

 **BETTER  
FACTORY**

**Grow your manufacturing business**

**Paula Cervera (Mobile World Capital Barcelona)  
Skills Observatory**

# What is Better Factory?



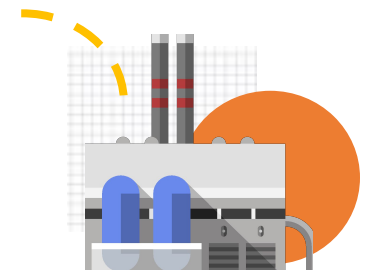
Better Factory is a **48-month project** financed by the European Commission.

Our aim is to **help European manufacturing SMEs** develop **new and personalised products**, and in the process also **become cyber-physical systems and lean-agile production facilities**.

We will match up **16 manufacturing SMEs** each with one **artist** and one **technology provider**, to carry out experiments (Knowledge Transfer Experiments, or KTEs).

Over the 12 months, they will have support from 28 expert partners:

- Technology and business advice
- Funding
- **Access to training: Skills development**



# Skill development - Objectives



- A) Identification of skill requirement for the Knowledge Transfer Experiments (KTEs)
- B) Co-definition of trainings program
- C) Setting up of contents and webinars on Better Factory, RAMP + APPS and continuous improvement



# A) Identification of skill requirements for the KTEs



- **Mapping of trainings** and documentation already available by partners (CC, DIHs, APPS developers)
- **Research on skill requirements** by SMEs:
  - Launch of questionnaire / survey
  - Focus group discussion

## Welcome!

Your answers can be short but remember that this survey will help shape the most accurate training for your employees to work with RAMP.

**Begin**

press Enter ↵

🕒 Takes 6 min

# A) Identification of skill requirements for the KTEs

Focus Group with SMEs and KTEs – Tools



MURAL board divided in 5 parts:

1. Profile meeting: team, background, new technologies, expectations
2. Skills needs for implementation: methodology, steps, challenges
3. Skills needs on information and data awareness: gathering, storage, usage, cybersecurity
4. VR experience: VR platforms, purpose, experience, benefits and positive impacts
5. Workers' training and experience: education, experience, training program, skills requirement

# A) Identification of skill requirements for the KTEs

Focus Group with SMEs and KTEs – Interactive session



app.intralco.com/qa/mis/3947/m/qa/mis/3947/10413442160417006a4c270300433111413310000d913b03c0ade?sender=0060b7e15c14097e9a7d7000

Intranet - Home EU Projects H2020 -... Better Factory DeepL Translate - EL...

SKILLS NEEDS FOCUS GROUP Facilitator All changes saved!

Share

### Skills needs - Implementation

**PURPOSE**  
The idea of this second board is to understand the implementation methodology and steps you will follow as well as your skill needs to perform this implementation

**SETUP**  
**Vocabulary Hippopotamus ASSIGNMENT**  
TIME 25 MINS

**STEPS**  
1 Read and answer the questions regarding the skills' needs for the implementation of the technologies in your KTE.

**TIPS FOR COMPLETING**  
1 Before the workshop, make sure you have read the questions in the board and draft some ideas of answers.  
2 During the workshop you will be able to continue answering the questions. You can also include

KTE	Methodology	Questions
BCF	3 Iteration Cycle, Increasing complexity and integration with current workflow	1. Which methodology will you follow for the implementation? 2. What are the steps you will follow for the implementation? 3. What is the planned timeline for the implementation? 4. What would be the main challenges and main efforts?
SMARTHam	Move-to-stock logistic methodology and AI based requirements forecasting	1. Which methodology will you follow for the implementation? 2. What are the steps you will follow for the implementation? 3. What is the planned timeline for the implementation? 4. What would be the main challenges and main efforts?
ZOVOS-EKO		
ODC 3D	1 Agile software development	
FOLD	Agile production based on turn-in-coast interactions	
DSBSF	1 LEARNABLE production 2 COST reduction through recycling of plastic	
MiniRoboFab		

Marco (Visiting Penguin)

Dimitris Antoneris DSBSF (Visiting Rhino)

# A) Identification of skill requirement for the KTEs

## Focus Group with SMEs and KTEs – Conclusions



### Focus Group conclusions and next actions:

- Trainings
- RAMP Platform
- APPS
- Virtual Reality

	KTE NEEDS		ACTIONS	RESPONSIBLE	TOOLS	DEADLINE
Trainings	Technical training materials: <ul style="list-style-type: none"> <li>- Documentation</li> <li>- Video trainings: video examples, hands-on tutorial on how to deploy and use APPS modules</li> </ul>	AGV (Fraunhofer) OCB ROS integration DB setup IOT connections/upload Digital Twin (module): video + documentation INESC Cognitive HRI (package): no contents prepared Camunda: only manual GRAPHANA (module): no contents prepared	1st. Understanding APPS modules/submodules status 2nd. Preparing/improving contents for the ready <b>modules</b> , starting with the ones we don't have contents yet. For each APP: - What is the APP for? - How can the APP be applied (it might be different formulas)? - What steps to take for implementing the APP? - Which person to contact in case of issues? 3rd. Contents different from modules; identifying partners + preparing plan for webinar recording	MWCapital	1st. "APPS status" tab Excel Status Training Documentation 2nd. Two different templates: -Documentation: to be used also to include the information in GitHub -Video: including the points to be covered and an example	By the end of March: -Modules: Written contents for ready modules prepared by the end of March + Plan for webinar recording -Others: Partners identified + Plan for webinar recording
	Other training materials: <ul style="list-style-type: none"> <li>- Marketing training during product development</li> </ul>			MWCapital		By the 2nd Open Call launch: Contents drafted

