CSA-Industry4.E

Grant agreement No 830845 – ECSEL-2018-3-CSA-Industry4E

Coordination & Support action for Lighthouse Initiative I4.E

Deliverable 4.3

Report on the public engagement activities carried out in the project

Lead parties for Deliverable: AquaTT
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Dissemination level: Public

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Table of Acronyms:

AquaTT	AquaTT UETP Ltd	I4.0	Industry4.0
CSA	Coordination and Support Action	JU	Joint Undertaking
GB	Governing Board	LIASE	Lighthouse Initiative Advisory Service
HE	Horizon Europe	MGEP	Mondragon Goi Eskola Politeknikoa
H2020	Horizon 2020	RP	Reporting Period
IMR	Irish Manufacturing Research Ltd	S2i	Steinbeis 2i GMBH
I4.E	Industry4.E	VTT	Teknologian tutkimuskeskus VTT Oy
ECSEL	Electronic Components and Systems for European Leadership		

History of Changes:

Version	Publication date	Change
V1	29.10.2020	D4.3 finalisation including edits from AquaTT, S2i, MGEP, IMR, and submission (IMR)
V2	31.03.2021	Additional info on events added edits from AquaTT, S2i, VTT and IMR
V3	19.04.2021	Final harmonisation and peer review IMR

Table 1: History of changes to the report

Author: Olga Ormond (AquaTT) **Contributors:** Sive Finlay (AquaTT), Peadar Ó Raifeartaigh (AquaTT), Lise-Ann Sheahan (IMR), Andrew Lynch (IMR), Maria Isabel Meza Silva (IMR), Leire Etxeberria Elorza (MGEP), Ivo Zeller (S2i), Meike Reimann (S2i), Matias Vierimaa (VTT).

Project Partners:

Contact Details:
Email: *info@industry4e.eu*
Website: *www.industry4e.eu*
Collaboration platform: *www.ECSEL-portal.eu*
Twitter: *@Industry4E* LinkedIn: *Industry4.E* Facebook: *Industry4.E* Instagram: *Industry4.E*

Summary

The I4.E Lighthouse engagement activities were designed to raise the visibility of I4.E to the wider stakeholder community and to help projects communicate their impacts via success stories in such a manner as to introduce and convey to the broader public the potential impact of I4.E on their daily lives.

The I4.E Lighthouse public engagement activities included promotion of I4.E at high profile events, hosting citizen engagement events and a strategic social media campaign to engage citizens in relation to I4.E. The approach we took for engaging citizens was to introduce them to I4.0 technologies, the impact these digital technologies have on everyday lives, and how they could get involved in the framework of career opportunities, and the current and future skills gap the industry is facing.

While the COVID-19 pandemic did impact some of our citizen engagement events, in that we had to do them online, the huge impact that manufacturing and supply chains have had during the fight against the corona virus (we feel) helped the public to appreciate the impact of manufacturing and I4.E work on their own lives. The social media campaign and citizen engagement events both highlighted this impact, the innovations made possible by I4.0, the mix of skills needed and the rewarding careers possible from a career in the I4.0 domain.

This work from WP4 has resulted in the following outputs and outcomes: Stands/booths/posters/ booklet distribution promoting I4.E at high-profile events and social media posts (Twitter, LinkedIn) **addressing academic and industrial communities**; Careers Opportunities resources including a careers webpage, booklet, and poster, 7 citizen engagement events, and a strategic social media citizen engagement campaign (Twitter, Facebook, *Instagram*) **addressing citizen communities** (and available to academic and industrial communities who are actively seeking to recruit public uptake to fill I4.0 careers and/or increase the potential future workers skill set to help alleviate the skills gap problems); communications guidelines (D3.3), and inputs for communications modules in WP3 workshops **addressing the I4.E Lighthouse community** (D3.2).

1 Introduction to the public engagement activities

This deliverable reports on the public engagement activities carried out by the CSA project team in supporting the I4.E Lighthouse Initiative of the ECSEL-JU. These activities were mainly carried through the work in **Task 4.3 to carry out a series of public dissemination activities for citizen engagement related to I4.E**, and **Task 4.4. to carry out a strategic social media campaign to engage citizens in relation to I4.E** using the public engagement and outreach strategy and tools from T4.1 and T4.2.

The aim is to **prepare Europeans for the digital future** – so that they appreciate the value of the digitalisation of industry and the impact it will have on society. The expectation is that at the end of the project, public audiences should understand why Europe is prioritising the development of I4.0 and should be familiar with the I4.E Lighthouse leading-edge projects, researchers' roles, and their innovations and potential applications of their project results, including resulting societal impacts. The public should also have been made aware of the range of highly-sought-after skillsets required to sustain strong European manufacturing competitiveness: both for students considering future careers (and their influencers; parents, teachers, career guidance councillors, main media, role models), and for existing workforce (and their influencers) who are considering upskilling or reskilling. This report describes how these objectives have been met through the work implemented in WP4.

As part of T4.3 the I4.E Lighthouse was represented by the CSA team at several high-profile events, providing project visibility to stakeholders, SMEs, and members of the public using the public engagement and outreach strategy and tools. At each of the events these tools were used to help to: introduce the I4.E Lighthouse; to explain why Europe is prioritising I4.0 development; to present the I4.E Lighthouse to researchers and projects; to present the innovations and potential applications of the results; and to explain the impact Digital Industry and these projects will have on society. D2.4 further details the communications activities for our SME target Audience. D4.4 further details the outreach of I4.E to related initiatives, hubs, clusters, and projects stakeholders.

Figure 1: Project activities of the CSA-Industry4.E | 4 pillars

In addition, the CSA team organised 7 citizen engagement events to promote I4.E Lighthouse to the public. The level of dissemination activity was scaled to the particular event, and ranged from running an exhibition stand with interactive survey at a regional stakeholders forum, to promoting I4.E projects and I4.0 collaborations to undergraduates, researchers and industry, to introducing primary and secondary school students and teachers to the world of engineering and science around I4.0 technologies, the impact of I4.0 on daily lives, and promoting subject and career choice to

the potential I4.0 workforce of tomorrow. I4.E Lighthouse participation in all these events was advertised through active social media (T4.4) and the project website (T4.2).

WP4 leader, AquaTT, led T4.4., to carry out a strategic social media campaign to engage citizens in relation to I4.E, with support from a specialised social media agency (as a third-party subcontractor). The social media campaign was carried out to actively educate, intrigue and engage citizens in I4.E. This campaign used the various channels to approach different target public audiences (Twitter, LinkedIn, Facebook, Instagram, Website, emails). The social media campaign was highly impactful, greatly **exceeding the original target audience size of >10,000** with 1 account for Twitter, Facebook and LinkedIn: with **Facebook total impressions 5,154,288**, **Twitter impressions 657,583**, **LinkedIn views of posts 5594**, **Instagram impressions 3,836,580**, **Eventbrite 183 tickets sold**. The I4.E Lighthouse website also **exceeded the target audience size of >10,000** after 2 years: with **>13,500 visits** (Website page views 13,828). The I4.E Lighthouse has been well represented at events the team **exceeded the events target of >10 events** (having been involved in **>22 high-profile events and 7 citizen engagement events**).

This work from these tasks (T4.3 and T4.4) has resulted in the following outputs and outcomes:

- **Stands/booths/posters/booklet distribution promoting I4.E** at 22+ high-profile events (50-250+ participants per event) together with **social media posts** *(Twitter*, *LinkedIn*) and **website** promotion of *events*. The language used in the booklet was accessible to the general public.
- **I4.E Lighthouse website** with details of the I4.E activities, the projects' descriptions, plenty of resources to download including the booklet/posters/projects/events/news details, and sections dedicated to SMEs and to careers. *www.industry4e.eu* has had >13,000 visits (page views 13,828)
- **Careers Opportunities resources:**
  - **A careers page** *https://industry4e.eu/careers/.* This included tabs for citizens at different levels of expertise, as well as for SMEs interested in getting familiar with I4.0 technologies.
  - *Careers booklet* and *poster* for anyone to download and use as an introduction to I4.0 careers
  - **I4.0 careers introduction videos** made available to secondary school in Spain and Ireland.
- **Citizen engagement events**
  - 4 targeted at secondary school students (2 Ireland, 2 Spain): 336 students reached.
  - 1 targeted at primary school students (Ireland): ~250 primary school students reached.
  - 1 targeted at bringing third level students, researchers, and industry together to discuss I4.0 technologies, I4.E projects and possible collaborations (Finland): ~30 participants, a mix of third level students, students, and industry reached.
  - 1 targeted at adults in a regional stakeholders' day (Germany): 832 adults reached.
- **Strategic citizen social media campaign** (see full results table in section 4.3 below)
  - Facebook total impressions 5,154,288
  - Instagram impressions 3,836,580,
  - Twitter impressions 657,583,
  - LinkedIn views of posts 5594,
  - Eventbrite 183 tickets sold.
- **Communications guidelines e-book with examples for the I4.E Lighthouse community (D3.3)**
- **Inputs for communications modules in workshops for the I4.E Lighthouse community (D3.2)**

End of Section 1

2   Academic and Industrial Engagements

Stands/booths/posters/booklet distribution promoting the I4.E Lighthouse Initiative at high-profile *events* and social media posts (*Twitter*, *LinkedIn*) addressing academic and industrial communities.

2.1   High-profile promotional events for the I4.E Lighthouse

The I4.E Lighthouse Initiative was represented by the CSA at several high-profile events throughout RP1 and RP2, providing project visibility to stakeholders (academic, industry, SMEs, and technically engaged public audiences) either physically or virtually at the following events.

