

BRIDGES project additional activities

Value chain analysis

West-Transdanubia

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Value chain work progress

OCTOBER 2021 – JANUARY 2022 – Preparatory work

1 - Communication of the BRIDGES project activities:

- Joint Local stakeholder group meeting (7th October 2021)
 - Participants: PBN project team and representatives of the **Ministry of Finance**
- Meeting with the representative of the **Local Faculty of The ELTE University**
 - Topic: presentation of the IE projects, discussion about the Smart Senior Room (AT.HOME) and relevant projects and researches (31st January 2022)

2 - Contact with further local actors:

- Continuous cooperation with **Social and Youth Welfare Center Pálos Károly**, the local caregiver institute which is in continuous contact with with 200 households and is professional actor in caregiving of elderly people
- Continuous cooperation with the **Local Government of the City of Szombathely with County Status** as the holder of the **Szombathely2030 development program** (*promoting industrial change and specializing on complex rehabilitation within the health industry*).

3 - Identification of the value chain focus

- Numerous online discussion with different experts to identify the focus of the analysis and mapping of research possibilities
- Elaborating the work and time plan of the VC analysis
- Tendering of the expert for VC analysis, closed: 17th December 2021

JANUARY – FEBRUARY 2022 – the analysis goes on

- Set up of *'the value chain analysis team'* of PP7: PBN colleagues and the external experts' team (7 members), Concretizing the structure and content of the market research and the value chain analysis (19th January 2022)
- 4 Technical meetings of the VC team to monitor the progress of the analysis (27th January, 11th February, 18th February, 24th February) + 5th meeting 11th March
- **Cooperation with MEDICLUSTER** signed in February
- Medical technology industry is one of the main focuses in The Global Value Chain Program (national level program)

FOCUS of the VC analysis

The economic analysis of the **health sector manufacturing** in West Transdanubian Region and Hungary and the surrounding areas, mainly in Upper Austria –special attention to the SMART SENIOR ROOM (AT.HOME)

Economic context analysis started

REGIONAL PROFILE – DESK RESEARCH

Global digital health industry in terms rehabilitation | General context of health industries in Hungary | Data of medical rehabilitation in Hungary | Industry of medical devices related to rehabilitation | