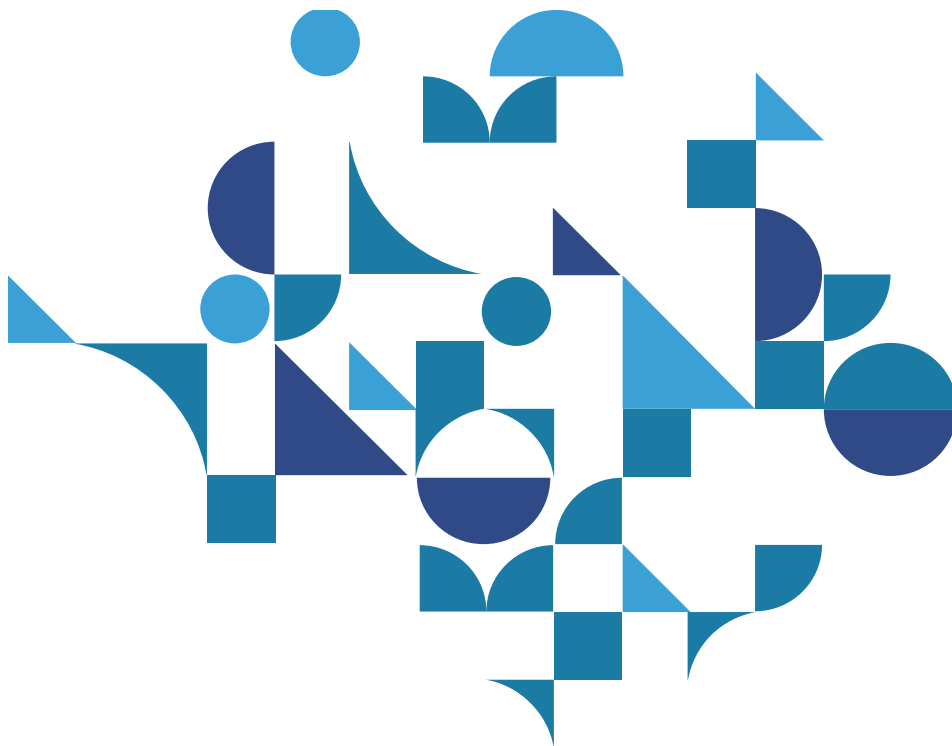




Industrial Engineering and
Management of European
Higher Education



R9.4 IE3 Intermediate Dissemination Report



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Note:

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Introduction

Industrial Engineering and Management of European Higher Education (IE3) is a three years EU Erasmus+ project (Key Action 2) aiming at assessing the gap between industry needs in implementing the I4.0 paradigm and the Master Level Academic Programs offered by European Universities. The project goal is to design, test, and validate new higher education models in the framework University–Industry Knowledge Alliance.

The IE3 main goals may be summarized as follows:

- Build up the Body of Knowledge of Higher Education in Industrial Engineering and Management (IE&M) for implementing the I4.0 paradigm;
- Design a New Model and Best Practices on Higher Education in IE&M;
- Disseminate Project findings to replicate Best Practices and innovate IE&M Master Programs throughout Europe.

IE3 targets academics and students dealing with Industrial Engineering and Management from higher educational institutions, and industrial companies.

The project spans four European countries (IT, ES, PL, SE) and from each partner country, one university and one private company dealing with industrial engineering have been involved.

IE3 intends to systematize approaches for bringing key skills to University students, and companies involved in the field of IE&M. The project sustains the collaboration of partner Universities' expertise adopting successful business models inspired by IE&M to create educational pathways aimed at reducing key skills fragmentation, overcoming the detachment between theoretical training (learned at the University) and practical experience (acquired on the field). It develops a path composed of four steps:

- I. Knowledge Needs and Gap Analyses of Higher Education in EM&S
- II. Body of Knowledge (BoK)
- III. Courses and e-learning Modules renewed upon the BoK Guidelines
- IV. Best Practices for Renewing IE&M Master Programs

Several key deliverables deserve strong consideration. Firstly, a BoK, aimed at delivering key knowledge conveyed by up to date state of the art of scientific literature. The BoK is a result that is exploitable by end-users. It is the fruit of primary data collection (survey throughout academics, students and companies) and secondary data by desk research on the current educational offer in the field of IE&M. Secondly, an IE&M e-learning course, aimed at providing the learners with an up-to-date course delivering competencies close to the job market in the field of IE&M. The materials provided with the course have been developed based on the knowledge extracted by the BoK. Therefore, the BoK is a key tool to catch information useful to design a course and build up training materials. Finally, based on the lesson learnt with the investigation and the pilot test of the course supply, IE3 has revised a Master course at the HEI partner level to deliver an innovative program expendable at the HEI level in a broad sense: within and outside the IE3 consortium.

WP9 Dissemination

This WP has the aim of ensuring that the project, its milestones and results will be spread to all the relevant stakeholders and the scientific community through coordinated actions and in the most effective way. The main objective of this dissemination is to be able to bring the results of the IE3 project to the table of each actor involved and interested in the entire process of construction and evolution of the project. Its success depends on how far the results are disseminated, which in turn are the starting point for concrete changes. The exchange of information, the sharing of experiences and skills, the contamination of visions of different targets for training and employment, and the elaboration of shared models, are at the base of the strategic objectives of the IE3 project and are all united by the necessity to communicate. As a general performance indicator that is considered in the project:

- The number of entities not involved directly in the project reached;
- Number of views of public project results;
- Number of publications on other websites;
- Number of publications in newspapers or other media;
- Number of people attending the conferences and meetings where the project results will be presented;
- Performance of the social media strategy;
- Number of visits to the website.