- IndTech2018,
- EFECS 2018,
- Basque Industry 4.0 2018,
- ICT2018 (Dec 2018),
- Irish Manufacturing Expo (Jan 2019 & Jan 2020),
- Productive4.0 Meeting (Mar 2019) and final event (Sept 2020),
- ARTEMIS IA Technology Conference 2019,
- Factories of the Future Community Days (May 2019),
- ECSEL-JU Symposium (June 2019),
- DiManD Innovative Training Network (ITN) Kick-off and Recruitment Event (June 2019),
- Digitising European Industry Stakeholder Forum (Nov 2019),
- Basque Industry 4.0 The Meeting Point (Nov 2019),
- EFECS 2019 (Nov 2019),
- ECS Brokerage Event 2020,
- EARPA Spring meeting (Mar 2020),
- Digitalisation and digital platforms for manufacturing - EFFRA & CF2 (Mar 2020),
- ECSEL-JU Symposium 2020 (online),
- European Research & Innovation Days (Sept 2020),
- EFECS 2020 (Nov 2020),
- World Manufacturing Forum (Nov 2020),
- ECS Brokerage 2021,
- EU Industry Days 2021, and
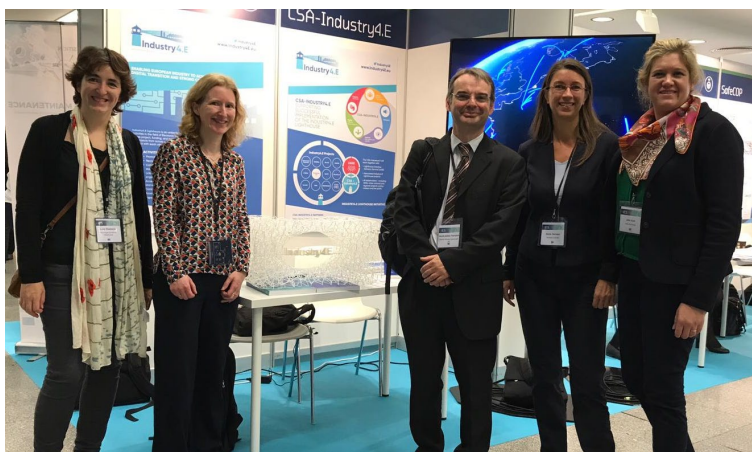- ConnectedFactories - DMP Plenary Cluster Web Meeting (Feb 2021).

Figure 2: The CSA at EFECS 2018

Figure 3: The CSA and LIASE at ECSEL-JU Symposium 2019

This included hosting stands at *EFECS2018*, *ECSEL-JU Symposium 2019*, *EFECS2019*, *EFECS2020*, and regional events such as *Basque4.0 2018*, *Basque4.0 2019*, *Irish IoT and Manufacturing Expo 2019* and *Open Innovation Kongress Baden-Württemberg 2020*.

The I4.E flyer was also on the ECSEL-JU stand at *INDTech2018* and *ICT2018*, and at *Digitising European Industry Stakeholder Forum 2019*, where the CSA were available to meet with interested stakeholders and introduced them to the I4.E Lighthouse, promoting the development of a globally competitive European I4.0 position and the I4.E projects (using *flyer* and posters *posters)*.

Figure 4: The CSA and LIASE at DEI Stakeholder Forum 2019

Figure 5: ECSEL-JU, CSA and LIASE at EFECS 2019
photo Simon Pugh EFECS2019

Figure 6: the I4.E virtual booth at EFECS 2020 hosted by the CSA

For more details on events where the I4.E Lighthouse was promoted, see *I4.E events page.*

2.2   I4.E Lighthouse promotional materials and channels

Promotional materials created in T4.2 were regularly updated throughout RP1 and RP2 to include new information (e.g., the introduction of new projects as they joined the I4.E Lighthouse, new LIASE members, and brand updates).

Materials included *I4.E booklet*, *posters*, and 3D print. The channels used included the *website*, *Twitter*, the addition of a new *LinkedIn* account and *ECSEL portal*. These tools were used with the public engagement and outreach strategy (T4.1) for each of these events to: introduce the I4.E Lighthouse; to explain why Europe is prioritising I4.0 development; to present the I4.E Lighthouse researchers and projects; to present the innovations and potential applications of the results; and to explain the impact it will have on society.

Figure 7: Examples of the promotional material for academic and industrial engagements

End of Section 2

3   Citizen Engagements

This work from T4.3 and T4.4 has resulted in the following outputs and outcomes for citizen communities: Careers Opportunities resources including a [careers webpage](#), [booklet](#), and [poster](#), 7 citizen engagement [events](#), and a strategic social media citizen engagement campaign ([Twitter](#), [Facebook](#), [Instagram](#)) **addressing citizen communities** (and available to academic and industrial communities who are actively seeking to recruit public uptake to fill I4.0 careers and/or increase the potential future workers skill set to help alleviate the skills gap problems).

3.1   I4.E Lighthouse citizen engagement events

At the start of CSA project, the T4.3 team set about to gather information to understand what was being done, at the time, in terms of public outreach in the I4.0 space. They looked at what, if any, gaps there were in the public audiences being targeted, that maybe I4.E could tackle and have a strong impact on.

Citizen target audience

The scope taken for the citizen target audience for the events and social media campaign was **citizens who were not already strongly engaged in European Industry and/or the digital transformation of Industry**. SMEs, Industry and Academics were already covered by WP2 activities and above in the high-profile events, and so the target audience for main citizen engagement in T4.3 & T4.4 was taken to be the general public as opposed to technical professionals, academics, and companies.

After due consideration, the team decided to focus on the skills gap and the promotion of I4.0 careers opportunities as a hook on which to help us engage citizen communities, to introduce and convey to the broader public the potential impact of I4.E on their daily lives and raise the visibility of I4.E projects to the wider stakeholder community.

The main target audience focus for both the citizen engagement events and the social media campaign was on **secondary school students** and **their influencers** (parents, teachers, the public, the media, universities promoting their STEM courses, companies promoting STEM and careers in STEM).

- **Aim:** encouraging STEM education and promoting STEM careers, showing the variety of opportunities in I4.0 and the impact of I4.0 technologies on everyday lives, influencing students to choose relevant subjects in school towards 3rd level courses and careers in I4.0.

The following was a list of secondary target audience groups many of whom, while not the main target of the campaign, may find the engagement materials and campaign posts interesting and useful. Additional posts were sent during the project aimed at some of these specific secondary target audience groups:

1. **3rd level students and adults looking at re-skilling/up-skilling** – graduates and adults considering career paths and potentially interested in re-skilling/up-skilling.
   - **Aim:** making public aware of I4.0 technologies, the array of I4.0 skills that are much sought after, the impact I4.0 careers can have on society, and generally encouraging recent graduates and workers to consider re-skilling/up-skilling for careers in I4.0.
2. **Technically engaged companies who are implementing I4.0 –** companies (including SMEs) who are encouraging staff to re-skilling/up-skilling as they start, or continue, to implement changes in their industry with advances in I4.0 technologies and need staff with relevant skill sets. Also, companies who may be concerned about the workforce of the future and are as a result encouraging people to help fill the skills-gap through schools and public outreach activities.

- **Aim:** providing materials, posts, and inspiration that may be useful to the I4.E Lighthouse extended community to help promote, encourage, and accommodate I4.0 skills uptake.

3. **Technically engaged companies who have not yet taken up I4.0 –** companies (including SMEs) who are considering use of I4.0 technologies in their business and need skilled staff to help start or continue to implement changes in their industry with advances in I4.0 technologies and to up-/re-skill current staff.
    - **Aim:** further promoting technological advances and digitalisation of Industry with technically engaged companies who could benefit from adopting I4.0 technologies. Promoting the technologies, the pathways to transition to digitalisation, the relevant courses, funding, and support to help European companies to change. While also promoting the growing need for attracting and retaining talented/skilled employees, as well as the need for accommodating and encouraging continuous learning and upskilling for employees. Also, to further support the effort in WP2 for SME engagement in I4.0.

4. **Technically engaged general public interested in seeing demonstrators, students from the university and professionals in the areas of industry and/or digital technologies.**
    - **Aim:** further promoting technological advances and digitalisation of Industry with technically engaged citizens (mainly professionals, existing industry workers, engineering & technology students, graduates, and post-graduates). Promoting both the advantages of adopting I4.0 technologies, and the need for continuous learning and upskilling throughout one's career to have the relevant skillsets for future workplaces adopting digitalisation.

5. **Primary school teachers and students –** particularly for the 10-12 year-olds who find the citizen engagement material interesting and useful.
    - **Aim:** encouraging STEM education and promoting STEM careers from an early age.

6. **Taxpayers and voters - general public.**
    - **Aim:** promoting the benefits of I4.0 to the everyday citizen to foster their acceptance and willingness to engage in I4.0. To show how taxpayer money is being well spent to fund RD&I projects in this domain, to maintain and further strengthen European manufacturing industry. To highlight the roles that the general public can play, e.g., towards skills shortage, understanding the benefits of I4.0, and supporting decisions to use tax money towards funding this area (through voting).

Citizen engagement materials

AquaTT designed and developed an A5 booklet for the main target audience: secondary school students and their influencers.

The booklet introduces I4.0, the technologies involved, some of the impact this will have on society, the job opportunities and why Europe is prioritising I4.0 development, all in the context of the potential career opportunities.

The booklet was designed with this teenage audience in mind, the colour style chosen is bold, bright with eye-grabbing colours, and the font more 'edgy' or 'fun' to match the text content.

A FAQ-type section on the back fold was included to both alleviates some fears, while also explaining I4.0 a bit more.

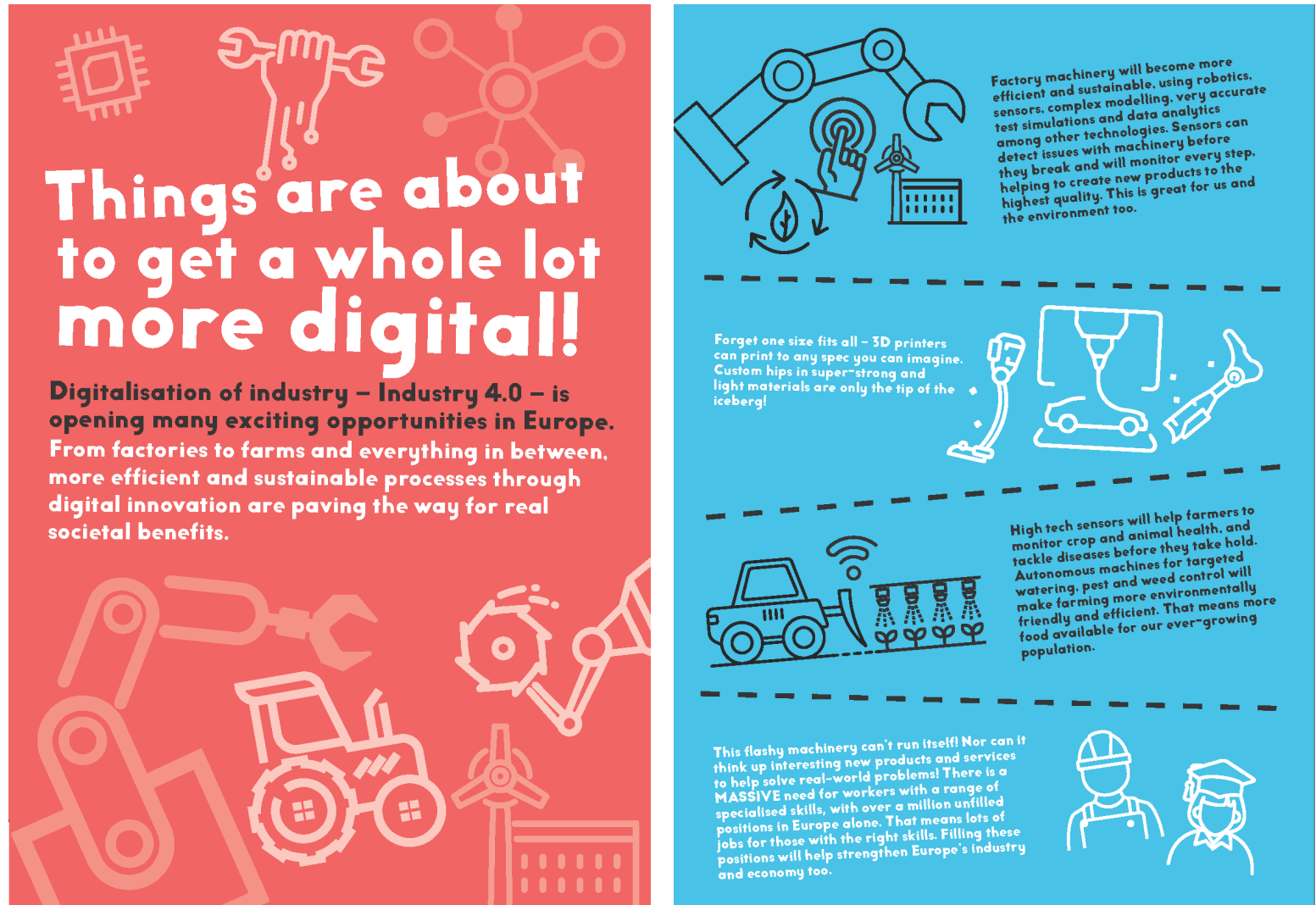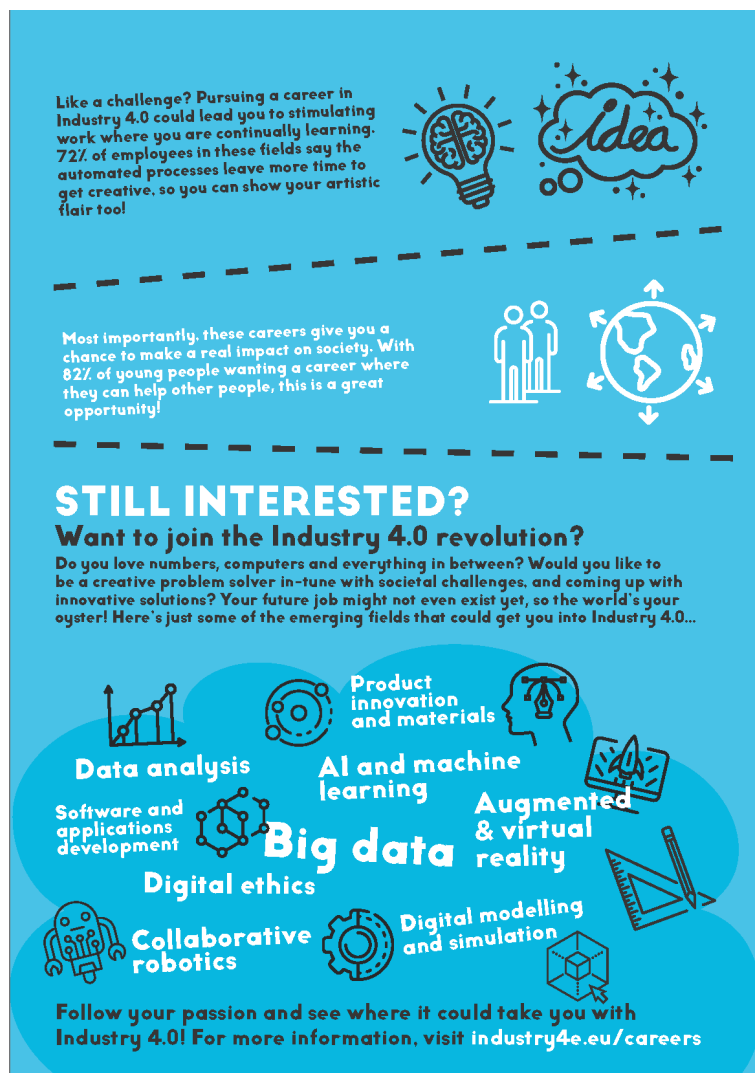This material has been complimented by a unique targeted social media campaign and new media, a suite of promotional

Figure 8: I4.E Lighthouse I4.0 careers opportunities A5 booklet

Industry4.E

material including an *I4.E careers toolkit* with a dedicated resource webpage for teachers, guardians, and learners to continue to use the material after the life of the project. This has greatly enhanced the impact and reach of the initiative **(T4.2)**.

In addition to the booklet, a poster and banner and slide deck were designed for use at citizen engagement events.

An updated slide deck together with videos created by the partners and links to useful external videos, was later added to the pack to cater for holding events online after the escalation of the COVID-19 pandemic. This was further enhanced by adding an engaging Kahoot quiz as an element of fun and interaction for the students participating in our online I4.E citizen engagement events. Other engagement tools included an interactive survey poster with coloured stickers and a wall of inspiration for participants to add PostIt notes at the regional

Like a challenge? Pursuing a career in Industry 4.0 could lead you to stimulating work where you are continually learning. 72% of employees in these fields say the automated processes leave more time to get creative, so you can show your artistic flair too!

Most importantly, these careers give you a chance to make a real impact on society. With 82% of young people wanting a career where they can help other people, this is a great opportunity!

STILL INTERESTED?
Want to join the Industry 4.0 revolution?
Do you love numbers, computers and everything in between? Would you like to be a creative problem solver in-tune with societal challenges, and coming up with innovative solutions? Your future job might not even exist yet, so the world's your oyster! Here's just some of the emerging fields that could get you into Industry 4.0...

Product innovation and materials

Data analysis

AI and machine learning

Software and applications development

Big data

Augmented & virtual reality

Digital ethics

Collaborative robotics

Digital modelling and simulation

Follow your passion and see where it could take you with Industry 4.0! For more information, visit **industry4e.eu/careers**

YOUR INDUSTRY 4.0 QUESTIONS ANSWERED

So more factory machines will be connected to the internet. What's the big deal?
Sensors are now able to monitor machinery such as wind farms or factory machines and feed back data in real-time. The data gathered can be used by human operators to make accurate decisions on how to optimise the machines on an ongoing basis or predict when they will require maintenance. The data can also be used to improve the selection, design and manufacturing of future products. The good news is that this cost-effective, rapid design and defect-free production lends itself to highly customised products becoming the norm.

Are the robots going to take over the world?
You have nothing to worry about! These robotic parts will be totally controlled by humans, with many safeguards and security measures in place. A study from the World Economic Forum estimates that there will be a net increase of 58 million jobs worldwide as this new technology is ushered in.

What kind of industries will be affected by these changes?
These technologies are going to be involved in pretty much every industry sector, including healthcare, agri-food, electronics, automotives, aerospace, chemical industry, transport, logistics, research, and much more. There are lots of paths into Industry4.0 and plenty of opportunities for current workers to up- or re-skill. Collaborations between workforces with diverse backgrounds will also strengthen the industry.

DID YOU KNOW?
3D printed belt buckles for passenger jets are over 2x lighter than conventional designs without compromising strength. This saves 3.3 million litres of fuel per aircraft over its lifetime. That's equivalent to the amount of CO_2 released by driving over 68 million km in petrol cars - almost 1700 trips around our planet!

If you would like to know more about these amazing opportunities, please visit **industry4e.eu/careers**

Industry4.E
INITIATIVE FOR EXCELLENCE IN DIGITAL INDUSTRY

ECSEL Joint Undertaking

ECSEL Joint Undertaking

stakeholder event, use of Mentimeter for online events interaction, and technology demonstrations, a sustainability workshop, and videos from researcher's labs at the schools' event.

The CSA organised 7 Citizen engagement events to promote I4.E to the public. The level of dissemination activity was scaled to the particular event, and ranged from running an exhibition stand with interactive survey at a regional stakeholders forum for event 1; to promoting I4.E projects and I4.0 careers to undergraduates; to introducing primary and secondary school children to the world of engineering and science around I4.0 technologies, the impact of I4.0 on daily lives, and promoting subject and career choice to the I4.0 workforce of tomorrow in events 2-7. I4.E Lighthouse participation in all these events was advertised through active social media (T4.4), the project website, and local CSA partner's networks.
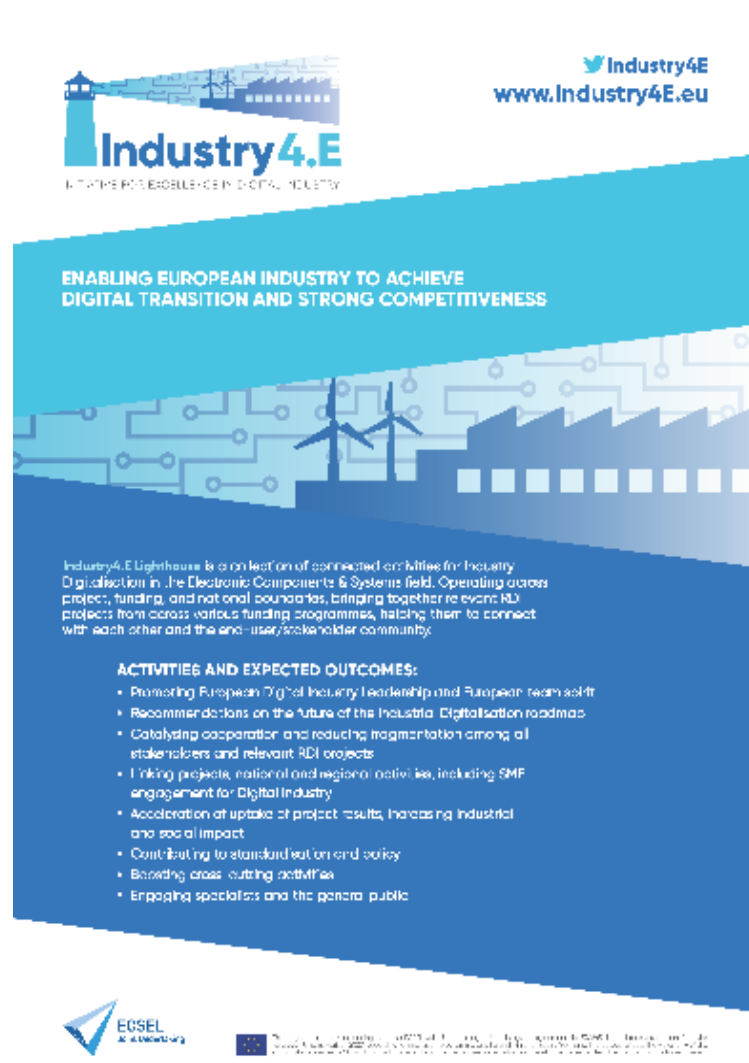

Figure 9: I4.E booklet and I4.0 careers opportunities poster

3.1   Industry4.E | Citizen Engagement Event #1 | Germany

02 Mar 2020 | 09.30 – 17.00 | Stuttgart, Germany

The first I4.E Lighthouse citizen engagement event was held at the _Open Innovation Kongress Baden-Württemberg 2020_. The I4.E team were on hand to introduce I4.0, talk about the I4.E Lighthouse projects and what they are working on, and the need to fill the digital skills gap. The _I4.E careers booklet_ promoting career prospects in I4.0 for graduates, as well as people interested in up-skilling or re-skilling, was available to all. The _I4.E booklet_ introducing the lighthouse and the projects was also available to pick up on the stand.

