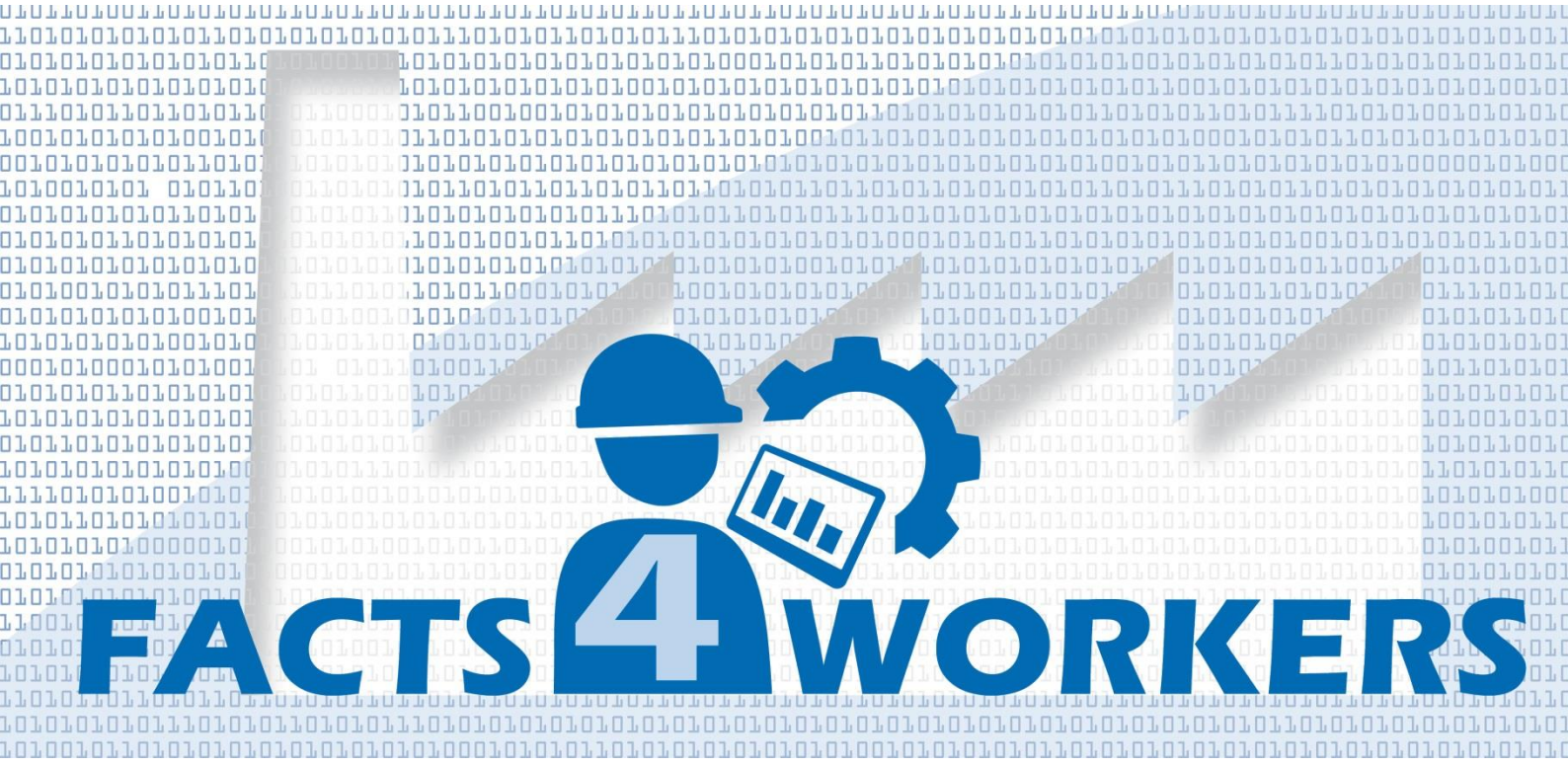
Volume 1.0

Project Deliverable 7.4

Activities Report

Worker-Centric Workplaces in Smart Factories

www.facts4workers.eu



Factories of the Future
Public Private Partnership

Series: Heading
Published by: FACTS4WORKERS: Worker-Centric Workplaces in Smart Factories.
FoF 2014/636778

Volume 1.0: Activities report- Deliverable 7.4
FACTS4WORKERS: Worker-Centric Workplaces in Smart Factories

Reference / Citation

Krapež S., Podobnik R.(2016): "Activities report". Deliverable 7.4. Project FACTS4WORKERS: Worker-Centric Workplaces in Smart Factories.

www.FACTS4WORKERS.eu

1. Printing, November 2016
Layout and Setting: Florian Ott, Cooperation Systems Center Munich

Worker-Centric Workplaces in Smart Factories

E-Mail: facts4workers@v2c2.at
Internet: www.facts4workers.eu

About this document

Executive Summary

This document presents in a systematic ad contextual way the achieved results of dissemination and exploitation activities in the second year of the FACTS4WORKERS project. This document covers the main work done in field of dissemination and relation of the work to upcoming exploitation activities in the following two years. The document is structured as follows: 1) Communication 2) Dissemination process management in the second year 3) Exploitation 4) Summary of conducted and planned activities. All main achievements, their position in relation to completed activities in the first year and in relation to planned dissemination and exploitation activities in the following years are also explained.

The activities performed in the second year cover outreach activities in the scientific and academic community and semantic developers' community. WP7 leader SIA with cooperation from VIF also thoroughly revised the main dissemination process creating a new D7.2.Dissemination and Exploitation Plan. The updated D7.2 with clearly defined target groups, communication channels for each target group and clear definition of KER – Key Exploitable Results – forms a backbone to the approach in dissemination activities for remainder of the FACTS4WORKERS project, helping the consortium to achieve its goals and become more efficient in its dissemination and exploitation activities. In order to achieve a successful solution deployment at industrial partners' and enable the solutions to be promoted widely in the targeted industries, associated academic institutions and development partners a clearly targeted dissemination process is needed that would form a groundwork for a successful exploitation process. In addition, utilized dissemination tools were upgraded and updated: new webpage including layout and structure and preparing foundations for project video.

The updated D7.2 represents the greatest effort input in the second project year. Other dissemination results accomplished by project partners include 1 publication in a peer-reviewed journal, 5 conference papers, 7 other publications, project presentations at 10 conferences, 3 exhibitions and 4 trade shows. Networking was

done with coordinators of the other three human-centered manufacturing projects: SATISFACTORY, SO-PC-PRO and AMBIWISE.

The most important project presentations which has large amount of feedback include project presentations at the 2016 Mensch und Computer Conference – with a special FACTS4WORKERS-sponsored workshop, presentation at the 2016 Hannover Messe and participation at the Horizon 2020 North Rhine-Westphalia event.

During the second project year partners began to define more closely connections between dissemination and exploitation. This was first stressed in the updated D7.2 and further specified on a special consortium event in Graz in June 2016: Exploitation and dissemination seminar. Thus event served to reach a more comprehensive connection between the dissemination and exploitation activities within the consortium and to harmonize exploitation interests of different partners.

The progress made in the second project year represents a good basis for intensive work in third year when the first test solution deployments are expected to be made and the further in fourth year when a more large-scale industry research effort is expected to boost exploitation possibilities for end-of-project and after-project periods.

Keywords

#FACTS4WORKERS, #Dissemination, #Deliverable, #Communication, #Strategy, #Exploitation

Document authors and reviewers

This page presents authors, reviewers and contributors of deliverable 7.4 – Activities Report. Sincerely thanks to contributors and reviewers.

Lead authors

Name	Organisation	Role
Samanta Krapež	SiEVA d.o.o.	WP 7 Lead
Rok Podobnik	Hidria d.o.o.	Industrial Partner

Reviewers

Name	Organisation	Role
Martin Wifling	Virtual Vehicle Research Center	Coordinator
Ivan Kosmač	Hidria d.o.o.	Industrial Partner
Stelios Damalas	Virtual Vehicle Research Center	WP 8 Lead
Dr. Lea Hannola	Lappeenranta University of Technology	Scientific partner

Contributors

Name	Organisation	Role
Michael Schmeja	Virtual Vehicle Research Center	WP 8 Lead
Tomaž Mlakar	SiEVA d.o.o.	WP 7 Lead
Gverino Ratoša	SiEVA d.o.o.	WP 7 Lead

Table of Contents

Table of Figures

Index of Abbreviation

SIA. .....SiEVA d.o.o.

ITA.....Instituto Tecnológico de Aragón

TUW..... TU Wien

EVO.....Evolaris next level

EMO.....EMO Orodjarna

UZH.....University of Zurich

IMI.....IMINDS

LUT.....Lappeenranta University of Technology

TKSE .....ThyssenKrupp Steel Europe

UNIFI..... Università degli Studi di Firenze

SCA..... Schaeffler

THO..... Thermolympic

HIR.....Hidria Rotomatika

HID..... ..Hidria TC

VIF.....Virtual Vehicle Research Center

UC ..... use-case

IP ..... industrial partner

1 Introduction

This is a live document that outlines the framework for dissemination activities within the FACTS4WORKERS - ‘‘Worker - Centric Workplaces in Smart Factories” project. The document outlines the communication activities performed in the second year of the project, dissemination activities and their relation to exploitation. The document covers relation of planned vs. done activities in year 2016 and planned activities for year 2017.

2 Communication

The scope of this chapter is to present dissemination as the key tool to raise awareness about the project and project results. The dissemination strategy of FACTS4WORKERS foresees ***internal and external*** actions.

- Internal communication and dissemination allows members of the FACTS4WORKERS project consortium to be involved in every project activity and share their knowledge and experience, which is essential for successful project execution.
- External dissemination and communication has utmost importance for the project, because in this way we present the project to the wide target audiences and raise project awareness amongst our most important stakeholders.

2.1 Internal communication

The same as in the first year of the project, internal communication in the second project year was mainly conducted ***via telephone-conferences, Webex meetings, e-mail and periodic physical meetings*** *of core teams.*

Data exchange in the second year was finally completely transferred to the ***Projectplace***[1] data transfer platform. Projectplace has also been regularly used for topic discussions and some event and partner visit planning upgrading its form from a data sharing application to a social-media communication tool for project partners.

In field of dissemination and exploitation activities Projectplace was the **main tool for data management, report and deliverables'** preparation since it has proven its worth in enabling fast, regular and active update of documents from multiple authors and reviewers.

[1] www.projectplace.com

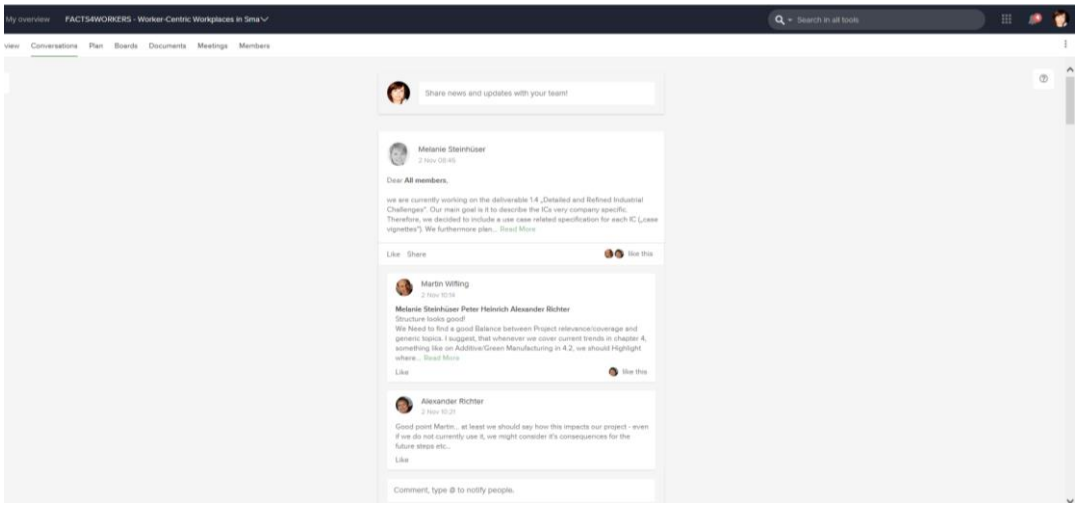


Figure 1: " FACTS4WORKERS-Intranet"– social collaboration

As mentioned above, the wider use of the Projectplace application by all staff members of the FACTS4WORKERS consortium (with quick familiarization with the app from side of new staff additions) made our work smoother, coordinated and overall more effective. Virtually all the main **project communication in the second year was transferred to the Projectplace** application and work undertaken in all WPs a lot smoother and easier to track.

In field of dissemination and exploitation successful tracking and planning of dissemination activities proved especially important in regard to the updates done to the D7.2. - Project dissemination and exploitation plan – and its supplementary documentation (such as questionnaires etc.). As of November 2016, **88 unique users from the FACTS4WORKERS consortium are registered on Projectplace** *(+ some group and administrative users in addition[2]).*

2.2 External communication

Whereas in the first year of the project we aimed at making our project as visible as possible and having defined the general outreach goals, in **the second year we specified our external communication actions in greater detail in the D7.2.** - Project dissemination and exploitation plan.

[2] Group and administrative users include domains such as 'SW developers', 'WP-Leader', 'General Assembly' etc.

In the mentioned document we clearly defined **target groups and communication approach for each of them**. We arranged three distinct broad target groups *(with sub-divisions where needed[3])* for which their importance for each of the consortium project partners was clearly defined.

These were:

- Scientific community
- Industrial sector
- Public

These were further examined from viewpoint of **use of possible or preferred communication channels,** for which each one was given possible **communication activities.** Each activity was then evaluated for its importance[4].

Main channels were:

- Social Media (Facebook, Twitter, LinkedIn etc.).
- Publications (peer-reviewed scientific journal).
- Events (conferences, workshops, trade fairs etc.).

After specifying the dissemination activities in D7.2 our goals and targets in this field specified in the second year and relevant for the second half of the project could specified as follows:

1. Set up the dissemination mechanisms and strategies (e.g. conference plan, updated web page, etc.).

2. Create a community composed by the project partners and interested stake-holders that may interact at all the project stages.

3. Ensure targeted communication activities both tailored to different stakeholders' interests.

4. Carry out dissemination activities, to raise international awareness and interest in project activities and achieved results in the scientific and commercial community and with the European public and social policy stakeholders.

[3] In example scientific group consisted only of 'researchers' whereas the industry community included the following sub-groups: management, consultants, engineers, workers. More info in D7.2., chapter 3.4.

[4] Importance was evaluated in three stages as: + important, ++ More important, +++ The most important.

5. Investigate the routes by which the partners can secure a successful down-stream exploitation of the results.

6. Balance dissemination efforts between the partners.

7. Contribute the relevant project results to the corresponding standardization bodies (if applicable).

8. Liaison with other EU and national projects will maximize the impact.

As stated in the D7.3., - The first Activities report - **communication priorities** in the first two years of the project were planned with the focus of being mainly interested in collecting information and knowledge on worker and management needs and communicating them to our stakeholders in terms of industrial challenges, user requirements, and use cases. And the third and fourth year would then be concerned with building the momentum coinciding with first FACTS4WORKERS solutions' deployment and IP's UCs.

According to these plans, our activities in the second year focused on first **internal communication activities at IP's UCs**. These were targeted at main staff at the shop floor providing a good starting point for a more intensive internal communication effort in the next two years supporting the solution deployment efforts.

Our external communication and dissemination outreach focused on **establishing links and evaluating opportunities for outward dissemination in the respective industrial associations** of our IPs (automotive and tooling in Slovenia, automotive in Spain and metalworking in Germany). Greater intensity in this field is expected in the third year.

The most **intensive effort in outward dissemination in the second year falls on scientific community** (universities, semantic IT community) where there were many events attended and links established.[5]

As already stated in the previous activities report, **in the third and fourth year** we are mainly concerned with **building momentum for system development and commercial installation initiatives.** Communication efforts during the second half of the project will focus on potential commercial development partners, including system developers, system integrators, private funders and workers. Intensive outreach in this regard is already planned for beginning of 2017 *(also in some cases end of 2016)* with presence on specialized events and fairs, attendance at industrial associations' events, greater outreach to IPs' customers.[6]

[5], [6] See the tracking list of done and planned activities under chapters 3.9 and 6.

3 Dissemination process management in the second year

3.1 Project dissemination and exploitation seminar (June 1st, 2nd Graz, Austria)

An **Exploitation and dissemination seminar** was conducted for FACTS4WORKERS partners in Graz on the VIF premises on 1st and 2nd June 2016. Discussions were made on how to achieve a **more comprehensive connection between the dissemination and exploitation activities within** the consortium and how to align the different interests in this field among industrial, development (SME) and scientific and academic partners. Ideas discussed were included in the updated document D7.2. – Dissemination and exploitation pan.

Project partners who attended the seminar were: VIF, UNIFI, LUT, ITA, EMO, EVO, TUV, IMI, SIA, HIR, UZH.

The seminar addressed different models on how to enhance the exploitation efforts within the projects by using innovative approaches towards use of developed project results. The seminar was led by META Group Consultancy.[7] The event acquainted the seminar participants with possibilities on how to create a successful exploitation culture within consortium partners which will then lead to effective exploitation actions which will in turn enable efficient and visible use of project results based on preliminary assessment of the project in the **First Synthesis Report.**

Focus points covered during the 2-day seminar were:

1. External assessment of current achievement of project goals.
2. Consortium agreement in field of IPR.
3. Completion and discussion on the Project Priority Map.
4. How to pitch exploitable results – together with the *"Elevator pitch"* exercise.
5. Devising a time plan for using and disseminating the foreground.

[7] META Group has been chosen by the European Commission as expertise provider to European project participants in fields of 1) Project Risk Analysis 2) Exploitation Strategy 3) Business Plan Development 4) Assistance for Patenting 5) Assistance for Standardization.

Important points of the discussion included explaining and reaching a common point on relationship between **dissemination of project results and IPR** and especially different viewpoints academic, development and industrial partners have in this regard. Important time was given to **risk identification.**

Ideas for successful exploitation in the later stages of the project and in the post-project timeframe expressed at the end included:

1. Reach out to target industries and companies university and SME through spin-offs, startups *(field of software)*
2. Software developed should be open source enabling reaching out to larger industrial groups
3. Use IPs' regional industrial links to attract new regional SMEs for test implementation at other facilities – IPs demonstrators act as regional focus points

From the view of the exploitation task leader there are two more risks to consider:

- F4W Software Open Source Software consists of a great variety of modules with complex license models.
- Customer target groups not clearly identified up to now.

3.2 Updated D7.2 Project dissemination and exploitation plan

As demanded in the Brussels review meeting by the FACTS4WORKERS PO, the consortium prepared a thoroughly updated version of the Exploitation and dissemination plan. A team consisting of SIA, VIF[8] prepared a **new document that clearly defines the aim and connection between FACTS4WORKERS dissemination and exploitation activities**. This helps to maintain the focus on dissemination, bringing it closer to ensuring an effective exploitation, and validation process which is to begin in beginning of 2017 by first deployment of developed solutions at project partners' UCs.

The final version of the document prepared in June 2016 under leadership of SIA and with strong inputs and review effort from VIF, TUW, UZH and EVO.

As stated in the document, the main purpose of the document is to:

"have a developed mechanism that enables the FACTWS4WORKERS consortium to effectively: 1) plan 2) monitor and 3) use the dissemination channels and

[8] TUW, UZH and EVO provided reviews of the document

dissemination tools to ensure sustainable deployment of project results to the widest possible target audience."

The document drew its main info on the state of dissemination and exploitation interest of all project partners from **Dissemination and exploitation questionnaires** which were conducted by SIA and VIF with all FACTS4WORKERS partners in May 2016.

Beginning in definition of the acquired data, the document developed a process chart with detailed step description on how the dissemination actions will encourage and support successful exploitation in the later stages of the project.

PROCESS CHART:

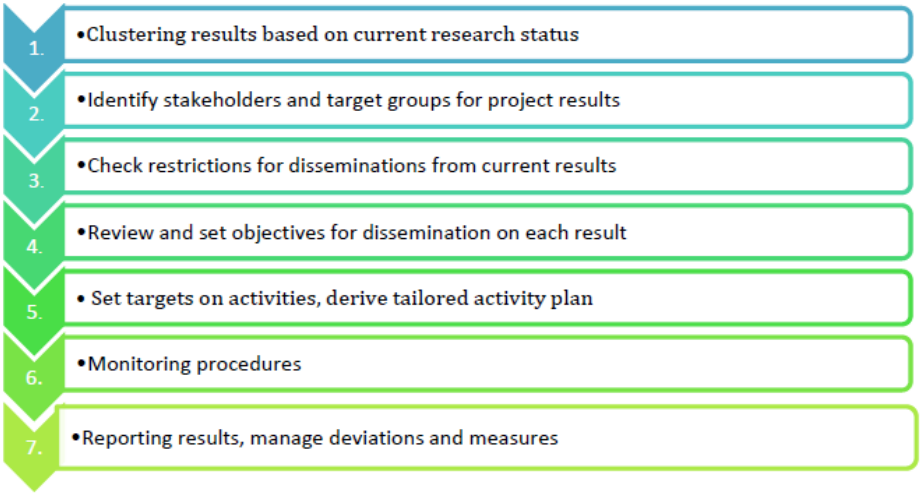


Figure 2: Process chart as proposed in updated D7.2.

The updated Project dissemination and exploitation plan also clearly defined target groups that will from now on have to be systematically targeted in order to ensure target customer/audiences per partner.

Each partner therefore provided key information for each dissemination action[9]:

- Target audience
- Key information to be disseminated
- Expected impact

Partners were systematically assessed in relation to the following **target groups**:

- Scientific partners

[9] For more information see data on pg. 14-16 in D7.2-updated.

- Industry community
- Founding authorities
- Open public

In addition, a careful estimation of interest from defined target groups and *(expected to date)* results relative to defined key dissemination target groups has been made to further systematize approach to dissemination activities:

Results	SCIENTIFIC Community	INDUSTRIAL Sector	OPEN Public
Framework on worker centric approach on requirements analysis including related artefacts	+++	+++	+
Framework to quantify job satisfaction and its increase due to process innovations based on KPIs	++	+++	+++
Framework to quantify innovation skills increase due to process innovations based on KPIs	++	+	++
Software solution to easily connect available (brown field) services based on open source software.	+	+++	~
Software solution to autonomously process complex manufacturing processes based on open source software	++	++	~
Downstream integration of different software applications in the product lifecycle for worker centric assistant software tools	+	+	-
HMI/HCI applications to display various data provided by existing data sources in factories	+	+++	++
Software applications for standard factory processes (e.g. quality processes to manage defects)	+	+++	~
Software applications to manage and connect external software services (e.g big data analysis)	+	+++	~

Legend:

+++ – Strong interest ++ –Medium interest + –Low interest

Figure 3: The relationship between target groups and (expected to date) results relative to defined key dissemination target groups

In order to ensure a successful business implementation of the results at time of their maturity the FACTS4WORKERS needed to carefully monitor possible restrictions from the results expected in order not to jeopardize future exploitation, possibly by disseminating results too early before IPR´s have been filed and secured or disseminated knowledge could in-fringe own exploitation.

As a general rule, the FACTS4WORKERS project aims for open source software developments and is in general required to disseminate all results in the best way. We therefore chose it is better to identify obstacles on results which should not be disseminated.

Key results	Non disseminateable content within RESULT
Framework on worker centric approach on requirements analysis including related artefacts	No personal data will be disseminated. Descriptions
Framework to quantify job satisfaction and its increase due to process innovations based on KPIs	None
Framework to quantify innovation skills increase due to process innovations based on KPIs	None
Software solution to easily connect available (brown field) services based on open source software.	None
Software solution to autonomously process complex manufacturing processes based on open source software	None
Semantic designed connectors to existing proprietary ICT systems (e.g. SAP)	None
Downstream integration of different software applications in the product lifecycle for worker centric assistant software tools	None
HMI/HCI applications to display various data provided by existing data sources in factories	None
Software applications for standard factory processes (e.g. quality processes to manage defects)	None

Figure 4: Non-disseminatable content within RESULT

The updated D7.2 also clearly defined preferred **communication channels and communication activities** for each defined target group. As it is visible from the following tables, these are given different prominence within dissemination access to each target group, and specific sub-groups. This shows that in order to maximize effects of dissemination and exploitation potential the project needs to have a clear focus on who and how to reach with its activities. The updated D7.2 document provides the consortium with a clear focus for the all-important solution deployment and presentation second part of the project.

Dissemination and Communication Activities		Researchers
Social Media and classical Media	Facebook	+
	Twitter	+
	Website	+
	Press release	+
	ResearchGate	++
	Academia.edu	++
	Mendeley	++
Publications	Peer-reviewed scientific journals	**++**
	Peer Reviewed Scientific Conference Publications	+++
	Industry Journals	+
	Industrial Conference Talks	+
	Popularised publications	+
Events	Organisation of a Conference	++
	Organisation of a workshop	+
	Participation to a scientific conference	**+++**
	Participation to other conference	+
	Participation to a workshop	+
	Participation to an event other than a conference or workshop	+
	Trade fair	+
	Exhibition	+
	Joint Workshop with other EU projects	++
Artefacts	Demonstrators Web-based	+
	Demonstrators App / HMI / HUD	+
	Technology Videos (RESULT related)	++

Figure 5: Overview of activity interest for scientific community

Legend:

+ – Important ++– More important +++ – The most important

Dissemination and Communication Activities		**Management**	**Consultants**	**Engineers**	**Workers**
Social Media and classical Media	Facebook	+	+	+	+
	Twitter	+			+
	Website	+	+	+	+
	Press release	++	++	++	++
	Blog	+	+	+	
	Company Intranet				**+++**
	Media compaigne (e.g. radio, TV, Newspaper)	+	+	+	++
Publications	Peer-reviewed journals	+	+	+	
	Peer Reviewed Scientific Conference Publications	+	+	+	
	Industry Journals	++	++	++	~
	Industrial Conference Talks	+++	++	++	~
	Popularised publications	+	++	++	++
Events	Organisation of a Conference	++		+	
	Organisation of a workshop	++		++	
	Participation to a scientific conference	++		+	
	Participation to other conference	++		+	

	Participation to a workshop	++		+	**+++**
	Participation to an event other than a conference or workshop	++		+	
	Trade fair	+		+	
	Exhibition	+			
	Joint Workshop with other EU projects	+			
Artefacts	Demonstrators Web-based	+		+	
	Demonstrators App / HMI / HUD	+		+	
	Project introduction Presentation	+			
	Technology Videos (RESULT related)	+		+	
	Project Video	++	++	++	++

Legend:

+ – Important ++– More important +++ – The most important

Figure 6: Overview of activity interest for industrial community

Dissemination and Communication Activities		EC, PO, PTA	National funding
Social Media and classical Media	Twitter	+	
	Website	+	+
	Youtube	+	
	Blog	+	+
	Press release	**+++**	**+++**
	Media campaign (e.g. radio, TV, newspapers)	+	++
Publications	Peer-reviewed journals	+	++
	Peer Reviewed Scientific Conference Publications	+	++
	Industry Journals	+	+
	Industrial Conference Talks	+	+
	Popularised publications	+	+
Events	Organisation of a Conference	++	++
	Organisation of a workshop	++	++
	Participation to a scientific conference	+	++
	Participation to other conference	+	++
	Participation to a workshop	++	+
	Participation to an event other than a conference or workshop	+	+
	Trade fair	+	+
	Exhibition	+	+
	Joint Workshop with other EU projects	+	++

Legend:

+ – Important ++– More important +++ – The most important

Figure 7: Overview of activity interest for founding authorities

Dissemination and Communication Activities		**Open public**
Social Media and classical Media	Twitter	++
	Facebook	+
	Website	+
	Youtube	++
	Blog	+
	Press release	**+++**
	Media campaign (e.g. radio, TV)	++
	Video release	**+++**
	Non-reviewed scientific journals	+
	Popularised publications	++
Events	Participation to other conference	+

Legend:

+ – Important ++– More important +++ – The most important

Figure 8: Overview of activity interest for open public

3.3 Project partner dissemination questionnaire

Derived from the predicted results described in the proposal and in the Grant Agreement, there have been 9 results identified which can be roughly grouped in 3 major domains:

A **dissemination questionnaire**[10] was prepared in May 2016 and distributed among all consortium partners. After receiving completed questionnaires, SIA and VIF conducted detailed TelCo interviews with each partner in order to ensure all dissemination points relevant for each partners were included in the data. The focus on the document was on the **dissemination strategy** of each partner for 2016 and 2017. Only a clear strategy in dissemination area will ensure a smooth and more importantly effective exploitation steps in year 2017 when first deployment of results in each IP UC is expected.

[10] The complete template for the dissemination questionnaire

- Virtual Vehicle Research Center (VIF): VIF as an acclaimed research center in the automotive industry aims to gain additional specialized knowledge on implementation of virtual reality development in the automotive industry. VIF's main interests lie in the link between (virtual) product development and the continuous product/process/plant innovation taking place in smart factories and will exploit the knowledge gained—especially on Big Data analysis, AR and Knowledge Management through their consultancy work for the automotive industry. It aims to disseminate the results in the wider Styrian regional industrial basin and forge further connections for stakeholders in Austrian Industrial R&D sector with main European players.
- Hidria TC (HID): As an advanced automated assembly line manufacturer (for automotive, electronics, plastics industries) HID aims to incorporate KERs into its assembly lines at the Hidria Dieseltec BU (lines used for manufacturing of the state of-the art Pressure-sensor glow plug). It will therefore disseminate its solutions internally to developers within HID and in a wider way within Hidria Group to employees of Hidria Dieseltec BU. On the second level it will demonstrate the ability to upgrade its lines with developed solutions to its customers (on fairs, via customer visits, brochures and video presentations).
- Università degli Studi di Firenze, Department of Industrial Engineering (UNIFI): UFI has a twofold goal in its dissemination activities: a) present itself as a reliable scientific partner (via reaching out to scientific community) b) exploit the developed KERs via a spin-off company established by UFI. UFI's aim is to promote the software developed by it during the project in the wider industry via its spin-off in first in local and regional SMEs in Italy (companies as end users and also software suppliers who might be interested in incorporating the developed software in their products) and in wider European area (demonstrators' presentation in scientific conferences).
- TU Wien, Institute for Engineering Design and Logistics Engineering (VUT): VUT's goal is to use the scientific results to strengthen its position as a leading research partner for industrial companies and other research institutes. All results will be applied to the "TU Wien Pilot Factory Industry 4.0", which serves as a demonstration platform for production companies (focus SME), technology providers, and software companies. KER results need to be focused on teaching – cutting edge teaching is important. This will lower barriers of newly developed technologies for their entry on the market later. VUT will focus on scientific papers and conferences to gain contacts and awareness for its plans for Pilot Factory; it deems blogs ineffective.

- ThyssenKrupp Steel Europe AG (THK): THK as a large industrial group aims to focus its dissemination activities primarily into connecting internal stakeholders (on the shop floor and in middle management structures) working on same topics fitting to the F4W project - knowledge management, smart factories, change of work/future of the work in industry 4.0 – to improve the satisfaction on workplaces within THK; especially big focus in on management structures (top 100 - top 40 leaders within THK) – to raise interest of company management for smart factory topics and work satisfaction. A plan will be made to incorporate 4FW into other IT & digital projects within THK. An outward dissemination with University Dortmund's Phd programme is planned, and workshops with "Deutsche Gesellschaft für Wissensmanagement" (association of different companies meeting for knowledge management topics). THK's external dissemination is oriented into industrial management community via workshops, vents covering (social collaboration, industrial gamification).
- Hidria Rotomatika (HRO): HRO's Alutec BU is the provider of an industrial use case focused on milling of shafts for stator/rotor laminated steel stacks. HRO aims to promote the developed solution to shop floor workers and middle management of the company in order to facilitate a possible spread of solution to other applications within the Alutec BU or other Bus under HRO; the important focus will be on young incoming workers who are well adapt for working with modern IT equipment. On the other hand it aims to use the project UC for fostering R&D connections locally and in the wider industrial community: local outreach is planned with workshops with local high school, University of Ljubljana IT departments and companies in the milling sector, and wider outreach is planned on industrial fairs – this will help reach out to a wider industrial community.
- iMinds (IMI): IMI's KER focus lies in the semantic workflow engine development and application and the selling of the software package to potential customers. As an R&D institution with ties to universities and industrial sector, the dissemination is planned in multiple directions: a) semantic community: HMI and IT equipment developers who could include worker-friendly solutions into their equipment b) academic community will be reached out with scientific papers on developed KER c) industrial community will be reached out with a working demo solution (preferably in 2017 on a number of fairs, conferences) in order to motivate potential industrial partners to incorporate worker friendly solutions into workplaces for industry of 21st century.

- SiEVA (SIA): SIA as a network based research SME of most important Slovenian automotive suppliers and connections on a European level (EARPA, ERTRAC) has a unique position to focus its dissemination efforts toward the widest possible industrial community. SIA's dissemination efforts will be focused into bringing together stakeholders on national level (automotive cluster, universities etc.) and aim to increase awareness of importance of KER solutions for the wider automotive industry. A similar pitch will be made on European level via EARPA and ERTRAC. Events with European and national representatives in Slovenia are planned as well as possible creation of a spin-off in order to facilitate easier spreading of KERs' solutions to other of SiEVA's stakeholders and in the wider industry.
- University of Zurich, Department of Informatics, Information Management Research Group (UZH): UZH is looking to gain better understanding of working practices of factory workers and appropriation of IS. They plan to leverage the knowledge gained of measuring success of ICT implementation projects into a commercial service offering.
- Thermolympic (THO): THO is an SME active in the automotive industry. As an SME that is under constant pressure from its much bigger customers to evolve in quality and reliability of supplies, THO's dissemination focus is set inward towards employees. In order to use F4W solutions to help facilitate industry 4.0. solutions in the company, THO's internal dissemination is clearly focused on the shop floor. In the wider sense THO sees the project as an opportunity to position itself as a spearhead company in Industry 4.0. solution application in region of Aragon so therefore it will aim to make results known in the wider automotive sector in the region (contacts with suppliers, customers), events are planned in regional associations and events; CEP (Centro Español de Plásticos), CAAR (Clúster Automoción Aragones) and an outreach to the public is planned via different media (Radio Zaragoza).
- EMO-Orodjarna (EMO): EMO is the provider of an industrial UC from the toolmaking industry. It is an SME and it will in the first instance primarily focus to disseminate the results of KERs applied to its UC to tool montage solutions on the shop floor to workers. It also plans to run outward orientated dissemination activities focused on dissemination within the toolmaking community in Slovenia: it has contacts with Slovenian Toolmakers Cluster and also related Universities. Importance of toolmaking in the country and plans to combine the toolmaking potential of all Slovenian companies presents an opportunity for dissemination of results in the wider community. Such local dissemination through associations is seen more effective as through fairs.

- Evolaris next level Gmbh (EVO): EVO's dissemination aim is oriented towards exploiting the results of the project as reusable software modules that can be applied in future for other projects. EVO wants to use dissemination to promote itself as a company that delivers high level applications – as proved by KERs- for the shop floor in various industries especially in its core markets (Germany, SE Europe). EVO's strategy is to use real-world demonstrators to promote the solutions conferences, workshops and industry related congresses (to partners and clients). The goal is to create attractive HMIs that provide good usability and user experience and this will enable a wide reach out to workers in different industries.
- Instituto Tecnológico de Aragón (ITA): ITA is a public R&D institute but its dissemination interest is nevertheless more oriented towards disseminating towards industrial clients and partners. In national level these can be found especially in metalworking and automotive sectors in Spain but also European level will be targeted; tools used are workshops, showrooms, trade fairs, events with industry stakeholders. ITA's goal is to focus on close cooperation with UZH and LUT to focus results into exploitable solutions and possible transfer the ownership to a third party in order to enable the widest possible outreach in the industry. ITA deems IPR to be important part of dissemination discussion and strategy.
- Schaeffler Technologies GmbH & Co. KG (SCA): The goal of SCA as a large industrial group is to obtain a standardized solution that could be applied to shop floor to other SCA plants around the globe in vision with other actions within Schaeffler – to have a paperless factory organization in the group. SCA's dissemination is focused on strong internal communication with shop floor workers and department managers on how to most efficiently spread the solution application to have effect on as many employees as possible; internal channels such as Schaeffler newspaper, Schaeffler TV and others will be used.
- Lappeenranta University of Technology (LUT), School of LUT's dissemination focus lies in spreading impacts and achievements of F4W's KER in scientific and research but also industrial community. LUT has very strong scientific links that will be used for dissemination purposes, but in addition it wants to use the project as an opportunity to improve its relationship with the industry (primarily in Finland but also in wider European sense) and in doing so help increase industry's awareness of solutions contributing to worker satisfaction. LUT's scientific dissemination is targeted at international levels, with two channels: a) international scientific conferences and b) peer-reviewed scientific journals. Among the first LUT will use its connections in associations such as ISPIM (International Society for Professional Innovation Management) and ICPR (International Conference on Production Research).

3.4 Project website

After one year into the project, the project consortium decided to **update the Webpage** and give it a completely **new structure**. In second half of 2016 main dissemination partners – SIA and VIF – began to prepare outlines for an updated project webpage. The new webpage is supposed to put more focus on project use-cases and their industrial implications and on separate solutions developed by the F4W consortium.

The project website http://facts4workers.eu has therefore been established quickly after the kick-off-meeting and the website is since then updated it with new content. However, we would like to gain more traction on the website and integrate it more effectively with different social media outlets (Twitter, Facebook) in order to enable greater outreach into the scientific and industrial communities. A new webpage form has therefore been planned, which will be completed in beginning of 2017 and will remain until the end of the project *(webpage address of course remains the same)*.

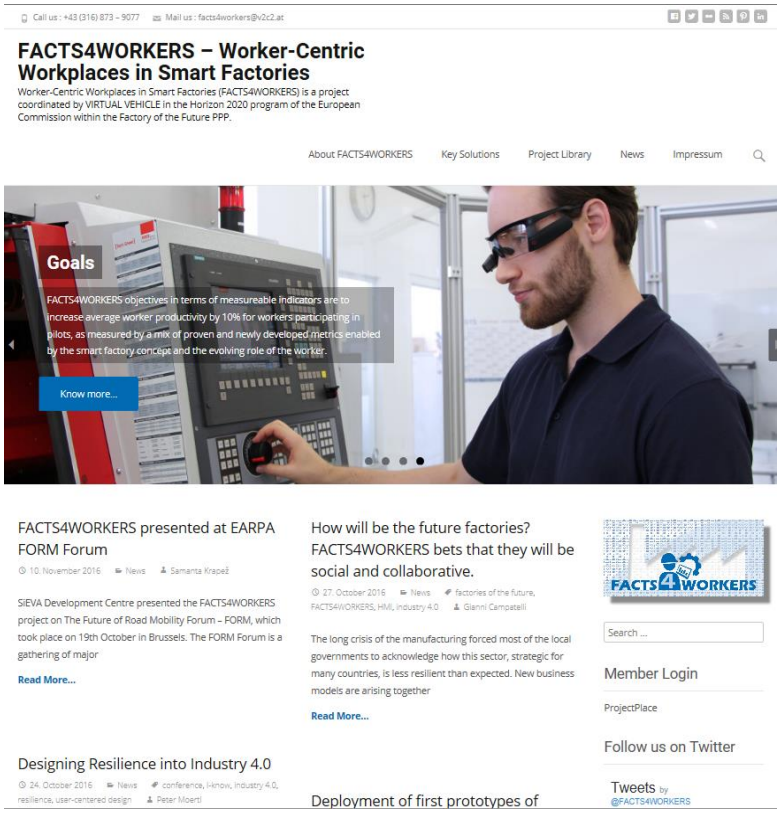


Figure 9: Original project website at www.facts4workers.eu

3.4.1 Online content of the webpage

The new webpage structure will put more focus on dynamic content *(videos, blogs, Twitter & social media)* and try to bring it more into the focus. The FACTS4WORKERS new website structure will therefore be divided into **three main sections** which are again each divided into **new subsections**:

- **BASIC INFORMATION SECTION**

  This section is dedicated to present the project's impact, key facts, project goals, news and consortium partners.

  Subsections:

  - About FACTS4WORKERS
  - Pilot sites *(Description of project's key sites with photo and video materials)*
  - Key solutions *(Description of key technical solutions to be deployed within project's UCs, with descriptions and some dissemination material)*
  - Project library *(Publications | Photo Gallery | Template |Deliverables| Dissemination material)*

- **SOCIAL MEDIA INFORMATION SECTION**

  This section encompasses the project blog, Twitter, Facebook and other social media. As usual on similar project websites, the information is presented on the right side of the webpage.

  Subsections:

  - Project blog *(as a separate page)*
  - Twitter feed

- **USEFUL INFORMATION SECTION**

  This section gives a general and most crucial info on the project that is sought after by interested visitors after visiting the page (project consortium, budget, contacts).

