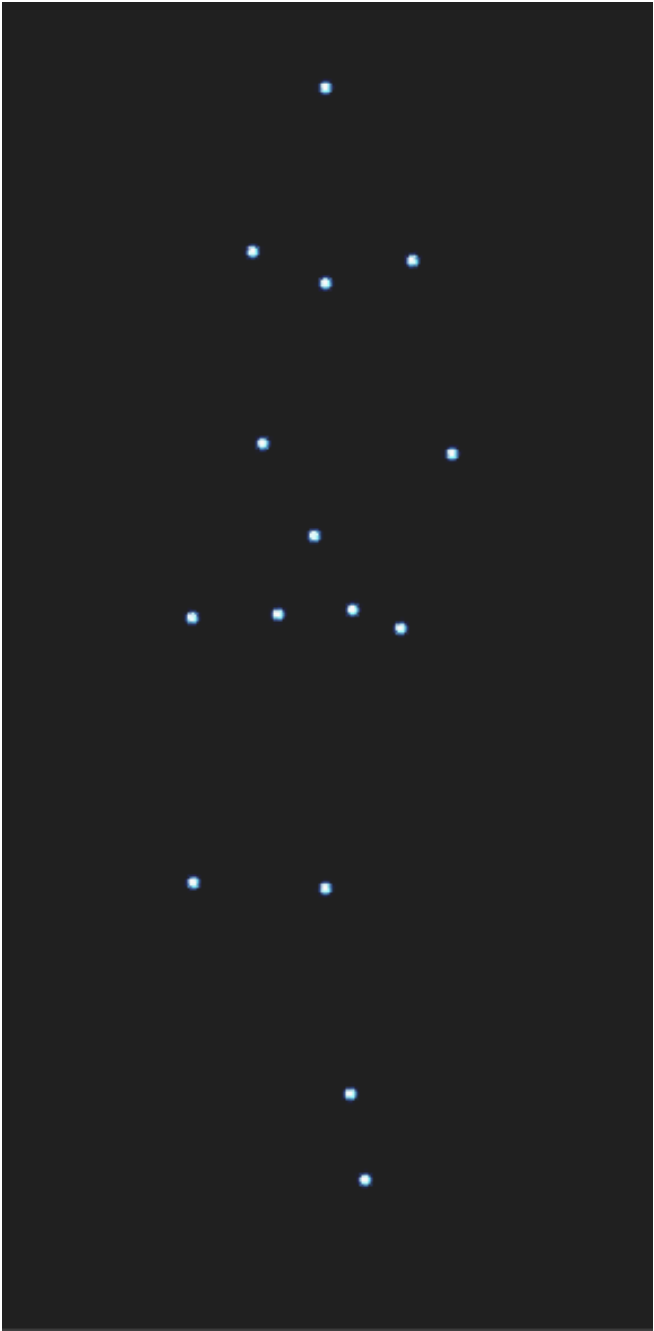
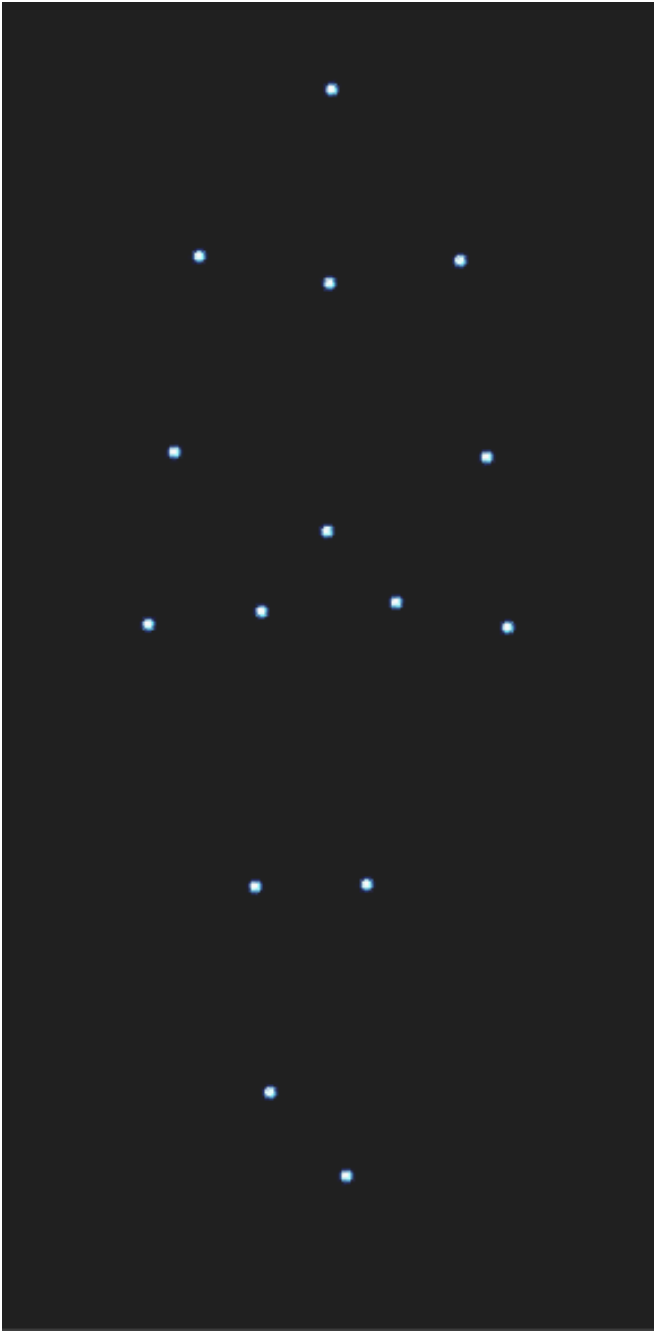


International MTM Standard – organizational and methodological perspectives

Prof. Dr. Peter Kuhlmann, MTM ASSOCIATION, Hamburg, Germany

Head of MTM Institute

Berlin, 5. September 2020



Introduction



Peter Kuhlant

ao. Univ.-Prof. Dipl.-Ing. Dr. techn.