Participants were invited to add their thoughts to the wall of inspiration on "Stepping into the future – What is next for our digital world?" and on "what digitalisation and I4.0 will lead to". Thanks to all participants who considered digitalisation of Industry and workforce skills needed.

Target:

The focus was on regional stakeholders from Baden-Württemberg becoming familiar with I4.0, EU projects, manufacturing impact and future careers.

Objectives:

1. To introduce I4.0 to a public audience;
2. To show case the I4.E Lighthouse projects, what they are working on, and the impact of their potential results; and
3. To promote career prospects in I4.0 for graduates, as well as people interested in up-skilling or re-skilling.

Figure 10: Wall of inspiration at Event #1

Format

A team from CSA partner S2i hosted a stand at the event. The stand contained copies of the _I4.E careers booklet_ and _I4.E booklet_, the I4.0 careers opportunities poster, and an interactive wall of inspiration on "Stepping into the future – What is next for our digital world?" and on "what digitalisation and I4.0 will lead to".

Summary

The team were on hand to introduce and discuss the Industy4.E Lighthouse, projects, impact, and skills gap. Interested participants were invited to consider the digitalisation of Industry and the workforce skills needed,

Figure 11: CSA discussions at the Open Innovation Kongress Baden-Württemberg 2020 Event #1

and to add their thoughts by adding PostIt notes to an interactive wall of inspiration on "Stepping into the future – What is next for our digital world?" and coloured stickers to an interactive survey on "what digitalisation and I4.0 will lead to".

The participants were grouped according to their age to better identify varying hopes for the future, with 36% of participants being in the 30–39-year-old category, 19% 20–29-year-olds, 20% 40–49-year-olds and 25% being over 50 years-old.

Feedback

The event stand received a lot of participant interest throughout the congress. The general participation in discussion was good with participants engaging with the wall of inspiration. With many agreeing or strongly agreeing that Digitalisation and I4.0 will lead to: more individualised products & services, more job demand for soft skills, new job profiles with more IT skills, new opportunities for Europe, better healthcare, and enhanced creativity and co-creation. Target Audience reached: 832 adults (1042 registered, 639 participants 193 in livestream – reduced due to COVID-19).

113 votes came from the youngest age group (20-30). They showed the strongest agreement on 'new job profiles', 'better healthcare' and 'less privacy'.

Promotion

Figure 12: Wall of inspiration at Event #1 and breakdown of participant feedback

See event description and further photos *here on I4.E website* and some related Tweets *HERE* #DigitiseEU #Industry40 #Digitalindustry #ECSELJU #H2020 #DigitalSkills #LifeLongLearning.

Age Group Representation in Suvey
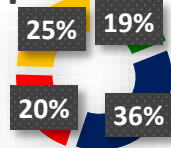
- Age 20-29 (113)
- Age 30-39 (215)
- Age 40-49 (121)

Green (20-29)	Blue (30-39)	Red (40-49)	Yellow (50-59)
Split-second e-financial services	China will control the EU-Network for 5G	THERAGNOSTICS	From I4.0 with Service 4.0 to Economy 4.0
more digital skills	Remote control jobs	Citizen empowerment, E-Democracy	Trend towards service infrastructure
	Personal/individual user experience	Artificial Intelligence	Circular economy now possible
	Augmented reality	Totally demand-tailored energy supply	Digital identity
	Federated machine learning	Social robots	Legal & policy on digitalisation
	Citizens & Government working together	Personalised medicine, Tele-medicine	From Big Data to valuable information
	Virtual reality	Cyborg diseases	Digital + Analog!
	Digital currency	Cidaas	Service engineering

3.2   Industry4.E | Citizen Engagement Event #2 | Ireland

05 Mar 2020 | 09.00 - 16.00 | IMR Lab, Mullingar, Ireland

50 students from Lucan Community College and Moate Community School visited the IMR Lab in Mullingar as part of I4.E citizen engagement activities during Engineers Week. The students were introduced to what I4.0 is and the different technologies that are being used in Smart Factories. They also took part in a Sustainable Manufacturing workshop, as one of the main goals of these emerging technologies is to make production operate in a flexible, efficient, and sustainable way. The various demonstrations were delivered by IMR researchers. The

Figure 13: IMR robotics team demonstrating UR 3 robot

workshop was very successful, students seemed genuinely interested by how objects are made and the impact they have on the environment.

Target

The focus was on secondary school students and their teachers, promoting STEM careers, and influencing students to consider I4.0 as a careers option, and choose relevant subjects in school towards 3rd level courses.

Objectives

1. To introduce I4.0 cutting-edge technologies;
2. To share the engineers', researchers', and scientists' passion for working with I4.0 technologies and their potential to use these technologies to help create innovative solutions for producing impactful and desirable products that can be customised for end-users at a reasonable cost; and
3. To talk about the I4.E Lighthouse projects and what they are working on, and the need to fill the digital skills gap.

Format

An interactive site visit and demo-day was organised and hosted by IMR in their lab in Mullingar. IMR researchers, interns, engineers, designers, and scientists shared their experiences with I4.0 technologies showing the students the exciting impact of, and job opportunities in, Digital Industry and answered questions on their own career paths. Supporting resources on I4.0 careers opportunities, designed and developed by AquaTT, were used on the day.

Summary

Students and teachers from the two schools were introduced to different I4.0 technologies by researchers, engineers, and designers from the IMR team through a series of demos, workshops, games, exercises, and a lab tour. Students got to discuss the current and future potential uses of the technologies with the team. These introductions included: a **robotic demonstration** on the UR 3 robot; **virtual Reality (VR) games** and other applications for the students and teachers

Figure 14: 3D prints in different material at Event #2

with **UX Designer** Andra from the AR/VR team; an introduction to **Artificial Intelligence** (AI) through three activities with **Data Analytics** Researcher Isabel; a tour of the lab facilities to see different **additive manufacturing** systems (3D printing systems), applications of **3D printing** in a diverse range of sectors (such as medical devices, construction or even clothing), and a robotic product pipeline using **collaborative robots**; a **sustainable manufacturing** workshop with **Circular Economy** Researchers; a **product life cycle** workshop showing how I4.0 innovations can reduce CO_2 emissions and waste.

Feedback

The event stand received by the students and teachers, with good engagement with the different activities organised and discussions with the IMR team.

Promotion

See event description and further photos *here on I4.E website*, on *IMR website*, and some related Tweets *HERE* #DigitiseEU #Industry40 #Digitalindustry #ECSELJU #H2020 #DigitalSkills

Figure 15: IMR demonstrating, VR game, introduction to AI concepts, and IMR lab tour

3.3 Industry4.E | Citizen Engagement Event #3 and #4 | Spain

17 Sep 2020 - 18 Sep 2020 | Online – Multiple Workshops for 2 schools

Mondragon Unibertsitatea (University of Mondragon) invited local teachers and their classes to join "The Future of Work" online event, in partnership with the I4.E Lighthouse Initiative from ECSEL-JU. These events targeted 14-17 years old students with the aim to promote STEAM careers and a greater understanding of I4.0 technologies.

Target

The focus was on local secondary school students and their teachers, promoting STEM careers and influencing students to consider I4.0 as a careers option and choose relevant subjects in school towards 3rd level courses.

Objectives

1. To introduce I4.0 cutting-edge technologies.
2. To share the researchers' and lecturers' passion for working with I4.0 technologies and their potential to use these technologies to help create innovative solutions for producing impactful and desirable products that can be customised for end-users at a reasonable cost.
3. To introduce the work of I4.E Lighthouse projects, and the need to fill the digital skills gap.

Format

Multiple online interactive workshops (Zoom & Kahoot!) presented by the team from Mondragon University to local students and teachers in the Basque region. The workshops were promoted locally on ZTIMUlab, an orientation laboratory created by the University of Mondragon to promote the STEAM themes (Science, Technology, Engineering, Arts and Mathematics). Two local secondary schools partook in the workshops: Arrasate BHI Institutua and Soraluze BHI Institutua. In all, there were 138 student attendees. Supporting resources on I4.0 careers opportunities, were forwarded to the teachers and advertised with website, posts, and tweets on the event. More event details and photos on *Industry4E.eu website*.

Summary

What is Industry 4.0? What technologies are hidden under that name? What do you have to study to work in Industry 4.0? The presentation "Industry 4.0: the work of the future" tried to answer these questions.