  - Project information *(project impressum & basic info)*
  - Latest news *(news feed with latest info on project consortium, UC development, FoF meetings & events)*
  - Contact *(main project contact data)*

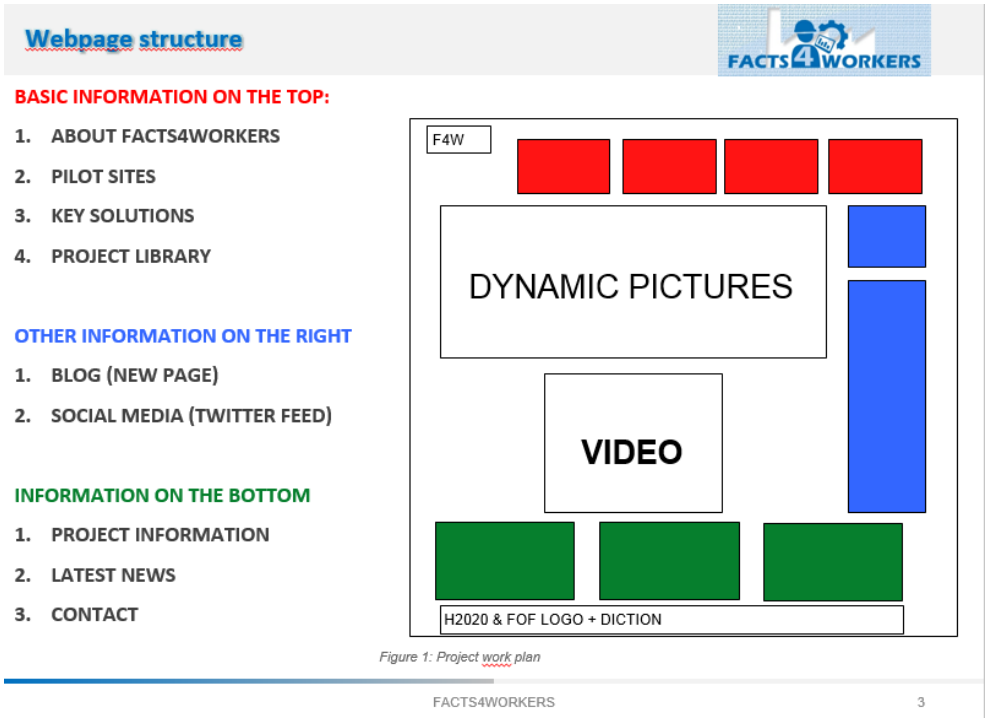


Figure 10: Proposed design for the new Webpage

As it is visible in the design above, **a FACTS4WORKERS video presentation** shall be featured in the center of the webpage. Preparations have begun for video scenario design and implementation steps on how to make it *(see chapter 3.2. for more info)*. As before, the majority of website content is managed by the project coordinator (Virtual Vehicle Research Center) and the WP Leader for dissemination (SiEVA). However, in the second year input information and ideas were acknowledged more eminently when designing the new webpage.

3.4.2 Website analytics

Modern website analytics provides an excellent means to monitor, if and how website content can achieve the desired success. In order to better monitor website visits we decided to use Google Analytics[11]. Google Analytics provides a detailed overview of a series of KPIs relevant for online marketing and content strategists, including:

[11] Google Analytics: http://www.google.com/analytics

- **Page sessions,**

  A session is a group of interactions that take place on a website within a given time frame. A single session can contain multiple screen or page views, events, social interactions, etc.[12]

- **Average session length,**

  Presents the average length of a session, by default, a session lasts until there's 30 minutes of inactivity[13].

- **Page views,**

  Page views are the total number of pages viewed; repeated views of a single page are counted[14] .

- **Users,**

  This includes users with at least one active session within the selected date range (includes both new and returning users[15]).

- **% of new sessions,**

  The percentage of new users is an estimate of the percentage of first time visits[16].

- **Website visitors by country / language / city**

  Presents the percent of visitors by different categories.

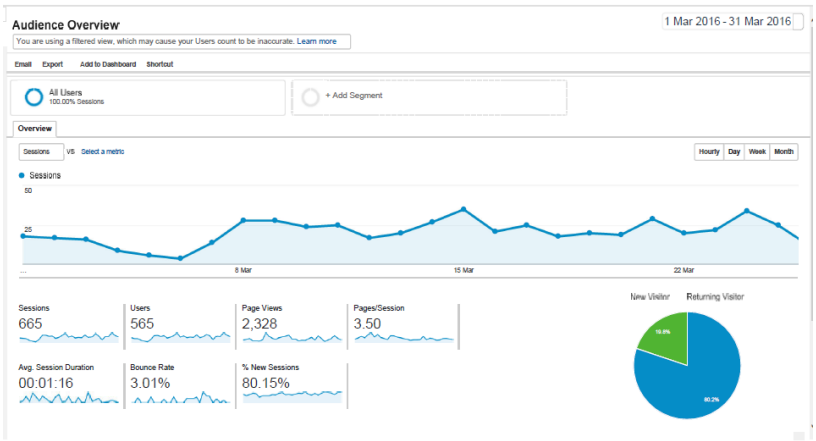


Figure 11: Monitoring online traffic from 01.03. - 31.03.2016

[12] Summarize by Google Analytics: http://www.google.com/analytics

[13] Summarize by Google Analytics: http://www.google.com/analytics

[14] Summarize by Google Analytics: http://www.google.com/analytics

[15] Summarize by Google Analytics: http://www.google.com/analytics

[16] Summarize by Google Analytics: http://www.google.com/analytics

By monitoring online traffic, we can better adjust both website structure and website content to the information needs and wants of our website visitors.

3.4.3 Website statistics

The table below includes a statistics on page sessions, page views, session length and a comparison of factual users to our planned communication targets from November 2015 to October 2016.

Month	Page Sessions	Users	Page views	Average length of a Session	Result: Users/ project target > 300 visitors
November 2015	770	480	3.022	0:02:29	159%
December 2015	672	514	2.527	0:02:18	171%
January 2016	707	516	2.985	0:02:15	171%
February 2016	408	229	2.348	0:03:32	76%
March 2016	665	565	2.328	0:01:16	188%
April 2016	848	762	2.187	0:00:42	253%
May 2016	423	304	1.574	0:01:40	101%
June 2016	390	290	3.787	0:01:57	96%
July 2016	423	270	2.924	0:03:30	90%
August 2016	369	248	1.911	0:02:08	82%
September 2016	399	244	2.495	0:02:54	81%
October 2016	471	317	2.945	0:03:08	105%

Figure 12: Website statistic

In accordance to our communication targets, we should achieve more than 300 website visitors per month. The statistics show that the FACTS4WORKERS communication targets have been met on the average level.

The graph on the next page also indicates that our communication targets have been met on the average level.

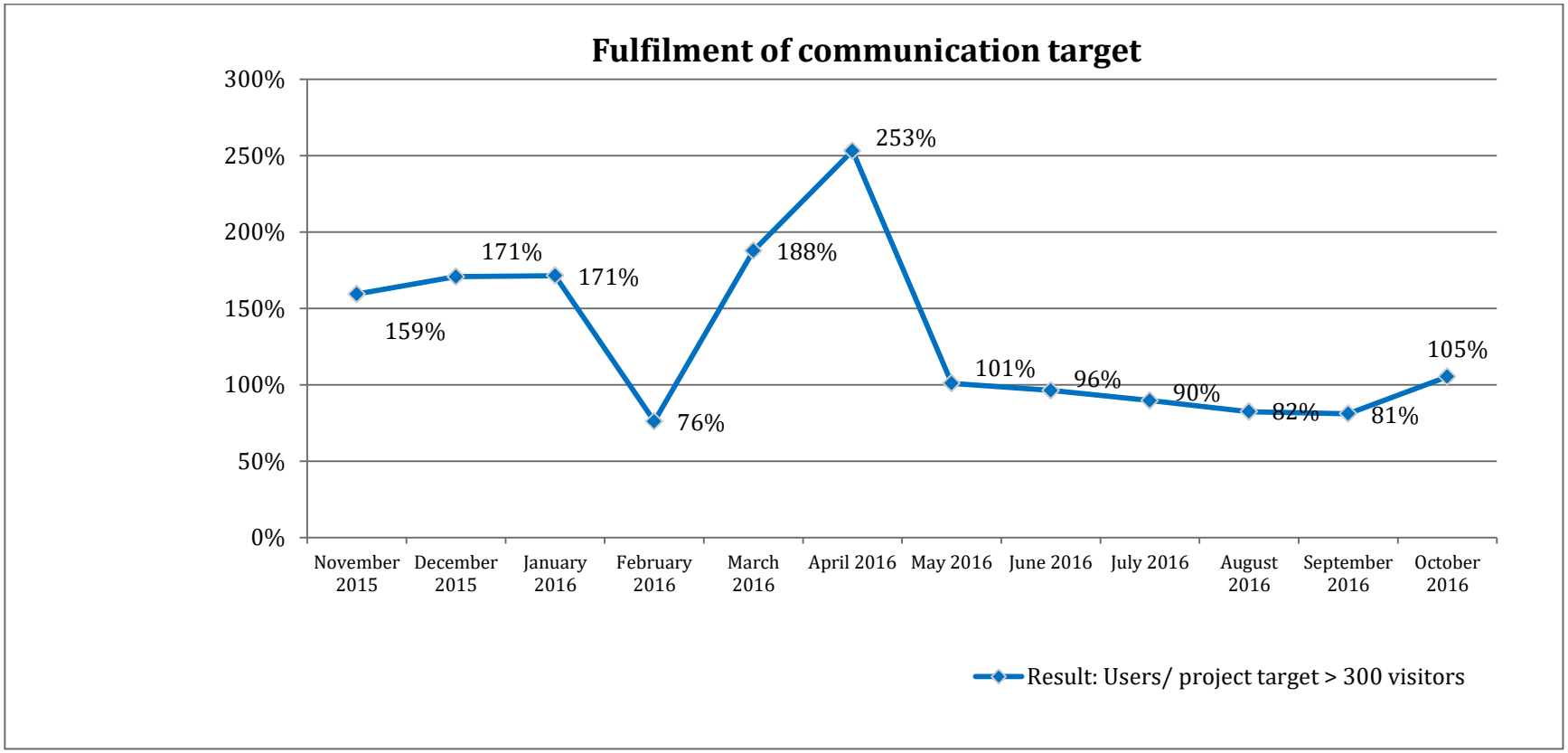


Figure 13: Fulfilment of communication target

The graph below presents how many users visited our project website.

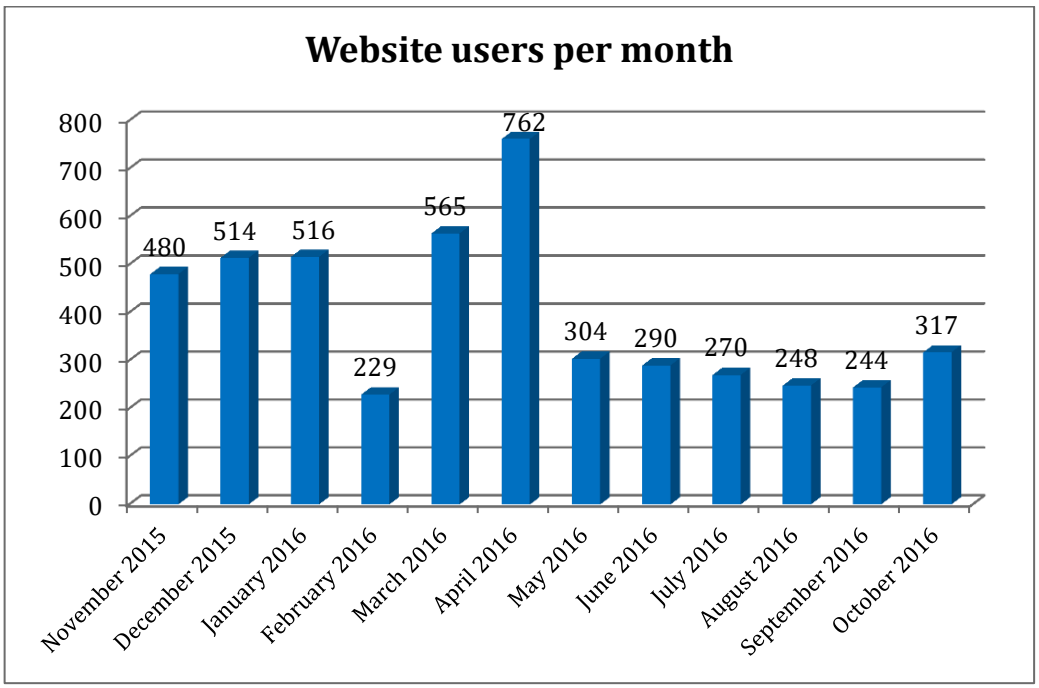


Figure 14: Website users per month

The graph below presents the total number of pages viewed (including repeated views) within the date range.

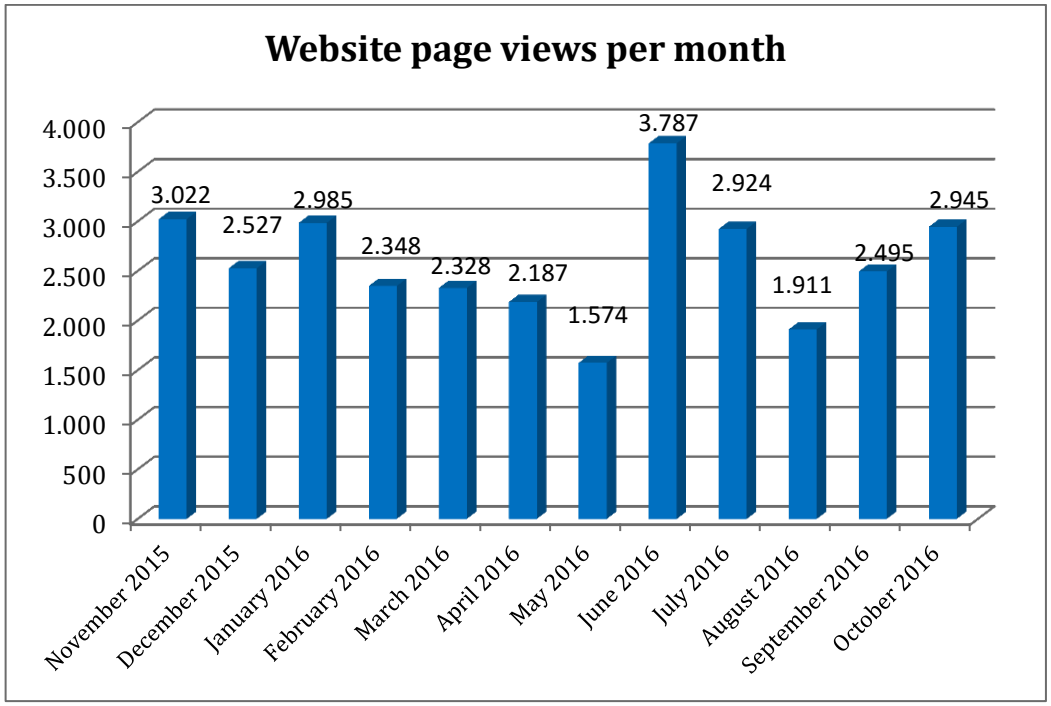


Figure 15: Website page views per month

3.5 Project video

As described in the previous chapter, the project consortium decided to create a general presentation video of the FACTS4WORKERS project that would enable the consortium to more effectively communicate project's goals, solutions and results to the interested scientific and general public. The decision for the video was first presented in the updated D7.1. Project dissemination and exploitation plan *(see chapter 3.2.).*

In the first step, the consortium will design a general project presentation video. Activities were already underway by partners SIA and VIF where the **video outline, video scenario** and **video contributors** from partners have been generally defined. Main presentation material – *photography, UC shop floor videos* – was provided by UZH who made it during their visits to all UC premises during 2015 and 2016.

Recording and montage of the video is planned for beginning of 2017.

Figure 16: FACTS4WORKERS video layout

3.6 Social media

The project is very active in the most relevant social media platforms in order to promote the findings of the project and to foster the creation of a bi-directional collaborative community of interested stakeholders. Social media is a very dynamic environment and one of the most popular and fastest ways to talk about our project and to enhance its visibility. As in the first project year we also in second project year use the following social media platforms:

- **Twitter**

Twitter analytic - first project year	
Tweets	160
Followers	70
Likes	20
Followings	101

Twitter analytic - second project year	
Tweets	358
Followers	187
Likes	52
Followings	305

Figure 17: Twitter analytic

*The data were obtained for second project year on the 21.11.2016.

Twitter is an online service that enables users to send and read short 140-character messages called "tweets".[17]

Figure 19: FACTS4WORKERS on the Twitter

[17] https://en.wikipedia.org/wiki/Twitter

Blog (Tumblr, website blog)

We operate two blogs, a Tumblr and a WordPress Blog (wordpress is the content management system of our project website). Tumblr is a microblogging platform and social networking website. The service allows users to post multimedia and other content to a short-form blog.[18]

Website blog post analytic	
Posts	22

Tumblr blog post analytic	
Posts	12

Figure 18: Website and Tumblr blog post analytics in second project year

Facebook

Facebook is an online social networking service. After registering to use the site, users can create a user profile, add other users as "friends", exchange messages, post status updates and photos, share videos and receive notifications when others update their profiles. Additionally, users may join common-interest user groups, organized by workplace, school or college, or other characteristics.[19]

The data were obtained on the 21.11.2016.

Facebook analytic	
Posts	41
Number of likes	38

Figure 19: Facebook analytic in second project year

LinkedIn

LinkedIn is a business-oriented social networking service. It is mainly used for professional networking[20].

LinkedIn analytic	
Connections *(dated 21.11.2016)*	86

Figure 20:LinkedIn analytic in second project year

[18] https://en.wikipedia.org/wiki/Tumblr

[19] https://en.wikipedia.org/wiki/Facebook

[20] https://en.wikipedia.org/wiki/LinkedIn

Playing an active role in social media is a far more effective way of engaging in conversation than merely posting something on the project website. The good thing about taking part in the social web is that it does not require us to share only full formed ideas or complete pieces of research. We can share work in progress and immediately get feedback that will improve our results.

3.7 Dissemination material

Dissemination material used for informing interested stakeholders at specialized industry- and research-related events was designed as reported already in the first project year.

The used dissemination tools include:

- **Project brochure and**
- **Project roll-up**

As already mentioned, the second year dissemination focus got directed mostly at academic and research sectors. Project partners involved at these events used presentations, roll-ups and brochures. These materials were also used at some IPs' presentations (internal TKSE workshops, HID outreach to its customers etc.).

Specific dissemination material

In the second year it has been decided that when needed **partners received a greater autonomy** to more efficiently address specific dissemination situations. One such case can be the *"Successful Projects from North Rhine-Westphalia - Status Quo and Outlook*" 16th November 2016 event, where TKSE presented not just only the general outline of the project but a detailed presentation of its TKSE UC *(presented at the event since TKSE's seat is based in this important German industrial region)*. For this presentation TKSE designed **additional UC-specific roll-ups** that in much greater detail present the problems and solutions of the TKSE UC.

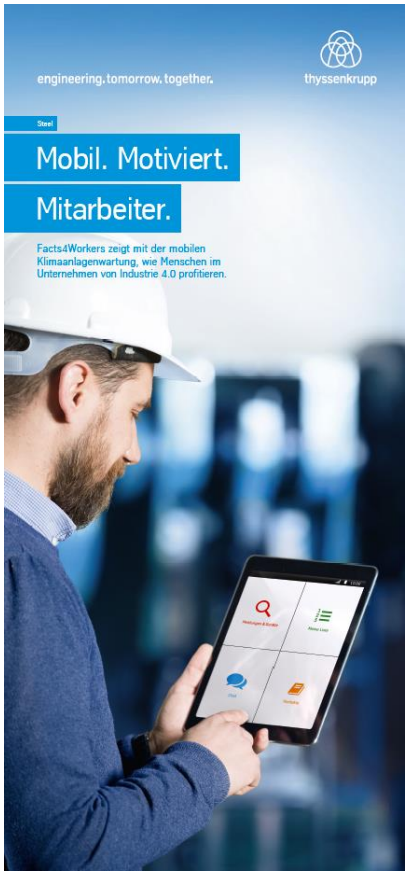


Figure 20: TKSE UC specific roll -ups

3.8 Project publications

Blog posts, external releases and papers are key dissemination tools. All of these activities will ensure the long lasting impact beyond project duration, particularly in relation to academic discourse in the area.

3.8.1 Published Blog posts

NUMBER	TITLLE	PARTNER	TUMBLR	WEBSITE BLOG
1	Smart Glasses Comparison	EMO	X	X
2	Taxonomy of HCI technologies	ITA	X	X
3	Requirements of workers and organisa-tions	UZH, SIA	X	X
4	Evaluating HCI Technologies readiness for being used on the shop-floor	VIF	X	X
5	Project Deliverable 1.3 – Detailed and Refined Industrial Challenges, Version I	LUT,SIA		X

6	12month-Review meeting	VIF		X
7	Impressions of the HANNOVER MESSE 2016	VIF		X
8	The ISPIM Innovation Conference in Porto	LUT,SIA	X	X
9	Whitepaper: Industrial Suitability of Mobile HMIs	EMO, SIA		X
10	FACTS4WORKERS presented at AUTO-MATICA EXPO	HIR, SIA		X
11	FACTS4WORKERS hosts workshop @ Mensch und Computer 2016 conference	VIF		X
12	Project Deliverable 5.1 – "Blueprint architecture and integration plan"	SIA		X
13	Project Deliverable 6.1- Evaluation Framework	ITA		X
14	FACTS4WORKERS presented at RuleML conference	IMI, SIA	X	X
15	FACTS4WORKERS Workshop Smart Factories: User-centered information systems for future collaboration	VIF	X	X
16	Testing of new Head Up Displays (HUD)	VIF		X
17	What trade-offs do we expect in the future of smart factories?	VIF	X	X
18	How does Industry 4.0 solutions influence the shop-floor workers satisfaction and productivity?	ITA, SIA	X	X
19	Deployment of first prototypes of FACTS4WORKERS solution	VIF	X	X
20	Designing Resilience into Industry 4.0	VIF	X	X
21	How will be the future factories? FACTS4WORKERS bets that they will be social and collaborative.	UNIFI	X	X
22	FACTS4WORKERS presented at EARPA FORM Forum	SIA		X

Figure 21: Published blog posts –second project year

3.8.2 Publications and mentions

1.) Published peer-reviewed journal papers

1. Stocker, A., Spitzer, M., Kaiser, C. et al. (2016): Datenbrillengestützte Checklisten in der Fahrzeugmontage, Informatik Spektrum, April 2016, pages 1-9,doi:10.1007/s00287-016-0965-6doi: 10.1007/s00287-016-0965-6
   Link: http://link.springer.com/article/10.1007%2Fs00287-016-0965-6

2.) Conference papers

In the second year of the project we have achieved **6 conference papers**. All papers are published on the website and are free for download:

1. **Paper from The XXVII ISPIM Innovation Conference**

Hannola L.; Heinrich P.; Richter A.; Stocker A. (2016), Sociotechnical challenges in knowledge-intensive production environments, The XXVII ISPIM Innovation Conference, June 2016.

Link: http://facts4workers.eu/wp content/uploads/2016/11/1_ISPIMPaper_HannolaHeinrichRichterStocker_FINAL_1.0.pdf

2. **Paper from RuleML conference**

Dörthe A.; Van Herwegen J.; Verborgh R., Mannens E.; Van de Walle R. (2016), Using Rules to Generate and ExecuteWorkflows in Smart Factories, RuleML conference, July 2016 .

Link: http://facts4workers.eu/wp-content/uploads/2016/11/4_RuleMLIndustry_2016.pdf

3. **Paper from Mensch und Computer**

Mörtl P.; Schafler.M.; José Lacueva-Pérez F. (2016), Worker Characteristics moderate the Impact of Socio-technical Workplace Interventions on Job Satisfaction, Mensch und Computer 2016, September 2016.

Link: http://facts4workers.eu/wp-content/uploads/2016/11/3_Mörtl_Schafler_Lacueva-Perez_2016.pdf

4. **Paper from Mensch und Computer**

Streibl M; Brandl P. (2016), Einsatz eines Live Video Remote Systems in der Industrie, Mensch und Computer 2016, September 2016.

Link: http://facts4workers.eu/wp-content/uploads/2016/11/2_Einsatz-eines-Live-Video-Remote-Systems-in-der-Industrie.pdf

5. **Paper from International Conference on Knowledge Technologies and Data -driven Business – i-KNOW**

Mörtl P.; Schafler.M; Stocker A. (2016): A Psychological Framework for the Design of System Interventions that Increase Resilience, International Conference on Knowledge Technologies and Data-driven Business - i-KNOW, October 2016.

Link: http://facts4workers.eu/wp-content/uploads/2016/11/5_Framework-for-Resilience-pmoertl-Aug-2016.pdf

In accordance with our target we should achieve more than 20 papers. We have already published in

1.) First project year:
8 papers (2 peer-reviewed journals and 6 reviewed conference papers).
2.) Second project year:
6 papers (1 peer-reviewed journal and 5 reviewed conference papers).

3.) Others

1. Automobil Industrie: Der Arbeitsplatz in der Fabrik der Zukunft

Link:http://www.automobil-industrie.vogel.de/der-arbeitsplatz-in-der-fabrik-der-zukunft-a-516007/

2. empresasON: ITAINNOVA medirá el grado de satisfacción y capacidad para innovar de los trabajadores industriales

Link:http://www.empresason.com/articulo/empresas-on/itainnova-medira-grado-satisfaccion-y-capacidad-innovar-trabajadores-industriales/20160906125608002806.html

3. Entorno inteligete: ITAINNOVA participa en un proyecto europeo de investigación

Link:
http://www.entornointeligente.com/articulo/8894722/'/articulo/8894722/ITAINNOVA

4. Lainformacion.com: ITAINNOVA participa en un proyecto para medir la capacidad de innovación de los trabajadores industriales

Link:http://fotos.lainformacion.com/ciencia-y-tecnologia/investigacion/ITAINNOVA-capacidad-innovacion-trabajadores-industriales_1_951214926.html

5. Evolaris website: Whitepaper: Industrial Suitability of Mobile HMIs

Link:https://www.evolaris.net/de/whitepaper-industrial-suitability-of-mobile-hmis/?referrer

6. El Mundo: "Potenciar la capacidad de la plantilla en la Industria 4.0" (To boost the staff capabilities in Industry 4.0)

Link:
http://www.elmundo.es/economia/2016/07/12/5784b36e268e3ecf7d8b45b8.html

7. Itainnova website: El proyecto FACTS4WORKERS medirá el grado de satisfacción y capacidades de innovación de los trabajadores en la industria

Link:
http://www.itainnova.es/noticias/el-proyecto-facts4workers-medira-el-grado-de-satisfaccion-y-capacidades-de-innovacion-de-los-trabajadores-en-la-industria

3.9 Project presentations

In the second year, project's presentations were mostly aimed at both academic and semantic communities. As it can be seen in the following exhibits, project was presented mostly at specialized conferences, scientific journals, industrial partners' magazines etc.

Events focused on **reaching out to the scientific community** cover different conferences such as Mensch und Computer Conference, ProSTEP IVIP Symposium, International Web Rule Symposium etc. Conferences usually cover one or a combination of topics such as IT semantics, human-machine interaction, human resource management, modern industrial organization methods and Industry 4.0 methods. In line with keeping a holistic approach to the subject partners aim to cover a wide array of viewpoints to the problems addressed and trying whenever possible to attend events that combine multiple aspects *(see the table below).*

Industrial outreach within the project was also strong in 2016. The project was presented on industrial fairs such as CWIEME Berlin and AUTOMATICA in Munich.

Public outreach encompassed outreach to interested governmental stakeholders. A more European-level outreach included the 2016 presentation on EARPA Forum. National or regional level includes the 2016 Horizon 2020 presentation in North Rhine-Westphalia.

The table presents conducted project presentations in second project year.

No	Type of dissemination activity	Name of event / title	Period / Location	Author / Responsible person
1	Participation at event	Premiere des Films Augenhöhe Wege Participation at Open World Café about the topic "future workplaces". http://augenhoehe-wege.de/	March 2016 Karlsruhe (DE)	UZH team
2	Trade fair	Hannover Messe	April 2016 Hannover (DE)	Martin Wifling, Marlene Schafler UZH team
3	Radio interview	Interview on the radio- La ventana de Aragón - Industria 4.0 http://play.cadenaser.com/audio/016RD010000000553354/	May 2016 Zaragoza (ES)	Pedro Amoraga
4	Expo and conference	CWIEME Berlin	May 2016 Berlin (DE)	Tobija Kovač
5	Invited talk and conference	Learning by d0/Ing Title: Digitales Lernen in Zeiten von Smart Production & Services	May 2016 Graz (AT)	Martin Wifling Michael Spitzer
6	Expo and conference	AUTOMATICA, Trade Fair for Automation and Mechatronisch	June 2016 München (DE)	Tadej Kodelja
7	Invited conference talk	ProSTEP IVIP Symposium Title: Smart Workers – empowered people for advanced future manufacturing	June 2016 Stuttgart (DE)	Michael Schmeja Alexander Stocker
8	Invited conference talk	Forum Produktion 2016 Title: FACTS4WORKERS: Increasing efficiency through intelligent information systems in an Automotive In-	June 2016 Linz (AT)	Alexander Stocker

		dustry Case		
9	Conference and paper	ISPIM 2016 International Society for Professional Innovation Management	June 2016 Porto (PT)	Lea Hannola
10	Conference	Siemens Executive Summit - "On the way to Industrie 4.0 - Driving the Digital Enterprise"	June 2016 Schloss Mondsee (DE)	Detlef Gerhard
11	Technology meeting	Global IE / Technology meeting Schaeffler	June 2016 Herzogenaurach (DE)	Schaeffler team
12	Keynote	SAP Education Forum Germany Keynote: Wie lernen und arbeiten wir in der Zukunft? http://www.slideshare.net/SAPLearn/wie-arbeiten-und-lernen-wir-in-der-zukunft	June 2016 Walldorf (DE)	UZH team
13	Workshop and conference	Commission on Innovation with Industry 4.0 - Comisión de Innovación en Industria 4.0	June Zaragoza (ES)	Jorge Millán
14	Conference and paper	Mensch und Computer 2016 (Paper: Einsatz eines Live Video Remote Systems in der Industrie)	September 2016 Aachen (DE)	Peter Brandl
15	Workshop on a Conference and paper	Mensch und Computer 2016 (Paper: Worker Characteristics moderate the Impact of Socio-technical Workplace Interventions on Job Satisfaction)	September 2016 Aachen (DE)	Peter Mörtl, Marlene Schafler Francisco José Lacueva-Pérez
16	Scientific Event	European Researchers' Night (Facts4Workers Presentation at evolaris stand)	September 2016 Vienna (AT)	Peter Brandl
17	Conference and paper	International Web Rule Symposium (RuleML) 2016	September 2016 Stony Brook, NY, (USA)	Dörthe Arndt, Joachim Van Herwegen Ruben Verborgh Erik Man-

				nens
18	Congress	3rd Vienna Congress for Production Engineering 2016 Title: Adaptive & Smart manufacturing	September 2016 Vienna (AT)	Detlef Gerhard
19	Workshop on local strategy for implementing Industry 4.0	Project presentation and future local exploitation - Local stakeholder meeting for project TRINNO :	September 2016 Firenze (IT)	Gianni Campatelli
20	Lecture	Work Smart Week Lecutre: General presentation of research results of work smart. In panel discussion facts4worker use cases were discussed among other topics. http://work-smart-initiative.ch/de/news/blog/work-smart-einfuehren-was-funktioniert-was-funktioniert-nicht/	September 2016 St. Gallen (CH)	UZH team
21	Invited talk and conference	Industrial Technologies for Inter-regional cooperation and growth- in the context of the Knowledge Exchange Platform (KEP) Title: Building ICT for smart factories which are attractive to workers	October 2016 Brussels (BE)	Martin Wifling
22	Exhibition	EARPA FORM Forum	October 2016 Brussels (BE)	Miloš Šturm Tanja Mohorič
23	Project presentation to the students from "School of Industrial Management".	Presentation of FACTS4WORKERS results - Project presentation, with special focus about how the results fit in the general Industry 4.0 picture (Lesson to a classroom of student from "School of Industrial Management". The school has been created by the local industry categories)	October 2016 Firenze (IT)	Gianni Campatelli
24	Conference and paper	International Conference on Knowledge Technologies and Data-driven Business – i-KNOW	October 2016 Firenze (IT)	Peter Mörtl, Marlene Schafler, Alexander

				Stocker
25	Exhibition (shared booth)	M2M Summit Exhibition materials about Facts4Worker at the booth of an industrial partner of the University of Zurich. A project employee Facts4Workers is for visitors available to answer questions about the project Facts4Workers	October 2016 Düsseldorf (DE)	UZH team
26	Keynote	SAP Education Forum Germany Keynote: Wie lernen und arbeiten wir in der Zukunft?	November 2016 Zürich (CH)	UZH team
27	Trade fair and Stand	Horizont 2020.NRW - Erfolge im Blick	November 2016 Düsseldorf (DE)	Tamara Kuhn, Alexandra Wasser-mann
28	Exhibition (shared booth)	SPS IPC Drives Exhibition materials about Facts4Worker at the booth of an industrial partner of the University of Zurich. A project employee Facts4Workers is for visitors available to answer questions about the project Facts4Workers.	November 2016 Nürnberg (DE)	UZH team
29	Conference	aWEAR'16 – Wearable technologies, knowledge development and learning	November 2016 Stanford University, USA	Michael Spitzer, Martin Ebner

Figure 22: Conducted Dissemination activities in the second year of the project

4 Exploitation

Exploitation activities in the second year of the project were still in the background. This is no surprise, since the first test deployment of results is expected in beginning of 2017 and their validation is not expected before late 2017/beginning 2018. A successful implementation is conditioned with having concrete exploitation materials to be exploited and presented to the interested public.

4.1 Key Exploitable Results (KER) Identification

The first concrete step forward regarding exploitation process design in the project's second year covers **identification of Key Exploitable Results – KER in form of concrete products / solutions / services** in the D7.2-updated plan.

In D7.2-updated plan, derived from the predicted results described in the proposal and in the Grant Agreement, we have **identified 9 results** which can be roughly grouped in **3 major domains:**

1. Worker centric approach

Expected results:

- Framework on worker centric approach on requirements analysis including related artefacts.
- Framework to quantify job satisfaction and its increase due to process innovations based on KPIs.
- Framework to quantify innovation skills increase due to process innovations based on KPIs.

2. Software Infrastructure and Process management approach

Expected results:

- Software solution to easily connect available (brown field) services based on open source software
- Software solution to autonomously process complex manufacturing processes based on open source software
- Semantic designed connectors to existing proprietary ICT systems (e.g. SAP)

3. Software Applications for factory use

Expected results:

- HMI/HCI applications to display various data provided by existing data sources in factories.
- Software applications for standard factory processes (e.g. quality processes to manage defects).
- Software applications to manage and connect external software services (e.g. big data analysis).

4.2 KER Exploitation Strategy

In the D7.2 – updated plan we further defined the strategy on how to exploit the project **KER – Key Exploitable Results**. The implications of a successful exploitation strategy were broken down along **two main focus points:**

- Successful exploitation implies turning scientific results and prototypes into sustainable, user optimized, ready for use applications and services.
- To ensure this, activities during the project have to be aware of possible exploitation routes. This will be cared for establishing a detailed exploitation plan following tactical objectives defined before and accordingly to measures described.

The D7.2 confirmed the project's exploitation process formed essentially in a two-tier way:

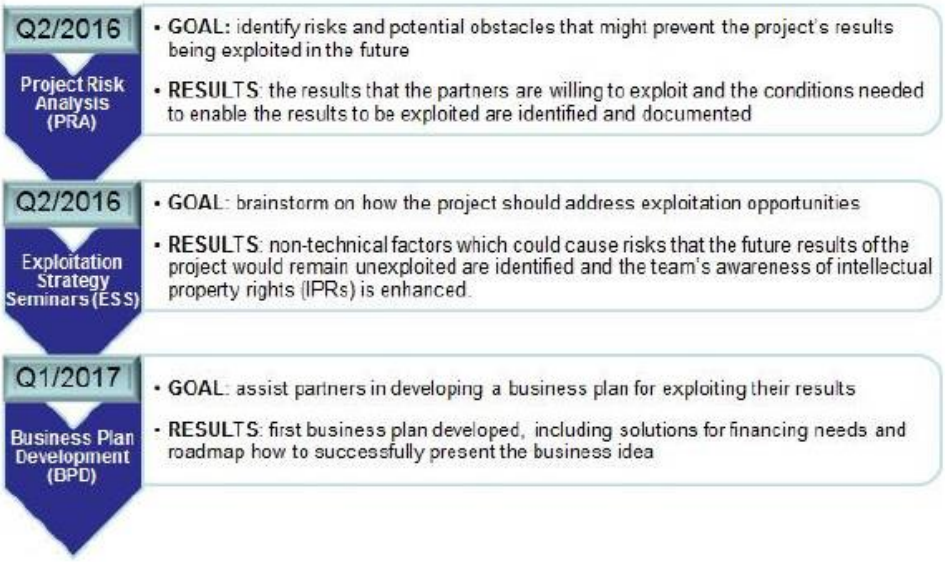
- **INTERNAL EXPLOITATION:**

This process covers exploitation of project's results within the 8 pilot UCs. It includes a detailed validation and solution evaluation on the part of IPs providing the UCs: HID, HIR, EMO, THO, SCA and TKSE.

- **EXTERNAL EXPLOITATION:**

External exploitation is focused on achieving a large-scale implementation of developed solutions within wider branches of industry putting to use established positions and contacts within the industry associations provided by IPs. The focus areas cover steel making industry (TKSE, SCA), automotive industry (SCA, HID, HIR), tooling industry (EMO) and plastics industry (THO).

The D7.2 - updated further also defined the **exploitation process chart:**



As in the chart PRA and the first ESS were accomplished in the first Exploitation Strategy Seminar on 2nd June in Graz, Austria (VIF). The comprehensive **Business Development Plan** will form a cornerstone of the exploitation policy and will be provided by input of all IPs and interested project stakeholders under guidance of SIA and VIF. Work in this field is expected to start more intensively late in 2017 after the first solutions deployment tests at IPs have been done.

4.3 Partners' primary exploitation interests and risks

The D7.2 defined key interests of each project partner in his exploitation efforts. An update was prepared in November 2016 with added possible risk definition.

PARTNER	EXPLOITATION ROLE	PRIMARY INTEREST	PRIMARY EXPLOITATION RISK
VIF	Research, consultant, spin-out	VIF's main interests lie in the link between (virtual) product development and the continuous product/process/plant innovation taking place in smart factories. They will exploit the knowledge gained—especially on Big Data analysis, AR and Knowledge Management through their consultancy work for the automotive industry.	Availability of human resources on data scientists currently limited.
HID	End user	HID will play a direct, active role in the commercial development of project results into industrial practice. They are looking to integrate solutions in the production lines they develop, sell and install within the group and at external clients, contributing to substantial growth in sales.	Solutions too specified fort he HID FACTS4WORKERS use cases could prevent the general integration and deployment in other production lines HID makes – the lines are generally highly customized and would need a general and flexible F FACTS4WORKERS solution.
UFI	Research	UNIFI expects to gain competencies in data analysis and decision support system design that it will use to augment teaching aspects in their engineering curriculum. Through technology transfer activities they will also promote the IC solution concepts to their industrial networks in Tuscany and the rest of Italy region.	/
VUT	Research	For VUT as research institution, the more generic results predominantly with respect to augmented operator assistance, semantic content/knowledge management on shop floor level, and in-situ mobile self-educating systems contribute to a further extension of research know how and can be exploited within subsequent projects covering similar fields of expertise. Through the scientific lead of this project, VUT expects to advance its research and consultation capabilities for the heavily multi-disciplinary Industry 4.0 related topics towards enterprises, generating additional third-party incomes for the institute.	/
SCA	End user	Our large industrial partner SCA is a public company and is very careful in issuing forward-looking statements. As is evidenced by their interest in piloting our solutions to the industrial challenges, they see strong application potential throughout their organizations, and expressed willingness to roll out the solutions widely and swiftly provided ROI is as foreseen.	/

