

WPT4

D.T4.2.2

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Transnational innovation agenda workshop #2

Version 1  
11/2021

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**CHAIN REACTIONS**

<b>Project information</b>	
Project Index Number:	CE1519
Project Acronym:	CHAIN REACTIONS
Project Title:	Driving smart industrial growth through value chain innovation
Website:	<a href="https://www.interreg-central.eu/Content.Node/CHAIN-REACTIONS.html">https://www.interreg-central.eu/Content.Node/CHAIN-REACTIONS.html</a>
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Duration:	36 Months
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Deliverable Title (target sector):	D.T4.2.2 – Transnational innovation agenda workshop 2
Lead Contractor of the Deliverable:	PP2 – Styrian Technology Park
Responsible PP:	PP1 – PBN PP5 – RDA
Authors:	PBN – Klaudia Keringer RDA – Jan Naxera, Marek Bures
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## Abbreviations

IGA – Innovation and Growth Alliance

PP – Project Partner

RDI – Research, Development and Innovation

TIA – Transnational Innovation Action

TIIR – Transnational Industrial Innovation Roadmap

TNIS – Transnational networks of innovations stakeholders

WPT – Work Package



## 1 INTRODUCTION

CHAIN REACTIONS project addresses the challenge for industrial regions not benefitting from innovation activities from large leading corporations to increase regional capacity to absorb new knowledge and turn it into competitiveness edge and business value. There is a strong need to help SMEs to overcome capacity shortages for innovation and integration into transnational value chains. The project aims at empowering regional ecosystems with the knowledge and tools to help businesses overcome those barriers and generate sustained growth through value chain innovation.

In order to create transnational open spaces for collaboration (e.g. value chain based) the activities for Building open collaboration spaces for transnational RIS3 implementation (WPT4), will be based on previous project activities, mostly Innovation and Growth Alliances (IGAs) established in each of the target regions (O.T2.1) and Value chain innovation models and instruments implemented in each target region as a driver to S3 (O.T3.2).

More specifically, the activities for preparation of Transnational industrial innovation agendas (A.T4.2) will be based on Thematic industrial innovation roadmaps (O.T4.1), which have been developed in each of the selected industrial sectors by transnational networks of relevant innovations stakeholders will be established and build on identified technological and societal trends of potential innovative developments (technologies, processes, business models and their interactions).

Each industrial roadmap will be further developed into **transnational industrial innovation agendas**, i.e. concrete innovation activities to be performed in the project regions and transnationally in order to realise the necessary development identified in the roadmaps and ensure industrial leadership in the selected industrial sectors.

The agendas will be coherent with S3 in the project regions and will provide the basis for potential future joint activities and transnational investments.

Overall, the thematic innovation agendas are one of the three outputs within the WPT4, linking the identified potential with plans for transnational exploitation:

- O.T4.1 Thematic industrial innovation roadmaps;
- **O.T4.2 Thematic innovation agendas;**
- O.T4.3 Thematic transnational exploitation plans and open collaboration spaces.



## 2 STRATEGIC AND ORGANISATIONAL CONTEXT

### 2.1 Framework

Transnational network of innovations stakeholders for the Advanced manufacturing sector builds its agenda on the thematic industrial innovation roadmap (O.T4.1), with the inputs of the outputs of the Transnational innovation agenda workshop 1 (D.T4.2.1).

There were two innovation actions that were preselected to be a main topics for the second innovation agenda workshop. The first one from the Advanced manufacturing field was further development of international collaboration in the network of Digital innovation hubs. The second one from the Healthcare field was utilisation of the virtual reality technology in healthcare. The agenda for the second workshop was designed according to those innovation actions.

Management and coordination of Advanced manufacturing will be provided by project partner duo PP1-PBN and PP5-RDA, that will coordinate the two workshops Transnational innovation agenda workshop 1 & 2 (D.T4.2.1-2), where the innovation roadmaps will be turned into innovation agendas.

### 2.2 Transnational innovation agenda workshop 2

Ref.:	<input type="checkbox"/>	Meeting / workshop	<input type="checkbox"/>	WPT2
	<input checked="" type="checkbox"/>	Online meeting / workshop	<input type="checkbox"/>	WPT3
	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>	WPT4
Date:	23.11.2021			
Place:	Online (Zoom)			
Attachments:	screenshots			

The second transnational innovation agenda workshop was held on 23.11.2021 and was organised on transnational level in English language. The workshop participants were selected relevant stakeholders for each project partner according to previously agreed innovation actions that will be part of the discussion. As one of the elaborated innovation action focuses on healthcare the GAPR partner was included in the workshop. The workshop was organised online on Zoom platform.