A team of researchers and lecturers from the University of Mondragon introduced students to what Industry 4.0 is, and careers possibilities within the 4th Industrial Revolution. For each workshop, this was delivered with a set of videos (including a short video from local TV station Teknopolis) and a live online Q&A. This session was

Figure 16: MGEP researchers' and lecturers' videos for local students

then followed by a Kahoot quiz game with students answering questions about the content shown in the previous videos, competing for a place on the leader board.
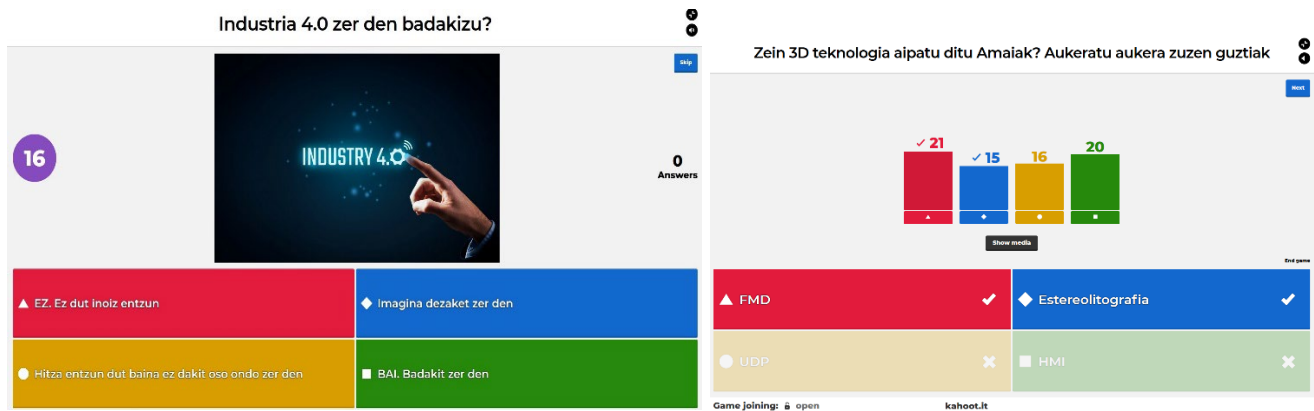
Figure 17: Kahoot quiz at Events #3 and #4

Feedback

The workshops were well received by the students who especially enjoyed competing for a place on their class leader board in the quiz. Mondragon University staff shared their experiences with I4.0 technologies, showing and talking the students through the exciting impact of Digital Industry, the potential job opportunities, and their own career paths.

Promotion

See events descriptions and further photos *here on I4.E website* including some *related tweets* @MUnibertsitatea @AquaTT_Ireland #Industry4E #H2020 #ECSELJU #FutureOfWork #STEM #TechEd #Fun #DigitiseEU #Industry40 #Digitalindustry #DigitalSkills

Figure 18: MGEP sharing the attraction of 3D printing with students at Event #3 and #4

3.4 Industry4.E | Citizen Engagement Event #5 | Finland

5 Nov 2020 | Online – Seminar and Workshop

The VTT citizen engagement event was part of the local "Technology Thursday" event series that covers different topics ranging from artic mining to biotechnology. The eve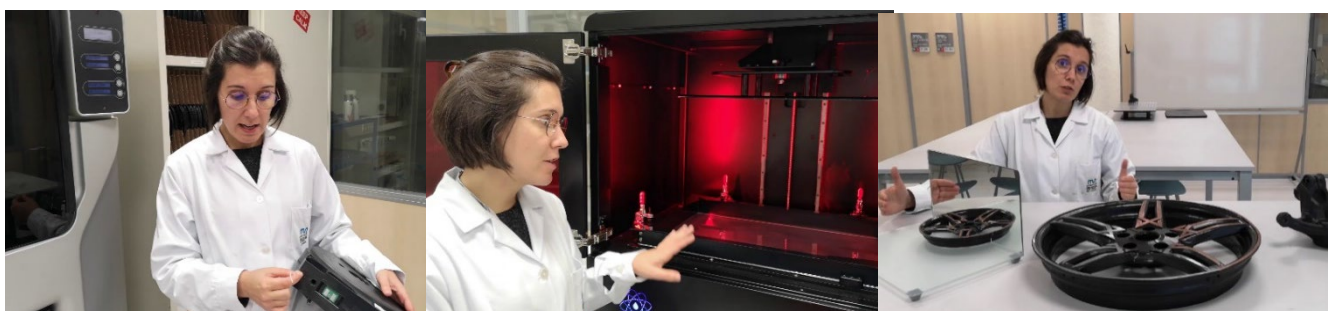nt series is organised by the University of Oulu, BusinessOulu (city of Oulu innovation and business support organisation) and BusinessKitchen (entrepreneur and venturing opportunities). The Technology Thursday event topic on 5th November 2020 was on industrial digitalisation (I4.0) and the industrial way of working. The focus was on bringing together university students, researchers, and industrial participants to present new ideas, promote novel approaches, and discuss opportunities to work together on the selected topic.

Objectives

1. To introduce I4.0 cutting-edge technologies on the industrial way of working on design, production and on novel opportunities that support design phase.
2. To bring the engineers, researchers, and students together for discussion on industrial digitalisation technologies and their potential to use these technologies to help create innovative solutions.

Format

Technology Thursdays are open events for everyone. During the COVID-19 pandemic they have been organised as online events. Talks were given by specialists from industry, research institutes, and universities. Discussion was continued in the workshop that followed the talks, using Mentimeter (an interactive application).

Summary

For the I4.E event two keynote speakers presented, Arto Tolonen (Lehto Group) on "*Requirements for industrial operation model, feat Planning, and productization & Automation*!", and Tapio Heikkilä (VTT) on "*Challenges and possibilities of industrial automation*". After the keynotes, Jani Ylioja from the University of Oulu's FabLab presented their unique offering of access to digital manufacturing technologies (such as 3D printing facilities) that are open for everyone. This session encouraged co-operation between the participants (university students, researchers, and industry) as well as with citizens interested in digital manufacturing.

Fab Lab (fabrication laboratory) Oulu is a small digital manufacturing workshop area that adopts the open innovation concept developed by MIT Fab Lab in the United States. In the local Fab Lab, which is hosted in the University of Oulu, it is possible for anyone to design their own product or hardware from the scratch using industrial-grade tools and facilities (*https://www.oulu.fi/fablab/*).

Figure 19: Technology Thursdays with VTT Event #5

Following the Fablab presentation, I4.E projects and ECSEL-JU opportunities were introduced as well as pointing participants to the resources on the *www.Industry4E.eu* website for further exploration of the projects, the SME options for getting involved, and the career opportunities in I4.0. After the presentations there was a joint workshop with all participants.

Feedback

This VTT citizen engagement event was organised on 5th November 2020. Due to CoVid19, all technology Thursday events were moved online (zoom) in 2nd half of 2020. Due to the online format, the event was open for all and there was no pre-registration. This I4.0 event gained ~30 attendees ranging from 3rd level students to research personnel, and industrial participants.

In the previous "Technology Thursday" physical events, the audience would usually be 30-70 participants, with typically 10-20% from industry, 10-20% from other research institutes and public organisations, 10-20% students and the rest researchers and staff from University of Oulu.

Promotion

The event was run online in Finnish. The session as chaired by Pekka Tervonen (Research Professor, University of Oulu). The event was open for all, with no need to pre-register. The event (*https://www.oulu.fi/ttk/node/205837*) was promoted locally by VTT, and University of Oulu on their respective networks via brochure and website (https://www.oulu.fi/ttk/torstai). Videos of the talks (all in Finnish) were published on *YouTube* afterwards (*Tapio Heikkilä's keynote, FabLab presentation, ECSEL/Industry4.0 presentation*).

Figure 202: Technology Thursdays event presenting I4.E Lighthouse and ECSEL

3.5 Industry4.E | Citizen Engagement Event #6 | "The Future of Work"

23 Sep 2020 | 11.00 - 12.00 | Online – Workshop

IMR invited teachers and their classes to join "The Future of Work" online _#DigitalWorkshop_, in partnership with the I4.E Lighthouse Initiative from ECSEL-JU. This event targeted 15-16 years old students and aimed to promote STEAM careers and a greater understanding of I4.0 technologies.

Target

The focus was on secondary school students and their teachers, promoting STEM careers and influencing students to consider I4.0 as a careers option, and to choose relevant subjects in school towards 3rd level courses.

Objectives

1. To introduce I4.0 cutting-edge technologies.
2. To share the researchers' and lecturers' passion for working with I4.0 technologies and their potential to use these technologies to help create innovative solutions for producing impactful and desirable products that can be customised for end-users at a reasonable cost.
3. To introduce the work of I4.E Lighthouse projects, and the need to fill the digital skills gap.

Format

Online interactive workshop (Zoom and Kahoot!) presented by the team from IMR to Irish students and teachers in English. The workshops were promoted locally on _i4e.eventbrite.com_, on the _I4E.eu website_, on the IMR newsletter, in _@Industry4E twitter_ and in emails to relevant IMR and AquaTT school contacts. Three schools partook in the event: Scoil Samhthann (Longford), De La Salle College Bagenalstown (Carlow), and Confey College (Kildare). In all, there were 127 students who partook in the workshop and quiz. Supporting resources on I4.0 careers opportunities, were forward to the teachers and advertised with website, posts, and tweets on the event. More event details and photos on _I4E.eu website_.

Summary

The content was adapted for the online event by IMR and AquaTT. The 1-hour event was hosted on Zoom and Kahoot with the class teacher, who displayed the presentation on a project for the class. The students had access to smart phones/tablets/computers for participating in the Kahoot quiz at the end of the presentation.

An IMR researcher introduced students to what Industry 4.0 is, the impact it has on daily lives, the technologies and skills behind Digital Industry, and careers possibilities within the 4th Industrial Revolution. This was delivered with videos and a live online presentation (using supporting resource materials created in T4.3).

To introduce some friendly competition and interaction between schools, there was a quiz using Kahoot for all participants. To make it more exciting the overall winner of the quiz won a trip to the IMR I4.0 Lab in Mullingar for themselves and their class!

Due to COVID-19 restrictions and measures, the visit will be planned for 2021. During this visit students will get the chance to experience first-hand what Industry 4.0 entails and interact with technologies such as 3D printing, collaborative robots, augmented reality, and artificial intelligence.

Figure 21: IMR presenting "The Future of Work" Event #6

Feedback

The workshop was well received by the students and their teachers who especially enjoyed the novelty of the Kahoot quiz and competing for a trip for their class in the quiz. IMR staff shared their experiences with I4.0 technologies through videos showing and talking the students through the uses and exciting potential impact of Digital Industry technologies.

Promotion

See event promotion description and further photos *here* including some related *tweets* *IMR tweet* @IMR_ie @AquaTT_Ireland #Industry4E #H2020 #ECSELJU #FutureOfWork #STEM #TechEd #Fun #DigitiseEU #Industry40 #DigitalIndustry #DigitalSkills #Future #Careers #STEAM #I40 #Influencers. #Online #Competition #Quiz #Prizes #3DPrinting, #collaborativerobots, #artificialintelligence #augmentedreality

3.6 Industry4.E | Citizen Engagement Event #7 | "I'm an Engineer, Get me out of here!

March 2020 | different classes over 2 weeks | Online – moderated chat room

One of the CSA-Industry partners from AquaTT was invited to take part in "I'm an Engineer, Get me out of here! Ireland" as one of six engineers in the environment hub. In this online event school students get to connect with engineers. There was a competition between engineers, to answer questions in online live chats with different classes, their teachers, and a moderator over two weeks. The students are the judges, they can ask the engineers anything they want during their online session, and then vote for their favourite engineer at the end of the session.

