

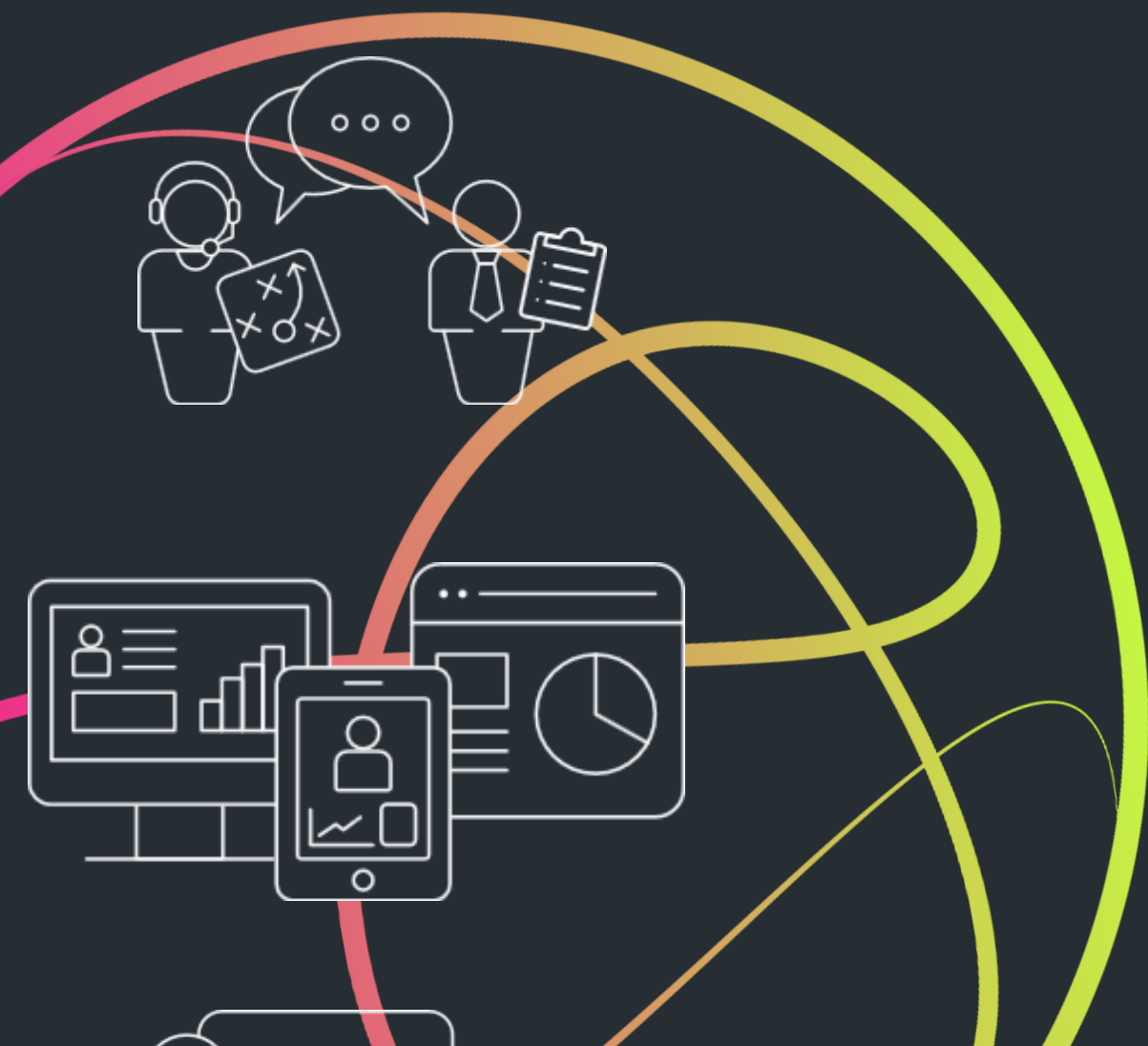
# MICRO-FACTORY 4.0 :

## *ONLINE COURSE*



Guideline for Participants

Discussion Paper | 14.06.2019 | Dr. Paul Gromball  
(E-mail: [Paul.Gromball@tmg-muenchen.de](mailto:Paul.Gromball@tmg-muenchen.de))



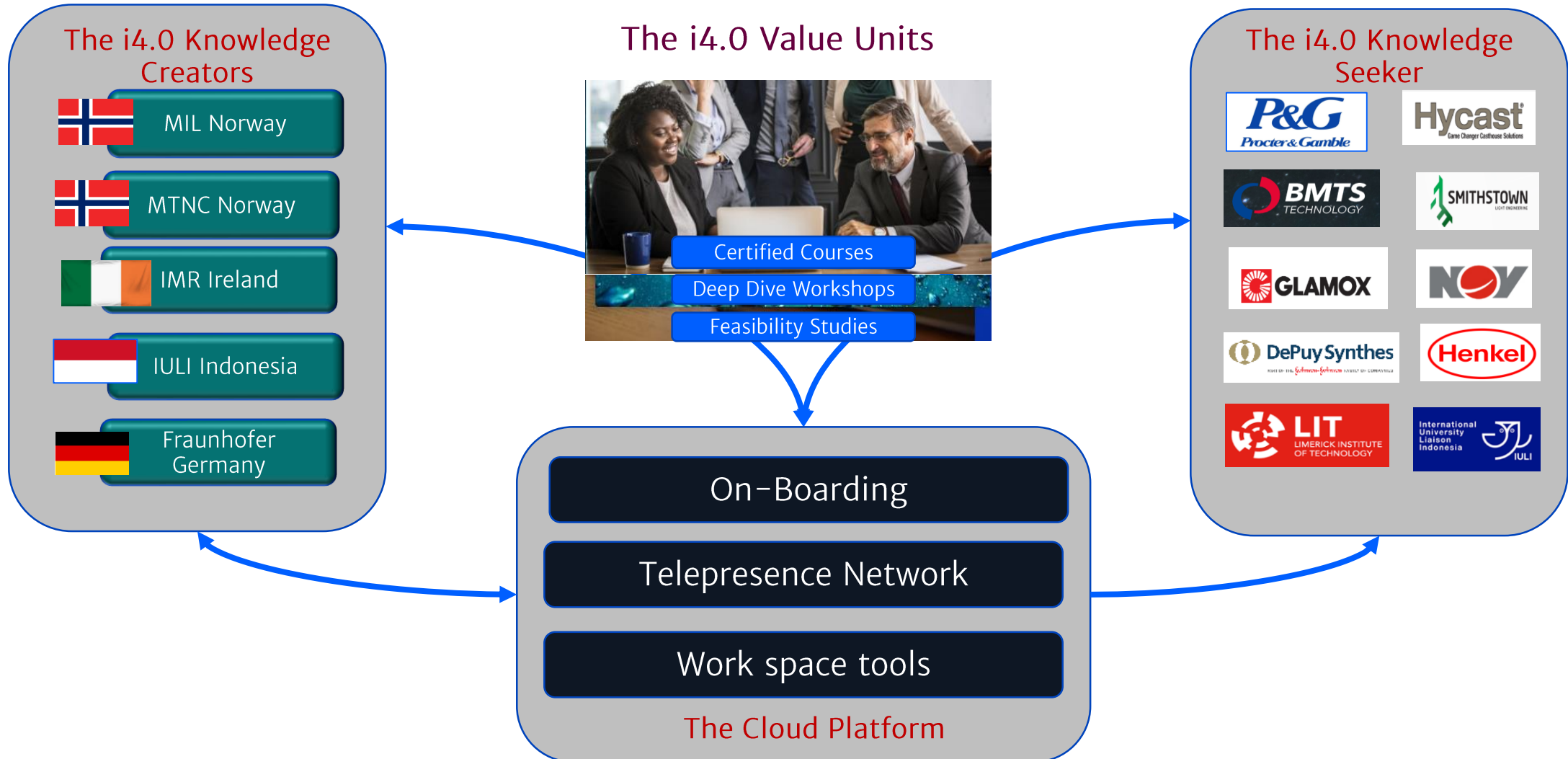
# GUIDELINE FOR PARTICIPANTS

1. Industrie 4.0 Management Training Platform
2. Course-Onboarding platform
3. Course Information
4. Preparing for the Course
5. Your Access to the virtual Class Room
6. The Micro-Factory 4.0 Advantage

# 1) INDUSTRIE 4.0 MANAGEMENT TRAINING PLATFORM

# INDUSTRIE 4.0: MANAGEMENT TRAINING PLATFORM COMMUNITY

## RAPIDLY MOVING I4.0 IDEAS FROM INCEPTION TO IMPLEMENTATION



# ON-BOARDING PLATFORM

On-Boarding

Click: Your Platform Link

## Industrie 4.0 Management-Training

Benefit from the best I4.0 opportunities of operational effectiveness and strategic positioning for your company by up-skilling powered by recent tech center research

FIND A COURSE OR WORKSHOP

REGISTER



Certified Courses

Deep Dive Workshops

Feasibility Studies

## Management Training Areas



Manufacturing 4.0

Industrial Internet of Things

Additive Manufacturing

Digital Leadership

## Online Blended Learning

The blended learning format offers a completely virtualized and scalable platform for online working, e-learning- and telepresence with virtual classrooms and space for creation and team collaboration. The three phases of blended learning - e-learning preparation, live online lectures and team work assignments - guarantees maximal up-skilling success.