THK	End user	Our large industrial partner THK is a public company and is very careful in issuing forward-looking statements As is evidenced by their interest in piloting our solutions to the industrial challenges, they see strong application potential throughout their organizations, and expressed willingness to roll out the solutions widely and swiftly provided ROI is as foreseen.	/
HIR	End user	Our large industrial partner HRO is a public company and is very careful in issuing forward-looking statements As is evidenced by their interest in piloting our solutions to the industrial challenges, they see strong application potential throughout their organizations, and expressed willingness to roll out the solutions widely and swiftly provided ROI is as foreseen.	HRO aims to spread the FACTS4WORKERS solution from its pilot Hidria Lamtec BU to other Bus and a lack of interest tor usefulness of specified FACTS4WORKERS solution could mean less inclination to spread the FACTS4WORKERS design within the company and advertise it outside within the industry.
IMI	Consultant, spin-out	IMI will exploit their advances to the semantic workflow engine components through co-development and consultancy within the field of manufacturing, and will be able to contribute to further standardization of functional workflow descriptions within the W3C standardization committee	General applicability of the SWE needs to be validated. Industry & market readiness for SWE
SIA	Consultant	SiEVA will lead the project's dissemination efforts (WP7), responsible for transferring the piloted technology and solutions to industrial and scientific partners on the national and European levels. This will strengthen SiEVA's own R&D capabilities (to the benefit of its member companies in Slovenia) and its R&D networking potential.	Lack of interest from SiEVA's stakeholders and potential partners from the industry and R&D sector.
UZH	Research	UZH is looking to gain better understanding of working practices of factory workers and appropriation of IS. They plan to leverage the knowledge gained of measuring success of ICT implementation projects into a commercial service offering.	/
THO	End user	THO manufactures and markets thermally insulating containers. They operate injection moulding and other forming machines and are looking to roll out the Augmented Operator and In-Situ Learning solutions throughout their plant, working closely with ITA. THO will act as a showcase to SMEs who are looking at implementing Smart Factory principles. THO expects to gain both direct productivity and quality improvements, as well as generate additional sales through increased exposure.	/
EMO	End user	Toolmaker SME EMO is looking to roll out the piloted solutions throughout their factory, and expect to increase quality, decrease production costs, reduce errors and improve their speed of innovation. EMO will furthermore leverage the exposure they will get as an example "Smart SME" in their sales & marketing efforts.	/
EVO	Consultant, innovation provider	EVO is looking to expand its experience and know-how in the design and implementation of mobile, AR-enhanced decision support systems in industrial environments. EVO serves industrial clients (e.g. Infineon) and is active in EU and national projects, most importantly Assist 4.0. EVO is looking to roll out implementation among its regional network in Styria.	Too specialized solutions for the FACTS4WORKERS use cases could prevent the roll-out at other industrial clients. Coordination of several involved software development partners (UFI, IMI, EVO) could make further usage of software complicated.

4.3 Exploitation

ITA	Consultant, research, spin-out	ITA supports hundreds of industrial SMEs inside its Aragon region as well as outside of it and has the ambition to apply the results of the project into many of these in some way. It has discussed pathways to roll out implementation with industrial consultants in its ecosystem and the creation of a joint venture with one or more of these actors is considered. More tangible plans will be developed in parallel to the project and also inside it (WP7)	/
LUT	Research	LUT is looking to expand its knowledge on requirements management, collaborative working practices among workers, organizational knowledge processes and production models. LUT is also looking to gain better understanding of technology acceptance models when implementing new ICT solutions. LUT is looking to exploit this knowledge through research- and consultancy contracts with industry.	/

Figure 23: Partners' primary exploitation interests and risks

Timeline for the Business Plan

However developing the business plan is an ongoing and interactive process where finally certain questions will be answered like:

- What problem does the product or service solve?
- Who are the customers?
- What is the size of the market for this solution?
- What is the business model?
- Who are the competitors?
- What are the risks and threats confronting the business and what can be done to mitigate them?
- What are the company's capital and resource requirements?

Therefore it is evident that the Business plan only can be developed in close cooperation to the industrial partners. After a first idea about structure and draft in the beginning of 2017 one or even two Industrial Partners will be involved, defining an exploitation pilot and elaborate potential risks.

Using the common support services from the EC to boost exploitation of research results a moderated workshop is planned in March 2017. With that input and results a Business plan draft will be generated and after a review by the consortium finalized in May 2017.

Topic	Date	Responsible
Define structure / content of the business plan	Nov 2016	ViF
Review of the BP-concept	Dec 2017	SiEVA, ViF
Define workshop agenda and partic-ipants	Jan 2017	ViF
Involve Industrial Partners, define exploitation pilot and elaborate po-tential risks	Feb 2017	ViF
Workshop BPD (Business Plan De-velopment)	Mar 2017	tbd
Business Plan Draft	Mar 2017	ViF
Review Business Plan	Apr 2017	FACTS4WORKERS consortium
Finalization	May 2017	ViF

Figure 24: Timeline for the Business plan

5 Summary of conducted dissemination activities

Conducted dissemination activities in the second year include attendance at various scientific and academic events at European, regional and national levels.

5.1 Highlights from events

- **2016 Mensch und Computer Conference (VIF, ITA):**

One presentation worth mentioning in greater detail is the FACTS4WORKERS presentation at the 2016 Mensch und Computer Conference which took place on September 4-7 at the RWTH Aachen University in Germany[21]. At the Conference representatives of FACTS4WORKERS consortium hosted the workshop "Smart Factories: User-centered information systems for future collaboration". we had the opportunity to discuss the state of the art in augmented reality technologies with colleagues. This gave us the opportunity to **present the current state of solutions** developed within FACTS4WORKERS consortium to a diverse group of interested **people with interdisciplinary background** (university professors, automotive industry employees, computer scientists, psychologists, software engineers). The participants participated in the workshop and brought in their ideas to encourage fruitful discussions. Topics included for example implementation and application strategies of novel ICT solutions in manufacturing for worker centric workplaces. A paper **"Worker Characteristics moderate the Impact of Socio-technical Workplace Interventions on Job Satisfaction"**[22] *(by VIF and ITA)* was presented at the workshop. The project also gained **interest from conference participants** – more specifically from the head of the department for information- and technology management of Ruhr-University Bochum – to try to find ideas and possibilities for further common cooperation.

[21] More information about the FACTS4WORKERS presentation at the 2016 Mensch und Computer event is available at the FACTS4WORKERS website blog: http://facts4workers.eu/category/blog/

[22] Paper is available at the following link: http://dl.mensch-und-computer.de/handle/123456789/5078

Figure 25: FACTS4WORKERS presentation at the Mensch und Computer Conference 2016

This event along with other similar project presentations *(see table below for more info)* present a **groundwork for more intensive project presentations in a more industrial context in the third project year**. Project solutions' first deployment is planned for 2017 in an industrial environment and this brings to the forefront of interest a more industry-based focus, ranging from interested industrial stakeholders from key target sectors, service and solution providers – mostly SMEs, start-ups etc. – and affected public interest representatives – governmental agencies and syndicate representatives with a strong focus on communication effort oriented towards shop floor workers.

- **2016 Hannover Messe (VIF):**

The chances of digitization, electrification and automation gave rise to visit the world's leading trade fair for industrial technology in Hannover. Future and trendsetting signals related to the digitization of manufacturing and energy were conveyed by the keynote theme "Integrated Industry – Discover Solutions". The focus of visit to the fair performed by project coordinator VIF was to gain insights about various application fields of industry 4.0 like Digital Factory, Smart Factory or Industrial Automation.

The main trends spotted at the fair and relevant for our further discussions on **how to position and present the FACTS4WORKERS solutions** and if the sol tions developed will be **accepted in the broader industrial environment** are:

1. Production evolvement towards greater modularity (quick flexibility of production lines is achieved by integrating blocks that all have interchangeable and/or mutual hardware – compressed air – and software – IT support, Ethernet – connectors),
2. Wearable devices were quite rare on the fair – especially regarding augmented reality. It seems focus is on different type of HMIs.

3. Focus was on technology and a push towards zero-detect and full rationalization of production processes. Workers were not in the forefront of the issue. This could be a **benefit of F4W project since it one of the rare initiatives that puts workers in the forefront.**

- **10th International Web Rule Symposium RuleML (IMI):**

  The July 2016 RuleML in Stony Brook, NY, USA, is an international conference on research, applications, languages and standards for rule technologies. RuleML is the leading conference to build bridges between academia and industry in the field of rules and its applications, especially as part of the semantic technology stack. FACTS4WORKERS was represented at RuleML by Dörthe Arndt from iMinds giving a presentation about the paper titled "Using Rules to Generate and Execute Workflows in Smart Factories" (30 downloads) . She also took part in the panel discussion about the use of rules and rule technologies in business cases, where she especially talked about the chances and challenges of the FACTS4WORKES project.

- **7th International AUTOMATIKA Trade Fair (HID):**

The AUTOMATIKA trade fair for automation and mechatronics took place, from 21st to 24th of June 2016, in Munich, Germany. The AUTOMATIKA fair is the most important trade fair for automation and mechatronics with approx. 40.000 visitors from more than 100 countries and approx. 750 exhibitors from 42 countries. This year Hidria TC made the first exhibition on the trade and it was overall a very positive experience. Hidria TC (Tadej Kodelja, Franci Volarič and Andrej Komel) had a great possibility to present FACTS4WORKERS project to stand guests and to business partners.

In the following table we will present the summary of achieved results in the second year of the project in accordance with set goals:

Channel	Metric (Plan)	Achieved results in the first year of the project	Achieved results in the second year of the project
Project website	# visitors > 300/month # subscribers > 1,000	From April 2015 – October 2015, we have on an average value not only achieved the target, but have exceeded it by 169%	From November 2015 – October 2016, we have on an average value not only achieved the target, but have exceeded it by 131%.
Blogs and social media	# blog posts > 10/month #conversations > 3/month	On an average value, we have not only achieved the target, but we have exceeded it.	On an average value, we have not only achieved the target, but we have exceeded it.
Private conversations	# conversations	We have conducted numerous conversations via Projectplace, Webex meetings, and telephone conferences.	We have conducted numerous conversations via Project place, Webex meetings, and telephone conferences.
Scientific publications	# papers > 20 # citations	In the first year of the project we have intensively contributed to the scientific community. • Peer-reviewed journals: 2 • Conference papers: 6	In the second year of the project we have intensively contributed to the scientific community. • Peer-reviewed journals: 1 • Conference papers: 5
Other publications	# articles > 16 Audience > 100,000	In the first year of the project we have intensively contributed to the public/industrial communities: • Non reviewed journals: 4 • Other publications: 26	In the second year of the project we have contributed to the public/industrial communities: • Other publications: 7
Conferences	# presentations > 15 Audience > 1,000	In the first year of the project we have presented project at 12 conferences.	In the second year of the project we have presented project at 10 conferences.
Trade shows	# interacting visitors visitor profile # mentions in press	In the first year of the project we have presented project in three Trade shows.	In the second year of the project we have presented project in 4 Trade shows and in 3 exhibitions.
Research-through communications	Reach - through audience	We have conducted networking with the coordinators of the two human-centred manufacturing projects Satisfactory and SO-PC-PRO.	We have conducted networking with the coordinators of the three human-centered manufacturing projects Satisfactory, SO-PC-PRO and AMBIWISE.

Figure 26: Summary of achieved results in the second year of the project

5.1 **Summary** of conducted dissemination activities

The table shows that FACTS4WORKERS has performed very well during the second year of the project in terms of planned and satisfied communication and dissemination goals. In the third and fourth project year we plan to focus more on scientific papers and peer-reviewed publications, when the scientific results will be more visible and available for presentation to a wide range of audiences (prototype demonstrators).

6 Planned activities

Planned activities for the third and fourth project year are:

- **Video release (Basic, UC's),**
- **Press release,**
- **Scientific publication,**
- **Dissemination material,**
- **Presenting project at various events (external and internal) and**
- **Social media activities.**

Video release:

Video material can be a very effective tool to increase visibility of the project, especially given the fact, that dissemination and exploitation goals involve presenting the developed solutions to a wide array of possible industrial partners in order to maximize the potential larger impact on shop floor workers in targeted European industries.

Two types of videos are planned. First a **general project presentation video** which is planned to be made early in 2017 with first planning steps already taken in 2016. Later in 2017 and in early 2018 we plan to make a **series of UC-related videos** which will be used to present in greater detail the solutions developed within FACTS4WORKERS.

Press release

Press release is planned in end of December / beginning of January. SIA will prepare a general outline text that will be used by each project partner in order to prepare a press release in their own language (with small modifications and focuses if needed in accordance with UC, development focus etc.).

Scientific publication

In the third and fourth project year when the scientific results will be more visible and available for presentation to a wide range of audiences we plan to focus more on scientific papers and peer-reviewed publications.

Project presentation at various internal and external events

The most important fair in 2017 will be the 2017 Hannover technology fair where the project consortium plans to present the first prototypes of the solutions developed within the project. An upgraded version of use-case demonstrators with a larger push is planned also in the 2018 fair *(see the list below)*.

An upgrade of already large penetration of scientific community is planned in 2017 with a list of scientific conferences which is aimed at increasing interest in to project from various academic and development stakeholders *(see the list below)* which would make the final exploitation effort in 2018 more successful.

In the first two years consortium already held successful internal presentations at main IPs locations. We plan to continue with this approach, intensifying project solution presentations to key shop floor staff at our IPs.

Social media activities

In the first two years we established successful penetration of social media via blog posts, Twitter, Facebook, LinkedIn posts and posts on specialized portals that also count in a way as social media i.e. Research Gate portal. We plan to continue with these activities in 2016 and 2017, putting even more effort into clearly targeting our message to make it really visible with the main interested stakeholders.

The following list represents the planned dissemination activities for the third year of the project. Proposed activities in the third year will form a continuation from activities in the first two years and a cornerstone for a successful exploitation process.

