

Activity Deliverable

Interactive Manufacturing @ Schools I

Strategy of creating webinars I



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# Main keypoints/highlights for Strategy of creating webinars

1. Definition of the content of the strategy of creating webinars
2. Defining a goal for webinars, what will be their goal? What do we want to achieve with them?
3. Identification of webinar topics and creation of webinar content
4. Defining organizational requirements for webinars
5. Defining personnel capacities in relation to webinar implementation
6. Defining time requirements for webinars
7. Webinar promotion and communication before and after the webinar
8. Defining value for webinar participants. What value can we bring to them?
9. Drive action approach must be taken into account
10. Good practice

## Brief webinar details

**Title of Webinar:** *Insert title of webinar.*

**Topic of Webinar:** *Insert topic of webinar.*

**Description of Webinar:** *Write a brief description of webinar.*

**Buyer Persona / Target Audience:** *Pupils of which schools?*

**Expected webinar Date:** *When will be the webinar held?*

**Expected webinar Time:** *What time will the webinar start, and when will it end?*

**Webinar Host(s):** *Who will be hosting the webinar?*

**Webinar Guest(s):** *Will anyone else be appearing or speaking during the webinar? If so, who?*

**Registration Goals:** *How many classes do you want to register?*

**Attendee Goals:** *How many people do you want to attend the webinar?*



# 1. Webinar Details

## Purpose of Webinar

Purpose of webinars is to engage more pupils from high schools to study science, technology, engineering and mathematics (STEM) and manufacturing related fields. We see webinars as useful tool for dissemination of innovation and interesting technologies with which project partners are dealing. Nowadays we are facing to big challenges in manufacturing, for example digitalization, industry 4.0 and other new emerging technologies. We hope that through webinars we will be able to motivate and stimulate interest of pupils to study STEM at our universities. We want to show to pupils these new technologies, which they can discover more if they, decide to study STEM. We expect that attendees we invite for participation in project activities will stay motivated to join study of STEM and manufacturing related fields what is one of main goals of our project.

In cooperation with high schools in partner's countries and selected RIS countries project partners will deliver 14 webinars on selected topics described in following parts of this strategy.

We expect that by realization of webinars we can show and learn pupils' new information, knowledge and if possible some kind of hands-on experience on new technologies in STEM and manufacturing related field.

For maximizing impact of webinar, it is important to take into account Call to action (CTA) approach, by which attendees will have to take also some kind of action after ending of webinar.

# 2. Outline of Webinars

Typically, webinars will hit upon a series of topics pertaining to one larger subject. Walk through the topics you'll be covering in the webinar, once by one, and what the key talking points and takeaways will be.

From the view of organizer/creator of content it should work hand in hand to:

- Determine webinar goals
- Identify topics and create content



- Plan pre and post-webinar communication

Successful webinar should accomplish three main things:

- Generate measurable results: Before you can think about topics, you need to understand your goals and KPIs. The most effective webinars have specific and measurable goals.
- Deliver value to your attendees: The best webinars aim to provide real value to their audience first and foremost. Cover topics your audience cares about and deliver it in a compelling format with visual and interactive elements.
- Drive action: Too often webinars are a dead end, with an obligatory CTA on the final slide. After you've established a clear goal and know how your webinar fits into the buyer's journey, you can drive webinar registrants to the next important action.

To produce these kinds of high-impact webinars, you need input from your collaborators at the high schools – high school teachers. They are an absolute goldmine of insight that too often goes untapped.

## 2.1 Slovak University of Technology in Bratislava (STUBA)

### 2.1.1 Process control and automation – STUBA Faculty of Chemical and Food Technology

Short description of topic:

Process control and automation - This webinar will introduce students to topics of process control and automation, the key parts of the manufacturing industry. Students will learn what a dynamic system is and how the knowledge about a physical object or a process can be used to influence its dynamical behaviour in a meaningful way. A concept of feedback control will be explained in real-world scenarios. These will include typical applications in the chemical industry, such as temperature control in chemical reactors, and also applications in areas of the mechanics like robotics and autonomous driving.

The webinar will also address one of the most controversial questions in IT-driven manufacturing - Will people lose their jobs due to automation?

Expected date: TBD



- Key Takeaway 1: What are the process control and automation?
- Key Takeaway 2: What role does process control and automation have in the industry, and should we be afraid of technological progress?
- Key Takeaway 3: What are the future job opportunities for graduates in the field of process control and automation?

## 2.1.2 Security in IT – STUBA Faculty of Informatics and Information Technologies

Short description of topic:

Security is one of the main topics of using information technologies in every part of our lives. There were several security breaches in industry with high impact on countries, companies of customers. Usually the weakest part is a human factor: weak passwords and irresponsible behavior in particular. Investigation of such incidents is usually mandatory. We will show some key aspects of computer investigation and also data available for an attacker after he managed to get access to a device (e.g. mobile device).

Expected date: 06/2020

- *Key Takeaway 1: Importance of security in IT*
- *Key Takeaway 2: How to secure access to a device*
- *Key Takeaway 3: Basic knowledge of evidences which remains in computer/mobile.*

## 2.1.3 Robotics/Software tools/Automation/Industry 4.0 – STUBA Faculty of Electrical engineering and Information technology

Short description of topic:

What can robots do? What are specific tasks of control in robotics? What is the end effector? Which type of robots do we know. Why we are using software tools for modelling. What is the virtual commissioning? What is the definition of digital factory? Digital twin - production and product. What is the definition of automation. What does it mean to automate on various levels of production. What are the advantages of the automation? the definition of Industry 4.0. The basic components and concept of Industry 4.0. The humans in concept Industry 4.0.



Expected date: TBD

- Key Takeaway 1: The definition of robot. Typical tasks which can be done by robots. How we control the robots.
- Key Takeaway 2: Models are very important for the effective work of the whole production. How can be the production digitized. What is the life cycle of product? What are the KPIs for the production (cycle time, bottleneck models, efficiency of production, etc.)
- Key Takeaway 3: System view on the factory automation on various levels (device, machine, system, plant, enterprise)
- Key Takeaway 4: The basic ideas of Industry 4.0 and what changes in production it means

#### [2.1.4 Digitalization in mechanical engineering - digital technology in engineering practice, design and production – STUBA Faculty of Mechanical engineering](#)

Short description of topic:

Overview and description of possibilities of digitalization in mechanical engineering. Use of modern and innovative technologies, software and procedures. Digitization brings optimization of processes in production but also in preparation of production, in design of parts, technological processes. In this area we can also include software tools that allow us to simulate the processes in production, without the need to build physical models or lines. The advantage is a significant saving of time and money and optimization of processes prior to implementation. Digitization is part of the production itself, where it participates in the collection of information and data, their sorting, rapid evaluation and re-implementation into the production process.

Expected date: TBD

- Key Takeaway 1: Description of process of digitalization in industry
- Key Takeaway 2: Pupils will be briefly informed about the Additive manufacturing
- Key Takeaway 3: To get more familiar with robotics





### 2.1.5 Laser scanning and surveying of buildings – STUBA Faculty of Civil engineering

Short description of topic:

Laser scanning and surveying of buildings with direct access in the form of virtual 3D models, BIM - building information modelling - creation of virtual models of structures and applications for project purposes, protection and safety of buildings, environmental protection, experimental verification of building structures reliability and simulation of virtual laboratory experiments

Expected date: June 2020 or September 2020

- Key Takeaway 1: Introduction to the digital form of building industry
- Key Takeaway 2: The use of technological toys (drones, virtual reality glasses, 3D printing) for design, construction and monitoring of buildings
- Key Takeaway 3: Familiarization with technical tools used in modern building industry

### 2.1.6 Virtual reality in architecture and design – STUBA Faculty of Architecture

Short description of topic:

Pupils learn that architectural design is not just about designing buildings and products but it's also about experimenting and using new technologies like virtual and augmented reality. During webinar will be re-introduced to the individual projects we are working on in design - automotive, and architecture - the use of virtual and augmented reality in architecture.

Expected date: September 2020

- Key Takeaway 1: What will we teach you at our faculty?
- Key Takeaway 2: How do we use modern technologies?
- Key Takeaway 3: What possibilities do you have in the labour market as a graduate of architecture and design?



## 2.1.7 Manufacturing and Circular Economy – STUBA Institute of Management

Short description of topic:

Manufacturing and Circular Economy – actual trends in Manufacturing in Slovakia; what its specifics are; how is Manufacturing planned and managed from the economic (financial) point of view; what are the latest innovations in manufacturing from the view of Circular Economy (zero waste / zero defect approach; sustainability; reusability, etc.).

Expected date: May / June 2020

- Key Takeaway 1: Planning in Manufacturing
- Key Takeaway 2: Management in Manufacturing
- Key Takeaway 3: Innovation in Manufacturing

## 2.1.8 Use of PLC – STUBA Faculty of Material sciences and Technology in Trnava

Short description of topic: Use of PLC in the control of technological processes in production.

