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## Intellectual Output 2 Future of Jobs

# Counsellors Study and Training Exchange Programme (C-Step)

## Unit 1: Industry 4.0 and the impact on labour

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## Unit 1: Industry 4.0 and the impact on labour

Sociedade Portuguesa de Inovação, SPI (Portugal)

### 1. Content of the Unit 1: "Industry 4.0 and the impact on labour"

The unit description for all online training days in the Academia+ project should be understood as a helpful basis if you would like to hold a similar training for the covered topics within the online training days of the project. Therefore, this unit description is written in present tense and anonymous (although you find names of all speakers and lecturers of the online training in the original material on Moodle) and gives you detailed information about how to use the presentations, group exercises, conference meeting tools and group work tools.

The second online training day from the first Counsellors Study and Training Exchange Programm (C-STEP) in the Academia+ project is focused on the topic „Industry 4.0 and the impact on labour“. Thus, the session will be focused on Industry 4.0, what it means, what are the trends, how has it already been incorporated, what will the future world of work look like in the Future and what we can learn from industrial revolutions about skills needed can be covered.

Therefore the unit should cover basic concepts about industry 4.0 - introduction to Industry 4.0 and historical approach to industrial revolutions. Furthermore the unit should focus on the new trends for industry 4.0, how has it already been incorporated, what will the future world of work look like in 2030 – 2050, and what we can learn from industrial revolutions and the skills needed that can be covered. This will be the basis for Industry 4.0 and the impact on labour.

### 2. Learning outcomes

By focusing on the above-mentioned contents, Unit 1 aims to meet the following learning outcomes:

- Understand what is Industry 4.0 and the historical approach to industrial revolutions;
- Be able to explore the trends which shape the world of work, the impact of technology and industrial revolutions;
- Understand the skills and knowledge required in the workplace of the specific job role;
- Understand the future of work and future of counselling.



### 3. Structure plan

Unit 1 is a whole day online training which combines input sessions with group work and self-learning sessions as well as plenary discussions. In the morning it focuses on an introduction to Industry 4.0 and historical approach to industrial revolutions and the drivers of change. The afternoon, highlights the future of work and future of counselling.

An overview of the structure plan can be seen below and is explained in detail afterwards.



Time	Topic	Method, media and material	Outcome	Comments
10.00	Introduction of the facilitator and the participants and the course topic & goals	Zoom session Plenary video session	Getting to know each other	Overview on the project (and team) and the units and the agenda of the day
10.30	Introduction to Industry 4.0 and historical approach to industrial revolutions <ul style="list-style-type: none"> <li>what it means</li> <li>what are the trends</li> <li>how has it already been incorporated</li> <li>what will the future world of work look like in 2030. 2050</li> </ul> What we can learn from industrial revolutions about skills needed can be covered	PPT presentation	Participants explore the trends which shape the world of work, the impact of technology and industrial revolutions; and what the future world of work will look like and the skills that would be required. Participants also discuss the results from the “Future Time Traveller” project, which aims at introducing Generation Z to the jobs of the future through an innovative game-based platform in 3D virtual world.	- Bulgaria will speak about the trends which shape the world of work, the impact of technology and industrial revolutions; and what the future world of work will look like and the skills that would be required. Nevena will also present the lessons learned and the results from the Future Time Traveller project, which aims at introducing Generation Z to the jobs of the future through an innovative game-based platform in 3D virtual world.  Q and A at the end where people can unmute their microphones  The speaker will do a presentation based on a Powerpoint and at the end the participants there will be a Q&A session
11.30	Short break			
11.45	Drivers of change <ul style="list-style-type: none"> <li>New areas of work</li> <li>Automated jobs</li> </ul> High qualified staff with knowledge in IT and AI	PPT presentation	Participants discuss that the current developments of the 4th industrial revolution (AI and machine learning, robotics, nanotechnology, 3D printing, biotechnology, etc.) entails a set of broader socio-economic, geopolitical and demographic drivers of change, each interacting in multiple directions and intensifying one another.  In particular, participants discuss as drivers of change:	45 min presentation split in to three sections <ol style="list-style-type: none"> <li>New areas of work (Lead topic) Starting to understand or predict the skills and knowledge required in the workplace of the specific job roles also incorporating The Green Agenda over the next 50yrs. This will also touch on the speed of change.</li> <li>Automated jobs. future – looking initially at industries rather than</li> </ol>