Dissemination Strategy

Objectives, principles and target groups

Infotech leads WP9, coordinating the dissemination activities and providing the partnership with the main tools for carrying them out (logo, website, template for .ppts and .docs, social media accounts, PR materials, etc.).

However, all partners have an active role in disseminating project results through their networks, as well as to other target groups, to produce a multiplier effect. Partners contribute to raising awareness about project aims and results. Each partner has appointed a person responsible (Dissemination Manager) for planning activities, acting as the contact person for the WP Leader Dissemination Manager, keeping a record of the target audience, the impact made and collecting feedback. The partners disseminate and exploit results through the project website and social media, public events and conferences, meetings and visits to key stakeholders, written material, scientific articles in relevant journals, existing contacts and networks.

The project is also published on the EU Dissemination Platform and the main results are being uploaded during the project's lifetime. Particular attention is paid to making EU support visible during events and in all materials disseminated. The name and logo of the European Commission and the name and logo of the Erasmus + on all the information and promotional materials have been provided. Dissemination activities are done during the whole lifetime of the project. Conferences and events are communicated by the organizer/participant to the WP leader, to let the coordinator have an overall view of all activities.

The project partners commit to providing periodically, in turn, one article (max 2.000 characters) and one image. The article is shared on the website (www.ie3.eu), and it is also adapted to the following social, depending on the nature of the content:

- post on Facebook (max. 300 characters)
- article for LinkedIn (max. 500 characters)

The strategic goals are determined by and dependent on the main objectives of the project. However, despite not being the same, the communication objectives are designed to help achieve IE3's goals. The objectives of the dissemination and exploitation strategy are the following:

- Enhancing the skills of territorial actors meant as IE&M stakeholders;
- Reaching as many as possible stakeholders in each initiative of the project;
- Engaging current students, new entrants, companies and other stakeholders in the field;
- Creating flows of exchange of information between stakeholders, stimulating debate and putting into practice the results;
- Showing short and long-term benefits for HEIs, students and entrepreneurs;
- Providing visibility to entrepreneurs working in the field of Industrial engineering, universities and entities already carrying out IE&M training;
- Contributing to the development of a network in which information can be transferred in a clear, fluid and secure way - between HEIs-students-companies;
- Promoting IE3 through creating the possibility for Universities and companies to cooperate, share knowledge and create innovative training materials, meeting theoretical knowledge with practical experience;
- Making known and usable the materials produced and the results achieved through the project IE3, using innovative tools (Training needs analysis, e-learning courses) and the contribution of the new curricula of IE&M.

The target groups individualized in the project are:

1. Academic community
2. Students
3. Companies dealing with industrial engineering
4. Public Bodies (EU bodies, National Governments, Regional entities, etc.)
5. Other stakeholders

In order to make effective communication activities, IE3 exploits several communication methods that will be selected from the options reported in Table 1.

Table 1. IE3 Channels for Dissemination

Examples of non-media communication	Examples of media communication
Face-to-face conversation	Newspapers and magazines
Group discourses	Press releases
Conferences	Newsletters
Round tables	Manuals
Exhibitions	Brochures
Meetings	Video

Workshops Open days Skype calls E-mail Policy brief	Posters Banners Website Blogs Social media
Smaller audience, lower costs, more effort. Interactive, good for acquiring input Flexible (easy to change tone, strategy, and content)	Potentially large audience. Uses the credibility of the mass media

Dissemination Tools

Infotech has developed a unique logo for the IE3 project. This is the heart of the project's visual identity, helping to support visual communication and social branding. The project's visual identity authenticates and strengthens the communication and dissemination of IE3 messages, and it ensures that all communication and dissemination products, including reports, the website, flyers, posters, presentation slides and promotional banners have a professional and uniform look. IE3 logo concept development and its finalized versions are shown in Figures 1, 2, and 3. Figure 1 shows the alternatives that have been developed.

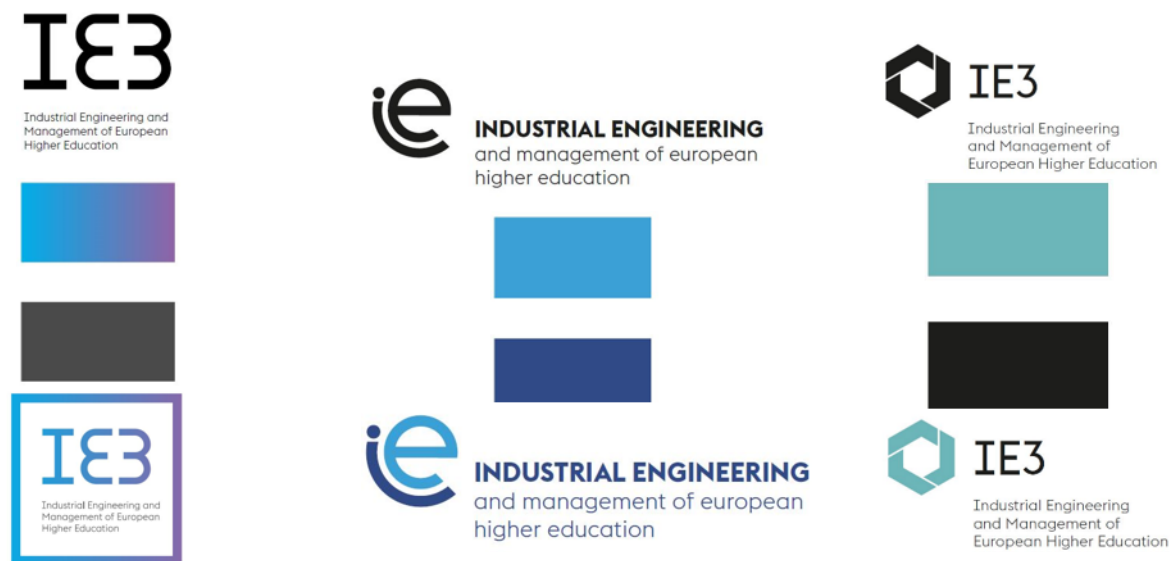
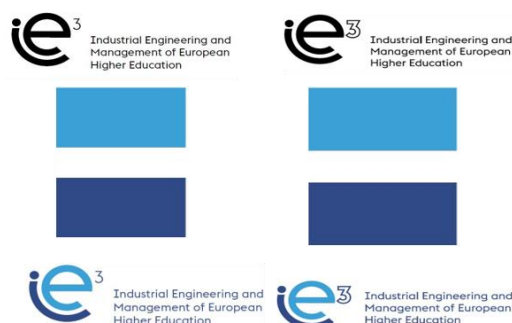


Figure 1 - IE3 logo's alternatives among which the partners made the choice

The first choice made by the consortium led to the focus on the second version (the one placed in the middle of the above picture). However, this version underwent further revision processes before delivering the next two versions (Figure 2):



The final choice was made on the right version shown in the above picture. It stemmed from the idea of having a compact form of the restricted version of the logo so that recalling the three “e” standing for “European Engineering Education”:

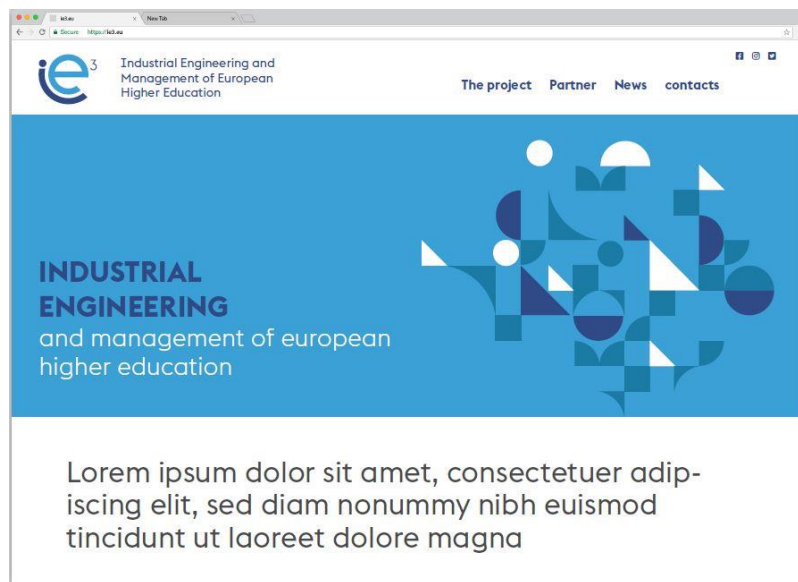


Figure 3 - Final IE3 logo

Using this visual identity, a general outline for the website, the Facebook page, and the project business card were proposed.

WEBSITE

Here below the visual graphics of the website which was developed on the visual identity:



The IE3 website is a key element of the intended dissemination and outreach strategy. It contains all relevant information about the project, as well as easy access to the resources and the outcomes of the project. It also provides centralized access to the various publicly available deliverables,

publications and/or articles related to the project. The website is an important communication tool so it is constantly developed, updated and improved, according to the IE3 visual profile.

The project's website is published under the URL: <https://ie3.eu/>. It provides access to social and it is divided into the following main sections and subsections:

Home

- Home – it summarizes general and short information about the projects; shows the latest news and partner logos
- About – It provides highlights on the project outline (general goals, target groups and milestones) and the partner's team involved
- Consortium – It provides highlights on the organization's partners
- Results – It is envisaged to upload all the project results, also not indicated in the proposals, such as scientific publications from the project cooperation
- News – it is set up to upload the periodic news
- Contact - it is set up to get in contact with the IE3 project by emailing info@ie3.eu

The website has undergone a long phase of revisions since its inception in January 2019. Indeed, the consortium has continuously looked for an improved version that is aligned with high-qualitative standards recognised by the EACEA. Therefore, the strategy adopted led to looking for good practices already implemented awarded in successful European projects: the IE3 partners decided to exploit the success gained by the experience of the Erasmus project beFORE (Knowledge Alliance Project - 575842-EPP- 1-2016- 1-PL- EPPKA2-KA) whose website (futureoriented.eu/) was elected “good practice” by the EACEA. Accordingly, the IE3 website [<http://ie3.eu/>] was delivered in the final version showing the following sections:

Home – As reported in the below picture, one finds the visual identity of the IE3 project in the upper part; the highlights about the partnership composition in the upper part (10 partners, 4 EU countries, 4 HEIs), the three latest news and the spot for subscribing the newsletter in the middle part, and the partner logos in the bottom part.

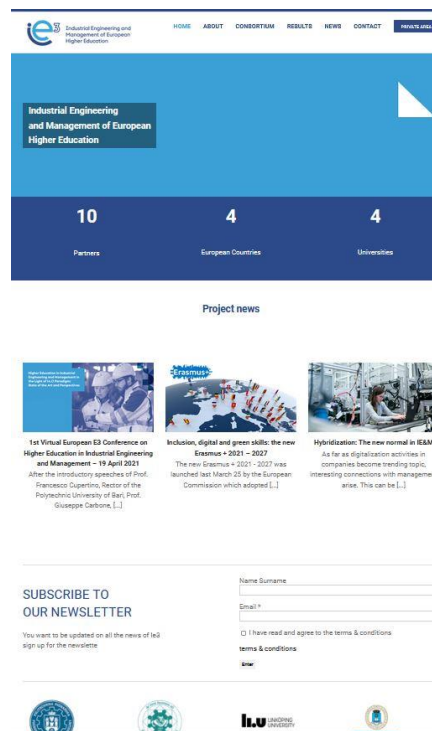


Figure 4 - Home page of the IE3 website

ABOUT – Here one finds summarized the key points describing the project: general outline, objectives, milestones, target groups to reach, the geographical distribution of the partner countries and some representatives of the team brought by each IE3 partner and associate partner.