## Deep Dive Co-Creation

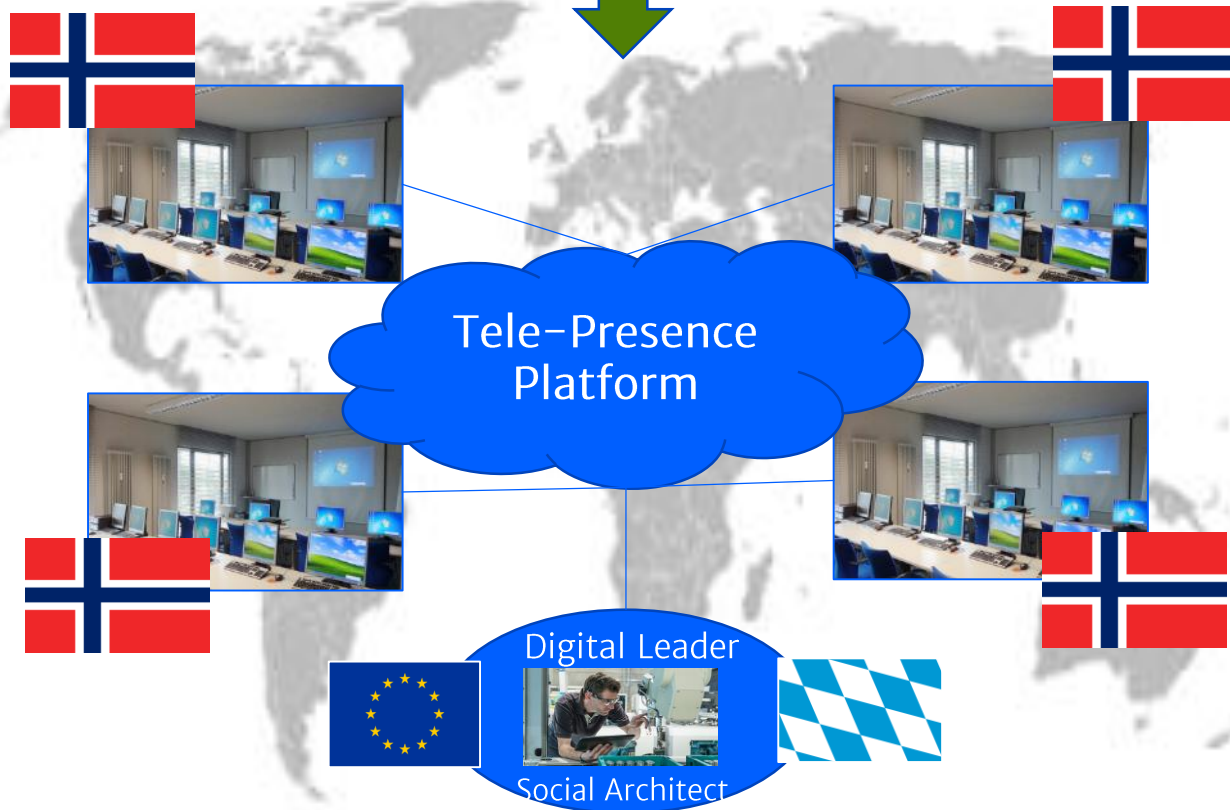
The deep dive co-creation session provides a short introduction of 4 hours to the industrie 4.0 technologies and their management challenges, enabling the participant to understand its value and area of usage. By understanding areas of usage, internal needs get revealed and the speed of improved implementation gets increased.

# TELEPRESENCE PLATFORM

The Quality Management System

Telepresence Network

Alfaview Platform



## Virtual Class Room Features

- Audio-visual global Live Learning Platform
- World-class Industrie 4.0 Content and Expertise from Fraunhofer Institutes, ZD.B Cluster Companies
- Individual Coaching/Mentoring of Participants
- Real-time Networking of Lecturer and Participants
- Direct interaction of participants in an virtual team room
- Mobilization of „collective intelligence“ of teams and computers for I4.0 Innovations

*Click on blue button to view tutorial*

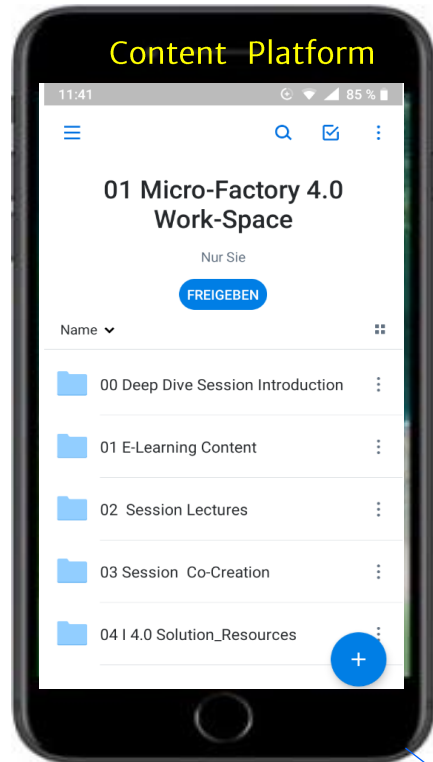
Collective Intelligence

Future of making things

# TEAM WORK-SPACE

e-learning of 32 micro-courses

Work space tools



**Manufacturing 4.0**

online

|                        |                          |
|------------------------|--------------------------|
| Industrie 4.0 Strategy | Processes & BlockChain   |
| Smart Factory          | Mobile & Cloud Computing |
| Robotics & Automation  | IoT & AR                 |
| Big Data & AI          | Cybersecurity            |

**Industrial Internet of Things**

online

|                               |                         |
|-------------------------------|-------------------------|
| Industrial Internet of Things | IoT Platforms           |
| Continuous Engineering        | Augmented Intelligence  |
| Data & Sensors                | IoT & AR                |
| Communication & Network       | Organizational Adoption |

Click on button for more info

**Additive Manufacturing**

online

|                         |                        |
|-------------------------|------------------------|
| Future of making Things | Immersive Design       |
| Additive manufacturing  | Collaborative Design   |
| AM Micro-factory        | Generative Design      |
| 3D Modeling             | Continuous Engineering |

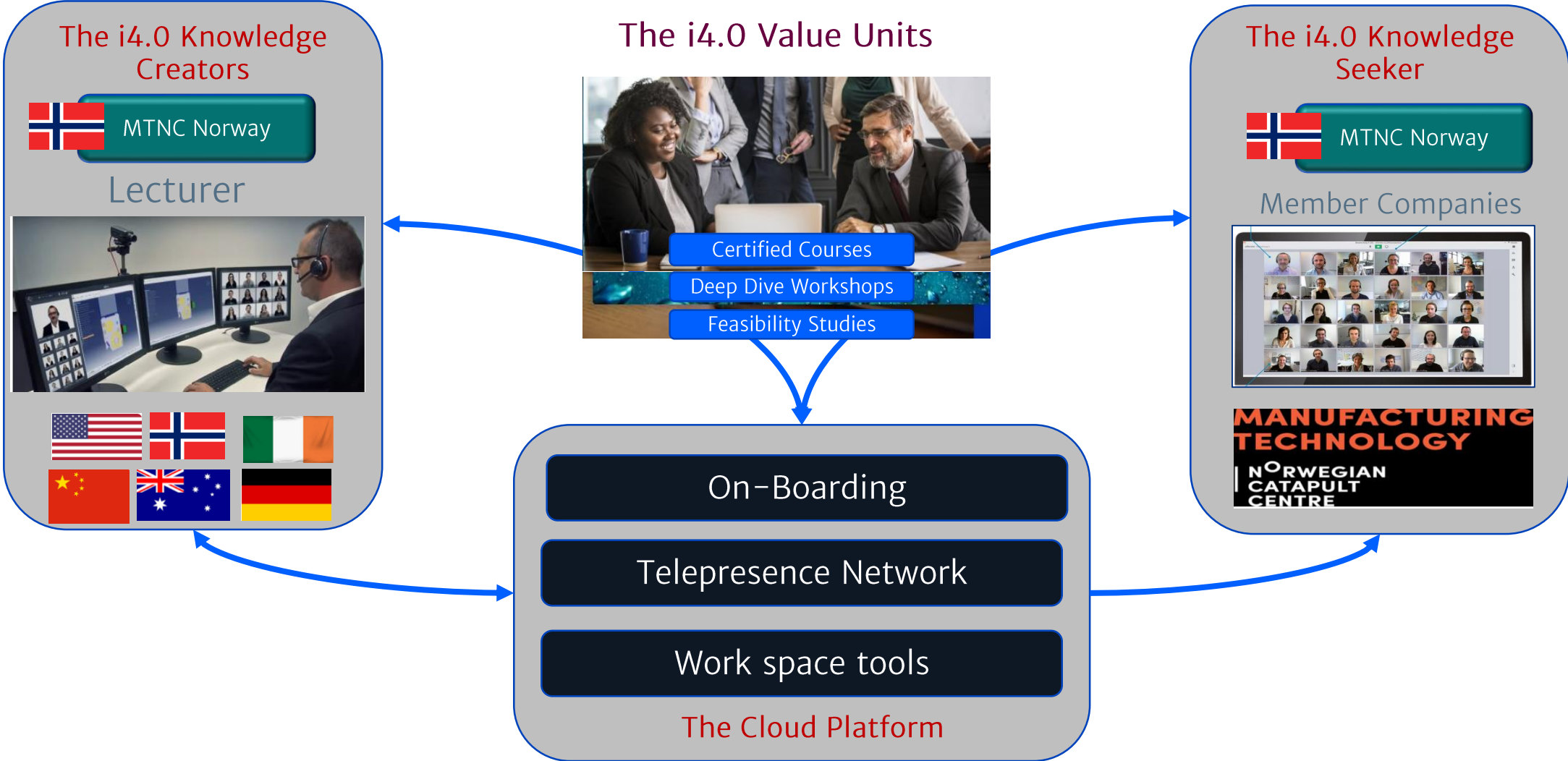
**Leadership 4.0**

online

|                          |                               |
|--------------------------|-------------------------------|
| Industrie 4.0 Strategy   | Smart Factory                 |
| Digital leadership       | Industrial Internet of Things |
| Digital Entrepreneurship | Cybersecurity                 |
| Design Thinking          | Organizational Adoption       |

# POTENTIAL MANAGEMENT TRAINING PLATFORM ROLES

## CONSUMER OR/AND PRODUCER OF INDUSTRIE 4.0 KNOWLEDGE





## **2) COURSE ON-BOARDING PROCESS**

# MANAGEMENT TRAINING PLATFORM: COURSE INFORMATION(1)

## Industrie 4.0 Management-Training

Benefit from the best I4.0 opportunities of operational effectiveness and strategic positioning for your company by up-skilling powered by recent tech center research

FIND A COURSE OR WORKSHOP

REGISTER



Certified Courses

Deep Dive Workshops

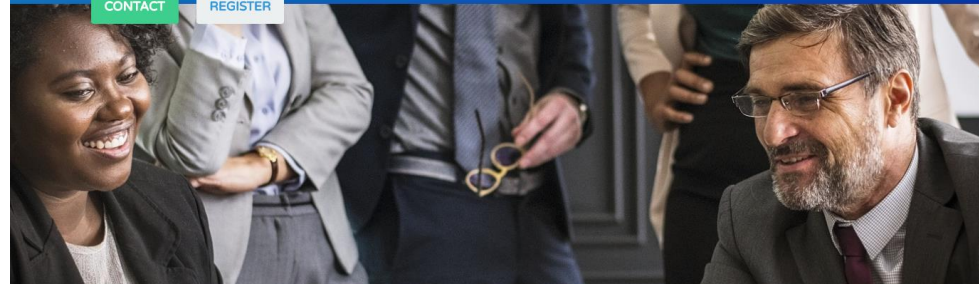
Feasibility Studies

## All courses at a glance

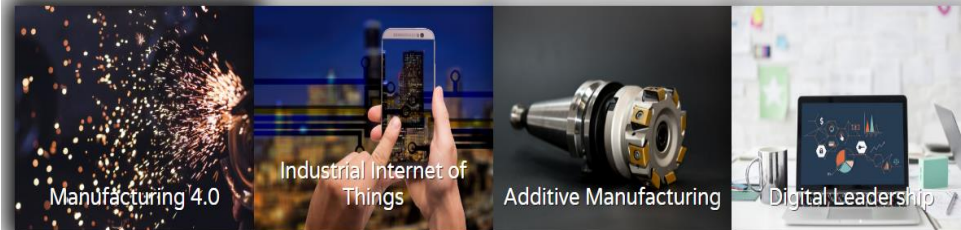
On this page, you can find all courses of the TMG München segmented in four categories.