The workshop had the following agenda. Each partner present one innovation action for health sector and one for the advanced manufacturing sector. Each partner block was 40 minutes (Advanced manufacturing 15 minutes, Health 15 minutes and questions 10 minutes). At the end of the workshop a discussion on mutual cooperation and next steps was held.

**Agenda:**

- Workshop opening – WS purpose, brief introduction of the participants
- **RDA**
  - **Advanced manufacturing sector**
  - *Marek Bureš – DIH HIVE*
  - Topic: Structure of the hub, offered services, future prospects, international cooperation.
  - **Health sector**
  - *Tomáš Habarta - VR Medical*
  - Topic: Rehabilitation in VR, safety in VR.
- **PBN**
  - **Advanced manufacturing sector**
  - *Ádám Takács - am-LAB*
  - Topic: Extended Reality: AR
  - **Health sector**
  - *Balázs Barta - Managing Director of PBN*
  - Topic: Robotics in Health-care
- **GAPR**
  - **Health sector**
  - *Prof. Zbigniew Nawrat*
  - Topic: Medical robots - from a virtual to a real surgical robot ... and back
- Discussion on next steps
- Workshop closure

**Summary of the workshop:**

A draft for the possible future project came out as a result of the presentations and final discussion.

**Possible partners:**

1. PBN -HU (am-LAB, at.home)
2. DIH HIVE (RDA Pilsen) -Cz
3. VR Medical -Cz
4. GAPR -Poland
5. Professor Zbigniew Religa Foundation of Cardiac Surgery Development -Poland

**Project type:**

Interreg CE / Horizon

**Project Topic:**

AR/VR in medical sector



Partners could collaborate in the sector AR/VR in medical industry. PBN (connected with am-LAB and at.home) are connected to both sector (health and AR/VR), while RDA Pilsen (connected with DIH HIVE and VR medical) are connected to VR solutions, and GAPR and Professor Zbigniew Religa Foundation of Cardiac Surgery Development are related to the health sector. Each partner would be able to provide relevant expert for the topics. Transnational workshops or trainings (face-to-face or online) would be useful for the interest groups.

**Basic ideas:**

1. To help to increase the quality, efficiency and volume of physical and mental rehabilitation using VR and Motion Tracking technologies
  - a. Diagnosis, game exercises, reports all in one platform to develop together (each partner could use it on their own language) (Telemetric system?)
  - b. Possible app solutions or offers:
    - i. **Musculoskeletal therapy:** rehabilitation into the virtual world and transform the therapy session into a gamified experience in VR
    - ii. **Neurorehabilitation:** helps stroke patients and patients with functional disorders to unblock barriers and improve physical condition faster by hacking perceptions of reality.
    - iii. **Ergotherapy:** teach patients to perform their typical daily activities in VR (training sessions?) or with special apps
2. Medical robotics development
3. Trainings in specific areas related to digitalization for the health sector
  - a. Special trainings focusing on VR and AR in the health sector
  - b. Special trainings (both for general public and health sector) in smart senior room (PBN) about available technologies

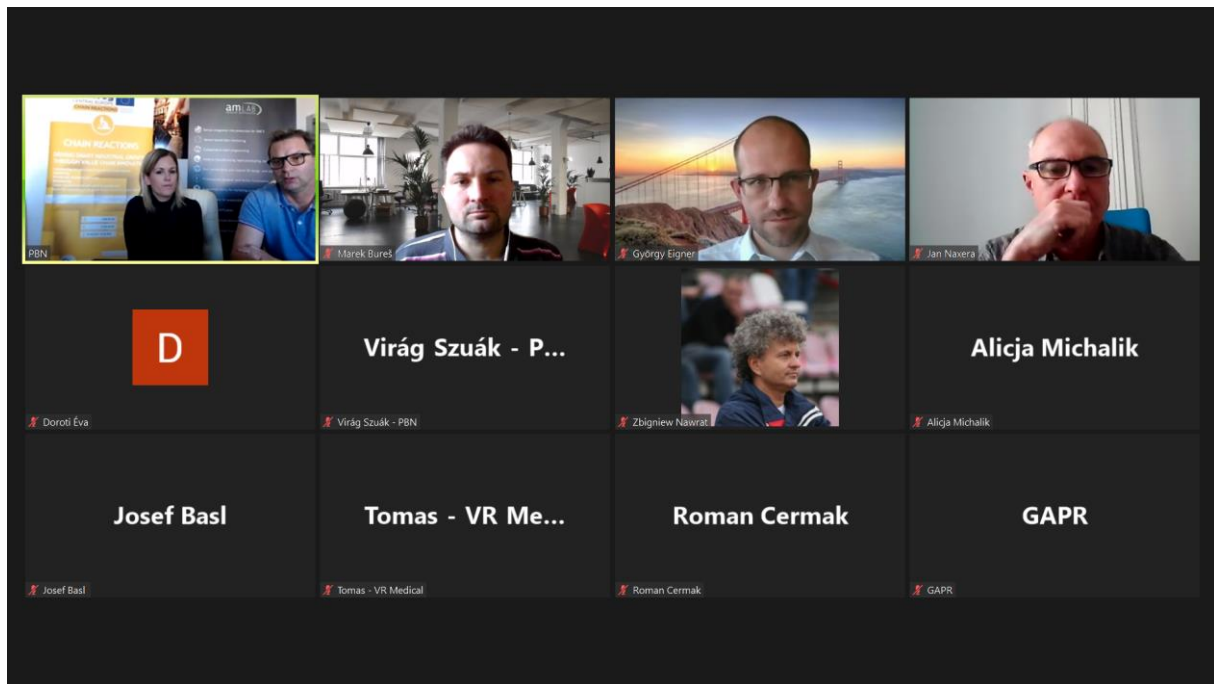
**2.3 Participants**

PP no.	Name of organisation	Name of person, position
PP5	RDA Pilsen	Jan Naxera, consultant
PP5	RDA Pilsen / University of West Bohemia in Pilsen	Marek Bureš, researcher
	University of West Bohemia in Pilsen (UWB)	Josef Basl, vice-dean of the faculty of Mechanical Engineering for strategy and development
	University of West Bohemia in Pilsen (UWB)	Roman Čermák, vice-dean of the faculty of Mechanical Engineering for international cooperation
	VR Medical	Tomáš Habarta, VR developer
PP1	PBN	Kludia Keringer, project manager
PP1	PBN	Balázs Barta, director

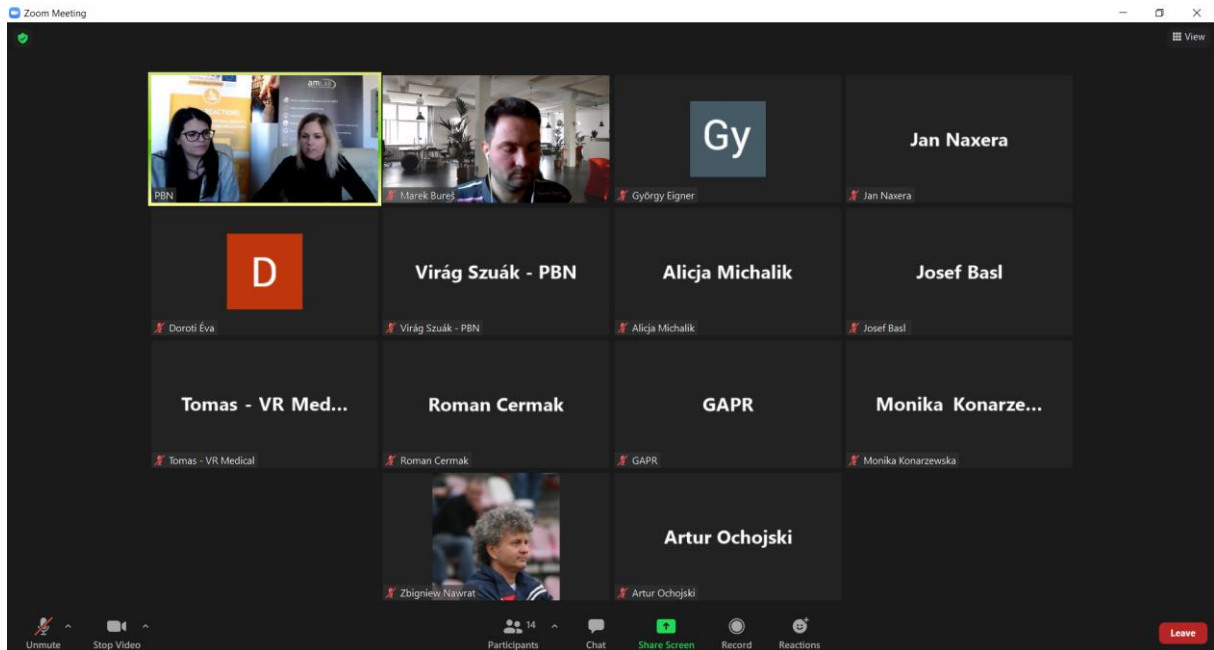


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	PBN	Virág Szuák, project manager
	PBN	Doroti Eva, project manager
	am-LAB	Ádám Takács, production and innovation manager
	Óbuda university	György Eigner Dr., Acting Director, College of Robotics
PP11	GAPR	Artur Ochojski, project manager
PP11	GAPR	Monika Konarzewska, project manager
	Heart Prosthesis Institute	Zbigniew Nawrat, director