Target

The focus was on promoting engineering to Irish primary school students and their teachers, promoting the reward of STEM careers, and influencing students to be open to STEM careers options for in future. The additional aim was to include information on I4.0 where possible.

Objectives

1. To share a passion for working as an engineer, showing the variety of careers possible.
2. To introduce I4.0 technologies, where possible, and highlight the potential to use these technologies to help create innovative solutions for producing impactful and desirable products that can provide customised solutions for end-users at a reasonable cost.
3. To introduce the work of I4.E Lighthouse projects, and the need to fill the digital skills gap.

Figure 22: AquaTT "I'm an Engineer, Get me out of here!" Event #7

Format

Over the course of two weeks, primary school classes booked interactive sessions with the engineers. During the session, the teacher and class logged in and asked the engineers any question they wanted via a live online chat. During the final days, the engineer with the least votes got evicted each day until the winner was left! The engineer's prize is €500 towards public outreach activities. More event details can be found on *https://environmentm20.imanengineer.ie/*

Summary

In her profile, Olga (AquaTT) promoted Industry4.0, Industry4.E and careers opportunities poster. In any questions answered, where possible, she worked in Industry4.0 and careers opportunities.

> My Work: I help people working in European research projects to write about what their project is doing and the results they are getting. Also help to get their results into products that benefit others.
> I work with EU funded scientific projects to help communicate and promote the projects and their results. Also, to ensure that the new knowledge generated in these projects is transferred to create maximum positive impact, whether that is a prototype, a piece of software, education materials, policy recommendations, input to codes-of-conduct or standards, roadmaps, etc..
> I am working on the digitalisation of industry, Industry 4.0, at the moment. This is the next revolution of industry and is opening many exciting opportunities in Europe. From factories to farms and everything in between, digitalisation will bring

exciting changes in ways we wouldn't have imagined possible. This will lead to more environmentally friendly and efficient factories and farms. Bringing many societal and environmental benefits through huge advances in healthcare, agri-food, automotive and other sectors.

Mostly, the projects I work on have a strong environmental impact, and Industry4.0 is a good example of this.

The school children were given the chance to read the engineers profiles in advance of the chat session and then logged in with their teacher and a moderator and asked their questions – some questions were very random, and some were easier to tie into Industry4.0. Examples of some questions and answers below:

do you have an electric or Hybrid car?

what is your favourite invention that help the world?

How do sea bins work?

What is favourite colour?

Is your best friend an engineer?

Question: What are you working on at the moment?

Olga Ormond answered on 4 Mar 2020:

Working with the Industry4.E Lighthouse project at the moment. My role is to write about the work that the group are doing and their project results, creating a website, a twitter account, information flyers, posters, and short reports.

It is a group of European projects that all use a combination of new digital technologies to make factory machinery work better (more efficient and sustainable). Robotics, sensors (e.g. for heat, light, temperature, movement, etc), complex computer modelling, very accurate test simulations, 3D printing, and data analytics are used among other technologies. Sensors can detect issues with machinery before they break and will monitor every step of the product creation. This will help to create new products to the highest quality. This is great for us and the environment too.

Question: How many do you answer all these questions and do your work?

Olga Ormond answered on 5 Mar 2020:

🙂 Good question. It is really important to companies to know that in future years we will have new engineers ready to join the workforce. There is a shortage of people with the right skills in Industry4.0 right now, so it is important to make sure we have enough people with technical skills in the future.

For more information on this you could look at *http://www.industry4e.eu/careers/*

Feedback

The school children seemed to enjoy the opportunity of sending their messages online and getting a fairly immediate response. In terms of promotion of I4.0 careers opportunities, while the variety of engineering careers and the impact of engineers on helping with green environmental solutions was well promoted, there was little scope to share much information on the I4.0 technologies, their impact on daily lives or to inspire the children to take up I4.0 careers in particular. Especially as the main interaction was through text chat sessions and there was no way to show images or video content other than those in profile.

Promotion

See event description here on *iamanengineer.ie website* and some *related tweets*
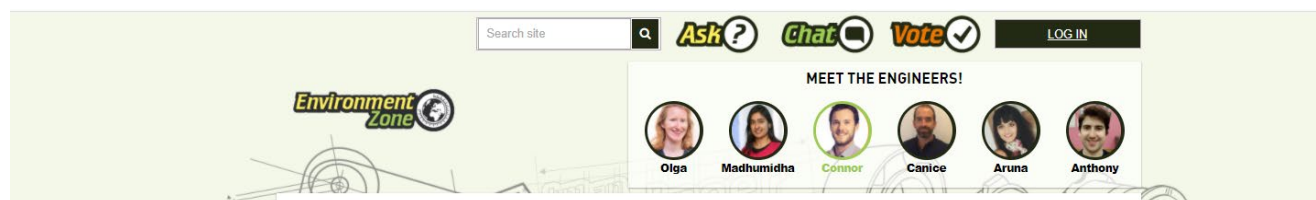
End of Section 3

4 Citizen Engagement | Social Media Campaign | Report

WP4 leader, AquaTT, led a strategic social media campaign to engage citizens in relation to I4.E, with support from a specialised social media agency (as third-party subcontractor). The social media campaign was carried out to actively educate, intrigue and engage citizens in relation to I4.E. This campaign used the various channels to approach different target audiences (Twitter, LinkedIn, Facebook, Instagram, Website).

The specification for the I4.E Lighthouse Social Media Campaign was prepared by T4.4 lead for the social media agency. Three agencies submitted a quote for the campaign. Unfold Digital were chosen based on having the best plan for making the small budget we had available stretch to maximise impact in delivery of a quality social media campaign.

There were three main phases in the campaign. During the first two phases of the campaign AquaTT prepared the content for the posts and the agency managed the profiling and mix of paid and organic ads based on an agreed Digital Strategy which was reviewed and refined between phase I and phase II of the campaign. Upon completion of the agency contract at the end of phase II, the AquaTT team continued with phase III of the campaign.

4.1 Industry 4.0 social media campaign specification

Background on project for the campaign

The digitalisation of industry – Industry 4.0 – is revolutionising the production of goods globally. Advances in robotics, data collection, cybersecurity and other technologies are creating increasingly efficient, flexible, and tailored manufacturing processes. If exploited, these technologies could create huge growth in European industries.

I4.E is an EU-funded Lighthouse project which provides extra supports and guidance for a community of big European Industry4.0 projects. The projects under the umbrella of I4.E aim to support the digital transition of European industry. These projects have a special focus on electronic components and systems. The I4.E Lighthouse and projects aim to advance Industry 4.0 within the EU and, as a result, strengthen the EU's industrial and economic competitiveness.

Main objective of the I4.E Lighthouse Social Media Campaign

Preparing Europeans for the digital future – so that citizens appreciate the value of the digitalisation of industry and the impact it will have on society. At the end of the campaign, public audiences should be aware of the range of highly-sought-after skillsets required to sustain strong European manufacturing competitiveness; both for students considering future careers (and their influencers parents, teachers, career guidance councillors, main media), and for existing workforce who are considering up-skilling or re-skilling. The public should also understand why Europe is prioritising the development of I4.0 and should be familiar with the projects and potential impacts associated with the I4.E Lighthouse projects.

Target Audience

1) Education: students and their influencers

- School students in Europe, especially those who are about to choose senior subjects, and those around choosing university course ages (16-18 years).
- Parents, and other influencers of these students making career (& related subject choice) decisions.
- Teachers and education professionals – particularly career guidance and STEAM teachers.

2) Public

- Public who could benefit from up-skilling (e.g., factory workers, systems engineers, material scientists, product innovators with low IT skills) or re-skilling (e.g., workers in other sectors who are looking for a career change).
- Non-tech-savvy public for the general information content.
- Public/citizens to understand the importance for EU to have skilled workers.

Expected Campaign Outcomes

- Increase awareness of I4.0 technologies and careers opportunities;
- Increase reach and engagement with our content on social media (increased followers, impressions, contributions to wider community);
- Expand social media following for I4.E Lighthouse social media channels (and related accounts, such as digital jobs and skills initiatives from the EC); and
- Trial and evaluate effectiveness of different channels and paid-for content with the topic of I4.0 careers.

4.2 Digital Strategy

The main purpose of this campaign was to raise of awareness of I4.E Lighthouse and projects. The target audience includes students, funders, teachers, parents, peers, and the general public. The three key focuses were:

- Brand Awareness – Focusing on Industry 4.0 as a concept through careers options.
- Target a new audience who may not have heard of industry 4.0, especially careers guidance, math, and science teachers to have a good multiplier effect.
- Improve Stakeholder relations – ie. showcase a successful campaign so that this can be used as the example for future projects (especially relevant for I4.E Lighthouse project partners who are all facing a skills gap).

The initial focus in phase I was on reach and impressions to push broad scale brand awareness. We utilised key messages from Industry 4.E that would resonate with all audience groups. In phase II we retargeted the different audience groups with relevant content specific to them and focused on engagement such as likes, comments and shares. We highlighted any events happening and in phase III our messaging focused on driving these warm audiences to the website for more information.

This campaign aimed to show the value of the EU and what the EU is doing for its citizens; the projects that are a collaboration of both the private and public sector and to focus the public's attention on exciting careers options, the knowledge of what I4.0 is and how impacts them in their daily lives.

The team profiled a typical male student, female student, parent, and teacher. Gender balance was important factor to consider in all the social media posts. A lot of consideration went in to choosing images depicting both males and females in lead I4.0 roles. The philosophy behind some of the existing campaigns to boost female uptake of STEM and engineering careers was considered when composing posts, promoting the societal impact potential of innovations made possible with I4.0 technologies as societal impact tends to appeal to females as a criteria in choosing a career path.

4.3 Social Media Campaign Results

Primary Audience:	Students, parents, and teachers
Channels:	Twitter, new Facebook, and new Instagram account
Goal:	Awareness of Industry 4.0 to help fill skills gap, build new audience
Metrics:	Reach and engagement
Approach:	Mix of organic and paid content.
	Test and adapt content according to what is most effective.
	Value-adding for audience (interesting statistics, engaging visuals).
	Content calendar, original content three times per week.
	Gender balance in content selection.
Budget:	€10,000 for 3-month campaign

- The campaign was run by the communications partner in CSA and was very successful in attracting a lot of engagement with its posts. Effectively using hashtags, relevant, high-quality images, being timely and 'on trend' with news together with an appropriate blend of organic and paid posts led to millions of impressions online.
- The campaign was run over three phases, with the team monitoring and reviewing the progress of each phase and fine-tuning the content and the strategy accordingly. The campaign statistics show that the target audience was reached. On Facebook, student age groups 13-17 and 18-24-year-olds made up most of our audience reach (~71%).
- The number of impressions on Facebook was over 5 million, with posts reaching over 4.6 million people. The cost per 1000 video impressions was €0.48, a great achievement compared to the usual industry average of around €6.
- People engaged by country included from: Ireland, Italy, Spain, France, Belgium. Netherlands, Romania, UK, Brazil, and Moldova. Cities engaged included Dublin, Madrid, Rome, Milan, Paris, Brussels, Cork, Limerick, Galway, Waterford.