CONTACT

REGISTER



## List of all courses



Manufacturing 4.0

Industrial Internet of Things

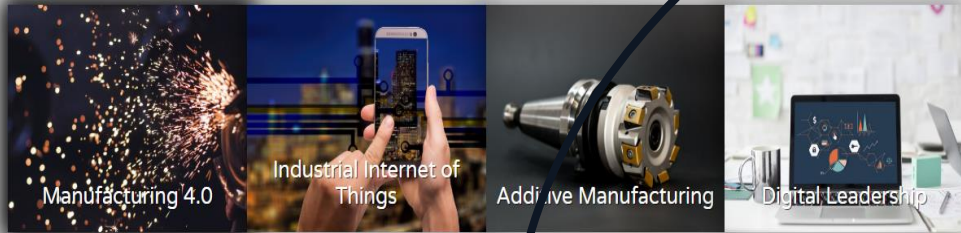
Additive Manufacturing

Digital Leadership

Discover Manufacturing 4.0  
Deep Dive: Smart Factory  
Deep Dive: Cybersecurity  
Deep Dive: Robotics & Automation  
Course: Micro-Factory 4.0

# MANAGEMENT TRAINING PLATFORM: COURSE INFORMATION(2)

## List of all courses



Discover Manufacturing 4.0  
Deep Dive: Smart Factory  
Deep Dive: Cybersecurity  
Deep Dive: Robotics & Automation  
Course: Micro-Factory 4.0

## Course: Micro-Factory 4.0

A course by TMG Muenchen

ADD TO BASKET

CONTACT US

### Information about the course

Micro-factory refers to a small dimension factory able to produce small dimension products.

The term was proposed by the Mechanical Engineer Laboratory (MEL) of Japan in 1990. The micro-factory main advantages are to save great amount of resources like space, energy, materials and time.

Due to their reduced dimensions, micro-factories should be highly automated. They might contain automatic machine tools, 3 D-printers, assembly systems, quality inspection systems, material feed systems, waste elimination systems, a system to evaluate tool deterioration and a system to replace tools.

A micro-factory can also refer to a factory designed to produce flexible small batch production that can produce a wide variety of products as opposed to a single monolithic mass production type approach.

Typically the manufacturing processes of micro-factories take advantage of digital fabrication technology such as 3D printing and CNC machines in order to accomplish this.

**Is this course for you?**

# MANAGEMENT TRAINING PLATFORM: REGISTER FOR COURSE

## Industrie 4.0 Management-Training

Benefit from the best I4.0 opportunities of operational effectiveness and strategic positioning for your company by up-skilling powered by recent tech center research

FIND A COURSE OR WORKSHOP

REGISTER



Certified Courses

Deep Dive Workshops

Feasibility Studies

TMG  
TECHNOLOGIE MANAGEMENT GRUPPE

All Courses Contact us Login

## Register

Your Name

E-Mail

Username

Password

Do you already have an account?

REGISTER

# MANAGEMENT TRAINING PLATFORM: COURSE ON-BOARDING

## Select Course & “Buy”

### Course: Micro-Factory 4.0

A course by TMG Muenchen

[ADD TO BASKET](#) [CONTACT US](#)

#### Information about the course

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## Submit to TMG

### Your Basket

Course: Micro-Factory 4.0

Cost: 2000.0€ + VAT

[BUY](#)

### Contact Us

A full checkout platform is coming soon. In the meantime, you can use this contact form. You can edit the text below if you would like to add some information.

Dear Sir or Madam,  
I would like to buy a participation in this/these following course(s):

- Course: Micro-Factory 4.0 (ID: 15)

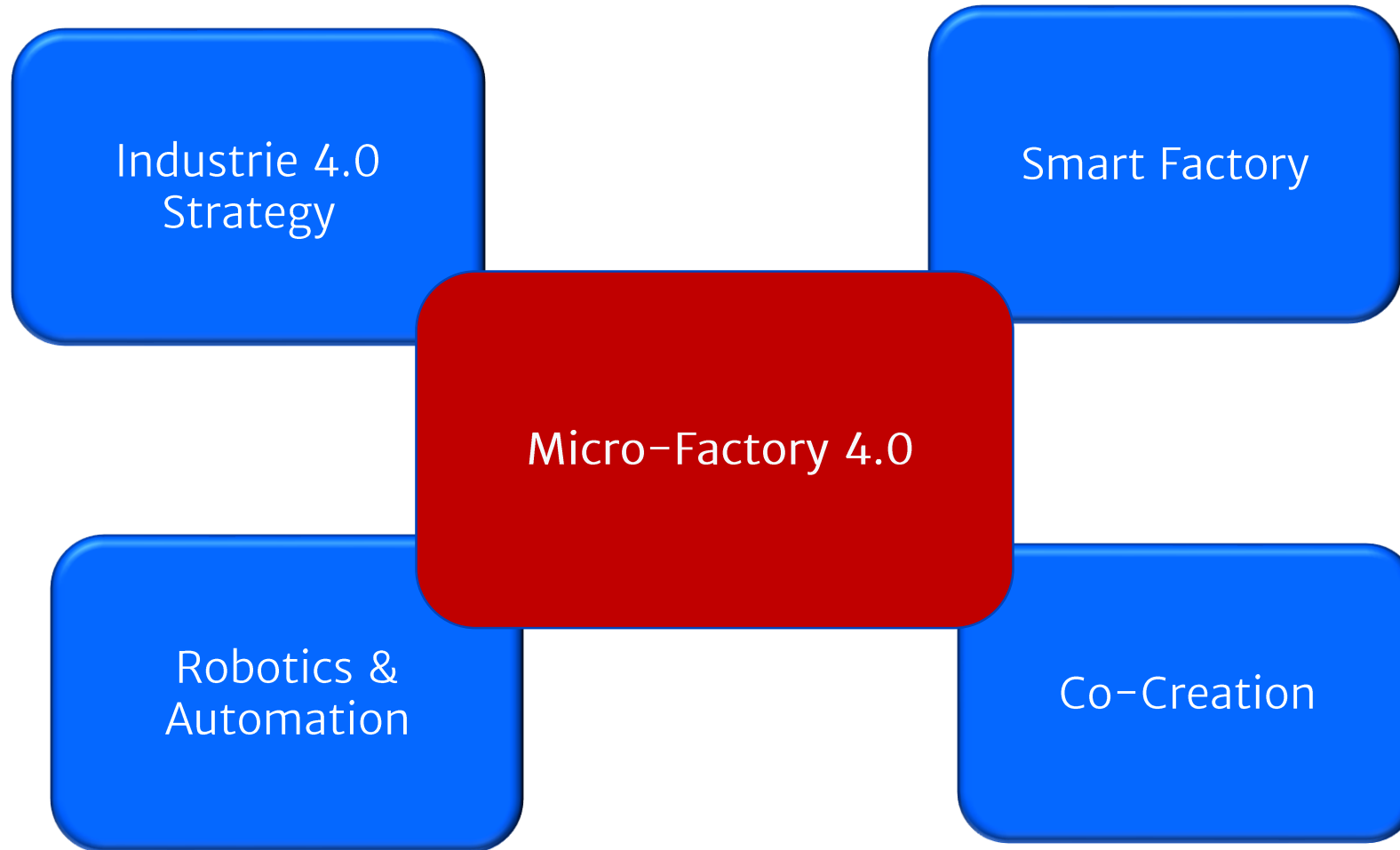
Please send me an answer to my email: [paul.gromball@tmg-muenchen.de](mailto:paul.gromball@tmg-muenchen.de)

Sincere regards,  
Paul Gromball

[SUBMIT](#)

# 3) COURSE INFORMATION

# MICRO-FACTORY COURSE MODULES



# COURSE: MICRO-FACTORY 4.0

## INFORMATION ABOUT THE TRAINING

### Micro-factory

refers to a small dimension factory able to produce small dimension products.

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# COURSE: MICRO-FACTORY 4.0

## IS THE COURSE FOR YOU?

This course is aimed at business leaders, decision makers, functional managers in Production /Logistics, Research & Development, Entrepreneurs (internal/external) and anyone with an interest in discussing Micro-Factory 4.0 with the global experts.

Key Question to considering the Course:

Do you have the knowledge to identify the best Micro-Factory 4.0 opportunities for your Company?

Are you able to start the conversation with your customers on the direction they should take to capture the Micro-Factory 4.0 potential ?

Do you have the skills to “Jump-start” the Industrie 4.0 Journey by crafting the Company Micro-Factory 4.0 Strategy" in an effective way with management and IT?

# COURSE: MICRO-FACTORY 4.0

## LEARNING OBJECTIVES

1. Understanding the I 4.0 Transformation
  - Understand the Industrie 4.0 Evolution
  - Analyze the drivers and enablers
  - Identify the opportunities & risks
  - Manufacture with cyber-physical system
  - Automate with Robotics
2. Apply Micro-Factory 4.0 Methods
  - Design-Co-Creation
  - Manufacturing 4.0
  - Sales & Delivery
  - Augmented Reality
3. Apply Micro-Factory 4.0 maturity assessment
  - Production Processes
  - Supply Chain
  - Products
4. Understand possibilities & limitations Micro-Factory 4.0
  - Know the methods to create own Micro-Factory 4.0 Transformation Roadmap

# COURSE: MICRO-FACTORY 4.0

## COURSE CONTENT

This course will provide you with the insight into the following M4.0 Modules:

### Module 1: Industrie 4.0 Transformation

#### **Understanding the potential the I4.0 Transformation**

- Industrie 4.0: Technology Evolution
- Industrie4.0: Geographic Scope
- Industrie 4.0: Organizational Evolution
- Industrie 4.0: Leading Digital
- Industrie 4.0: Up-Skilling-as-a-Strategy
- The Industrie 4.0 Transformation

### Module 2: Smart Factory

#### **Getting to know how to make existing factories smart**

- The Smart Connected Factory
- ERP System
- Manufacturing Execution System
- SCADA
- PLC
- CPS and Digital Twin Design
- Cyber Physical Systems
- Smart Connected Factories Integration (Vertical, horizontal, end-to-end)

# COURSE: MICRO-FACTORY 4.0

## COURSE CONTENT

This course will provide you with the insight into the following M4.0 Modules:

### Module 3: Co-creation

#### **Internal and External Cooperation for Product Design**

- Set-up *the OnShape* Design Tool
- 3 D Design Collaboration
- Creating Sketches and Objects
- Adding Features
- 3D Tidbits
- View and Orientation
- Documents

### Module 4: Robotics & Automation

#### **Discover the new possibilities of Robotics and machine-human interfaces**

- Robotics & Automation
- Implementing Automation
- Why Automate?
- Articulated Robots
- Accuracy and Calibration
- Gripping and advanced Manipulators

As this deep dive workshop is designed to have e-learning preparation, limited group sizes for live lecture and breakout sessions for deep dive team co-creation, it enables participants to 'ask the expert' questions specific to their needs.

Therefore, this provides a unique opportunity to come away from this deep dive workshop with all the information you need.

# THE MICRO-FACTORY 4.0 COURSE: FORMAT

|                         |                                                                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Target Group            | Functional Manager<br>Production /Logistics<br>Research & Development<br>Sales & Marketing<br>Service<br>Human Resources<br>IT<br>Entrepreneurs (internal/external) |
| Duration                | 4hours                                                                                                                                                              |
| Format                  | Blended Online Co-Creation                                                                                                                                          |
| Deep Dive Modules       | 4                                                                                                                                                                   |
| Online presence lecture | 4h hours                                                                                                                                                            |
| Participation           | Max. 20                                                                                                                                                             |
| Fees                    |                                                                                                                                                                     |

# THE COURSE TIME TABLE: PRESENCE ON SATURDAY

| JULY 2019        |     |     |     |     |     |                       |
|------------------|-----|-----|-----|-----|-----|-----------------------|
| Sun              | Mon | Tue | Wed | Thu | Fri | Sat                   |
| 30               | 1   | 2   | 3   | 4   | 5   | 6                     |
| 7                | 8   | 9   | 10  | 11  | 12  | 13                    |
| ← Trial Sessions |     |     |     |     |     |                       |
| 14               | 15  | 16  | 17  | 18  | 19  | 20<br>Presence lesson |
| 21               | 22  | 23  | 24  | 25  | 26  | 27<br>Presence lesson |
| 28               | 29  | 30  | 31  |     |     |                       |

| AUGUST 2019 |     |     |     |     |     |                       |
|-------------|-----|-----|-----|-----|-----|-----------------------|
| SUN         | MON | TUE | WED | THU | FRI | SAT                   |
|             |     |     |     | 1   | 2   | 3<br>Presence lesson  |
| 4           | 5   | 6   | 7   | 8   | 9   | 10<br>Presence lesson |
| 11          | 12  | 13  | 14  | 15  | 16  | 17                    |
| 18          | 19  | 20  | 21  | 22  | 23  | 24                    |
| 25          | 26  | 27  | 28  | 29  | 30  | 31                    |

## Daily Online Schedule

| Agenda    | Begin   | End      | Break |
|-----------|---------|----------|-------|
| Lecture   | 10a.m   | 11.30a.m | 30min |
| Team-work | 12. p.m | 2.00 p.m | End   |

# 4) PREPARING FOR THE COURSE

# Preparation: Your Access to the E-Learning Content

Click on Link

Access to Smart Lab E-Learning Content

Smart Factory



Deep Dive Module: Smart Factory

Module: Smart Factory

**Getting to know how to make existing factories smart**

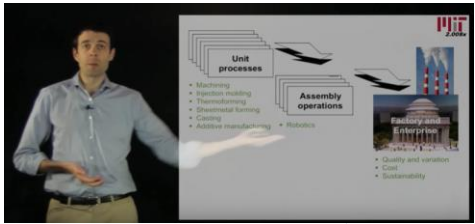
- The Smart Connected Factory
- ERP System
- Manufacturing Execution System
- SCADA

**Smart Factory** is a term from research in the field of manufacturing technology. It is part of the German government's high-tech strategy as part of the future project Industry 4.0. IT describes the vision of a production environment in which production facilities and logistics systems largely organize themselves without human intervention.

The network of embedded production systems and dynamic business and engineering processes



Online Tutorial



## E-LEARNING: SMART FACTORY

- 1a) Smart Manufacturing
- 1b) Micro Manufacturing
- 2) ERP-System
- 3) MES-System
- 4) SCADA
- 8) Cyber Physical Systems & IoT
- 9) The CPS-Demo Lab
- 10) Industrie 4.0 Lab





# THE VIRTUAL CLASS ROOM

The Quality Management System

Alfaview Platform



## Virtual Workshop Room Features

- Audio-visual global Live Workshop Platform
- Direct interaction of participants in an virtual team room
- Mobilization of „collective intelligence“ of teams and computers for I4.0 Innovations