6.1 Planned dissemination activities for the scientific community

Scientific partners are orienting their dissemination activities to approach on one hand the scientific community, using tools such as scientific conferences and symposiums and publications – this generates interest in FACTS4WORKERS applications, forging new links and interest for cooperation which could lead to bigger interest in worker-centered solutions and importance of such solutions. This would also enable new FACTS4WORKERS solution upgrade ideas where the scientific partner could bring about new worker-friendly application development projects which would include the current FACTS4WORKERS industrial partners, new industrial partners and other third part development partners.

1 High Priority Scientific Dissemination activities

1.1 Planned Scientific publications

1.1.1 International Journal on Knowledge Management, UNIFI, scientific audience

1.1.2 International Journal on Business Excellence, UNIFI, scientific audience

1.1.3 Book Chapter »Multi-Disciplinary Engineering of CPPS« Springer, to be published 2017, TUW, industry experts on cyber-physical production systems (CPPS)

1.1.4 Sociotechnical challenges in knowledge-intensive production environments, journal to be selected, LUT, research community, done with cooperation of UZH, IT University of Copenhagen, VIF

1.1.5 The use of wearable devices in the workplace, LUT, EVO, ITA, journal to be selected, research community

1.2 Planned Scientific conferences

1.2.1 HCI Conference, *Smart glasses in the production environment (EMO Use Case)*, VIF, industrial audience, done with cooperation of EMO, Evolaris

1.2.2 E-Learning Conference, *Learning by Doing – culture of memory and study design with smart devices on the shop floor*, VIF, industrial audience, done with cooperation of EVO

1.2.3 11st CIRP Conference on Intelligent Computation in Manufacturing Engineering, Naples, Italy 2017, *Smart solutions developed to simplify the processes and reduce the workers' job stress*, UNIFI, International scientific community members

1.2.4 6th CIRP Global Web Conference – CIRPe, Patras, Greece, 2017, UNIFI, *Effect of improved knowledge sharing on the company productivity and worker satisfaction*, International scientific community members, possible cooperation with TUW

1.2.5 51th CIRP Conference on Manufacturing Systems (CMS), Stockholm, Sweden, UNIFI, *Enhanced efficiency of the solution obtained thanks to the introduction of a new strategy to manage the production process*

1.2.6 The 24th CIRP Conference on Life Cycle Engineering 2017, Kamakura, Japan, 2017, TU WIEN, *Lifecycle oriented data processing and document management for assistant systems in production and maintenance processes*, International scientific community member

1.2.7 6th CIRP Global Web Conference – CIRPe, Patras, Greece, 2017, TUW, *Smart and Mobile devices solution approaches for production processes*, possible cooperation with UNIFI

1.2.8 International Conference on Information Systems (conference not yet specified), 2017, 2018, UZH, academics

1.2.9 European Conference on Information Systems (conference not yet specified), 2017, 2018, UZH, academics

1.2.10 International Conference on Wirtschaftsinformatik (conference not yet specified), 2017, 2018, UZH, academics

1.2.11 CSCW, 2017, 2018, UZH, academics

1.2.12 ICPR 2017 - International Conference on Production Research, Poznan, Poland, 2017, LUT, industrial and scientific society

1.2.13 IEEE 2017 International Conference on Industrial Engineering and Engineering Management, LUT, industrial and scientific society

1.2.14 2. VDI Fachkonferenz: Virtuelle Techniken in der Fahrzeugentwicklung, Stuttgart, 29. - 30.03.2017, VIF

1.3 Planned Trade fair

1.3.1 Hannover Industry Trade Fair April 2017 and/or April 2018, SIA, Presentation of FACTS4WORKERS prototype results and use case demonstrators industrial community, done with cooperation of VIF

2 Priority Dissemination Activities

2.1 Social media activities

2.1.1 Internet media - Publications on the partners' web sites, 2017 and beyond,

2.1.2 Blog posts (Project website, Tumblr), 2017 and beyond, SIA, VIF, researchers, industry, open public, done with cooperation of all partners

2.1.3 Video release, 2017, *The working principles of the most interesting and innovative BBs* , UNIFI, industrial community, done with cooperation of all partners

6.2 Planned dissemination activities for the industrial partners

The following list represents planned dissemination activities for industrial partners. Industrial partners dissemination is focused on inward dissemination to shop floor workers (via internal workshops and communication via internal corporate channels i.e. corporate magazines), outward dissemination where solutions are presented to customers which gives an impetus to spread the result's application in industries and along supply chains (industrial fairs, industrial conferences). Internal dissemination is specialized taking into account different take on the issue by workshop workers, line managers, administration support workers, and middle management; all these stakeholders must be carefully briefed on the importance of RESULTs and solutions implemented in order to achieve the biggest impact when implementing the solution; it needs to be accepted by workers themselves and management structures in the company.

1. High Priority Dissemination Activities

1.1 Planned Industrial conferences

1.1.1 Mensch und Computer 2017 - Organization and moderation of a workshop, Conference: paper and talk, Regensburg, Germany, 10. – 13.09.2017, VIF
1.1.2 ProStep iViP – Conference, Essen (GER), 17.- 18.5.2017, VIF
1.1.3 CAAR Industry 4.0 conference, date TBD, *Change of the actual plastic injection sector with the arrival of IoT and Smart factories*, THO ,Automotive cluster partners in Aragon

1.2 Planned trade fairs

1.2.1 Trade Fair for Automation and Mechatronics, 2016 and 2018, Munich, Germany, HID, customers and potential partners
1.2.2 CWIEME Berlin, 2017, Berlin, Germany, HIR, industry participants
1.2.3 Coiltech Pordenone, 2017, Pordenone, Italy, HIR, industry participants
1.2.4 Blechexpo, 2017, Germany, HIR, industry participants
1.2.5 Motek Fair, 2017, Stuttgart, Germany, HID, customers and potential partners
1.2.6 FORMA TOOL , 2017, Celje, Slovenia, EMO, customers and suppliers

1.3 Planned workshops

1.3.1 Future workplaces – workshop on understanding and getting perspective from younger population (local high-school) 2016/17, HIR,high-school students
1.3.2 Hidria TC office staff workshop, Koper, Slovenia, HID , middle management ("White collars"), done with cooperation of UNIFI
1.3.3 Hidria TC production workshop, Koper Slovenia, HID, shop floor workers,
1.3.4 Workshop for users, Tolmin, Slovenia, 2017, HID, Workers, line leaders, technologists
1.3.5 Tecsmedia - Yearly on June, General Public Application of the multimedia technologies in the Industry 4.0 shop-floor, ITA

2. Priority Dissemination Activities

2.1 Planned publications - Other

2.1.1 Project presentation and milestones achieved, 2017, HIR, general public,
2.1.2 Hidria Corporation magazine, 2017, HIR, All employees of Hidria Corporation

2.1.3 PhD Thesis Dipl.Ing. Michael Spitzer: " Technology enhanced Learning with ICT", Research community
2.1.4 Master Thesis, Andreas Gödl: "Multimodale Interaktion mit HMIs in der Smart Factory", Research Community (EVO)
2.1.5 Master's Thesis, LUT, Mohammad Farhad: "Design and Development Process for JavaScript Applications"

2.2 Social media activities

2.2.1 Hidria Corporation Webpage, 2017, HID, potential customers
2.2.2 Company Webpage, EMO, potential customers
2.2.3 Video release, VIF, SIA, open public, cooperation of all partners

6.3 Balance of efforts and priorities between stakeholder's interests, different results and partners

The dissemination work package has been conceived in a way that it includes all project partners and gives them dissemination responsibilities according to their perceived dissemination potential.

In the second year consortium addressed several issues regarding dissemination interests within the consortium and management and effort from each partners. As mentioned in chapter 3, point 3.1., the workshops in Graz addressed partly also these issues. Scientific and academic partners showed great interest in the second year to disseminate project results and set the exploitation tools in a way to utilize spin-offs and start-up companies in order to reach out in the semantic community and achieve greater visibility in the SME - "populated" software service sector in EU. A lot of effort was used in this was from some academic and development partners in the second year (i.e. efforts by UNIFI, IMI, EVO, LUT).

However - *and as can be seen from the table below* – great effort *(expressed in allocated PMs)* regarding dissemination as planned in project application is destined for IPs. IPs effort was not put to the forefront that strongly in the second year although activities were made in this regard: HRO plans for outreach in automotive field, EMO is finalizing plans to disseminate within Slovenian tooling cluster, HID presented the project systematically to its customers, TKSE and SCA made strong internal presentations and planned outreach on a regional level, THO began planning for outreach in industrial community in Spain with help of ITA.

In the second year SIA as the WP leader retained the biggest responsibility with VIF providing key sup-port in dissemination coordination and proves overview. With project refocus in dissemination provided by new directions outlined in D7.2. SIA took over a much greater deal in daily dissemination management activities operating more independently from VIF. VIF still provided counsel and support in some dissemination activities such as conduct of questionnaires, new webpage deployment and project video design preparations since VIF also holds the majority of the budget for costs incurred by these activities.

The project partners' fairly balanced PM input structure *(see the table below)* was not jeopardized by a more academic focus in the project's second year since the activities performed form the bulk of the foundation for a more intensive industry and shop floor worker oriented effort in third year; a more intensive PM use of industrial partners – HID, HRO, TKSE, SCA, THO, EMO – is therefore expected in the upcoming year.

PERSON MONTHS PER PARTNERS IN WP 7:

PARTICIPANT NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SHORT NAME OF PARTICIPANT	VIF	HID	UNIFI	TUW	TKSE	HIR	IMI	SIA	UZH	THO	EMO	EVO	ITA	SCA	LUT
PERSON MONTHS PER PARTICIPANT	23	6	8	10	15	15	7	30	8	12	10	10	12	9	8

References

1. Grant Agreement Number 636778 - FACTS4WORKERS.
2. Dissemination and Exploitation plan - Deliverable 7.2- updated.
3. Project website: http://facts4workers.eu/
4. Google analytic: http://www.google.com/analytics/

Authors

Samanta Krapež

SiEVA d.o.o.
Polje 15,
5290 Šempeter pri Gorici (SLO), Slovenia

samanta.krapez@sieva.si
www.sieva.si

Rok Podobnik

Hidria d.o.o.
Nazorjeva 6
1000 Ljubljana (SLO), Slovenia

rok.podobnik@hidria.com
www.hidria.com

About the project

The high ambition of the project FACTS4WORKERS is to create Factories of the Future with a pervasive, networked information and communication technology that collects processes and presents large amounts of data. These smart factories will autonomously keep track of inventory, machine parameters, product quality and workforce activities. But at the same time, the worker will play the central role within the future form of production. The ambition of the project is to create »FACTories for WORKERS« (FACTS4WORKERS), to strengthen human workforce on all levels from shop floor to management since it is the most skilled, flexible, sophisticated and productive asset of any production system and this way ensure a long-term competitiveness of manufacturing industry. Therefore a serious effort will be put into integrating already available IT enablers into a seamless and flexible Smart Factory infrastructure based on work-centric and data-driven technology building blocks.

These solutions will be developed according to the following four industrial challenges which are generalizable to manufacturing in general:

- Personalized augmented operator,
- Worker-centric rich-media knowledge sharing management,
- Self-learning manufacturing workplaces,
- In-situ mobile learning in the production.

PROJECT PARTNERS

The FACTS4WORKERS project is composed of 15 partners from 8 different European countries:

Virtual Vehicle Research Center	Austria
Hidria TC Tehnološki center d.o.o.	Slovenia
Universita degli Studi di Firenze, Department of industrial Engineering	Italy
Technische Universität Wien	Austria
ThyssenKrupp Steel Europe AG	Germany
Hidria Rotomatika d.o.o., Industrija Rotacijskih Sistemov	Slovenia
iMinds VZW	Belgium
Sieva d.o.o.	Slovenia
University of Zurich, Department of Informatics	Switzerland
Thermolympic S.L.	Spain
EMO-Orodjarna d.o.o.	Slovenia
Evolaris Next Level GmbH	Austria
Itainnova - Instituto Technologico de Aragon	Spain
Schaeffler Technologies AG & Co. KG	Germany
Lappeenranta University of Technology	Finland

PROJECT COORDINATOR / CONTACT:

virtual vehicle

VIRTUAL VEHICLE Research Center
Inffeldgasse 21A
8010 Graz, AUSTRIA

Tel.: +43-316-873-9077
Fax: +43-316-873-9002
E-Mail: facts4workers@v2c2.at

FOLLOW US AT:

FACTS4WORKERS

@FACTS4WORKERS

facts4workers-project

SUMMARY

This deliverable (D7.4) describes the achieved results in the second year of the project. The deliverable focuses on the main dissemination activities performed in this timeframe, their relationship to the previous year ad the forthcoming third and fourth project year. The document also addresses various dissemination activity management issues and decisions deemed important for the implementation of planned proejct activities. Deviations differin from original project implementation plan are also addressed. All in all the second project year presented an important step in raising awareness of the public for FACTS4WORKERS project. As it has been shown in this document, project consortium focused on reaching out into the scientific community in order to gain traction and awareness of interested stakeholders in project's developed solutions. This foundation will be built upon when the consortum plans greater industrial outreach in the proejct's third year when first prototype solutions are getting deployed at proejct's IPs. An important breakthrough was made by updating the deliverable strategic document which serves as dissemination and exploitation blueprint for the consortium – D7.2 Project dissemination and exploitation plan. Important upgrades were devised and are planned in some main communication channels such as the planned updated webpage and planned design of the project video. The project partners' broad dissemination campaign, encompassing different tools (physical materials - brochures, poster, web page, social media), explained already in the first activities report, was speficically targeted in its second year, trying to maximise the dissemination impact. This foundation will be build upon in the upcoming third year with continuous focused outreach trying to maximise the potential impact of the project in the wider industrial community especially targeting shop floor workers' representatives and workers themselves.The gained knowledge and experience from the past 12 months as well as a holistic and thorough assessment of dissemination activities done in the project's first year will be used for an intensively industrial focused dissemination campaign from all project partners in the future years of the project.