MTM ASSOCIATION e. V., Head of MTM Institute
Deutsche MTM-Gesellschaft mbH, Managing Director



At a Glance

- Industrial Engineer (Venia docendi from Vienna University of Technology)
 - 1988 first contact with IE/MTM
 - Responsible for methodological research and development MTM globally
 - President of global MTM activities
-
- ... with due humility and respect I will take over the overall responsibility for MTM globally as CEO of MTM ASSOCIATION e. V. from 1. January 2021



Two aspects of MTM (Methods-Time Measurement)

Method (instrument)



MTM process language

- Integral description, quantification and design of human (manual) work (labor)
- Fundament to calculate resources
- Globally accepted and approved performance and education standard

MTM norm (standard) performance is accepted globally and appreciated by social partners!

Organization (institution)



Assignment of not-for-profit industrial association

- Dissemination and R&D for MTM
- Globally uniform trainings and certificates

MTM ASSOCIATION e. V.

Training, software, consulting, research from a single source!

Facts and figures: MTM ASSOCIATION e. V.

240

**member companies
from A like Airbus
to Z like Zollner**

4.000

**MTM certificates per
year (class room and
E-Learning)**

200

**works agreements for
method application and
salary**

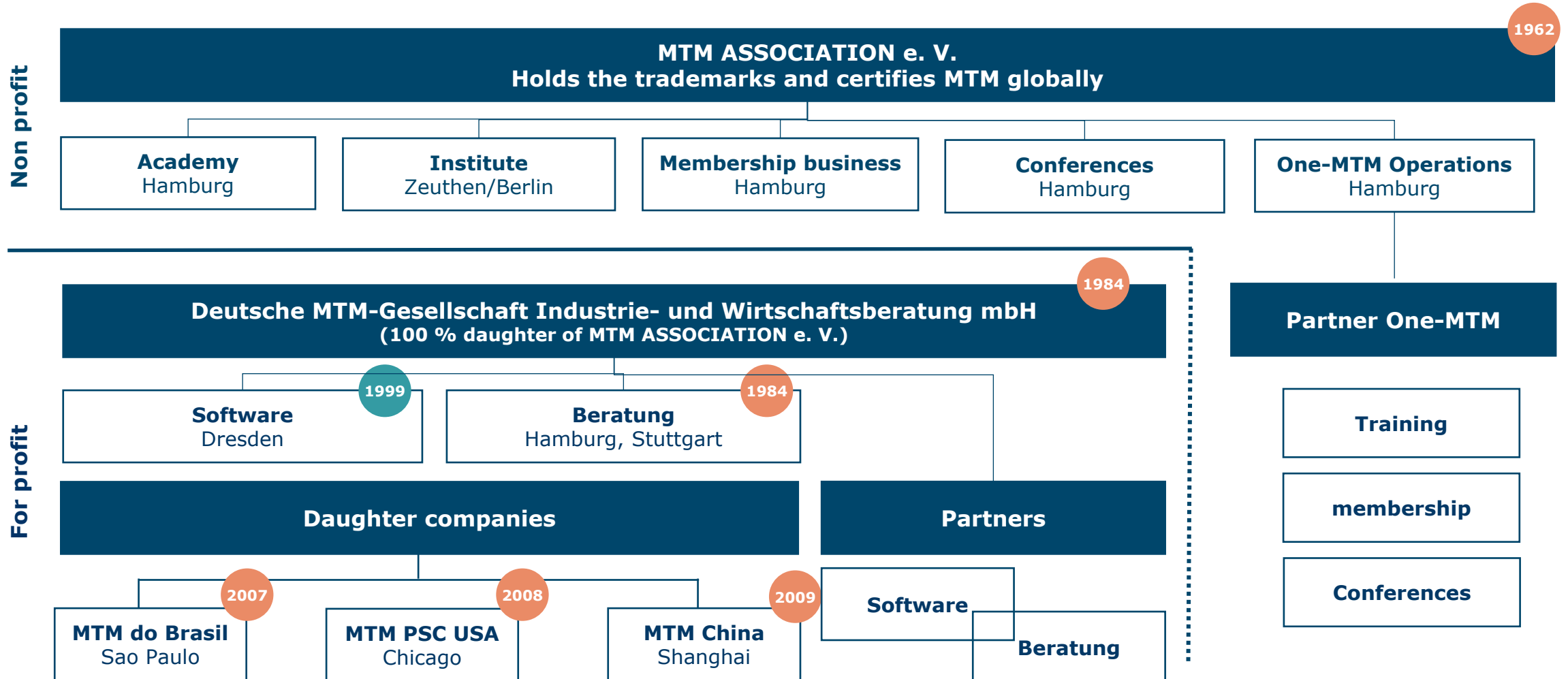
5.000

**licenses for MTM-
Software TiCon with
approx. 25.000 users
globally**

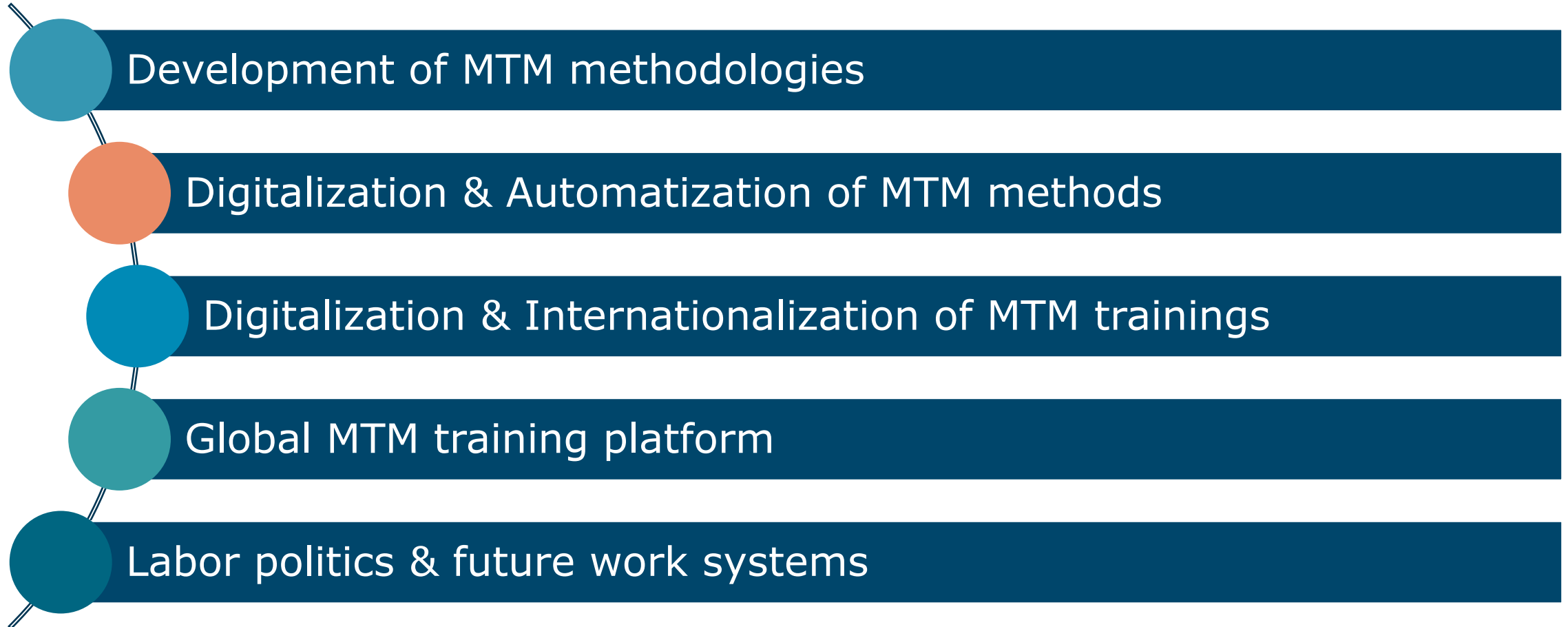
4.000

**projects to improve
competitiveness**

MTM ASSOCIATION e. V.



Research and development topics at MTM Institute



One-MTM Network

Vision

Establish MTM (Training, Software, Consulting and Research) as a **real global standard!**

This means

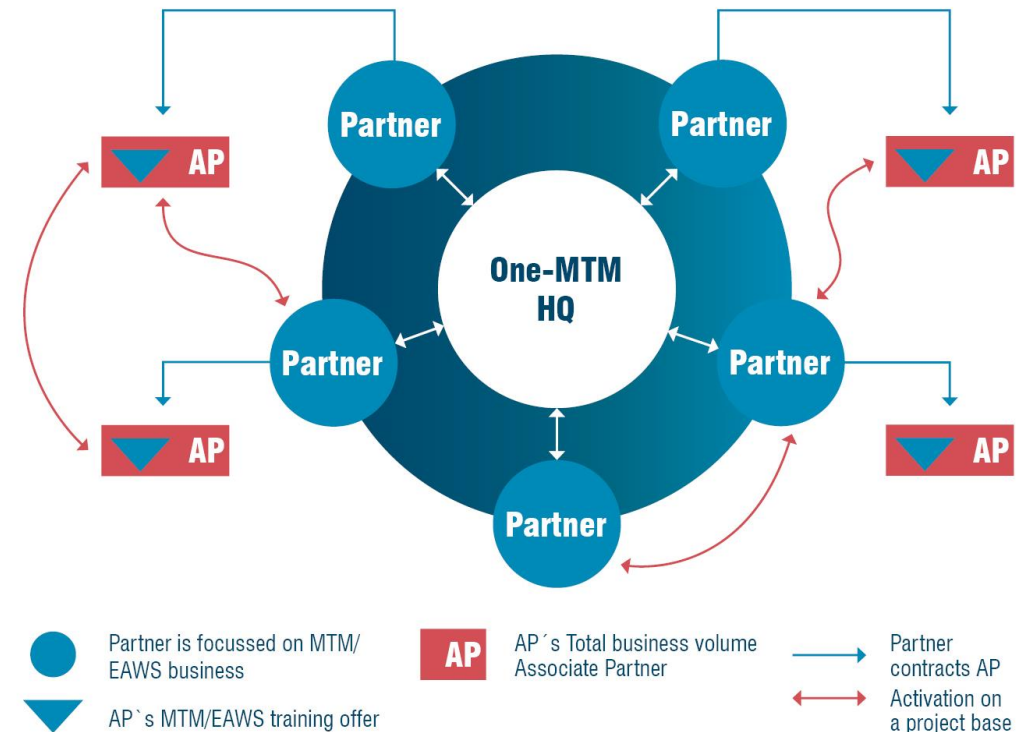
- a **clearly defined, uniform** and **mutually applied qualification procedure.**
- a **high awareness** of the **MTM trademark** in the **relevant communities.**
- a **recognized, effective** business organization.
- a **global, aligned offer** of **products** and **services.**

