

Digitalización en la planificación y producción - ¿de dónde provienen los datos (tiempo y ergonomía)?

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

Head of MTM Institute, President International MTM Directorate

Guadalajara, Mexico, 21. February 2020

Digitalization in planning and production – but: where do the (time and ergonomics) data come from?

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

Head of MTM Institute, President International MTM Directorate

Guadalajara, Mexico, 21. February 2020

Agenda

Introduction

Technologies with digital motion data

Transfer of digital motion data into MTM analysis

Where do valid times come from?

Q&A

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

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

Organization (institution)



Assignment of not-for-profit industrial association

- Dissemination and (further) development of 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

work agreements for
method application and
salary

5.000

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

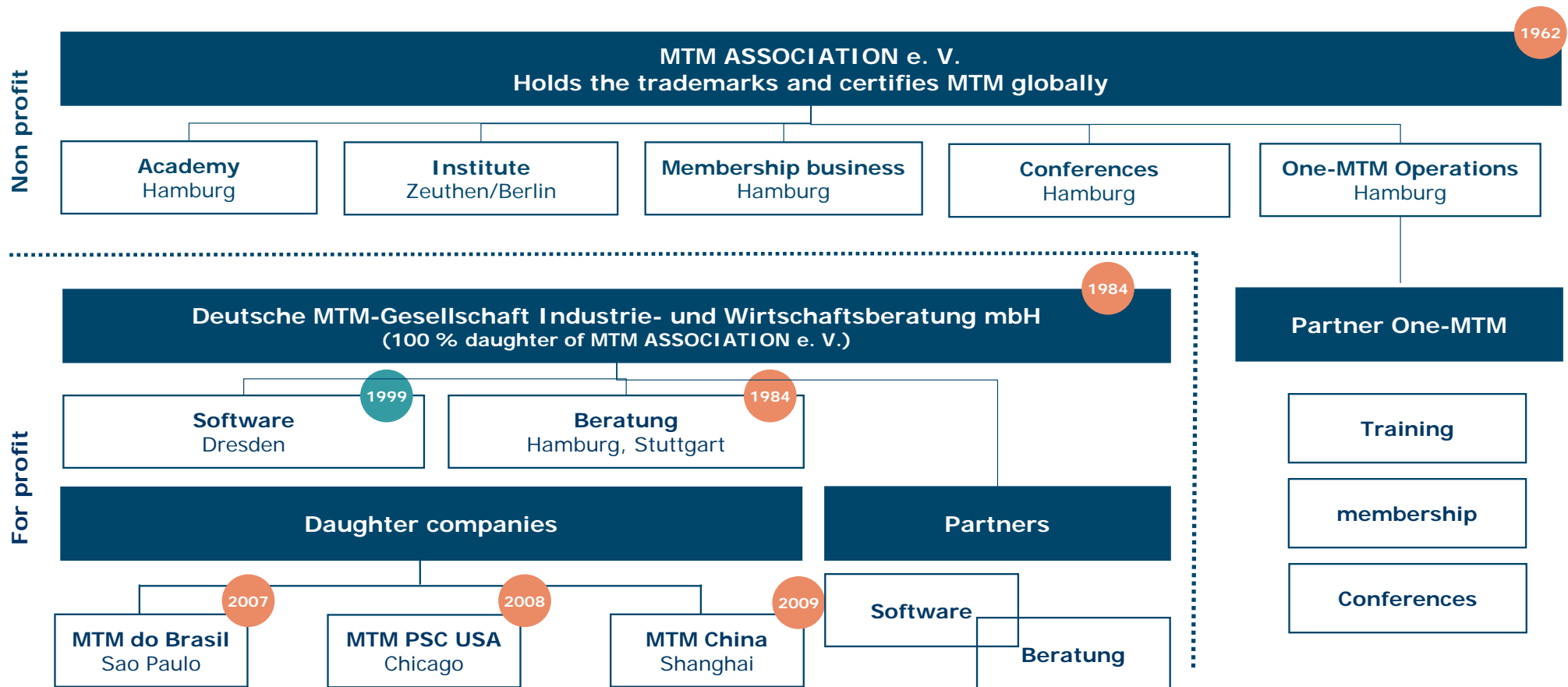
4.000

projects to improve
competitiveness

2.000

man-years experise in
consulting

MTM ASSOCIATION e. V.



International survey: The State of Human Factory Analytics

The Human Touch: Still Crucial in Manufacturing



Humans Provide Your Competitive Advantage



Time and motion studies:

71 percent say they're important; **43 percent** aren't confident in the data they yield.

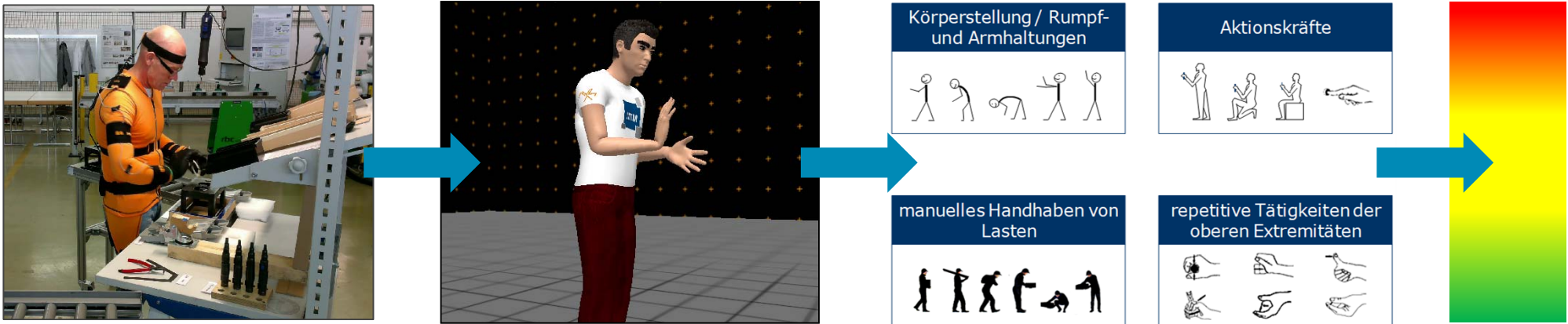
When Inexact Data Drives Operations

Quelle: A.T. Kearney, Inc. 2018

Technologies with digital motion data

Ergonomic assessment based on Motion Capturing

1. Motion data → 2. Human model → 3. Motion determination → 4. Ergonomic assessment



General data, extra points,
total score

Body postures / trunk- and arm postures

Action forces, manual material handling

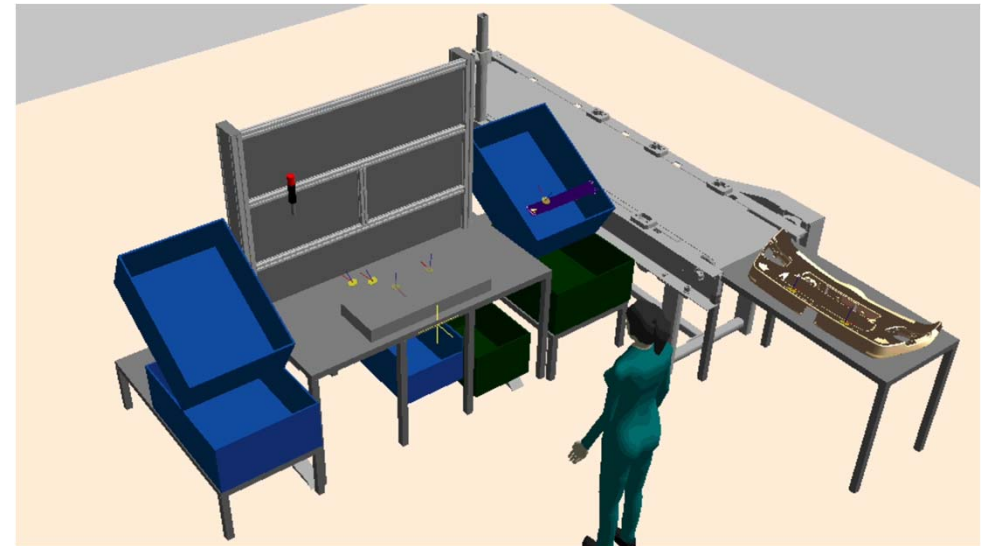
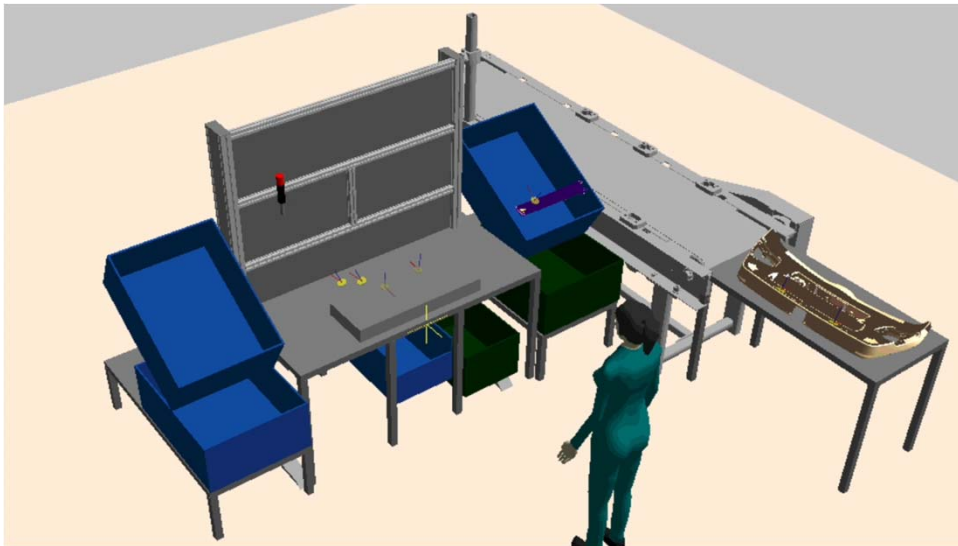
Upper limbs