## am-LAB Brochure Adventure

### How can it be realistic:

- Point cloud based stabilizing
- Shadows in the model
- Shadows in the real environment
- Brightness calculation
- Light estimation
- Environment probes





Zoom Meeting | You are viewing PBN's screen | View Options

Marek Bureš | PBN | Jan Naxera | Alicja Michalik | Monika Konarzewska | Zbigniew Nawráł

**SURVEY**

**Interreg**  
CENTRAL EUROPE  
CHAIN REACTIONS


## QUALITATIVE AND QUANTITATIVE RESEARCH AMONG SENIORS

**Evaluation of questionnaires (April 2021):**

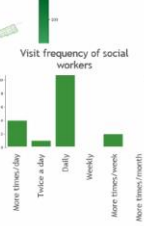
- 67 participants, with 174 seniors involved

**Results:**

- 6% of the seniors move out daily
- 25% can't leave his/her home at all
- 90% live alone among the interviewed 65+
- The **role of the family** is taken over by the social care system
- Living in blocks of flats increases the likelihood of **loneliness**
- The longer they want to live in their **own home**
- Feeling of **security** is a priority
- 2% of 65+ seniors with dementia are taken care of in the public care system



Number of signaling



Visit frequency of social workers

Frequency	More times/day	Twice a day	Daily	Weekly	More times/week	More times/month
Number of signaling	~10	~15	~25	~10	~5	~2


In cooperation with Károly Pálos Social Service Centre and Child Welfare Service

Mute | Stop Video | Participants (14) | Chat | Share Screen | Record | Reactions | Leave

Zoom Meeting | You are viewing Tomas - VR Medical's screen | View Options


Marek Bureš | PBN | Monika Konarzewska | Zbigniew Nawráł | Tomas - VR Medical | György Elgner

## Main organisations behind the project




5+ years of real-world experience using VR in industry, ergonomics and education.

40+ projects with 1000+ people.




FAKULTA THE NEUROLOGIC FIZIEN



ZÁPADOČESKÁ UNIVERZITA V PLZNI

FNP was the first healthcare facility to take on this topic with us, making an incredible contribution to what you'll see today.



Investing in the best local experts in VR with the aim of making the Czech Republic a world leader in the use of VR in retail, education, ESU and healthcare.

VR MEDICAL

Mute | Stop Video | Participants (14) | Chat | Share Screen | Record | Reactions | Leave




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Zoom Meeting | You are viewing Tomas - VR Medical's screen | View Options

Marek Bureš | PBN | Zbigniew Nawrat | Tomas - VR Medical | György Eigner | Jan Naxera

### Focused applications




**Musculoskeletal therapy**

In the field of physiotherapy, we pay attention to **increasing the volume of care provided** using a semi-autonomous VR solution.

We move rehabilitation into the virtual world and transform the therapy session into a gamified experience that **increases the patient's motivation**.


Our solution allows physiotherapists to increase the variety of techniques in the outpatient clinic and at the same time work with several **patients at once** directly in the room in the rehabilitation department.



**Neurorehabilitation**

In this area, we use the latest knowledge in the field of neurorehabilitation, such as working with mirror neurons, working with ways to image a part of the body or the speed of movement of the environment, which leads to unblocking and activating the right parts of the brain during physical exercise.


Our solution **helps stroke patients and patients with functional disorders** to unblock barriers and improve physical condition faster by **hacking perceptions of reality**.



**Pain Management**

The application of pain management in virtual reality helps to **reduce the level of pain and discomfort** by distracting the patient.

Chronic pain, acute pain, medical procedures, pediatric care - in all these cases, virtual reality has a demonstrable effect. It leads to a significant reduction in the use of potentially harmful painkillers, **improves the patient's range of motion** during rehabilitation and his experience associated with medical care.



**Ergotherapy**


The main goal of our VR solution is to **teach patients to perform their typical daily activities** in a virtual environment, to renew motor skills or to improve spatial orientation skills without the risk of injury to themselves, others or the objects they manipulate.

