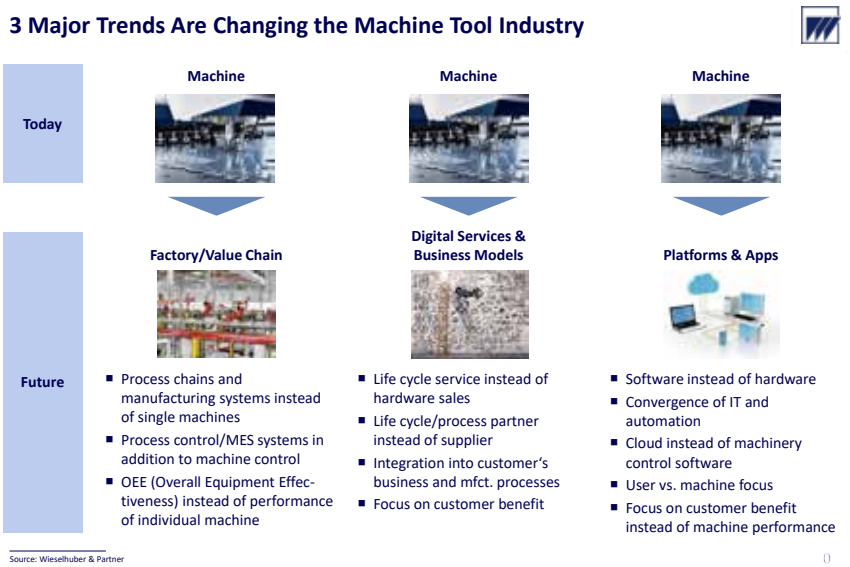
CECIMO participates in the first EU Industry Day

Skills and Education

METALS: European skills panorama on additive manufacturing

Digital services in the Machine Tool industry

by Volker Bellersheim, Head of Industrial Goods Division, Member of the Management Board Dr. Wieselhuber & Partner GmbH



Major Industry Trends and Paradigm Shift – Process Solution Partner vs. Machine Supplier
Three major trends are currently driving the change in machinery building industries and especially in the machine tool industry. Customers are increasingly asking for comprehensive solutions to optimize their entire manufacturing process, including digital life cycle services and innovative human machine interfac-es. Many machine tool companies have reacted to this challenge and have started to transform from a pure machine supplier to a "process solution partner" of their customers. The key question for many ma-chine builders is: "What can I do to help my customers increase production efficiency?"

Digital Services
Systematic analysis of the machine operator's production processes, value chain, and already available machinery, process, and order data reveals numerous applications: predictive maintenance, quality, or capacity are quite obvious but are often limited to optimizing individual machines. Performance im-provement consulting based on data analysis as a service to optimize the OEE (Overall Equipment Effec-tiveness) of the entire process chain generates much higher customer benefit. Automated consolidation and analysis of data for documentation, quality control, supply chain (spare parts logistics, service techni-cian dispatch), optimization, simulation, remote commissioning, and training purposes could exploit fur-ther potentials.

Volker Bellersheim

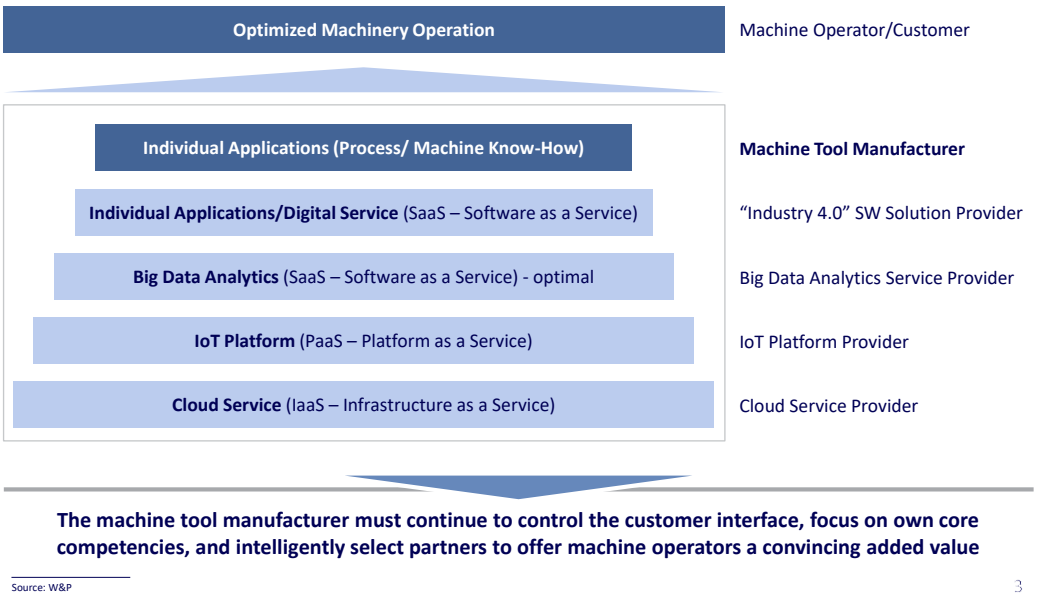
Benefits are two-fold: Internal efficiency increase and improvement of service levels (e.g. faster spare parts supply) or higher service quality (e.g. predictive maintenance models continuously improved through live data from global machine population).