Automatised compiled time and ergonomic analysis from digital motion data



Why do we need MTM in the future, since we use computer for simulation?

Automatised compiled MTM analysis from digital motion data

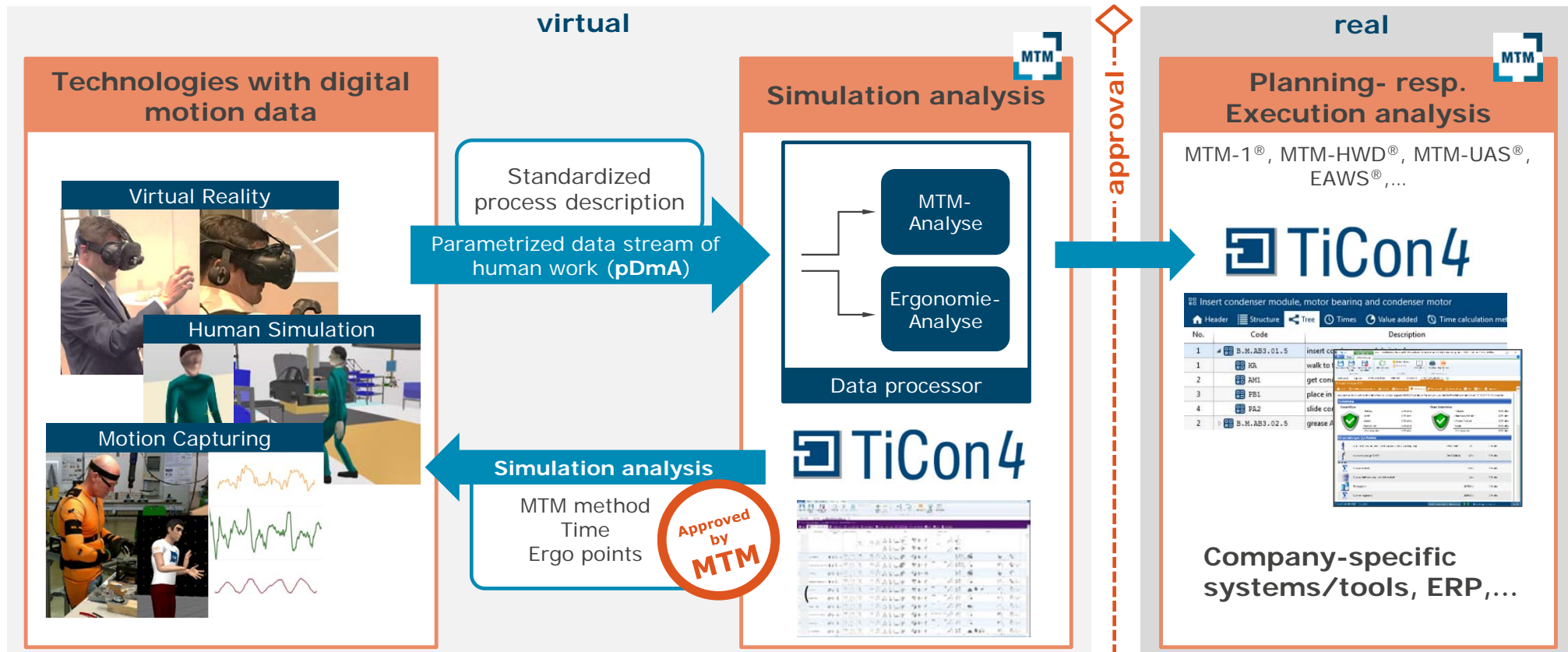


Where do we get a valid time from?