*Click on blue button to view tutorial*

Collective Intelligence

Future of making things

# LECTURE: ROLES FOR DEEP DIVE SESSION



Lecturer

Click on picture to access alfaview



Participants

**AUDIOVISUAL NETWORKING**  
Video and audio are transmitted synchronously worldwide.

**SIMPLE AND CLEAR DESIGN**  
The software is self-explanatory and intuitive to use.

**WORLDWIDE TRANSMISSION**  
100 or more users worldwide can be connected and transmitted in real-time.

**FACE-TO-FACE ON ALL COMPUTERS**  
alfaview® is available for all common PCs.



# DIGITAL WORK PLACE: STANDARD INFRASTRUCTURE

## The Virtual Work Infrastructure

Digital Work Place  
Dual Monitor Environment  
with Internet Connection

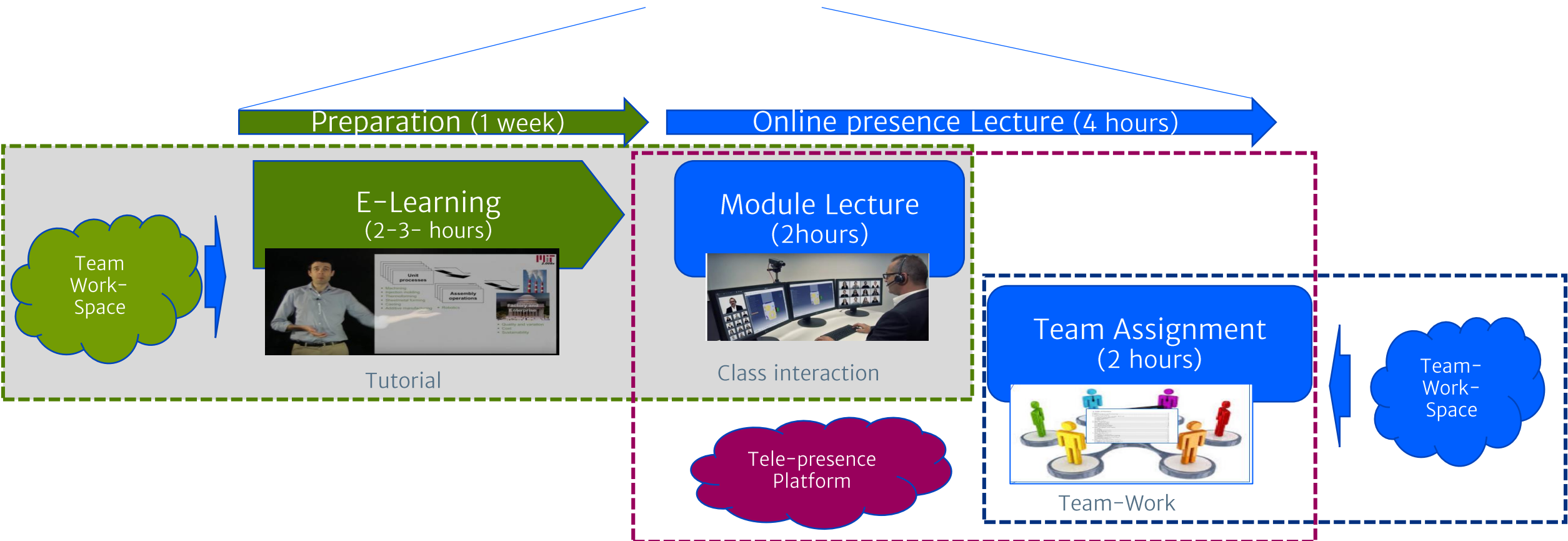


Digital Work Center  
Local on-premise  
infrastructure



# THE ONLINE BLENDED DEEP DIVE PROCESS

## INTEGRATING E-LEARNING WITH TELE-TEACHING



# DEEP DIVE SESSION: CLOUD PLATFORM ACCESS



Tele-presence Platform



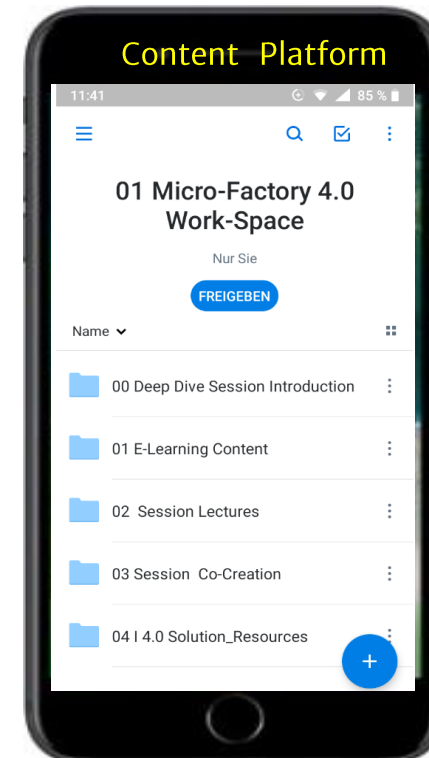
Click on Link to Tele-presence



Team Work-space



Click on Link to Content Platform

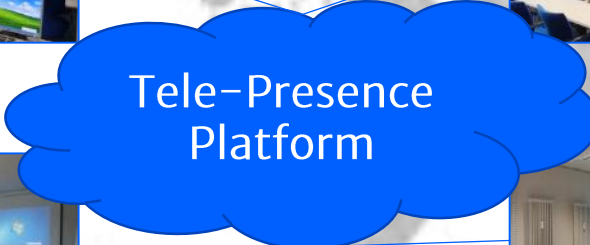


# **5) YOUR ACCESS TO THE VIRTUAL CLASS ROOM**

# ACCESS TO THE VIRTUAL CLASS ROOM

The Quality Management System

Alfaview Platform



Digital Leader



Social Architect



## Virtual Class Room Features

- Audio-visual global Live Learning Platform
- World-class Industrie 4.0 Content and Expertise from Fraunhofer Institutes, ZD.B Cluster Companies
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Collective Intelligence

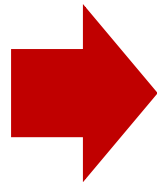
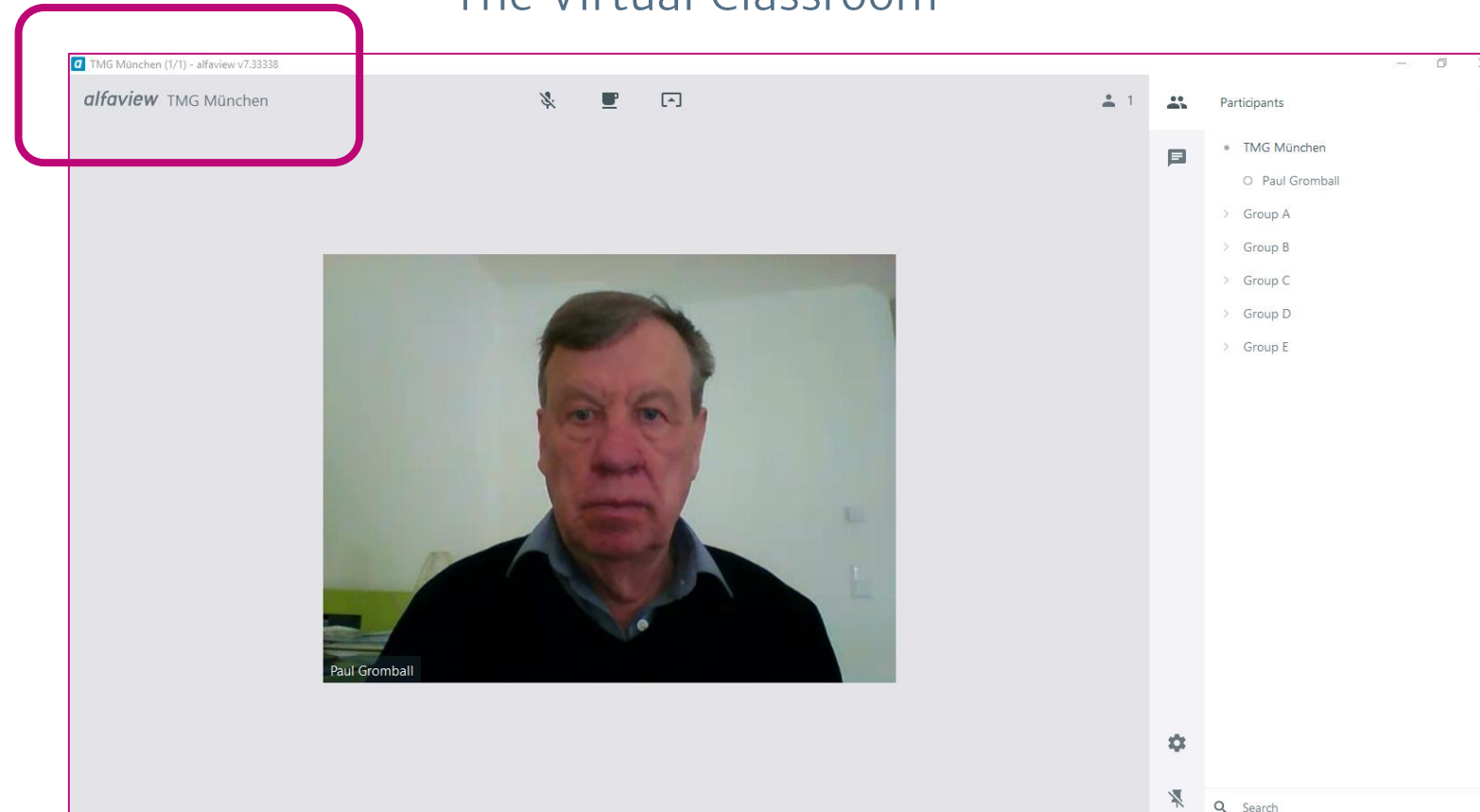
Future of making things

# YOUR ACCESS TO THE ONLINE CLASS ROOM: HOW TO GET THERE

## The European Online Collaboration Platform



## The Virtual Classroom



Make sure that your company Firewall let you connect to alfaview. Otherwise contact your IT Support for clearing your access



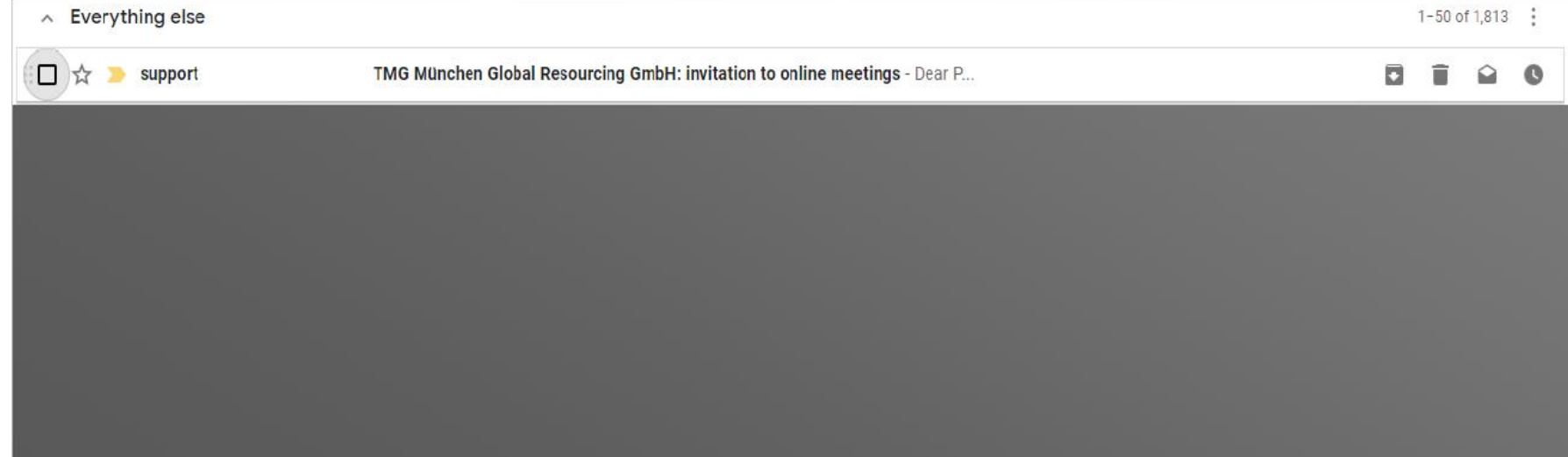
# YOUR ACCESS TO THE ONLINE CLASS ROOM: E-MAIL INVITATION

The European Online  
Collaboration Platform



## Step 1

Open the e-mail you received for registering an account at alfaview.



# YOUR ACCESS TO THE ONLINE CLASS ROOM: OPEN LINK TO ALFAVIEW PLATFORM

The European Online Collaboration Platform



## Step 2

Open the link for signing up.

The screenshot shows an email from support@alfaview.com with the subject "TMG München Global Resourcing GmbH: invitation to online meetings". The email content includes the alfaview logo, a photo of a woman at a laptop, and a "Complete your profile" button. Below the button is a URL: [https://alfaview.com/signup/tmg-muenchen/tur2oqpn/RasAsUJ\\_2/principal-test.tutoria%4@gmail.com](https://alfaview.com/signup/tmg-muenchen/tur2oqpn/RasAsUJ_2/principal-test.tutoria%4@gmail.com). The email also states "The link expires after 30 days." An orange arrow points from the "Step 2" text to the "Complete your profile" button.

# YOUR ACCESS TO THE ONLINE CLASS ROOM: CREATE YOUR PERSONAL ACCOUNT

The European Online  
Collaboration Platform



## Step 3

Fill out your details and choose a password for your alfaview account.

**alfaview**

Complete your profile

|                                      |                                                      |
|--------------------------------------|------------------------------------------------------|
| Title (e.g. Ph.D.)                   | Initials                                             |
| <input type="text"/>                 | <input type="text"/>                                 |
| First name *                         | Last name *                                          |
| <input type="text" value="John"/>    | <input type="text" value="Doe"/>                     |
| Locale                               | Email address *                                      |
| <input type="text" value="English"/> | <input type="text" value="test.tutorial@gmail.com"/> |
| Password *                           | Confirm password *                                   |
| <input type="password"/>             | <input type="password"/>                             |

- I accept the terms
- I accept the [privacy statement](#)

Finish signup

# YOUR ACCESS TO THE ONLINE CLASS ROOM: DOWNLOAD ALFAVIEW

The European Online  
Collaboration Platform



## Step 4

Go to the downloads page.