# B) Definition of trainings program



**What?** Filling the gap with focus on the next round of KTEs

**How?** Contents on developed modules (manuals, videos)  **Content mapping (BF website + GitHub)**

Package / Section	Components	Videos	Documentation
Logistics and automation library	Logistics Library	Logistics Library Workshop	Documentation OPIL
		Introduction	
		Installation Modules	
	Person detection & Tracking	Tracking of workers in shared space	Person Detection & Tracking Manual
		Person detection tracking	
	Agent Optimization	Agent Optimization	<a href="https://github.com/ramp-eu/Agent_Optimisation_Service#readme">https://github.com/ramp-eu/Agent_Optimisation_Service#readme</a>
Temporal Heatmap of Human Occupancy	Temporal Heat Maps	<a href="https://github.com/ramp-eu/THMHO_heatmap_generator#readme">https://github.com/ramp-eu/THMHO_heatmap_generator#readme</a> <a href="#">Temporal Heatmap of Human Occupancy User Manual</a>	
Real-Time Locating System	Positional Data Acquisition	TBD	
TBD: Material Flow		TBD	
Production reconfiguration	Advanced Plant Modelling (APM) & 3D Digital Twin	TBD	Create Physical Area
		TBD	Implant objects on the physical area
		TBD	Create Physical Area with Map
		TBD	Add a new rack to the Catalogue
		TBD	Add a new rack to the Catalogue with STEP
		TBD	Add a new equipment to the catalogue
		TBD	Add a new workstation to the catalogue
		TBD	Add a new production line to the catalogue
	Complementary video of the documentation		User Manual of the Digital Twin Designer
	KTEs Webinar (Advanced Plant Modeling)		The Camunda Platform Manual
Manufacturing Process System Management & Camunda?	Manufacturing Process Management System	<a href="https://github.com/ramp-eu/Manufacturing_Process_Management_System/blob/master/README.md">https://github.com/ramp-eu/Manufacturing_Process_Management_System/blob/master/README.md</a>	



## B) Definition of trainings program

**What?** Filling the gap with focus on the next round of KTEs

**How?** Added value contents: documentation, videos  **identification of partners with experience**

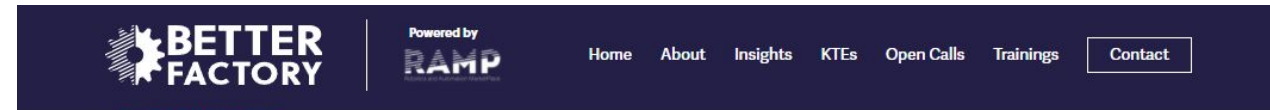
Contents	Partner	Requesting KTE
AGV	Fraunhofer	SMARTHam
OCB (Orion Context Broker)	VTT	SMARTHam
ROS integration	CUT	SMARTHam
IoT connections	Depends on hardware - selected APP package	BCF
Marketing	MWC	FOLD

# C) Setting up of contents and webinars



**New structure** of contents in Trainings page at BF website:

- More intuitive
- More user-friendly



(4) Resource Optimization

Technology solutions offered by Better Factory: APPS (Download Presentation)

## Logistics and automation library

The Logistics automation and optimization module optimizes routes, agents, and material flows in production.

### Logistics Library

The objective of the Logistics library is to provide an easily deployable suite of applications for the rapid development of complete logistics solutions, including components for task scheduling, path planning, automatic factory layout generation and navigation.

Logistics Library Workshop

Logistics and automation library Manual

OPIL Introduction

OPIL Installation

OPIL Modules

### Person Detection & Tracking

The Person Detection & Tracking system is intended to monitor the shared spaces between humans and robots, as it allows to detect people and track them using stereo pairs, obtaining the pose of each person detected in the navigation map.

Tracking of workers in shared space

Person Detection & Tracking Manual

Person detection tracking

### Agent Optimization

The objective of the Agent Optimization package is to compute the optimal number of agents (AGVs, humans, etc.) for material transport.

# C) Setting up of contents and webinars



**Updated** contents in Trainings page at BF website:

- Introduction to packages and modules
- 6 new user manuals:
  - Cognitive HRI: Pose Recognition and Correction Guide (GESTALT)
  - Logistics: Person Detection and Tracking (AIMEN) + Temporal Heatmap of Human Occupancy User Manual (FHG)
  - Reconfiguration: Digital Twin Designer Guide (INESC)
  - Resource Optimization: Business Process Optimization Manual (CUT) + Process Optimization Guide (TDS)
- Link to GitHub:
  - RAMP repo:
    - Temporal Heatmap of Human Occupancy
    - Agent Optimization
    - Manufacturing Process Management System
  - Other repo:
    - Logistics Library
    - Fatigue Monitoring System
    - Intervention Manager
- Addition of hands-on tutorials on how to deploy and use the modules

<https://github.com/ramp-eu>

**Thank you!**