Final numbers for Industry4.E Lighthouse channels:

| Channel:	Numbers:		
Facebook [sourced on 09/10/2020] https://www.facebook.com/industry4e/	# posts	64	
	# followers	305	
	Page likes	304	
	Total impressions	5,154,288	Paid: 5,151,039
	Page reach	4,819,233	Paid: 4,817,831
	Video views	308,299	
	Cities reached	111	
Instagram [sourced on 09/10/2020] https://www.instagram.com/industry4e/	# posts	50	
	# followers	65	
	Impressions	3,836,580	
	Reach	3,426,707	
	Likes	1025	
Twitter [sourced on 31/03/2021] https://twitter.com/Industry4E	Tweets	242	
	Followers	472	
	Tweet impressions	657,583	
	Profile Visits	6319	
	Mentions	146	
	Likes	2229	
	Retweets	1064	
LinkedIn [sourced on 31/03/2021] www.linkedin.com/in/industry4e	Posts	44	
	Connections	204	
	Views of posts	5594	
Eventbrite [sourced on 09/10/2020] www.industry4e.eventbrite.com	Events	6	
	Tickets sold	183	
Website [sourced on 31/03/2021] www.Industry4E.eu	Users	4,441	
	Sessions	6,327	
	Page Views	13,828	
Newsletter https://mailchi.mp/1ed66f7454cd/industry4e-e-newsletter-issue-one	Total estimated views	155	
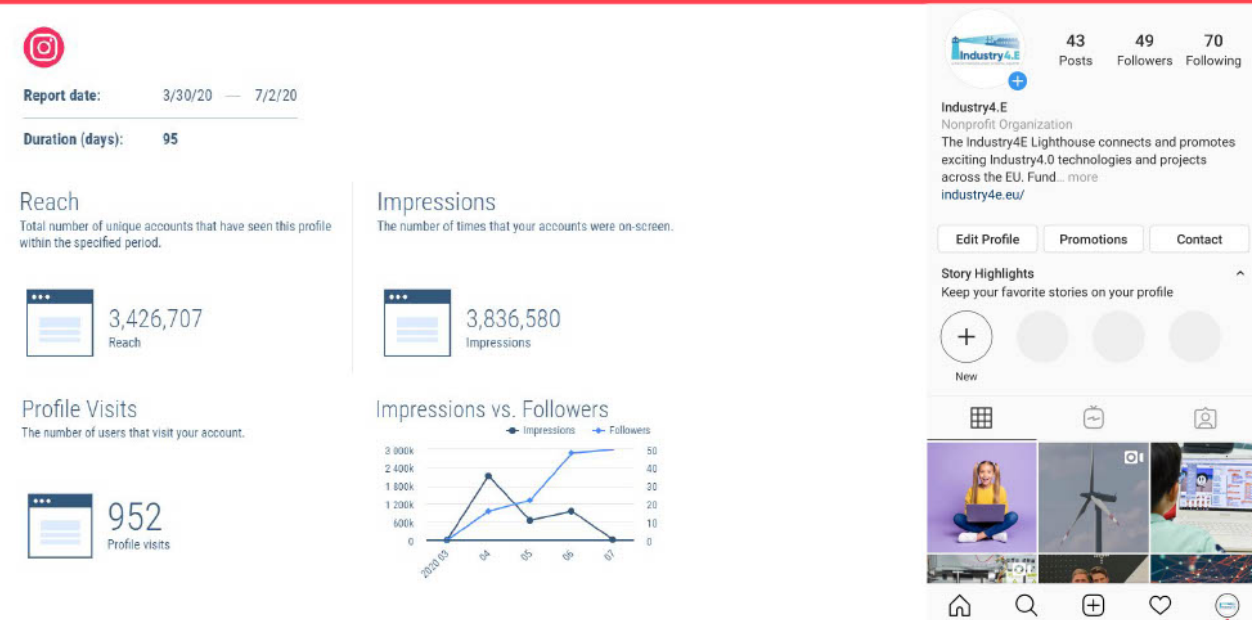
Figure 23: Instagram posts performance overview from agency (phase I and phase II)

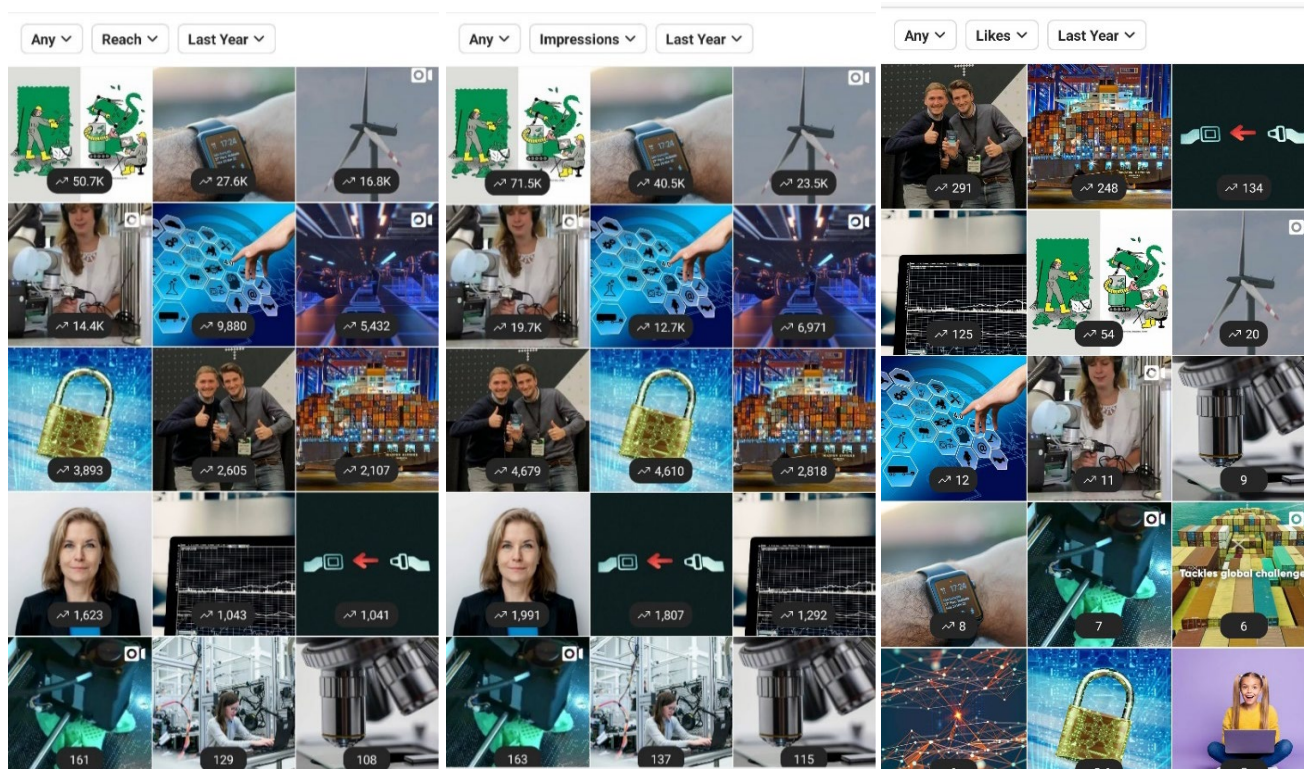*Figure 24: Twitter posts performance overview from Unfold Digital (for phase I and II)*

Figure 25: Instagram reach, impressions, likes

Message	Reach	Clicks	Engagement
The #iDev40.eu project is driving EU industry toward...	25,200	63	62
We're celebrating the #womenintech behind #Industr...	20,854	56	58
Modern factories have thousands of internet-connec...	13,636	28	25
With the power of data, #Industry40 can redesign su...	10,116	1,101	909
3D printed belt buckles for passenger jets are twice ...	7,751	59	85
Just six years after graduating, Maximilian von Duer...	2,591	37	69
A lack of data science specialists is stopping 75% of...	239	3	5
Industry 4.0 is about cutting-edge technologies wor...	123	5	6
Struggling to keep your kids entertained? Scratch fr...	115	3	4
Modern shipping containers use internet-connected ...	55	4	5
How can #Industry40 technologies contribute to a #...	55	2	3
82% of girls want a career where they can help other...	51	1	3

The top posts have ads behind them with different objectives which results in highlights on different metrics.

Figure 26: Facebook top performing posts (phase I and II)

Top Tweets

Industry4.E Lighthouse @Industry4E · May 19
We're celebrating the #womenintech behind #Industry40! First up is Riikka Virkkunen, Professor of Practice at @VTTFinland

vttresearch.com/en/news-and-id...

Find out how you can have an #Industry40 career industry4e.eu/careers/

#Industry4E #womenintech #ECSELJU #H2020

May top tweet: 5412 impressions 90 engagements

Industry4.E Lighthouse @Industry4E · Jun 8
Unsure how to link your favourite subjects and interests to a future career in STEM? Check out the Working in STEM tool from @SmartFuturesIE

bit.ly/2XU35pf

#Industry4E #ECSELJU #H2020 #STEM #STEMcareers #STEMed #Industry40

June top tweet: 1609 impresssions 25 engagements

Industry4.E Lighthouse @Industry4E · Apr 15
82% of girls want a career where they can help other people. #STEM and #Industry40 careers offer that opportunity! Europe's expertise in innovative manufacturing improves all our lives.