The screenshot shows the alfaview website interface. The top navigation bar includes the "alfaview" logo on the left and "Rooms", "Downloads", and "Test User" on the right. An orange arrow points to the "Downloads" menu item. Below the navigation bar is a search input field with the placeholder text "Search for room or online user". A welcome message is displayed: "Welcome to your alfaview account" with a close button (X). Below the message is a hint: "Wherever you see this icon [orange dot] you can see some tips about how to use the alfaview platform if you hover your mouse over it." and a "Dismiss all hints" button. At the bottom, there is a "Join" button next to "TMG München" and a small icon.

# YOUR ACCESS TO THE ONLINE CLASS ROOM: ALIGN YOUR COMPUTER TO SOFTWARE DOWNLOAD

The European Online  
Collaboration Platform



## Step 5

Download the right alfaview software for your operating system.  
(You'll might have to download the software again if there's an update)



Windows

Windows 7 or newer (64-bit only)



macOS

Mac OS X 10.11 (El Capitan) or newer



Linux

Coming soon

In order to use alfaview, you must accept the [data privacy statement](#) and the [terms of use](#).  
The acceptance itself occurs after download - before the first application launch.  
Please verify to meet the [system requirements](#) and [network settings](#).

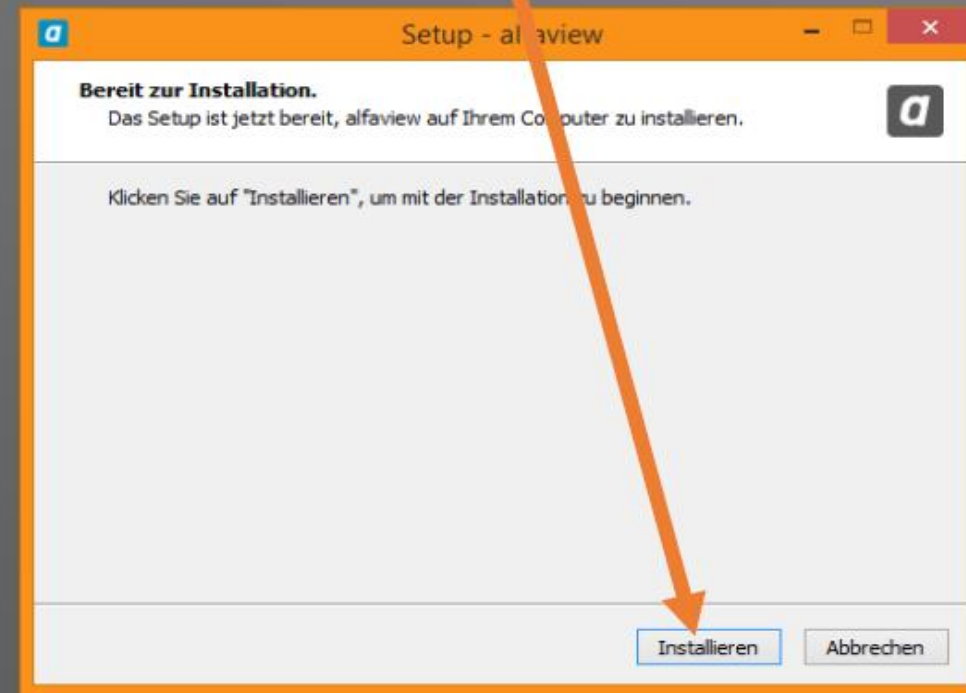
# YOUR ACCESS TO THE ONLINE CLASS ROOM: INSTALLING THE SOFTWARE

The European Online  
Collaboration Platform



## Step 6

Open the downloaded file and install the software.



# YOUR ACCESS TO THE ONLINE CLASS ROOM: JOINING THE ONLINE CLASS ROOM

The European Online  
Collaboration Platform



## Step 7

Go to the rooms page again and join the meeting.

A screenshot of the alfaview web interface. The top navigation bar includes "alfaview", "Rooms", "Downloads", and "Test User". A search bar is present with the text "Search for room or online user". A notification box is visible with the text "Welcome to your alfaview account" and "Wherever you see this icon you can see some tips about how to use the alfaview platform if you hover your mouse over it." Below the notification is a "Join" button with a play icon and the text "TMG München". An orange arrow points from the "Rooms" link in the navigation bar to the "Join" button.

# YOUR ACCESS TO THE ONLINE CLASS ROOM: USE MODERN BROWSER

The European Online  
Collaboration Platform



## Step 8

(Make sure to use a modern browser like Google Chrome or Mozilla Firefox)  
Allow Chrome to start alfaview





# YOUR ACCESS TO THE ONLINE CLASS ROOM: AGREE ON ALFAVIEW TERMS & CONDITIONS

## The European Online Collaboration Platform



# Step 9

Wait for the program to start and agree to the terms and conditions of alfaview.

The screenshot shows the 'General Terms and Conditions' page for the alfaview software. The page is titled 'General Terms and Conditions' and includes the following sections:

- General terms and conditions**

General terms and conditions for the use of alfaview services

The following contract is hereby concluded between alfaview GmbH, Kneipstr. 100, 76183 Karlsruhe, Germany represented by Mike Rostkowski ('alfaview') and the user ('User').

The English translation of the general terms and conditions serves only as a means of understanding. In case of differences between the German version and the English translation, the German version shall prevail.
- 1. Scope**
  - The business relationship between alfaview and the user shall be governed exclusively by the following terms and conditions ('terms').
  - The services of alfaview are directed exclusively at users who are consumers within the meaning of § 13 BGB (German Civil Code) and are therefore natural persons who do not conclude this contract for purposes that can be attributed predominantly to their commercial or independent professional activity ('consumers').
  - Entrepreneurs and self-employed persons according to § 14 BGB ('Entrepreneurs') are only entitled to use the services for their purposes within the scope of an evaluation license. Commercial use of the services ('free conference room') is prohibited for entrepreneurs. For commercial use/implementation in business operations that goes beyond their purposes, the entrepreneur can use the alfaview® Enterprise version. URL: <https://alfaview.com/enterprise>
- 2. Purpose**
  - The alfaview® free conference room is a conference solution that makes it possible to hold online meetings with live video transmission free of charge. The users in the conference rooms of alfaview® can be networked and transmitted with video and audio ('alfaview® conference rooms'). The subject matter of the contract is thus the provision of a virtual conference room, the underlying software ('Software') and the applications offered by alfaview® for download and installation ('Applications') (collectively or also the 'alfaview services'), which are free of charge, rendered in this and limited to non-commercial use. The software enables audio and video transmission as well as the transmission of documents and other screen contents by multiple participants and thus the organization and execution of virtual conferences.
  - The booking option for the free alfaview® conference room is a non-binding offer from alfaview. By confirmation of the booking option by the user, he/she makes his/her offer to conclude the contract. Only the transaction of the access data represents the declaration of acceptance by alfaview and thus the time of conclusion of the contract. Access to the alfaview® free conference room is open to the user from the moment he/she registers with his/her access data for the first time and accepts the General Terms and Conditions.
  - The use of the free alfaview® conference room is limited to 10 hours per month and allows a maximum room size of 36 participants. The user can only have one room. The user can invite the conference room participants to the alfaview® conference room via a link ('invite link'). The booking of the alfaview® conference room takes place on the homepage of alfaview at [alfaview.com](https://alfaview.com). After leaving the alfaview® conference room, an invitation link is being generated. The use of a guest link does not enable or permit the use of a separate conference room, but merely allows participation in the conference in which the guest has been invited. It is pointed out in a starting view that the guest can also exercise the booking option himself in accordance with the regulations in Section 2 Subsection 2.
  - alfaview points out that after 24 hours of continuous use of access, the connection is terminated for technical reasons. Immediate re-booking is possible.
- 3. Tasks of alfaview**
  - alfaview® will provide the user with access data to the alfaview® conference room booked by the user, with which the user can enter the alfaview® conference room. If necessary, alfaview will also provide the user with an application for downloading and installation on the user's system. In particular, the software will be downloaded from <https://alfaview.com/alfaview360> ('Software'). More information in the Support Center at: <https://support.alfaview.com>
  - alfaview operates the software as services and makes it available to the user as a managed platform for the provision of alfaview services. alfaview is not obliged to keep the software available on its own servers.
  - alfaview reserves the right to update the respective program regularly by both the server software and the applications at its own discretion. The most recent version of the application is available at <https://alfaview.com/alfaview360>. It is the responsibility of the respective conference participants to install the latest version of the application. However, alfaview is expressly not subject to any obligation to update.
  - As part of the provision of the free alfaview® conference room, in particular, no maintenance of the software takes place. This also applies to the delivery of updates.
  - alfaview reserves the right to change or discontinue the provision of the free alfaview® conference room at any time and without prior notice. This means that the user has no claim to the availability of the call-free services, in particular he/she can never receive a binding claim to the free use of the alfaview® conference room.
  - Discontinuation of the alfaview services, the software and the applications shall not be regarded as a quality guarantee.
- 4. Tasks of the users**
  - The services offered by alfaview may not be used expressly for a purpose for which damage is possible for product or personal safety reasons, such as in the medical sector, in the aviation sector, air traffic, for military purposes etc. alfaview is not liable for damage if an application has taken place in these respective areas.
  - The user grants alfaview a limited right to use the content of the conference, insofar as this is necessary for the proper provision of alfaview services, e.g. with regard to the transmission and encryption of audio and video content.
  - The user undertakes to take appropriate precautions to prevent unauthorised access by third parties to the software and the applications in the sphere of alfaview, in particular by observing appropriate security precautions according to the current state of the art when using the login and with regard to the login data.
  - The user undertakes to use alfaview services exclusively under the respective agreement of alfaview, currently the brand alfaview. Any further use of alfaview's trademarks is expressly not permitted by these terms of use is prohibited.
  - The user shall comply with the minimum technical requirements ('system requirements') with regard to IT infrastructure (hardware/software/operating system/connections). These can be viewed at any time at: <https://support.alfaview.com/alfaview360/alfaview360/2000042875>. The system requirements can be adjusted in the course of updates of the program software. alfaview accepts no responsibility for compliance with the system requirements. If the system requirements are not complied with by the user, functional impairments of the alfaview services result.
  - Furthermore, the user is exclusively and unconditionally responsible for the contents discussed, shown or otherwise presented or exchanged in the conference. The user guarantees that the content discussed, shown or otherwise presented or exchanged in the conference does not violate the legal provisions on the protection of privacy, personal rights or other rights of third parties, in particular copyrights, and observes applicable law (e.g. criminal law and the protection of minors). In addition, it ensures that only true and not misleading statements are made.
  - In particular, the user undertakes to use the alfaview services for legitimate purposes only and in particular not to use them for the following purposes, nor to cause other persons to use them for such purposes or to attempt to do so:
    1. Fraudulent or other illegal activities or requests to do so that violate applicable law
    2. Infringement or acquisition of intellectual property such as copyright, trademark, proprietary rights, license rights or other intellectual property rights to legitimate content
    3. The use, storage, release, transfer, copying, distribution, display, publication, transmission or dispatch of content that could be considered offensive, indecent or harmful, slander, discrimination, dissemination of a worldwide, violation of privacy, harmful to others or otherwise offensive
    4. Access to third party computers or communication systems/networks, software applications without permission of the authorized person including Denial of Service (DoS), unauthorized monitoring or tracking, distribution of malware (e.g. viruses, trojans, worms, time bombs, spyware, adware or malware)
    5. Dissemination of unlicensed, unauthorised or otherwise illegal messages, advertisements or claims (also known as spam)
    6. Modification, falsification or concealment of email headings in the assumption of the identity of a sender without his express consent