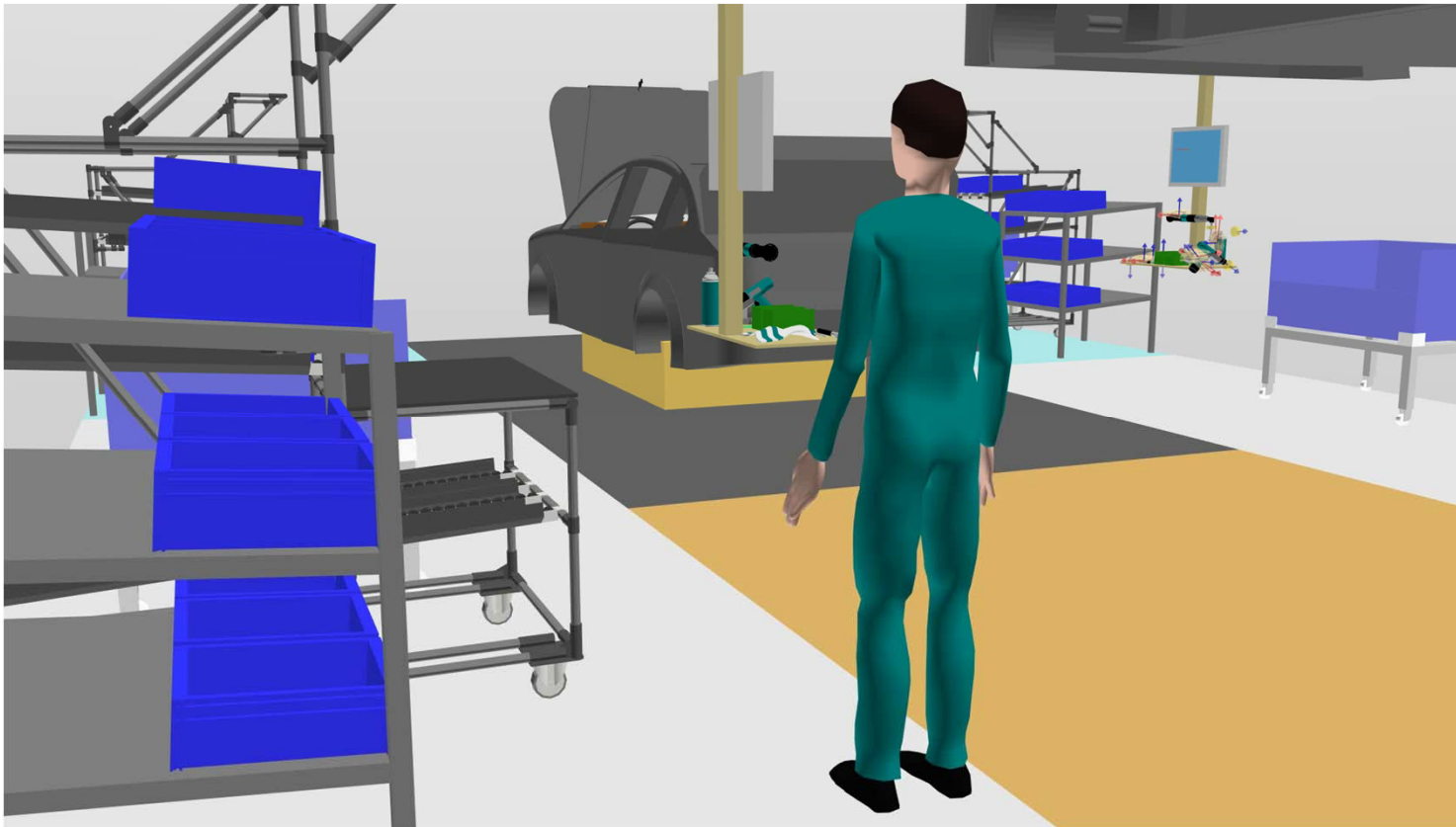
Prerequisite: Reference to an approved and neutral performance standard

Quelle: imk

Transfer of digital motion data in MTM analysis: Simulation analysis



Human Simulation (ema) – tube assembly



Quelle: imk

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



Start HWD-Bauzeilen MTM-HWD-Analyse											
Speichern			Speichern unter			Speichern und schließen			Einfügen		
Speichern			Zwischenspeicherung			Übertragen			Kopieren		
Ausschneiden			Neue Zeile			Zeile löschen			Zeile		
Aktivieren			Aufheben			Gleichzeitigkeit			Grobansicht		
Spalten wählen			Ansicht			MTM			Zeiteinheit		
Dashboard Explorer EMA.HWD.19-03-18.H											
Simulationanalyse Schlauch mit Clic Schelle befestigen											
Kopf MTM-HWD-Analyse Extrapunkte Zeitgliederung Auswertung LAWS-Bewertung Dokumente Verwendung Text Bild Tagebuch											
Nr.	Bezeichnung	allgemeine Einstellungen	untere Extremitäten	Rumpf	Arm	Gewicht / Kraft	Hand				
2	zum Schlauch	Gehen 2 m 53 0 0					10 3 2				
3	hängend seitlich vom Körper	Gehen 0 m 0 0 0				Gewicht: 0,4 kg 0	40 10 2				
4	zur Zange	Gehen 3 m 73 0 0					10 6 2				
5	Schlauch in Arbeitsbereich	Gehen 0 m 0 0 0				Gewicht: 0,4 kg 0	40 14 0				
6	an Schelle	Gehen 0 m 0 0 0				Gewicht: 0,5 kg 0	40 21 4 0				
7	Zange öffnen	Gehen 0 m 0 0 0				Gewicht: 0,5 kg 0	5 0 0				
10	Zange öffnen	Gehen 0 m 0 0 0									
11	zur Ziem Schelle	Gehen 0 m 0 0 0									

TiCon/MTM-HWD-EMA/EMA.HWD.19-03-18.H

MTM-HWD-Abschnitt [HWD], MTM-HWD-Analyse

Ig gesamt: 479 TMU

0 von 27 Zeilen ausgewählt: 0 TMU

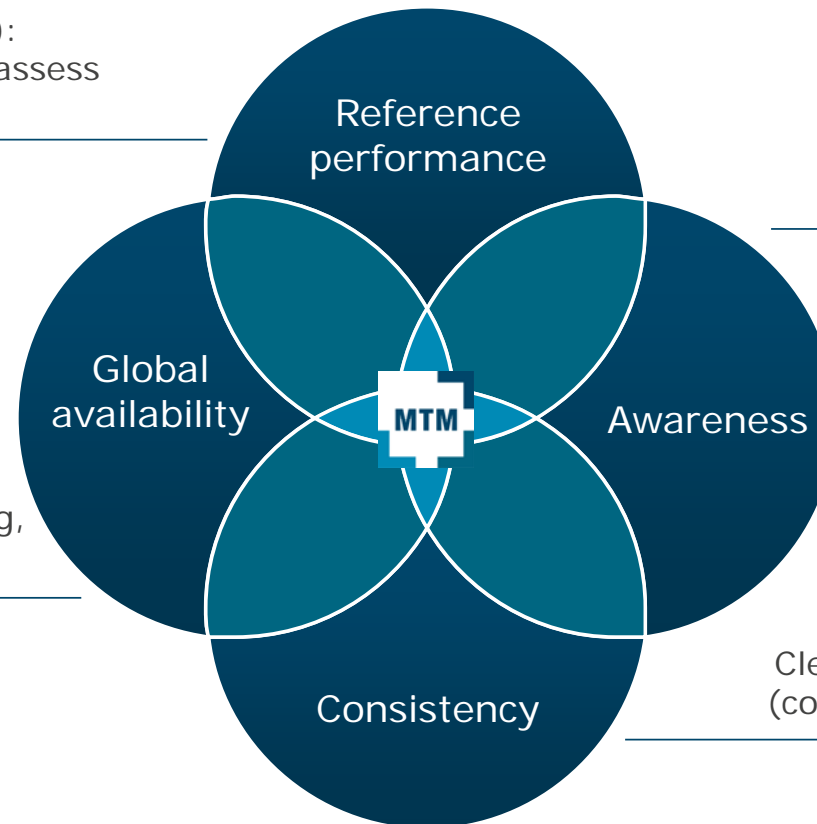
de-DE

80%

Quelle: MTM

MTM Standard – Interpretation

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
(valid and approved)
come from well-trained
employees!**

MTM E-Learning

A large blue L-shaped graphic in the bottom-left corner.A large blue L-shaped graphic in the bottom-right corner.

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





Peter Kuhlmann

Prof. Dr.

Head of MTM Institute

President of International MTM Directorate

+49 151 42251234

peter.kuhlmann@dmtm.com



MTM ASSOCIATION e. V.
Elbchaussee 352
22609 Hamburg
Germany
www.dmtm.com