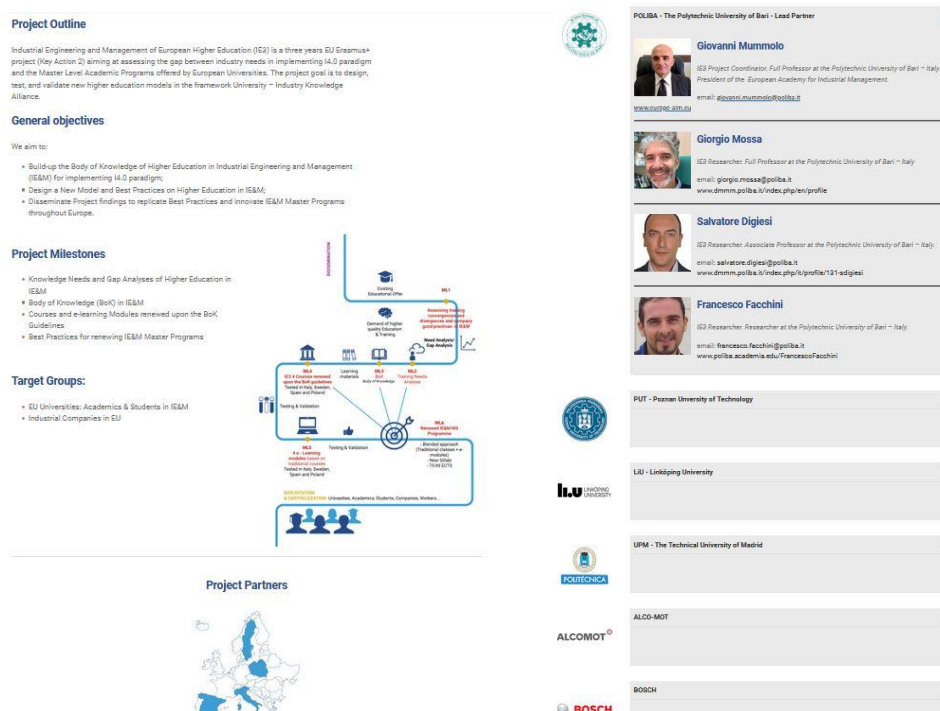


Figure 5 - About page of IE3 website

CONSORTIUM – On this page, one finds a short description of each partner and associate partner organization

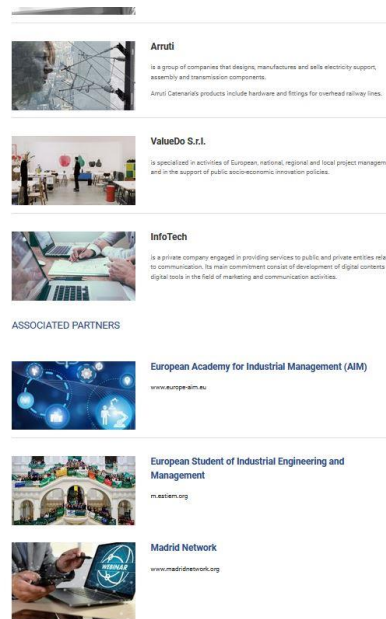


Figure 6 - Consortium page of IE3 website

RESULTS – this page is of paramount importance as it collects all the project outputs.

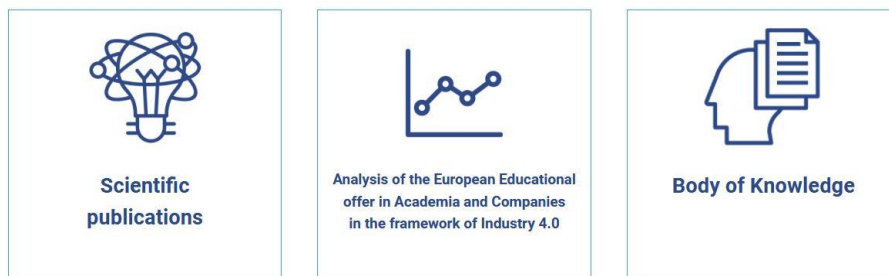


Figure 7 - Result page of IE3 website

In particular, it provides access to three main pages:

- **Scientific publications** – three scientific publications have resulted from the partner cooperation so far. In particular, along with the partner cooperation, these three papers have been presented at two international conferences:
 - 4th International Technology, Education and Development Conference held in Valencia on the 2-4 March 2020
 - 24th International Congress on Project Management and Engineering, held in Valencia from the 7th. to the 10th. of July 2020

All three works addressed the content of IE3 and the innovativeness being introduced by the IE3 teaching approaches to Industrial Engineering.

By accessing this page, one can download the article in pdf form by just clicking over the reference details as shown in the above picture. Furthermore, three different forms of bibliography are provided: BibTex (for those using LaTeX), RIS and plain text.