Trademark

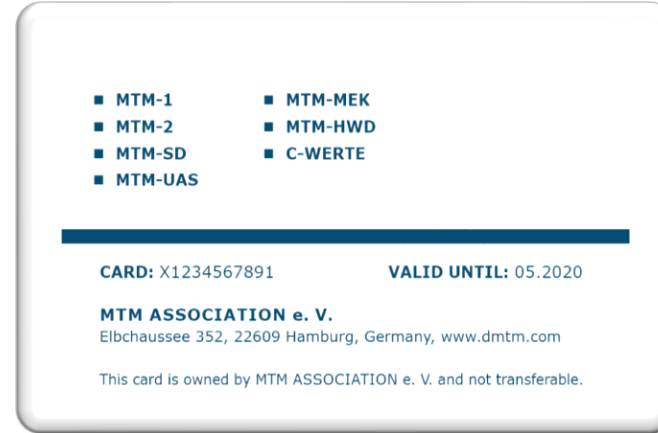
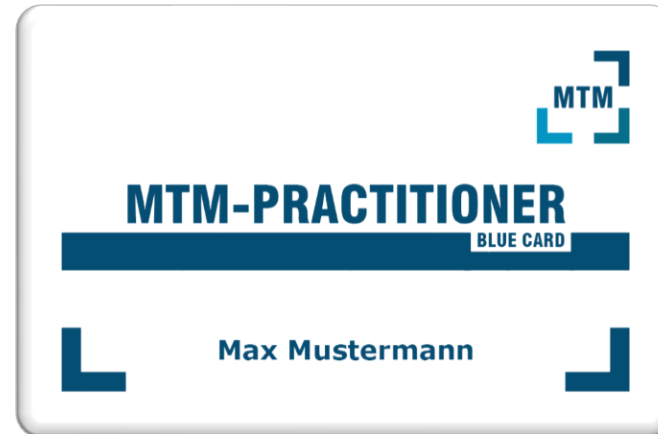
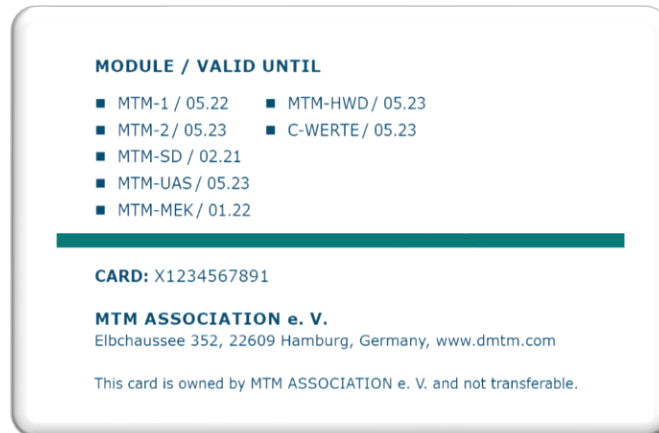
The **Trademarks** and the **Copyrights** for the following systems are with MTMA:

MTM-1, MTM-2, MTM-SD, MTM-HWD, MTM-UAS, MTM-MEK, EAWS

One-MTM Ecosystem



Gobal „identifiers“ of MTM experts - Training USPs

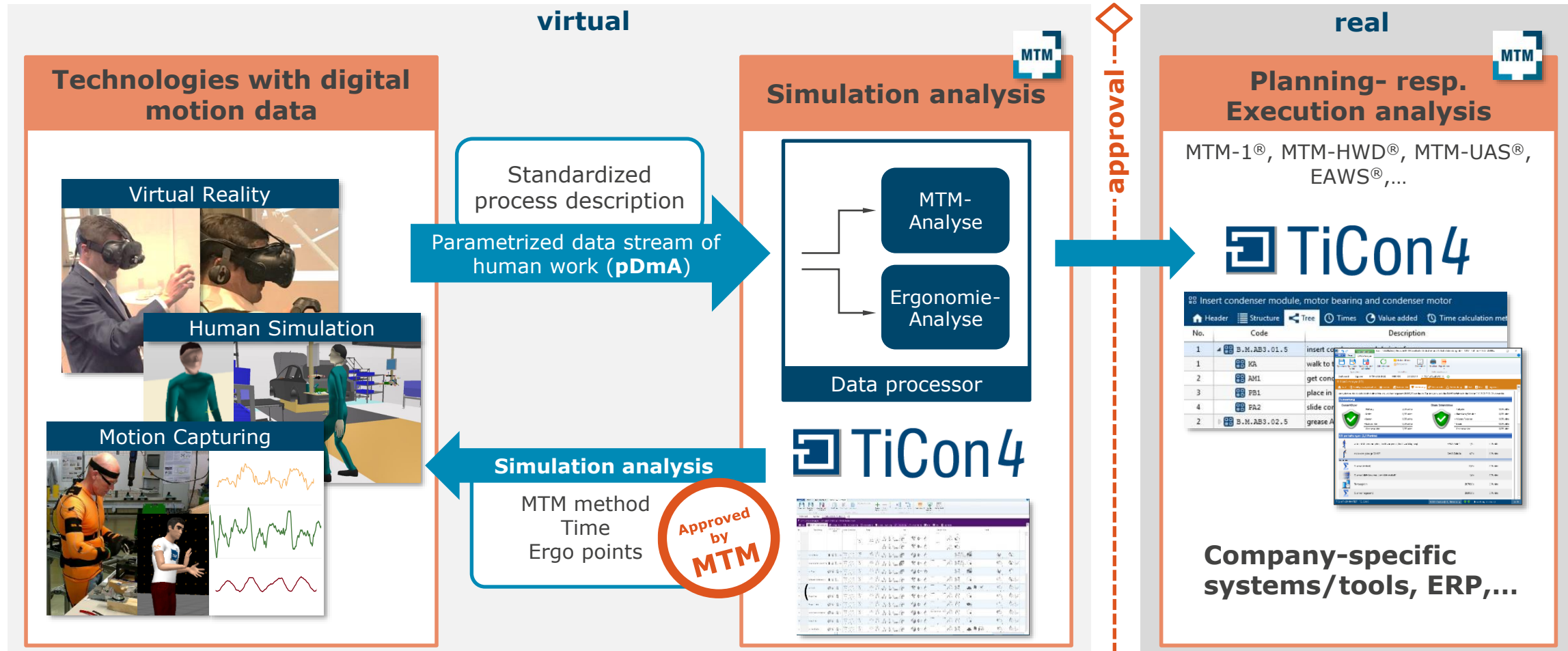


Certificates - globally untified!

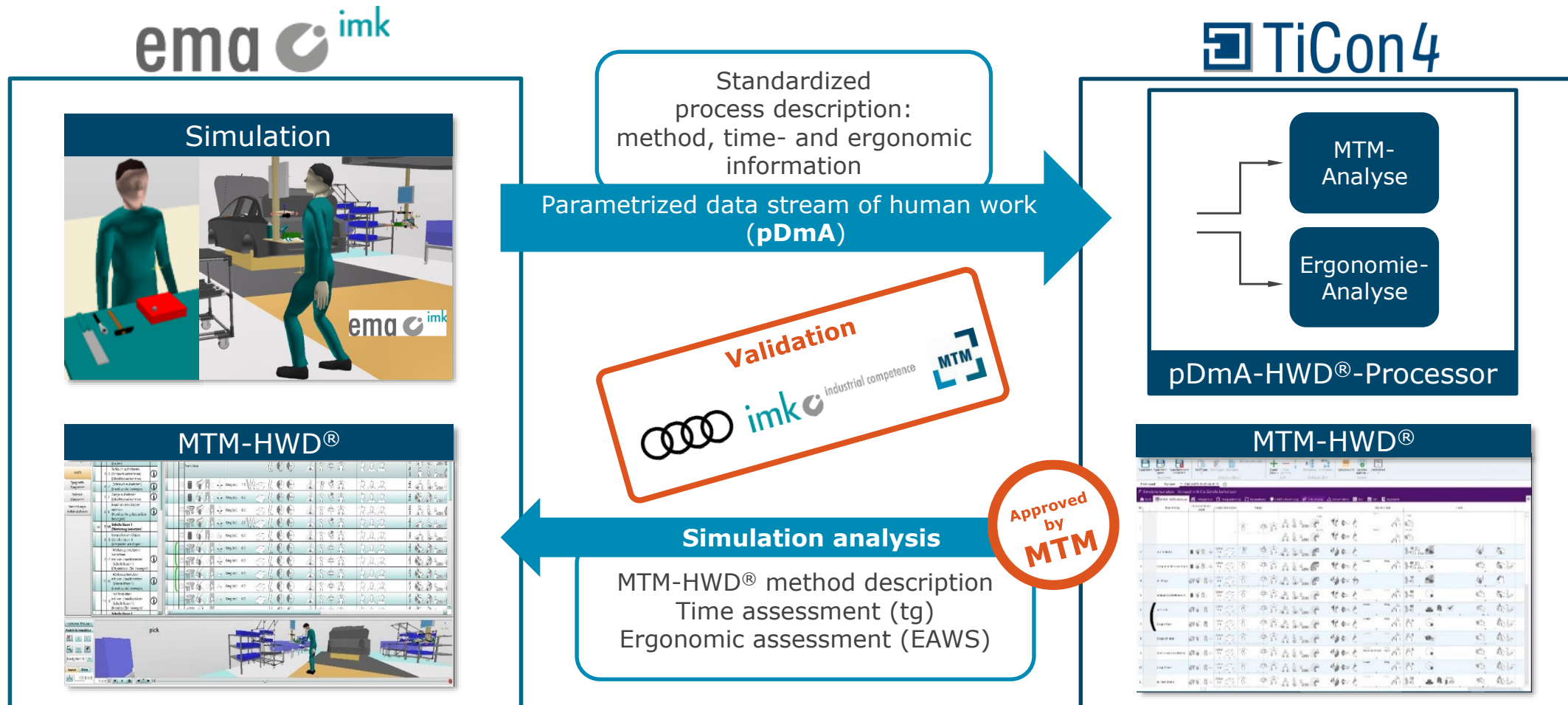


**Update ...
your understanding of MTM**

Transfer of digital motion data in MTM analysis: Simulation analysis



pDmA-interface: imk ema and MTM-TiCon



Human Simulation (ema) – tube assembly



Quelle: imk

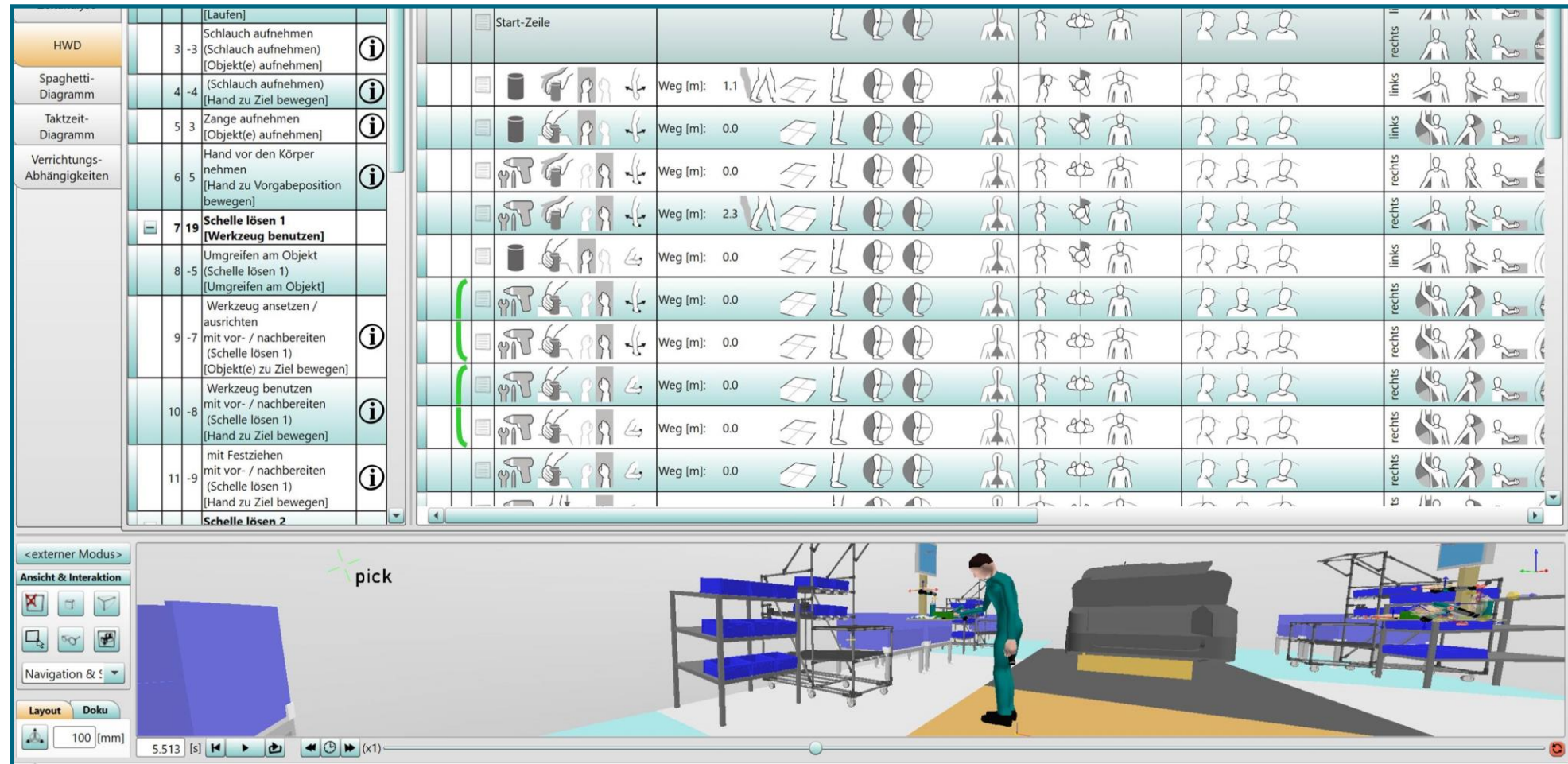
Tube assembly: MTM-HWD® analysis in MTM-TiCon



Start HWD-Baustein MTM-HWD-Analyse											
Speichern Speichern unter Speichern und schließen			Einfügen Übertragen Kopieren			Ausschneiden			Neue Zeile Zeile löschen Zeile		
Speichern			Zwischenablage			Aktivieren Aufheben Gleichzeitigkeit			Grobansicht Spalten wählen Ansicht		
Dashboard Explorer EMA.HWD.19-03-18.H*											
Simulationsanalyse - Schlauch mit Clic Schelle befestigen											
Kopf MTM-HWD-Analyse Extrapunkte Zeitgliederung Auswertung EAWS-Bewertung Dokumente Verwendung Text Bild Tagebuch											
Nr.	Bezeichnung	allgemeine Einstellungen	untere Extremitäten	Rumpf	Arm	Gewicht / Kraft	Links	Links	Links	Hand	
2	zum Schlauch	Gehen 2 m 53 0	0 0							10 3	2
3	hängend seitlich vom Körper	Gehen 0 m 0 0	0 0			Gewicht: 0,4 kg 0				40 10	0
4	zur Zange	Gehen 3 m 73 0	0 0							10 6	2
5	Schlauch in Arbeitsbereich	Gehen 0 m 0 0	0 0			Gewicht: 0,4 kg 0				40 14	0
6	an Schelle	Gehen 0 m 0 0	0 0			Gewicht: 0,5 kg 0				40 21 4 0	0
7	Zange öffnen	Gehen 0 m 0 0	0 0			Gewicht: 0,5 kg 0				5 0	0
10	Zange öffnen	Gehen 0 m 0 0	0 0								
11	zur 2ten Schelle	Gehen 0 m 0 0	0 0			Gewicht: 0,5 kg 0					
TiCon\FMB\HWD-EMA\EMA.HWD.19-03-18.H MTM-HWD-Abschnitt [HWD], MTM-HWD-Analyse tg gesamt: 479 TMU 0 von 27 Zeilen ausgewählt: 0 TMU de-DE + 80%											

Quelle: MTM

Tube assembly: MTM-HWD® analysis in ema



The screenshot displays the ema software interface for MTM-HWD analysis. The left sidebar contains a task list with icons for HWD, Spaghetti-Diagramm, Taktzeit-Diagramm, and Verrichtungs-Abhängigkeiten. The main area shows a detailed motion analysis table with columns for task description, time, distance, and motion type. The bottom section features a 3D simulation of a worker in a green uniform performing the assembly task in a virtual environment.

Task Description	Time [s]	Distance [m]	Motion Type
[Laufen]			
Schlauch aufnehmen (Schlauch aufnehmen) [Objekt(e) aufnehmen]	3 -3		
(Schlauch aufnehmen) [Hand zu Ziel bewegen]	4 -4		
Zange aufnehmen [Objekt(e) aufnehmen]	5 3		
Hand vor den Körper nehmen [Hand zu Vorgabeposition bewegen]	6 5		
Schelle lösen 1 [Werkzeug benutzen]	7 19		
Umgreifen am Objekt (Schelle lösen 1) [Umgreifen am Objekt]	8 -5		
Werkzeug ansetzen / ausrichten mit vor- / nachbereiten (Schelle lösen 1) [Objekt(e) zu Ziel bewegen]	9 -7		
Werkzeug benutzen mit vor- / nachbereiten (Schelle lösen 1) [Hand zu Ziel bewegen]	10 -8		
mit Festziehen mit vor- / nachbereiten (Schelle lösen 1) [Hand zu Ziel bewegen]	11 -9		
Schelle lösen 2			

The 3D simulation at the bottom shows a worker in a green uniform performing the assembly task in a virtual environment. The interface includes a 'pick' button and a 'Navigation & !' dropdown menu. The bottom status bar shows a time of 5.513 [s] and a scale of 100 [mm].

Quelle: imk

Transfer of digital motion data from Human Simulation



Derive the pDmA from digital motion data

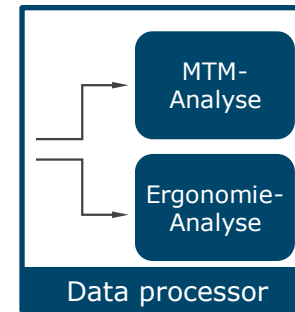


Standardized prozess description

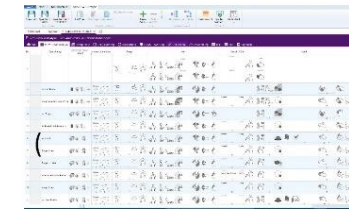
pDmA

MTM-HWD® process description, additional informationen

Processor
pDmA-HWD



TiCon4



MTM-1®
MTM-HWD®
MTM-UAS®
EAWS,
...