			<p>new areas of work, automated jobs and high qualified staff in IT and AI being distributed into three learning sessions</p>	<p>Mechanisation was replaced with automation. Automation and AI are often accused of stealing jobs and this section will look at the displacement of the present workforce and the integration of tomorrows.</p> <p>3. Highly qualified staff with knowledge in IT and AI Is it really going to be that demanding? Perhaps it isn't going to be as bad as we presently perceive it.</p> <p>Participants write in chat regarding questions from David, and Tiago will read it to David</p> <p>Q&amp;A during the presentation with participants using raise hand function</p> <p>breakout rooms will be used. (6 rooms, named by colors: purple, grey, green, blue, orange, red) Participants will be asked a question and will go into breakout rooms for 5 minutes where they can answer the question on flinga: Flinga - Drivers of Change. Participants will then come back into the main room where they will be given a second question. They will then go back into the same breakout rooms for 5 more minutes and use flinga. They will come back into the main room</p> <p>1st task: Imagine the 2 areas of industry or business that might emerge over the next 50 years and write them on a sticky note</p> <p>2nd task: Of those you have selected, pick the one you think will be the most disruptive (the earthquake). Why? Write it on a sticky note</p>
12.30	<p>Business &amp; Technology - A summary lecture on embedding Health and Wellbeing into Business Models and Processes</p>	<p>PPT presentation lecture with space for questions</p>	<p>Participants get an overview of health and well-being issues into the business sector in order to be able to understand the relevance of wellbeing at work both when they offer career guidance from their services and as employees of a specific organization. In addition, participants have the change to review their IT competencies and use their business networks to improve their career guidance sessions.</p>	<p>This session is a summary lecture which provides a broad overview of health and well-being in business. It aims to support practitioners to revisit their understanding of wellbeing at work both when offering career guidance services and as an employee of an organisation. It also aims to encourage practitioners to review their use of technology and utilisation of business networks to optimise their career guidance sessions.</p> <ul style="list-style-type: none"> <li>● What is Health and Wellbeing at Work?</li> <li>● Current examples of Wellbeing in Businesses</li> <li>● Importance of Wellbeing in Career Guidance</li> <li>● Network Level Business Models</li> </ul>

				<ul style="list-style-type: none"> <li>● Positive indirect and direct actions from COVID-19</li> <li>● Using technology and automation for Career Coaching and Wellbeing</li> </ul> <p>Q&amp;A at the end with participants using raise hand function / Tiago reading out questions from the chat first</p>
13:15	Lunch break			
14:00	Future of work and future of counselling	PPT presentation	<p>The afternoon session enables participants to discover the consequences of Industry 4.0 for the labour market and economy.</p> <p>An overview related to the future of work and future of counselling in the frame of the fourth industrial revolution are the main learning outcomes to focus</p>	speaker will give an input with ppt presentation and Q&A (directly asked by participants)
15:00	National strategies/support activities	Group work ppt presentation by participants	As a practical session, participants work in a group in order to discuss and exchange the knowledge concerning available strategies and support activities are viewed in a national and international contexts	<p>Participants work on groups to present the available strategies on their countries</p> <p>maximum of 8 groups (<i>8 breakout rooms, randomly</i>)</p> <p>Task for group 1-4</p> <p>Discuss the national strategies and work out the main similarities.</p> <p>Write them down in a ppt presentation</p> <p>Task for group 5-8</p> <p>Discuss the national strategies and work out the main differences.</p> <p>Write them down in a ppt presentation</p>

				<p>chat: send ppt to <a href="mailto:academiaplus.info@gmail.com">academiaplus.info@gmail.com</a></p> <p>questions for the group in chat</p>
15:45	Short break			
15:00	National strategies/support activities	PPT presentation  plenum discussion		<p>Participants present their work 4 groups similarities</p> <p>4 groups differences</p> <p>(5 min per group)</p> <p>5 min of changing time in between the groups</p>
16:45	Wrap up and final discussion	plenum discussion	Summary & Sharing	What inspiration can we get out of the differences for a modification of our own national strategies (learning from other countries)?
17:00	End of day			
<p><b>Several people and professionals support in the design and development of the training sessions</b>, among others: guest speakers/lectures (those who do the whole presentations, in charge to provide the training input/contents); moderator/s (usually support with the introduction by the speaker, the interventions, the closure of the sessions and sometimes, with certain technical aspects...); a person who is taking care to make notes and support participants by the email (<a href="mailto:academia.info@gmail.com">academia.info@gmail.com</a>) and help with phone numbers; a personal technician who is in charge of recording the sessions and to split/distribute the groups in breakout rooms for the group work, etc.; a person responsible to provide links on the chat and/or other additional material, taking care of checking and answering the chat.</p>				





#### 4. Detailed description of the structure plan

All the material are provided via the **Moodle learning platform of Academia+ project**. More information on:

<https://www.academiaplus.eu/moodle/course/view.php?id=6&section=1>

##### **The Moodle Structure**

Moodle was chosen as the platform on which all the material is provided. One of the advantages of Moodle is a clearly arranged overview with which the material can be presented.

The chosen structure on Moodle follows generally the respective structure of each day of the online training. Every speaker with his or her session have their own section on the course page. You can find the presentations, videos, exercises, sample solution etc., always in the respective section of the speaker. The files you can find there are always numbered in ascending order. So, the session can be worked through like a learning module. There are longer input presentations, exercises on various aspects and also smaller contributions from our speakers.

For Unit one you will find the first documents numbered 0. These are the complete presentations of our speakers from unit 1.

##### **How to use the documents on Moodle:**

The provided documents are always available as PDF files to ensure a usage on most devices. Videos are inserted as a stream directly from the Moodle page so you don't need a separate flash or media player. Sometimes we added a YouTube link on the page or on the additional material. In most cases, when our speakers have shown a video on their session, you can find this on the video (recording of the session) we prepared on Moodle. So, the external YouTube link is additional; maybe if you want to watch it again or with different subtitles. You also find the links for the YouTube videos in every presentation as you work through them.

In general, there are 7 different types of documents on Moodle.

##### The videos

Each session has at least one video that consists of the recording of the online training day. As these are made available directly on Moodle, every participant/ interested party can access the videos directly on the platform. No extra software or similar is necessary, so that easy access can be guaranteed.

##### The presentations

On every session you can find the presentation used by our speakers in the online training. Depending on whether it is a coherent input presentation or a working session with smaller input presentations, you will find one document with the whole presentation or a split presentation. These include a smaller input session from our speaker or preparations for a group work or an exercise. These documents are always named with 'presentation' and the specific name of this short session.



## The exercises

In different sessions our speakers prepared some exercises and group work. These documents are named with 'exercise' and the specific name of this exercise and they contain two different didactic levels. On the one hand they are prepared for participants and interested people who want to work through the material for themselves. For those there is a small introduction into the exercise and the numbered tasks you have to do. Furthermore, there is also a note how you need to save/ share or send the outcome of this exercise. Depending on the situation you can share your screen or present your outcome or result on Padlet, Sticky notes, etc.

On the other hand, you can find a didactic level prepared for potential trainers, speakers or lecturer who want to host further education/ training, maybe in their own institution or company. For those people and for such use of the material you can find italic additional information in the exercises which are marked with 'Editorial note'. These notes include hints, tips and instructions only for lecturer or teacher. For the most part these are didactic hints or assistance, which software can be used for the presentation of the work results, etc. These notes also contain information on what needs to be prepared in advance of the session/ training. As an

example if you as a trainer want your participants to share their work results on a Whiteboard or with sticky notes, you can find a recommendation about the software we and our speakers used in the online training.

## The sample solutions

Safeguarding of work results is extremely important for the success of a further education session/ training. When your participants come from different countries, backgrounds or at least cities/ companies etc. you will receive a huge mass of productive work results and outcome. In addition to the exercises, we provide a specific sample solution. On one side the sample solution we provided on the Moodle platform are the main work results of our participants from the online training. According to privacy policy it's needed to blurry all personal data etc. On the other side, these sample solutions are only intended as additional information. They are not all-encompassing or to be seen as the only solution of the exercise.

## Additional material (links, texts, handouts etc.)

According to the respective session of our speakers we provided additional material like links, additional texts or handouts. If additional material be available for the specific session, it will be referred to at the respective place in the video or presentation.

## **Preparation before the unit:**

It is important for a good start to the training, whether it takes place in presence or online, that there is enough time for getting to know each other. So, as you can see in the Moodle structure the first part of the session will be an introduction part where the moderator will introduce himself and give a first overview about the schedule for the session. After a short introduction made by the speaker it is also necessary to establish some rules for the session.



Especially for an online training with many participants some specific rules of conduct can structure the session and thus contribute to the success. It is necessary to mute/ turn off all the microphones while the speaker is talking. Otherwise, the connection will deteriorate, background noise and any interference will cause anxiety and poor understanding. Depending on the number of participants it is also necessary to turn off the video signal while the speaker is presenting. More video signals mean more data consumption, which may affect the quality of the conference. In small groups or for group work and discussions in several groups it's useful to switch on the video signal.

While using the common platforms (Zoom, Microsoft Teams, etc.) you have two different options for asking questions while an input session. On the one hand you can use the chat. It is very helpful to collect and channel the questions during a longer input session. The questions asked in the chat can then be answered in special Q&A sessions. On the other hand, Zoom and Microsoft Teams provide different actions for participants who want to say or ask something. There is a raise your hand symbol with which you can indicate that you have a question or want to say something. The little hand will then pop up at the speaker's desktop so he knows that someone wants to say something.

The following is a detailed description of the structure plan, which provides an overview of the Unit 1: Industry 4.0 and the impact on labour.

## **Introduction**

The following is a detailed description of the structure plan, which provides an

The seminar begins with a brief introduction by the speaker that provides an overview on the project and team as well as the units and presents the agenda of the day.

Participants are welcome to use the chat, but they should be aware that the speaker will not be able to read their comments on the chat while he/she is speaking. Thus, the participants in the chat can raise their hand symbol with which they can indicate that they have a question or want to say something. The questions asked in the chat can then be answered in special Q&A sessions.

## **Introduction to Industry 4.0 and historical approach to industrial revolutions**

The lecturer then presents the first topic: Introduction to Industry 4.0 and historical approach to industrial revolutions. He/she speaks about the trends which shape the world of work, the impact of technology and industrial revolutions; and what the future world of work will look like and the skills that would be required. He/she will also present the lessons learned and the results from the Future Time Traveller project, which aims at introducing Generation Z to the jobs of the future through an innovative game-based platform in 3D virtual world.

Participants explore the trends which shape the world of work, the impact of technology and industrial revolutions; and what the future world of work will look like and the skills that would be required.

Participants also discuss the results from the "Future Time Traveller" project, which aims at introducing Generation Z to the jobs of the future through an innovative game-based platform in 3D virtual world.

To close the topic a Q&A session where people can unmute their microphones.



## Drivers of change

The aim of this following learning session is to understand the drivers of change, 45 min presentation split in to three sections new areas of work, i) New areas of work starting to understand or predict the skills and knowledge required in the workplace of the specific job roles also incorporating The Green Agenda over the next 50yrs. This will also touch on the speed of change; ii) automated jobs. future – looking initially at industries rather than mechanisation was replaced with automation. Automation and AI are often accused of stealing jobs and this section will look at the displacement of the present workforce and the integration of tomorrows; iii) Highly qualified staff with knowledge in IT and AI.

Then, participants are invited to write in chat regarding questions. Q&A during the presentation with participants using raise hand function.

## Exercise

Breakout rooms will be used. (6 rooms, named by colors: purple, grey, green, blue, orange, red) Participants will be asked a question and will go into breakout rooms for 5 minutes where they can answer the question on flinga: Flinga - Drivers of Change. Participants will then come back into the main room where they will be given a second question. They will then go back into the same breakout rooms for 5 more minutes and use flinga. They will come back into the main room.

- Task 1: Imagine the 2 areas of industry or business that might emerge over the next 50 years and write them on a sticky note
- Task 2: Of those you have selected, pick the one you think will be the most disruptive (the earthquake). Why? Write it on a sticky note

## Business & Technology - A summary lecture on embedding Health and Wellbeing into Business Models and Processes

This session is a summary lecture which provides a broad overview of health and well-being in business. It aims to support practitioners to revisit their understanding of wellbeing at work both when offering career guidance services and as an employee of an organisation. It also aims to encourage practitioners to review their use of technology and utilisation of business networks to optimise their career guidance sessions.

- What is Health and Wellbeing at Work?
- Current examples of Wellbeing in Businesses
- Importance of Wellbeing in Career Guidance
- Network Level Business Models
- Positive indirect and direct actions from COVID-19
- Using technology and automation for Career Coaching and Wellbeing



Participants get an overview of health and well-being issues into the business sector in order to be able to understand the relevance of wellbeing at work both when they offer career guidance from their services and as employees of a specific organization. In addition, participants have the chance to review their IT competencies and use their business networks to improve their career guidance sessions.

To close the session a Q&A with participants using raise hand function.

### **Future of work and future of counselling**

The afternoon session enables participants to discover the consequences of Industry 4.0 for the labour market and economy. An overview related to the future of work and future of counselling in the frame of the fourth industrial revolution are the main learning outcomes to focus. The speaker will provide a PPT presentation and Q&A (directly asked by participants)

### **National strategies/support activities**

As a practical session, participants work in a group in order to discuss and exchange the knowledge concerning available strategies and support activities are viewed in a national and international context. Participants work on groups to present the available strategies on their countries.

### **Exercise**

Maximum of 8 groups (8 breakout rooms, randomly)

#### **Task for group 1-4**

- Discuss the national strategies and work out the main similarities.
- Write them down in a ppt presentation.

#### **Task for group 5-8**

- Discuss the national strategies and work out the main differences.
- Write them down in a ppt presentation

At the end a plenum discussion where participants present the results of the working groups:

- 4 groups similarities
- 4 groups differences

(5 min per group) 5 min of changing time in between the groups



The online training session ends with a group reflection. A wrap up and final discussion to summarise the topics covered and sharing experiences - What inspiration can we get out of the differences for a modification of our own national strategies (learning from other countries)?

The seminar concludes with thanks from the moderator to each and every one of the participants, lectures and experts by focusing on the highlights of the day.