Expected date: End of June

- Key Takeaway 1: Basic techniques of creating control algorithms and signal processing for PLC
- Key Takeaway 2: Principles of design of control program structure in PLC programming
- Key Takeaway 3: PLC principles usage in control of technical elements in automation



## 2.2 SPINEA, s.r.o.

### 2.2.1 Robotics and the manufacturing of high precision bearing reducers

Short description on topic:

- a) Human-robot interactive cooperation – creating and implementing a framework that enables humans and robots to truly to work together in assembly manufacturing tasks
- b) Real-Time location system – software and hardware solution for determining the position of objects in real time – in the frame of individual manufacturing tasks

Expected date: TBD

- Key Takeaway 1: Human-robot interactive cooperation / Co-working allows the senses and intelligence of the human to be complemented by the strength and endurance of the automation and so obtains the best from each of them, reducing repetitive injuries and costs and enhancing job satisfaction and the average length of time that a worker can continue in the same job
- Key Takeaway 2:  
Real-Time location system /RTLS system/ allows a reduction in the time needed to search components in production areas and thus eliminate the downtime of machinery and the rate of savings fund working time human activities in proportion to the business processes

## 2.3 University of Patras – LMS

### 2.3.1 Introduction to manufacturing and I4.0

Short description on topic:

Introduction to the area of manufacturing, including addressing questions such as: *What is manufacturing? What industrial engineers do? What is Industry 4.0?* The pupils will be further informed about the skills of a young engineer required and competence in the new digital era

Expected date: TBD

- Key Takeaway 1: Pupils will become introduced to the area of manufacturing



- Key Takeaway 2: Pupils will be briefly informed about the orientation of industry towards digitalized manufacturing and Industry 4.0
- Key Takeaway 3: Pupils will be informed about the activities of an industrial engineer
- Key Takeaway 4: The skills that engineers should possess in the area of manufacturing will be briefly presented, aiming at raising the awareness and interest of young students

### 2.3.2 Factories of the future: Digital technologies and manufacturing processes

Short description on topic:

A brief introduction will be performed to the innovative technologies and manufacturing processes taking place in the era of digitalized manufacturing and Industry 4.0. The concept of factory of the future will be presented, including indicating how technology is affecting manufacturing. Novel digital technologies (i.e. IoT, AR, VR etc.) and advanced manufacturing processes (i.e. additive manufacturing) will be presented to highlight the new opportunities and capabilities provided to the industrial sector through the utilization of novel technological advances.

Expected date: TBD

- Key Takeaway 1: Pupils will become aware of the different technologies and manufacturing processes existing in the field of manufacturing
- Key Takeaway 2: Pupils will be informed about the novel technologies that become increasingly emerged into industry and how technology changed manufacturing
- Key Takeaway 3: Attract interest of the students into manufacturing by highlighting the new capabilities offered through the use of novel technologies



## 2.4 University of Tartu

### 2.4.1 Programming robots in Python; using robots in STEM lessons

Short description on topic: How to program EV3 robot in Python and use this in your STEM lessons in school grades 7-12.

Expected date: 8-th of April.

- *Key Takeaway 1: Knowledge on how to use Python and EV3 robots together*
- *Key Takeaway 2: Know-how on using EV3 and Python as tools in STEM subjects math, chemistry, physics.*

### 2.4.2 Clearbot – robot for high schools

Short description on topic: Clearbot is a tool to help to understand machine learning, machine vision and programming in ROS

Expected date: 22-nd of April

- *Key Takeaway 1: What is Clearbot and how it can be used in grades 11-12 for teaching technology*
- *Key Takeaway 2: What is machine learning*
- *Key Takeaway 3: Robot operating system and it's possibilities in education*

### 2.4.3 Experience of teaching robotics

Short description on topic: For educational innovation to happen, teachers need to use proper amount of hardware and same amount of methodology. Many times focus shifts to hardware. Sven Hendrikson is a technology teacher for more than 10 years and he will share his experience of teaching robotics.

Expected date: 4<sup>th</sup> of May



- *Key Takeaway 1: Practical tips of teaching robotics in general and extracurricular education*
- *Key Takeaway 2: Lesson plan for 12 years of using robots in education*
- *Key Takeaway 3: What type of robotic platforms to use for education*

The above mentioned topics of the webinars and the dates of their realization may differ slightly depending on the current situation and possibilities of individual project partners.

### 3. Forms of webinar

The purpose of webinars has been taken into account. For now, we are considering 3 alternatives how webinars could look like to be efficient as much as possible.