OSS Components: License tests

Decline

# YOUR ACCESS TO THE ONLINE CLASS ROOM: CHOOSE/ADJUST YOUR VIDEO & AUDIO SET-UP

The European Online Collaboration Platform



## Step 10

Choose your working webcam (if you have one), adjust your volume settings and enter the room.

A screenshot of the 'Setup your video and audio devices' interface. The interface is titled 'Setup your video and audio devices' and shows a video preview of a man with a 'Selected' label. Below the video, there are settings for 'Microphone and voice activation level' (set to 45) and 'Speaker and volume' (set to 32). A blue arrow points from the top of the interface down to a blue 'Enter room' button at the bottom.

# YOUR ACCESS TO THE ONLINE CLASS ROOM: JOINING THE ONLINE CLASS ROOM

The European Online  
Collaboration Platform



## Step 11

You've now joined the conference!

The screenshot shows the interface of the "alfaview TMG München" conference. A video feed of Paul Gromball is visible. Annotations with orange arrows point to various controls: "Mute yourself" (muted icon), "Take a break" (break icon), "Share a part of your screen" (share icon), "Conference participant count" (participant count icon), "Groups" (groups icon), "Messages" (messages icon), and "Settings (recommended step)" (settings gear icon).

# YOUR ACCESS TO THE ONLINE CLASS ROOM: GOING TO YOUR TEAM ROOM OF YOUR GROUP

The European Online  
Collaboration Platform



## Step 12

Join your group in the group overview (step 11) if necessary



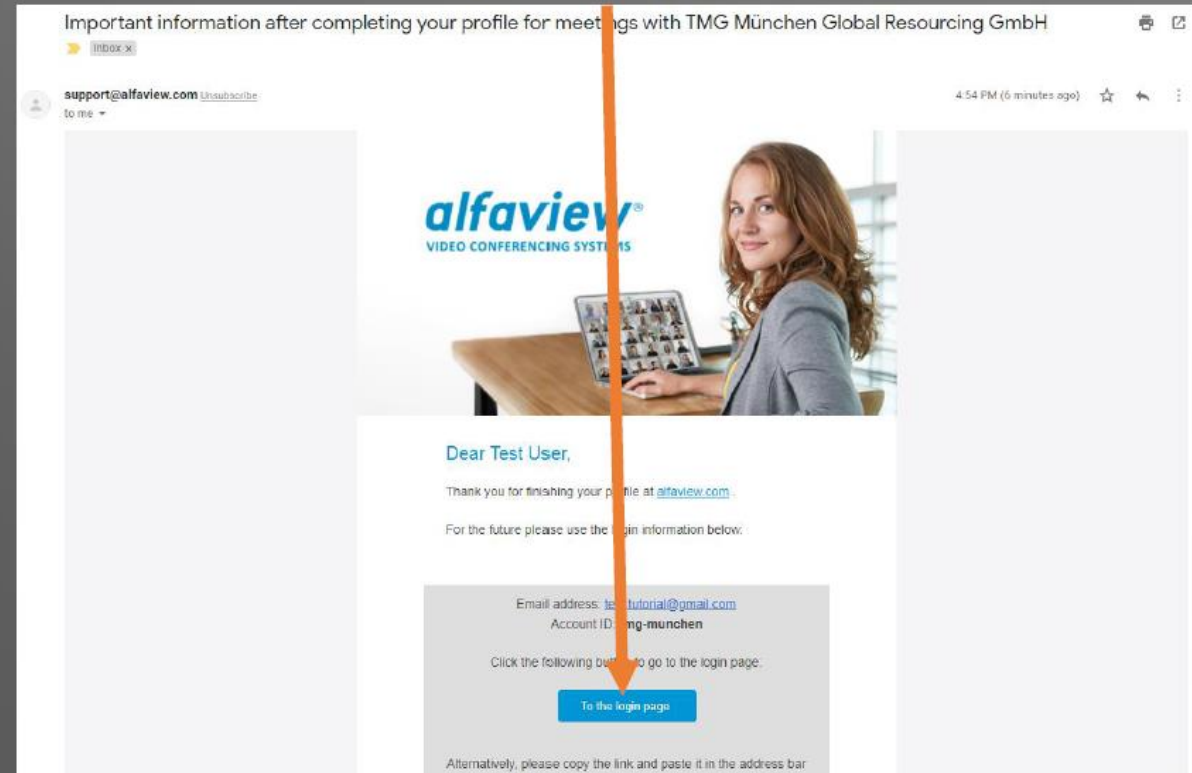
# YOUR ACCESS TO THE ONLINE CLASS ROOM: NEXT TIME YOU NEED ONLY TO LOG-IN

The European Online  
Collaboration Platform



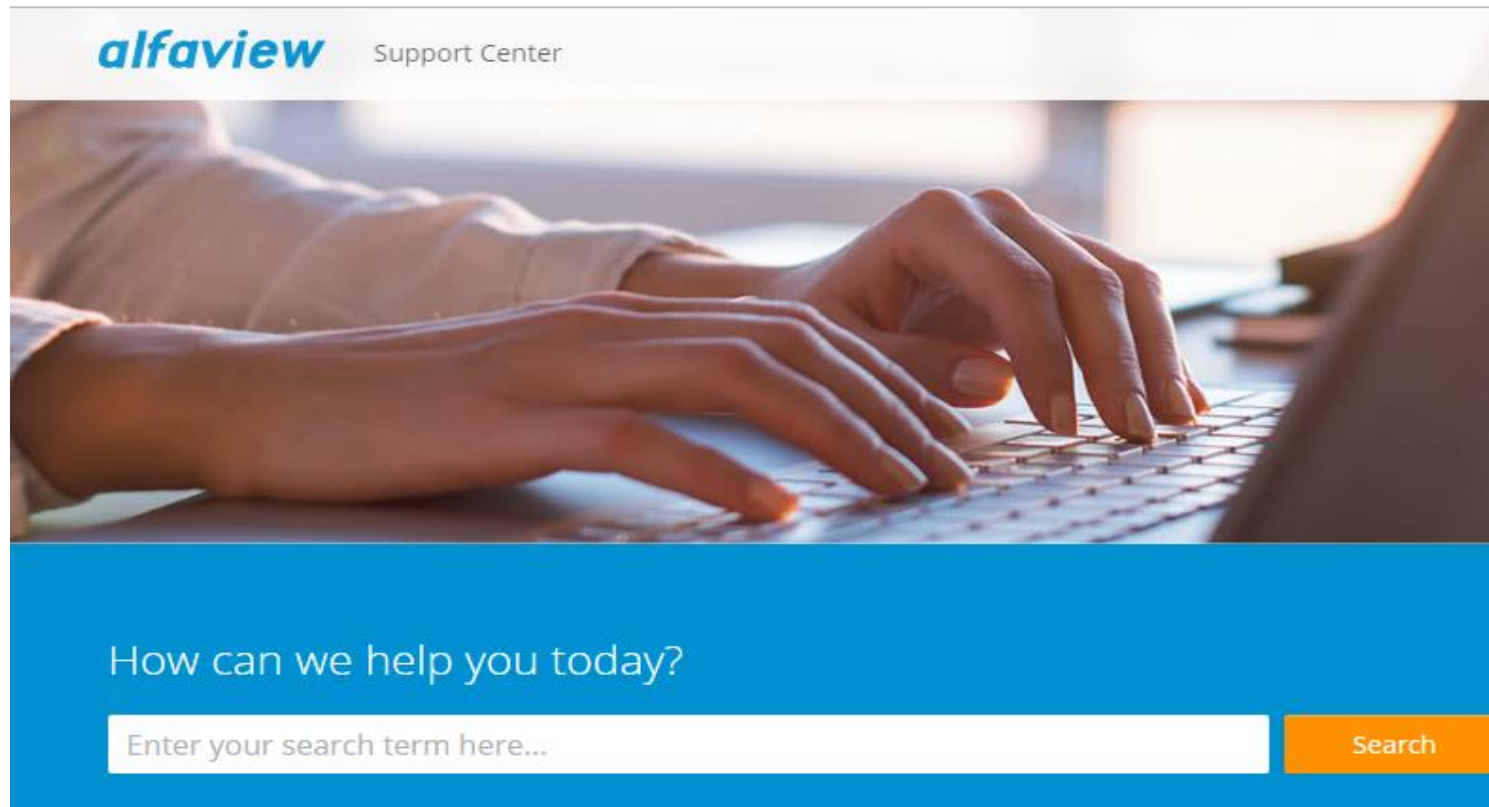
## Step 13

In order to join new meetings, you don't need to register again, but instead you can use your newly received e-mail to login into your alfaview panel.



# YOUR ACCESS TO THE ALFAVIEW PLATFORM SUPPORT

Support: [Click on picture for getting help](#)



# LECTURE: ROLES FOR LIVE TRAINING

Participants

Lecturer



*Click on picture to access alfaview*



**AUDIOVISUAL NETWORKING**  
Video and audio are transmitted synchronously worldwide.

**SIMPLE AND CLEAR DESIGN**  
The software is self-explanatory and intuitive to use.

**WORLDWIDE TRANSMISSION**  
100 or more users worldwide can be connected and transmitted in real-time.

**FACE-TO-FACE ON ALL COMPUTERS**  
alfaview® is available for all common PCs.

# DIGITAL WORK PLACE: STANDARD INFRASTRUCTURE

## The Virtual Work Infrastructure

Digital Work Place  
Dual Monitor Environment  
with Head-Phone



Digital Work Center  
Local on-premise  
infrastructure





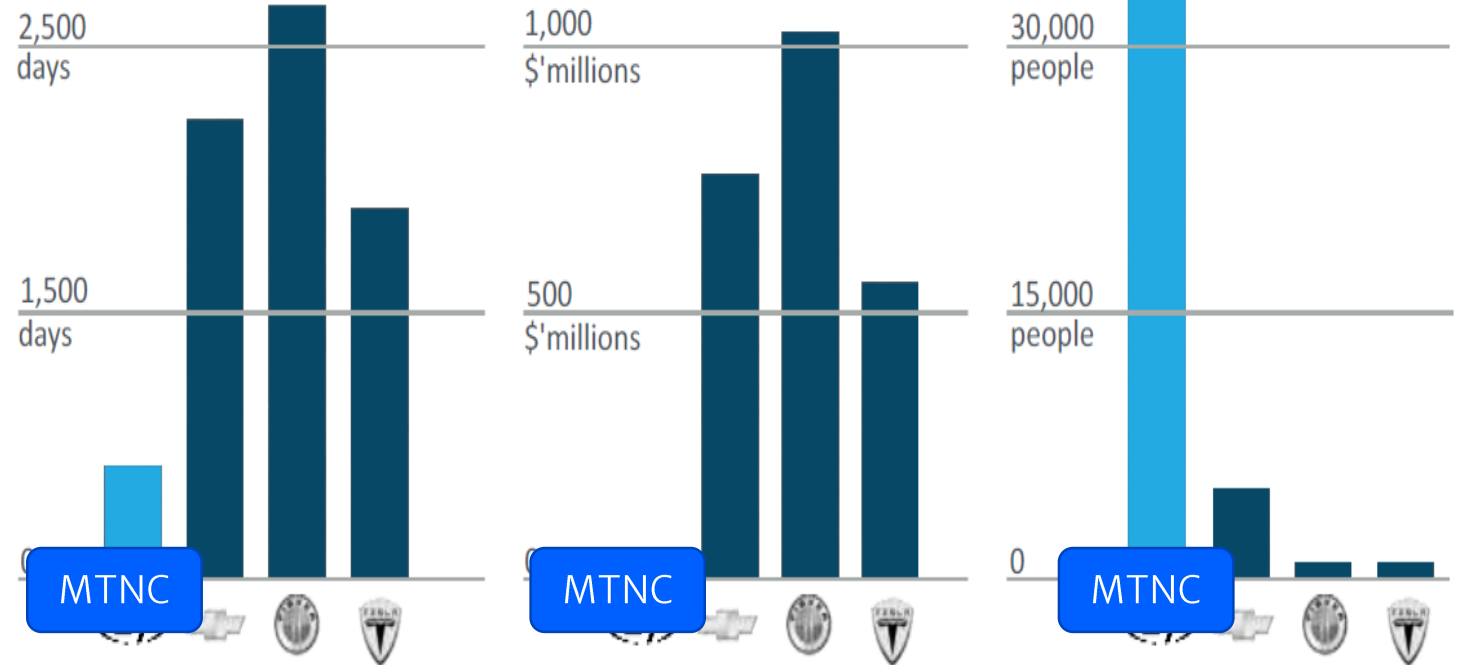
# 6) THE MICRO-FACTORY 4.0 ADVANTAGE

# INDUSTRIE 4.0: THE MICRO-FACTORY APPROACH

## MICRO-FACTORIES FOR BRINGING INNOVATION FAST AND EFFICIENT TO MARKET



- **Mini Plants :** The MTNC will include 4-6 advanced, modular and flexible mini-plants that can be quickly set up to simulate and test new production methods and manufacturing processes.
- **Digitization of production:** Cyber Physical systems take over a lot of production and reduce costs while increasing production. The Internet of Things (IOT) gets devices and components to communicate and interact.
- **Digital twin:** Modeling and simulation of mini-plants that optimize production and production line. The factory can be visualized with VR / AR.
- **Artificial Intelligence:** Self-regulating processes with artificial intelligence that analyze and improve what we do not see.




**We Bring Products to Market up to 5x Faster & 100x Less Cost**

# POTENTIAL MICRO-FACTORY OBJECTIVE (1) :

## IMPACT ON UNIT COSTS FOR PRODUCTION

Smart Product Architecture  
Direct Digital



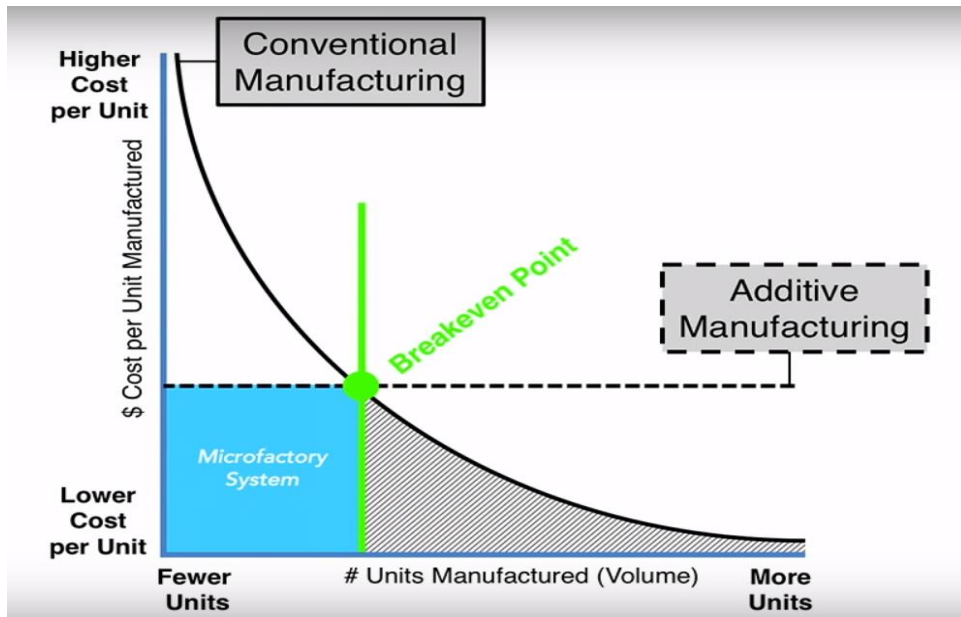
|                          | Olli<br><b>Component</b>    | Vs | 3D Printed Olli<br><b>Direct Digital</b> |            |
|--------------------------|-----------------------------|----|------------------------------------------|------------|
| <b>Weight</b>            | 1599 lbs. (725 kg)          |    | 1476 lbs. (670 kg)                       |            |
| <b>Parts &amp; Labor</b> | 2500 Parts<br>275 Man Hours |    | 175 Parts<br>4 Man Hours                 | <b>60x</b> |
| <b>Unit Costs</b>        | \$39,200                    |    | \$8,100                                  | <b>5x</b>  |

100% electric, 100% autonomous,  
100% connected and 90% 3D printed  
with the ability to produce in micro  
factories near bigger cities

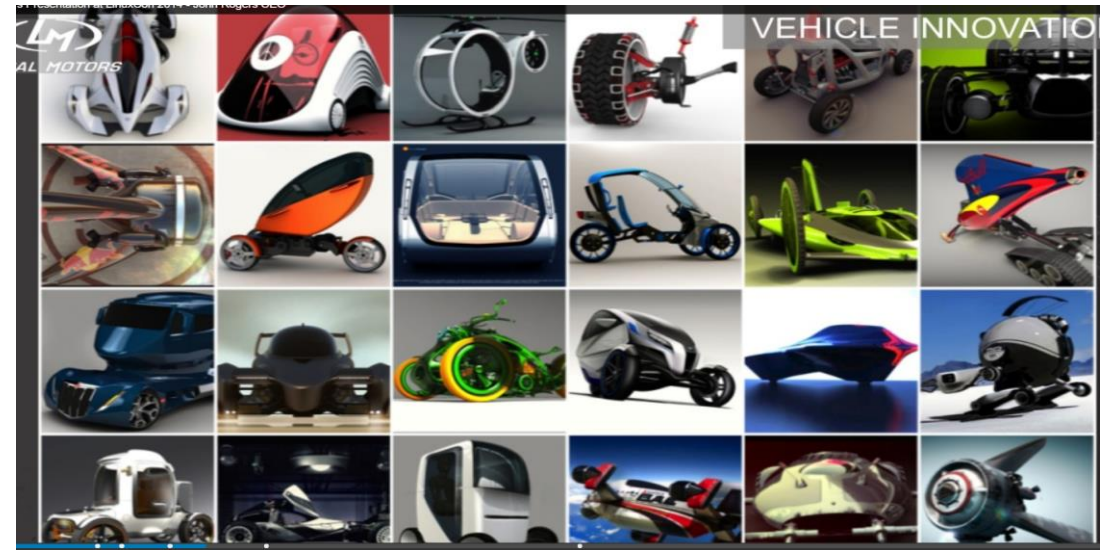
# POTENTIAL MICRO-FACTORY OBJECTIVE (2) :

## IMPACT ON ECONOMICS OF SCOPE

### Smart Product Management Economics of Scope




### Smart Product Management Local Product Portfolio








THE WORLD IS MOVING TOO FAST FOR  
TRADITIONAL MANUFACTURING TO KEEP UP.

# AM TECHNOLOGIES: THE OPPORTUNITIES

The Quality Management System

-  Mass Customization
-  „Complexity comes for free“
-  Co-Creation with Customer
-  Waste reduction
-  No tooling costs
-  Part Performance Improvement

- Lower Cost of inventory 
- Shorter time-to-market 
- Supply chain simplification 
- Lower capital investment for more complex products 
- Weight reduction 
- Fast and iterative prototyping 