@ECSEL_JU @EU_H2020 @Stemettes @Science_Grrl @RAEngNews @INWED1919 @WES1919

#womenintech

April top tweet: 3165 impressions 79 engagement

Industry4.E Lighthouse @Industry4E
Excellent opportunity for the students today to see what #Industry40 is all about and to consider #STEM #skills and Industry4E.eu/careers Thanks to the team @IMR_ie for delivering a very interactive session #Industry40 #futureofwork #STEPS #wmf2019 #DigitiseEU #ECSELJU #H2020

IMR @IMR_ie · Mar 5
Great activity and interaction with schools, teachers, researchers and #technologies @Industry4E @EngineerIreland @circuleire #STEPS #STEM #ESCLJU #IMR #EngineersWeek #INDUSTRY4E

4:25 PM · Mar 5, 2020 · Twitter Web App

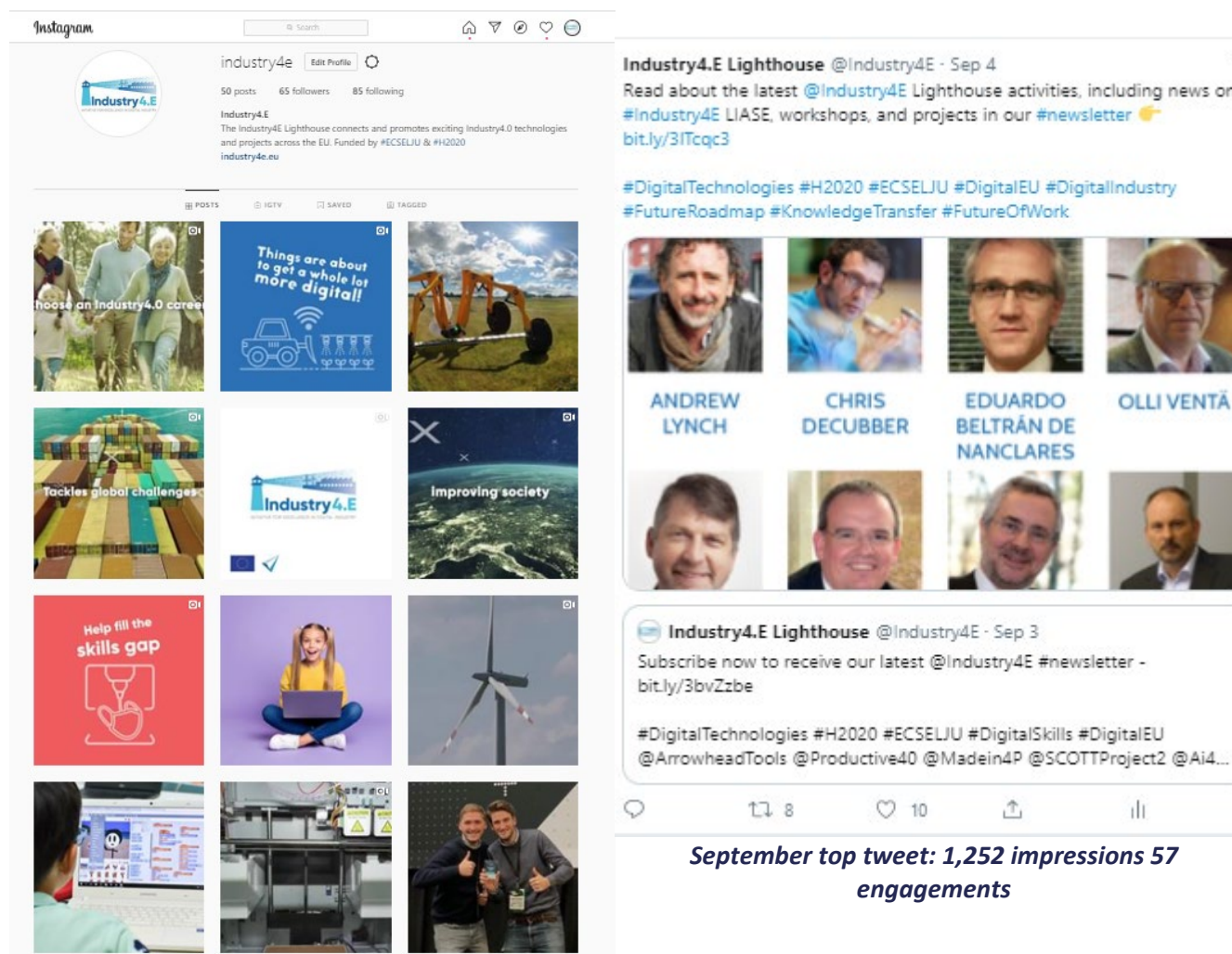*March top tweet: 5412 impressions 90 engagements*

Figure 27: I4.E Instagram page

September top tweet: 1,252 impressions 57 engagements

End of Section 4

5 Industry4.E Lighthouse Initiative | Community Support

In terms of citizen engagement communication activities **addressing the I4.E lighthouse community** there are three main outputs and outcomes:

1. inputs for communications modules in the WP3 workshops (*D3.2*);
2. communications guidelines (*D3.3*); and
3. resource materials, social media posts and careers information available for use by the community.

Workshops for the community

The workshops (related to T3.2) provided training, mentorship and sharing best practice on communications, as well as dissemination, knowledge transfer and exploitation strategies. There was good participation and feedback from the community for this support mechanism from the Lighthouse. Communications topics were covered in WP3 *#DigitalWorkshops* on:

- **'Tools for successful project dissemination/exploitation - best practices'** 12th May 2020
- '**How best to fulfil communication and dissemination obligations solely using remote methods'** 19th May 2020;
- '**How best to carry out "Exploitation" activities using remote methods'** 26th May 2020; and
- '**Sharing Success – Successful exploitation in Industry4.E Lighthouse projects'** on June 2020.

These workshops explored best practice for achieving successful two-way engagement with stakeholders remotely. The challenges of virtually recreating the physical interactions, informal discussions, rapport, and connection that happens more naturally at physical events were discussed in detail, with some of the opportunities created by the shift to virtual also explored.

Communications themes included in the workshops: sharing project news, social media, events, and stakeholder engagement; paper to Electronic Assets – the e-Products necessary to support exploitation and engagement activities; Physical to Online Events. Within these themes the content covered strategic planning, target audiences, available tools, impact measurement, and useful online resources, virtual engagement strategy objectives, digital tools and case studies, tailoring activities towards specific outcomes, metrics and

measurement, and useful resources. The importance of engaging and maintaining the interest of participants for successful brokerage and social events was particularly highlighted.

The final workshop:

- '**Sharing Success – Successful exploitation in I4.E Lighthouse projects'** 2nd June 2020.

rounded up the learnings from the previous workshops with examples of successful implementations from the Lighthouse Projects. This joint workshop included presentations on communications success stories from project partners Productive4.0, I-MECH, and Mantis, as well as kambeckfilm (a provider of professional video services to EU projects). Communications topics included video production, target audiences, and dissemination and communications methodology. For more details, please see *D3.2*.

Communication guidelines for the community

This comprehensive set of Guidelines for Communication, Dissemination and Exploitation for the I4.E Lighthouse Community (D3.3) was created based on the communications expertise of the partners, along with experience from our CSA work in WP4, material developed for the T3.2 workshops, and success stories from the I4.E projects.

Topics relevant to communications include project website, social media, video content, printed and digital assets, sharing project news, conferences, fairs & presentations, demo, showcase and booth. For more details, please see the e-book *D3.3*.

End of Section 5

6 Conclusions

This deliverable presented a report on the public engagement activities carried out in the project. These activities included: Stands/booths/posters/booklet distribution promoting I4.E at high-profile events and social media posts (Twitter, LinkedIn) **addressing academic and industrial communities**; Careers opportunities resources including a careers webpage, booklet, and poster, 7 citizen engagement events, and a strategic social media citizen engagement campaign (Twitter, Facebook, Instagram) **addressing citizen communities** (and available to academic and industrial communities who are actively seeking to recruit public uptake to fill I4.0 careers and/or increase the potential future workers skill set to help alleviate the skills gap problems); communications guidelines (D3.3), and inputs for communications modules in workshops **addressing the I4.E Lighthouse community** (D3.2).

I4.E Lighthouse public engagement activities results include:

- A **suite of promotional material for public engagement/outreach** for both online and face to face engagement.
    - o Resources for promotion of I4.E Lighthouse to stakeholders, SMEs, and technically engaged members of the public. Including I4.E booklet, posters, 3D print, Industry4E.eu website events-page, Twitter, and LinkedIn.
    - o Resources on careers opportunities in industry 4.0 including *I4.e careers flyer, poster* and *banner*.

- **Careers webpage** with lots of resources for different public stakeholders (www.industry4e.eu/careers).

- **A series of public outreach activities for citizen engagement related to I4.E**
    - o Promotion of I4.E Lighthouse at several high-profile technical events providing I4.E visibility to stakeholders, SMEs, and technically engaged members of the public.
    - o Promotion of I4.E Lighthouse at 7 citizen specific engagement events for the public which involved:
        - 336 secondary school students partaking in I4.E Lighthouse Citizen engagement activities from Basque region, and from across Ireland.
        - ~30 participants (including third level students, researchers, and industry including local SMEs) partaking in I4.E Lighthouse citizen engagement activities in Finland.
        - 832 adult stakeholders (including SME representatives, Open Innovation supporters and policy makers divided in age groups from 20 to 50+), in I4.E Lighthouse Citizen engagement activities from Baden-Württemberg region in Germany.
        - 1 CSA partner partaking in a schools' event targeting 250 primary school students with information about engineering careers and their huge impact on society in general, while providing information on and promoting I4.0 careers.

- **A successful strategic social media campaign to engage citizens in relation to I4.0 topics**
  Beyond acting merely as dissemination tools for events and publications, these channels were used to facilitate direct communication and dissemination with the public and encourage knowledge uptake (such as education and career paths, upskilling and reskilling for existing workers, the impact of I4.0 on society particularly highlighting its impact in the fight against COVID-19, the need to strengthen EU industry, and the call to action to help fill the skills gap). Project partners were encouraged to conduct similar (albeit not necessarily as robust) activities via their respective project social media channels in T3.2 workshop 3 (19 May 2020: How best to fulfil communication and dissemination obligations solely using remote methods – A workshop to explore best practice in adapting to COVID-19 situation) and in

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the guidelines which compiled Communication, Dissemination and Exploitation guideline material shared in the workshops and used some examples of the CSA communications activities (D3.3).

- **Guidelines for I4.E Lighthouse projects (published in D3.3),** to help them in communicating their story to the public (among other audiences). Guidelines have been provided to help the projects increase awareness of the social impact of, and uptake of, their results. These guidelines have been adapted to help the projects navigate communications, even during the current COVID-19 situation, and will enable the projects to build success stories addressing communication towards wide non-technical audiences.

- **This D4.3 final report on the public engagement activities carried out in the project** – showing the high impact of the social media campaign that exceeded our initial audience targets including **Facebook total impressions 5,154,288**, **Instagram impressions 3,836,580**, **Twitter impressions 657,583**, **LinkedIn views of posts 5594**, **Eventbrite 183 tickets sold**, **Website page views 13,828**. For more details, see section 4.3 Social Media Campaign Results.

End of Section 6