- The Analysis of the European Educational Offer in Academia and Companies in the Framework of Industry 4.0, that is the R1.3 available to be downloaded in pdf form [http://ie3.eu/wp-content/uploads/2020/12/report_ie3_final_01.pdf]
- The Body of Knowledge that is the R2.4 is available to be downloaded in pdf form [http://ie3.eu/wp-content/uploads/2020/12/report_ie3_final_01.pdf]

NEWS – in this section, the following 42 news have been uploaded:

http://ie3.eu/2020/01/30/the-kickoff-meeting-of-ie3-project/
http://ie3.eu/2020/01/31/integration-of-digital-tools-in-industrial-management/
http://ie3.eu/2020/02/08/presentation-ie3-project-in-new-jersey-usa/
http://ie3.eu/2020/05/19/scientific-studies-for-educational-purposes-on-iem/
http://ie3.eu/2020/05/20/today-is-the-questionnaire-day-q-day/
http://ie3.eu/2020/07/07/ie3-general-meeting-29-30-june-2020/
http://ie3.eu/2020/07/17/ie3-dissemination-at-the-cidip-2020-international-conference/
http://ie3.eu/2020/07/23/ie3-work-being-done/
http://ie3.eu/2020/07/27/last-update-before-summer-break/
http://ie3.eu/2020/10/06/ie3-project-speech-at-the-42nd-aim-conference-berlin-3-6-september-2020/
http://ie3.eu/2020/11/06/ie3-project-lxi-council-meeting-of-estiem/
http://ie3.eu/2020/12/10/the-ie3-team-moves-virtually-to-madrid-for-the-3rd-project-meeting/
http://ie3.eu/2020/12/16/the-official-ie3-youtube-channel-is-being-set-up/
http://ie3.eu/2020/12/19/press-note-for-the-madrid-ie3-meeting/
http://ie3.eu/2020/12/22/merry-christmas-and-happy-new-year/
http://ie3.eu/2021/01/04/new-years-goals/
http://ie3.eu/2021/01/08/the-importance-of-soft-skills-in-engineering-education/
http://ie3.eu/2021/01/15/master-of-science-in-industrial-engineering/
http://ie3.eu/2021/01/27/phd-course-human-based-smart-manufacturing-systems-the-skills-and-competences-required-by-operators-in-smart-work-environments/
http://ie3.eu/2021/01/29/microlearning-more-useful-than-ever/
http://ie3.eu/2021/02/03/digital-revolution-and-industry-4-0/
http://ie3.eu/2021/02/05/from-project-output-to-project-outcome-the-role-of-the-communication-task/
http://ie3.eu/2021/02/10/alco-mot-team-skills/
http://ie3.eu/2021/02/15/why-transferring-good-practices-is-important/
http://ie3.eu/2021/02/17/ie3-covid-19-and-industry-4-0/
http://ie3.eu/2021/02/20/what-about-the-associate-partners/
http://ie3.eu/2021/02/24/ie3-communication-channels/
http://ie3.eu/2021/02/26/virtual-reality-and-training/
http://ie3.eu/2021/03/03/data-quality-into-industry-4-0/

http://ie3.eu/2021/03/05/decision-making-and-machine-learning/
http://ie3.eu/2021/03/08/disseminating-the-ie3-project-results-at-the-iem-conference-5-6-march-2021/
http://ie3.eu/2021/03/12/last-updates-of-the-project-and-preparation-of-the-international-conference/
http://ie3.eu/2021/03/22/ie3-supports-developments-for-a-better-future/
http://ie3.eu/2021/03/25/hybridization-the-new-normal-in-iem/
http://ie3.eu/2021/04/10/inclusion-digital-and-green-skills-the-new-erasmus-2021-2027/
http://ie3.eu/2021/06/15/1st-virtual-european-e3-conference-on-higher-education-in-industrial-engineering-and-management-19-april-2021/

The section “news” takes the following view:



Figure 8 - News section of IE3 website

It allows the visitors to find the article from the archive where the articles are stored and sorted by month and year.

CONTACT – in this page one finds a box to fill in case any external stakeholder would be interested in posing questions and/or somehow get in touch with the IE3 team.

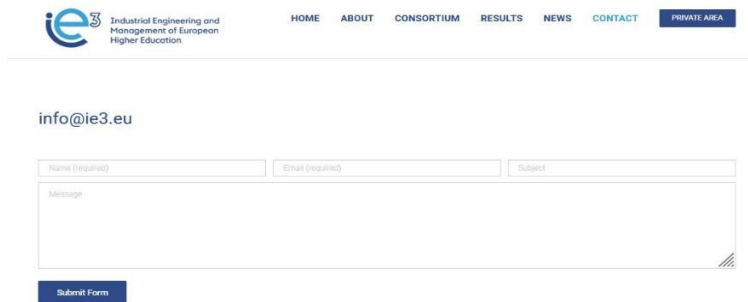
The screenshot shows the contact section of the IE3 website. At the top left is the IE3 logo and the text 'Industrial Engineering and Management of European Higher Education'. To the right is a navigation menu with links: HOME, ABOUT, CONSORTIUM, RESULTS, NEWS, CONTACT, and PRIVATE AREA. Below the navigation menu is the email address 'info@ie3.eu'. The main part of the form consists of three input fields: 'Name (required)', 'Email (required)', and 'Subject'. Below these is a large text area for the 'Message'. At the bottom left of the form is a blue button labeled 'Submit Form'.