Simulation analysis

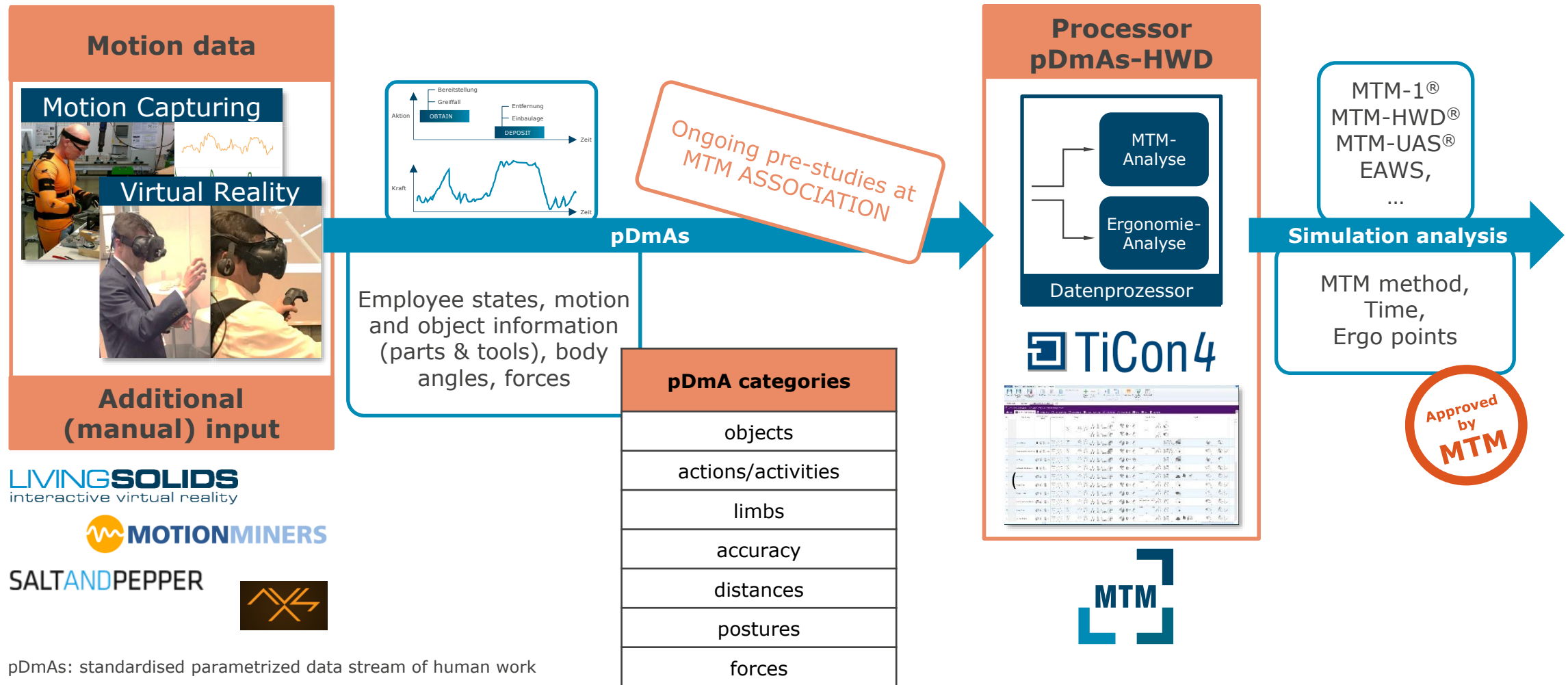
MTM method,
Time,
Ergo points



ema imk



Development of a standardized interface



LIVING SOLIDS
interactive virtual reality

MOTION MINERS

SALT AND PEPPER

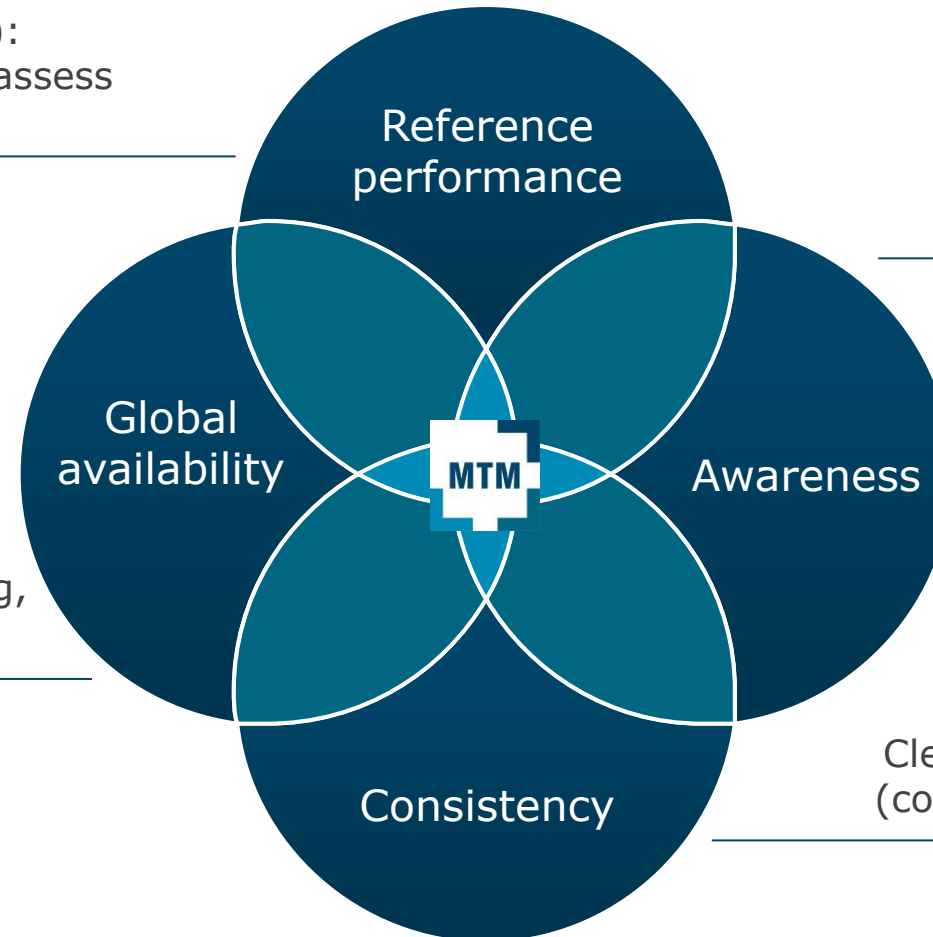


pDmAs: standardised parametrized data stream of human work



MTM Standard

MTM norm (standard performance):
Globally accepted to describe and assess
human work



All (relevant) stakeholders know our
MTM products and services

Products and services out of one
hand (training, software, consulting,
research)

International networking and
communication

Registered trademarks ®

Worldwide identical
qualification structure
and degrees (blue and green card)

Clear requirements for MTM Instructors
(contentwise, organisational, didactical)

Periodical quality refreshment of
applicators and instructors

„Good“ times

**come from well-
trained employees!**

MTM E-Learning

MTM training today and in future: MTM E-Learning – a success story



Learning

- personalized
- digital
- multilingual
- for practice
- interactive
- innovative
- anywhere
- anytime
- demanding
- verifiable
- approved



Benefits

- Reduced duration for the training
- Shorter absence from job
- Available in several languages



- Easy access to MTM training from international sites
- Global consistent structure & dissemination of MTM





#MTMTIMETOWIN





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Managing Director Deutsche MTM-Gesellschaft mbH

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