While up to 50-60% of machinery companies are already offering these digital services or are planning to offer them within 3 years, the remaining 40-50% of customer have no such plans—even for the foresee-able future. Average revenues with digital services accounted for 2% of total revenues in 2015; for 2020 10% are targeted.

Long term, a much higher revenue share seems to be possible. Digital data is a perfect entry point for machine tool companies for tools, forms, and fixtures, as well as for consumable business. The digital twin of the work piece can be used for online design and configuration of forms and fixtures, simulation and optimization of the production process, and acceleration of the entire design and logistics process.

IoT (Internet of Things) Platforms
Within the last 12 months, IoT-platforms (and solutions from different types of players, respectively) have gone online. Some of the new arrivals have started to operate their own cloud, while others rely on generic services of big players like Amazon Web Services (AWS) or Microsoft Azure, focusing on software and service layers closer to the specific applications. Besides software and Internet companies, industrial conglomerates (e.g. Siemens, Bosch, General Electric) and mid-sized automation companies, several ma-chine builders have also entered the playing field. Clearly the most advanced is machine tool company TRUMPF with its dedicated subsidiary Axoom. Axoom offers an open platform other machinery compa-nies can use, also for manufacturing processes other than 2D sheet metal processing. While this business is in principle completely independent from TRUMPF's machinery business, up to now other manufactur-ers have focused on platforms to support operation of their own machinery (plus

"Industry 4.0" Strategic Positioning of Machine Tool Players



complementary ma-chinery and periphery from partners).

The Way Forward for Mid-Sized Machine Tool Companies

Typically, mid-sized machinery companies will not have the budget and resources to develop proprietary solutions. Furthermore, their customer base is usually too small to support an economic platform opera-tion. Nevertheless, they need to offer their customers a solution in order to avoid being sidelined.

The most important issue for machine builders is to continue to control the interface to their customers. It is absolutely fundamental that "new" Industry 4.0 players, i.e. the different types of service providers (application focused software, big data analytics, IoT-platform, cloud services), are not able to establish their own relationship with the machine operators. Machine builders should focus on their core compe-tencies and intelligently build partnerships to bundle all the elements needed for a secure and high per-formance IoT-solution and digital service offering. In any case, they should resist the temptation to enter new fields of business which require completely new competencies. Reinventing the wheel is not the right approach.

Collaborating with eco-system partners is a new critical competency. Also, developing successful digital services is quite different from the traditional product development approach: Sequentially developing a technical solution, testing it with lead customers and then launching it as a free service makes it almost impossible to get paid for the service later. Rather, for digital services a simultaneous development ap-proach is needed: Use cases, customer benefits, the technical solution, and the monetization model need to be developed in parallel. This minimizes the risk of failure and ensures the necessary speed to capture market share.

Conclusions & Hypotheses

We expect that technological and data security issues will be resolved in the near future and that use cas-es with real customer benefit will be demonstrated in the many current pilot projects. Data-driven ser-vices, i.e. digital services, will capture the main share of the "Industry 4.0" profit pool, while the pure sup-ply of "Industry 4.0 Ready" equipment will not be a sustainable business model in the long term. Com-moditization will ultimately also reach this market. Machinery customers will increasingly demand solu-tions and contributions to enable efficiency increases in their production processes.

Therefore, machine builders need to change and transform from a pure machine supplier to a "manufac-turing process partner" of their customers. The ability to develop new digital services (and business mod-els) will become more important than incrementally improving machine performance and functionality.

Considering the current speed of development in the IoT/Industry 4.0 playing field, now is certainly the right time to analyze opportunities and risks, and to start specific and customized activities to secure the own company's future. ■

What was said

"Industrial data is becoming a crucial competitiveness element for advanced manufactures. To remain competitive in the long-run, machine tool builders will need to generate new solutions for customers, by converting complex machine-generated data into insights for decision-making and overall process efficiency."

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