Figure 9 - Contact section of IE3 website

In the upper right part of the website, there are the icons linking the Facebook and LinkedIn social pages:



Figure 10 - Links to social media from IE3 website

Finally, at the bottom of each page of the website, it is shared the disclaimer for the content and the information provided through this communication channel:

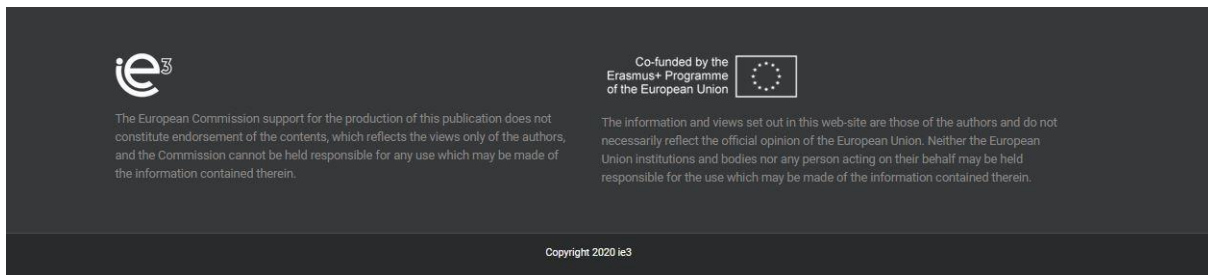


Figure 11 - EU disclaimer at IE3 website

SOCIAL MEDIA

FACEBOOK

This page was mostly thought for young stakeholders not being already professionals in the field of Industrial Engineering. It looks as follows:

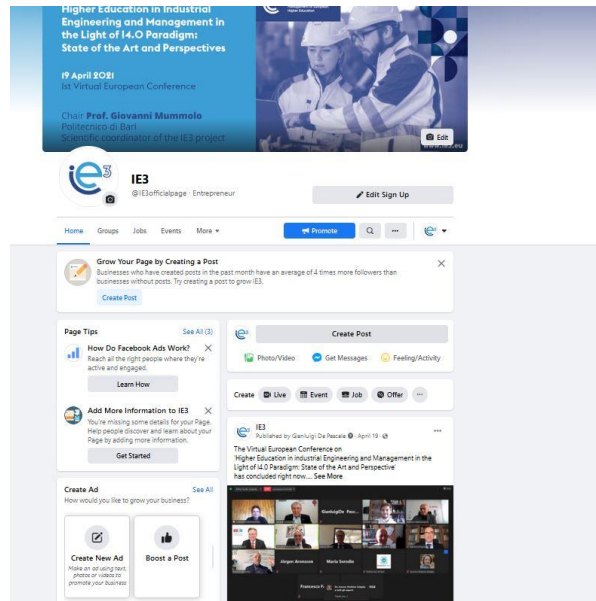


Figure 12 - IE3 facebook page

This page is exploited to share the links of the news published on the website and provide the audience with the link to access the news itself. Moreover, to engage stakeholders, the page was linked to thematic groups involving numerous participants interested in the subject:

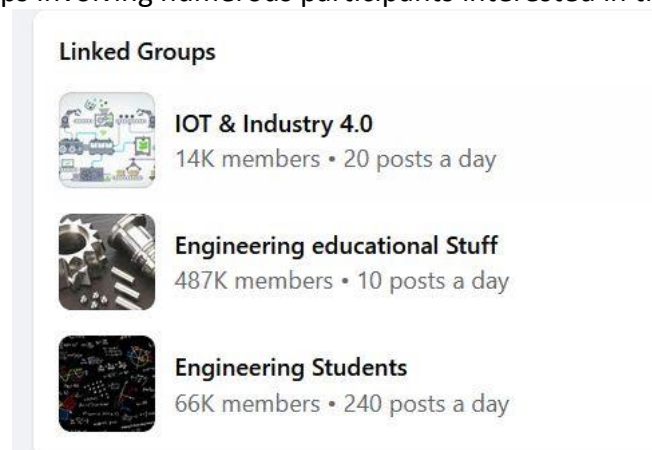


Figure 13 - IE3 linked thematic groups to repost news

As one can learn from the above screenshot, the groups count up to about 500,000 subscriptions, this being indicative of the size of the parterre of stakeholders that can be achieved. These groups have been exploited when promoting the international event held the 19 April in virtual mode. The Facebook social media page counts 167 likes and 170 followers. We aim to significantly increase these numbers until the end of the project since we deem that high visibility, awareness and attractiveness will be gained during the second part of the project when the course will be launched.

LinkedIn

The LinkedIn social page looks as follows:

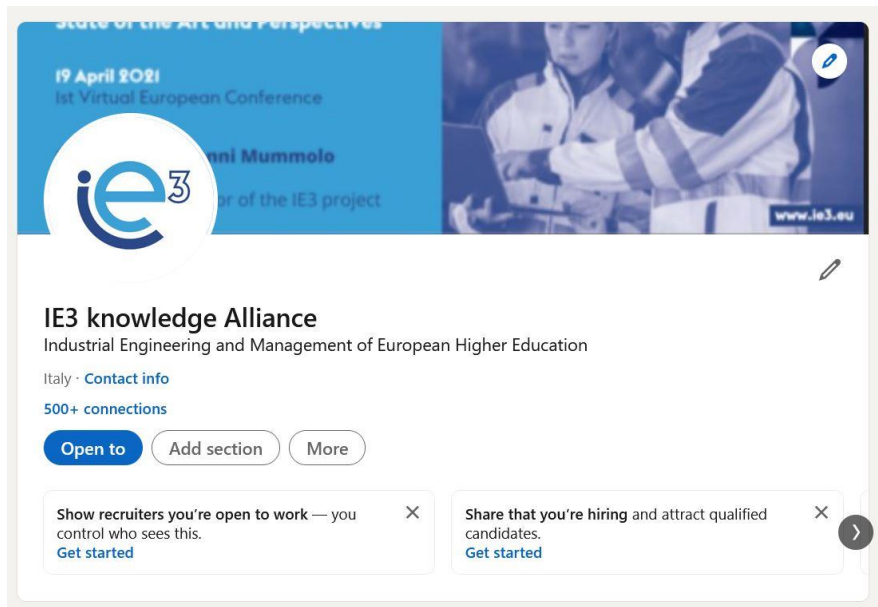


Figure 14 - IE3 LinkedIn page

Compared to the IE3 Facebook official page, it has gained much more success so far, thus suggesting that the topic is of paramount interest to professionals and whoever actively deals with Industrial Engineering and related subjects. Indeed, we count the following figures displaying more than a thousand connections and, importantly, twelve thematic groups.