VR Occupational Therapy allows **extending rehabilitation training** to any environment and expose the patient to any conditions in a safe and controlled environment.

Mute | Stop Video | Participants | Chat | Share Screen | Record | Reactions | Leave

Zoom Meeting | Recording

Marek Bureš | Zbigniew Nawrat | PBN | Jan Naxera | Doroti Éva | Virág Szűk - PBN

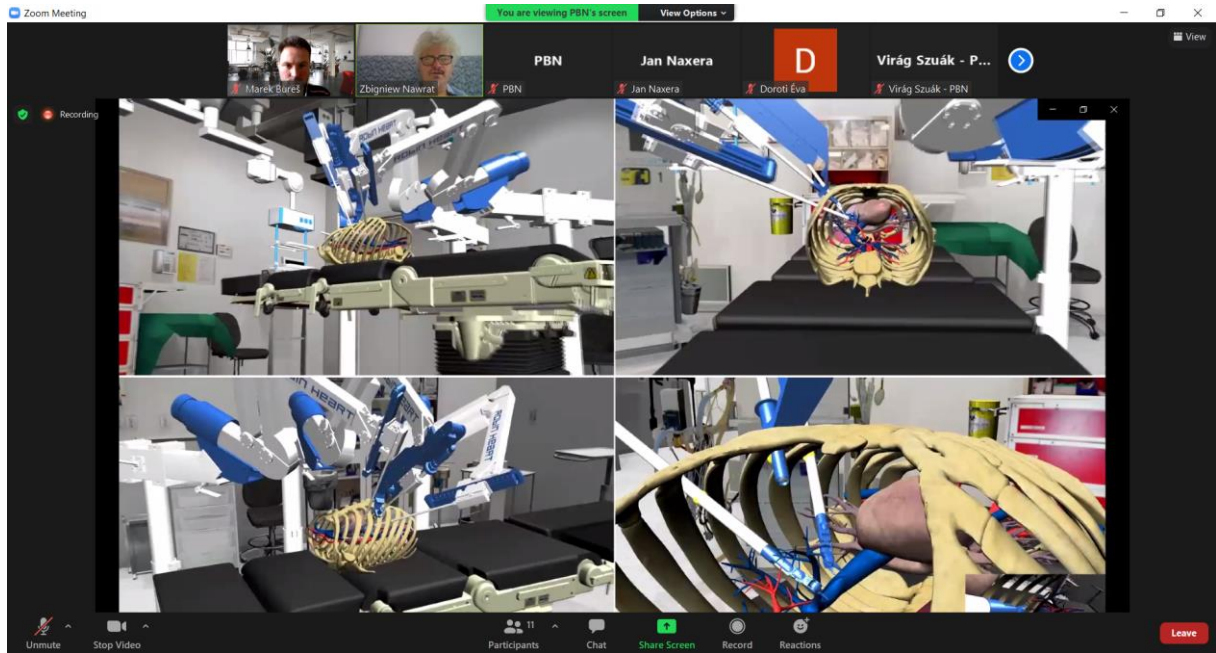


**Designing centrifugal heart support systems**

08:22 | 08:53



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### 3 ANNEX

Implementation of innovation actions	
Participants involved	PBN – HU (am-LAB, at.home) DIH HIVE (RDA Pilsen) - CZ VR Medical - CZ GAPR - PL Professor Zbigniew Religa Foundation of Cardiac Surgery Development - PL
Name of TIA	AR/VR in medical sector
Description of TIA	To help to increase the quality, efficiency and volume of physical and mental rehabilitation using VR and Motion Tracking technologies. The goal should be achieved by the development of software platform for diagnosis, game exercises and reports (each partner could use it on their own language).
- Expected impact	<b>Musculoskeletal therapy:</b> rehabilitation in the virtual world and transform the therapy session into a gamified experience in VR  <b>Neurorehabilitation:</b> helps stroke patients and patients with functional disorders to unblock barriers and improve physical condition faster by hacking perceptions of reality.  <b>Ergotherapy:</b> teach patients to perform their typical daily activities in VR (training sessions?) or with special apps
- Role of each participant	Development of AR and VR applications – VR Medical – CZ, am-LAB – HU, Zbigniew Religa Foundation - PL Testing and promoting of the application – PBN, RDA, GAPR
- Timeframe	2022-2024
- Estimated costs	180.000 EUR
- Source of funding	Interreg CE / Horizon
- External needs	-----
- Other	-----
FEASIBILITY	Project idea: 10 – very feasible; Grant funding: 6,5 – feasible;