- A – Faculties/partners will prepare set of short explanatory videos – each faculty/partner will prepare 1 or 2 videos for webinar, the first one will be short for dissemination – duration max. 3 minutes, the second will be semi-educational with duration of max. 6-8 min.
- B – Each faculty/partner will deliver Webinar where at the beginning there would be some foreword and then video (semi-educational) and then some kind of learning game quiz will be played, expected duration in total max 20 – 25 min.
- C - Each faculty/partner will deliver Webinar as usual – seminar via web – on selected topic mentioned above in part – expected duration around 35 min

Webinars can come in different shapes and sizes depending on their goals. From thought-leadership panel discussions to live demos (for example on monthly basis, or even more frequently), webinars are a dynamic and effective way to „sell“ and promote activities of project partners related to manufacturing and STEM.

According the agreement of project partners webinars will be realized according alternatives B or C, but decision is up to partners and will depend and reflect external situation. Duration of webinar is not strict and will depend on decision of each partner, but from organizational reasons it is recommended to deliver it in frame of one high schools class, it means in frame of around max. 35-40 minutes.



## 4. Promotion Plan

### **Dissemination and communication strategy for webinars**

Dissemination and communication strategy for webinars is part of Dissemination and communication strategy plan of InMaS project. If needed and project partners, see it as valuable they can leverage their local partners in this webinar. For boosting attendance, it is important to secure close and intensive win-win cooperation with high schools or other regional/local partners who can be helpful for boosting attendance.

### **Social Media Strategy**

For promotion activities and outputs of project Interactive Manufacturing @ Schools project partners have created profiles on several social media channels like Facebook, Twitter, LinkedIn and others. These channels will be utilized to promote the webinars and if any visuals will be required.

### **Email Marketing Strategy**

Project consortium has already set up network of partner's organization in their countries, like high schools and other external participants. We see email as a useful promotion strategy for our webinars for reaching high schools and teachers working at this schools.

## 5. Webinar timeline methodology

Organization of webinar should be planned responsibly and carefully, regarding time consumption. When it comes to a webinar's success, promotion is half the battle. Promotion of webinar should start approximately 4 weeks in advance and keep promotion up to the day of realization. Empower your collaborators from high schools with the materials and information they need to share the webinar and personally invite



their highest priority accounts. Provide sales with the following materials 2 weeks prior to the start of your promotions

Webinar timeline is up to each partner, but basic information on it is shortly described in part Forms of webinars. This part will be prepared specifically on each webinar realized.

Go line-by-line through each activity and its due date. You'll want to cover when your slides are due, when promotion is happening, looping in stakeholders, and what time you'll be reaching out to webinar attendees after the recording.

## 6. Technology

### Hardware

There are no some strong recommendations regarding hardware used. It is up to each project partner or webinar organizer to provide information on recommended hardware for smooth organization of webinar. List the hardware that will be used in this webinar, including the computer type(s) and any special cameras or microphones will be provided by each project partner or webinar organizer (if it is necessary).

### Video Software

It is up to each partner / webinar organizer how he will be streaming his broadcast, but Based on discussion with project partners there are several possibilities for software or service used for this purpose.

### Hosting Software

This decision is up to partner, but there are several possibilities like Google Meet, GoToWebinar etc. Webinar organizer will provide a link to the hosting software he'll use if it's different than the video software.





## Marketing Software

Project partners are strongly encouraged to use marketing software. This decision is up to each webinar organizer. List the marketing software that will be used to promote webinar will be provided by webinar organizer in advance.

## 7. Goals and Expectations

**Registration Goals:** How many classes/pupils do you want to register?

Webinar organizers must have clear vision how he will search for classes/pupils. It must be justified the registration goal by saying how he reached that number and, if applicable, how many registrants each source should drive.

**Attendee Goals:** We expect to have at least around 15 - 25 pupils attending webinar. It is important to secure good promotion, as it is expected that some percentage of people who are registered can drop out.

**Revenue Goals:** How much revenue do you expect to generate from this webinar?

Probably there are no revenue goals for now, but if this webinar has potential to bring some revenue attached to it, explain what they are and how you determined them. Webinar will be part of bigger educational content, which possibly can deliver some revenues in future.

## 8. Communication after the webinar

Once the webinar is over, how will you capitalize on it? Lay out your plan for nurturing attendees, applying learnings to future webinar planning (inputs for creating Best practice documents for engaging pupils), and making the recording available to other



attendees. It is important to apply CTA approach and communicate with attendees after webinar is over.

## 9. Resources

### Link to Project webpage

[www.manufacturing4schools.eu](http://www.manufacturing4schools.eu)

### Links to Partner's Website

[www.stuba.sk](http://www.stuba.sk) – Activity leader of project (SVK)

[www.spinea.com](http://www.spinea.com) – Activity partner (SVK)

<http://lms.mech.upatras.gr> – Activity partner (GRE)

<https://www.ut.ee/en> - Activity partner (EST)



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