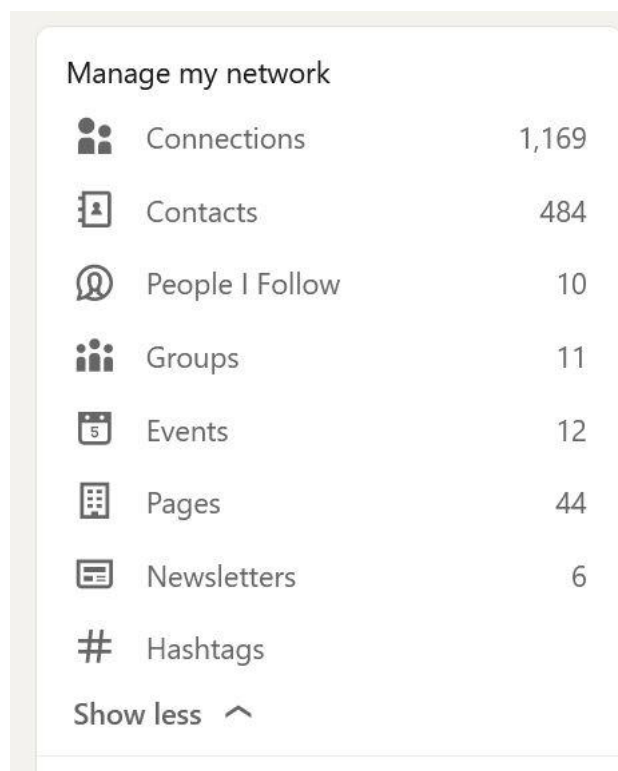
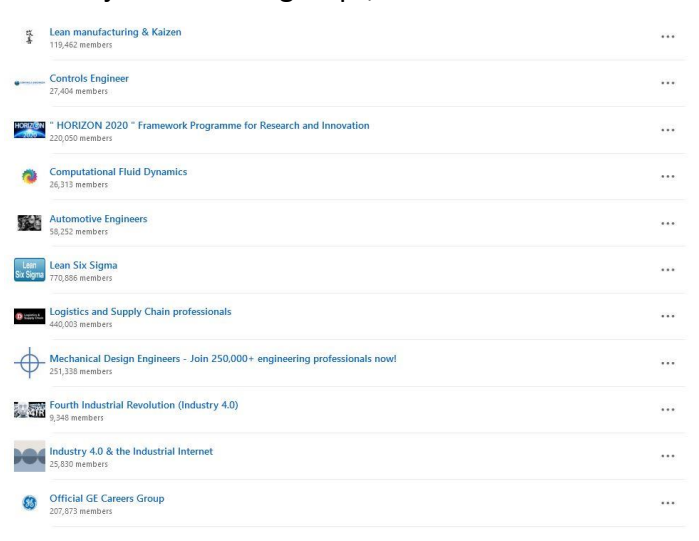


Figure 15 - IE3 LinkedIn figures

With reference to the groups, they have been exploited to share the news and sponsor the IE3 dissemination initiatives, such as the Q-Day and the first international event held on the 19th of

April 2021. The visibility gained by this connection with other thematic groups was guaranteed by the high number of members joined to the groups, as shown below:



Lean manufacturing & Kaizen	119,462 members	...
Controls Engineer	27,404 members	...
" HORIZON 2020 " Framework Programme for Research and Innovation	220,050 members	...
Computational Fluid Dynamics	26,313 members	...
Automotive Engineers	58,252 members	...
Lean Six Sigma	770,886 members	...
Logistics and Supply Chain professionals	440,003 members	...
Mechanical Design Engineers - Join 250,000+ engineering professionals now!	251,338 members	...
Fourth Industrial Revolution (Industry 4.0)	9,348 members	...
Industry 4.0 & the Industrial Internet	25,830 members	...
Official GE Careers Group	207,873 members	...

Figure 16 - IE3 LinkedIn groups to repost news

YouTube channel

During the IE3 meeting held in two sessions on the 9th and 15th of December 2020, it was agreed to create a YouTube channel, although it was not outlined in the project proposal. Indeed, the consortium has thought to exploit this channel to cope with the distance and inability of meeting the stakeholders due to the restrictions imposed by the pandemic and to capitalize on all the videos being recorded during the project from that point on. The first video has been produced to introduce the general outline of the project [<https://www.youtube.com/watch?v=dWm8T6MIBoA>], and the first international conference which was entirely recorded [<https://youtu.be/iaJU3DS2CY>]. Further products will come when the class will take place in virtual mode and, therefore, recorded. This will allow for increasing the accessibility to the training material so that stimulating knowledge spreading and course replicability. For the time being, we are fine with the setting of this tool, and the next step is to boost as much as possible subscriptions to the channel, views of the videos and comments to the videos which would mean animating the stakeholder debate and raising their interest,

The YouTube channel looks as follows:

