

KONZERN PRODUKTION

The Significance of MTM-HWD[®] for Digital Process Design in the Industrial Engineering of the Future

04 September 2020, Volkswagen AG, Martin Haselhuhn

Vertraulichkeitsklasse: ÖFFENTLICH

KONZERN PRODUKTION

04.09.2020

PUBLIC ÖFFENTLICH







The Volkswagen Group is one of the leading Vehicle Manufacturers worldwide.



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Status: 12/2019

What do you see?







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Instead of a typical Agenda



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Already in "Modern Times" Work Design was a Challenge.





Volkswagen AG | KSU-Klasse: 0.2 – max. 4 Jahre

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Motion Capturing enables the true-to-life Digitalization of complex Motion Sequences.

Motion Capturing enables...

- the recording and digitalization of complex movement sequences and postures for the automated generation of realistic ergonomics and process analyses,
- **safeguarding forces** by means of force measurements in planning and series production and
- ensuring **optimum standards** for assembly processes.

Motion capturing offers the chance to generate ergonomics analyses with high resolution. However ergonomic methods do not yet sufficiently exploit this potential.





Simulation enables virtual Design, Proof and Visualization of Work Processes.

Simulation makes it possible...

- to make planning processes faster and more efficient,
- to carry out time and ergonomics analyses without prototypes and in real time,
- to **demonstrate the impact of the changes** made to the planning scenario,
- to improve the quality of processes and secure them earlier,
- to improve the communication with our process partners and
- to apply IE standards automatically and independent of persons.

Simulation of a comprehensive work design requires a **human model** which is **capable to replicate** all processes.





The Collaboration in the Industrial Engineering of the Future is #digital, #networked, #virtual and #agile.

The cooperation in virtual space requires new cooperation models and innovative workshop concepts offers...

- support in the absence of a prototype,
- the collection of theoretical data in planning systems and transformation into a process that can be experienced by all parties,
- enabling virtual cross-location collaboration,
- benefits the acceptance of work statuses amongst all stakeholders involved,
- the training of employees before the physical workplace is available and
- a possible saving and increase in efficiency.

The use of virtual reality in 3P workshops achieves a higher acceptance if user experience is in the foreground.

3P: product preperation process

PDP: production design process





We needed a Method for the Digital Design of Work Processes!





MTM-Human Work Design (HWD) as the basis for an efficient and humane Work Design of the Future.



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Digital Motion Data and a chronological Process Description are the basis for Digitalisation in Industrial Engineering.

- Chronological, comprehensible process description as a prerequisite for process design, parameterized data stream (pDmA) contains all relevant process information for automated time and ergonomic analysis by means of HWD
- Focus of the **IE planner** on **process design and plausibility check of the simulation** to ensure the realistic representation of the general conditions and **feasibility in practice**





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Against the Background of Digitalization, the Role of the Industrial Engineer will change from Administrator to Designer in the future.



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The Future holds new Challenges for Industrial Engineering.



