

Increasing value of measuring data – Efforts to preventive quality assurance systems (PQAS)

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Continuously the requirements from customers and the need for technical innovation are increasing. Keywords like individualization, flexibility and high variety are common. To match such challenges, production systems and machines are also developing very fast. The next industrial revolution is evolving with the focus on high potentials through digitalization, communication and data exchange. This focus requires a strong and reliable base of data. Therefore metrology develops from a verifying tool of failure-detection to an essential base of production for the future. The challenge of production measuring is to prepare this database, which can include many different kinds of data, like process-data, geometrical-data, physical-effects and so on. The challenge is to gather smart, real, and valuable data out of this Big Data, as it is possible to measure nearly all effects in all dimensions. In this context the importance of (inline-)measuring in production processes is massively increasing and holds a big chance for new quality assurance processes. A better and qualified database supported by simulation tools will lead to the development of a preventive quality assurance system (PQAS), which not only helps to control quality in mass production, but furthermore optimizes the whole developing and preproduction processes. This creates a high monetary potential for the companies and prepares further development in context to the production of the future. First of all this paper reveals the increasing importance of production measurements tools and of standardized methods for unambiguous specification and verification processes, with focus on geometrical features. Based on that, future challenges of metrology and production systems are derived, which are indispensable for further integration of production of the future. The solving of those challenges will open the potential to establish processes of PQAS, which are shown in the main-chapter of the paper. The conclusion gives an overview about benefits resulting from those observations.