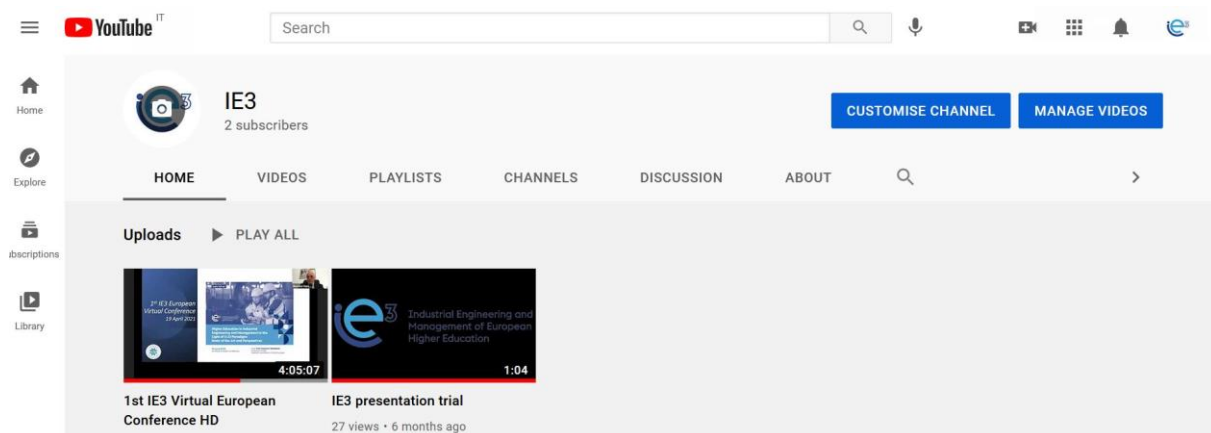


Figure 17 - IE3 YouTube channel

PR material

Flyer

The flyer is usually indicated for sharing key information about the project in an attractive mode. It is physically created to be distributed among people during events held in their presence. However, this activity has been readdressed since four months after the beginning of the project the European community had started to deal with the pandemic impeding any event to be taken at present. Therefore, it was decided to produce an electronic flyer for each relevant event. Thus, so far, we have created and exploited the following flyers:

- Q-Day – this flyer was exploited to stimulate and promote the Questionnaire-Day (Q-Day) for collecting data on the Educational offer of Industrial Engineering from the European community. It was developed in a double form:

Targeted to all audiences and created by InfoTech



Figure 18 - Q-Day flyer

- Targeted the European student and Academics community of Industrial Engineers. It was developed together by InfoTech and the Associate partners ESTIEM and AIM



Figure 19 - Flyer developed together with ESTIEM

- Christmas wishes:



Figure 20 - Flyer for IE3 Christmas wishes

- 1st International Conference



Figure 21 - Flyer for IE3 first international conference

Project templates

Along with these tools, the templates for reports, essays and other documents are to be outlined during the project development in doc (word) format, and for presentations in powerpoint format.



Figure 22 - IE3 ppt template

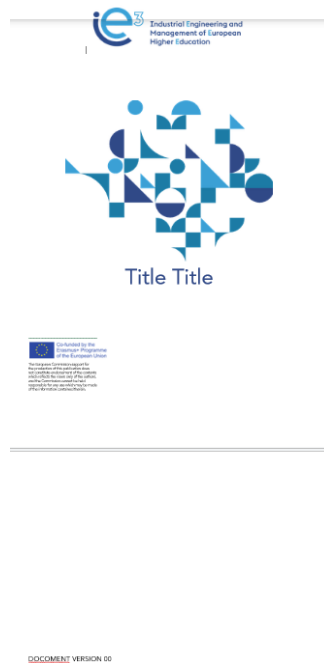


Figure 23 - IE3 word template

WP9 Dissemination for the next duration of the project

The key performance indicators for the first half of the project have suffered from the long pandemic period (the project started in November 2019, and the outbreak came to Europe in January 2020

that is still ongoing). Therefore, for the next period, hoping to return to a more active social life as soon as possible, the following corrective actions will be taken, with the goal of reaching the set number:

- Organizing major in-person meetings with project stakeholders.
- Continuing to promote the website through the project and partner social media accounts;
- Establishing relationships with other similar Erasmus+ funded projects and promoting the project and website through their websites and social media accounts;
- Continue to regularly update the content of the website and add new sections, such as project videos, video lectures, video interviews, scientific publications, etc.; and
- Promote and apply the results obtained from the Training Need Analysis and the Body of Knowledge, along with the development of e-learning courses on the Moodle platform.

Entering the second half of the project's implementation, WP9 will continue to plan, implement, coordinate and report dissemination activities for the period M18-M36. During this period, the project enters "Phase2 - Targeted awareness market phase" and it will aim at Creating more "targeted awareness" regarding the IE3 courses to targeted stakeholders and groups; Informing the target market about the topics and potential of the IE3 results.

Infotech will also take into account the proper implementation of the measures to secure privacy and log-ins for teachers and students on the e-Learning platforms.

The IE3 community

Partners will continue their efforts in approaching and contacting stakeholders, and as the project proceeds organizing the IE&M course to be delivered to the stakeholder communities will become more stable and dependable.

The Table below is the network of Associated Partners outlined in the Dissemination Plan and established in this first half of the project's lifetime that the project will continue to rely on to carry on and effectively implement activities after the project ends

Name of the Associated Partner	Country	Contact person	Organization type
EASC Pescara – Emergency Advanced Simulation Center	European network Belgium-based	Duarte João Oliveira (https://m.estiem.org/)	European student association in the Field of Industrial Engineering
European Academy for Industrial Management (AIM)	European network Belgium-based	Prof. Giovanni Mummolo (https://europe-aim.eu/)	European scientific association of Industrial Engineering
Madrid network	Spain	Prof. Joaquín Ordieres-Meré (www.madridnetwork.org)	Online training centre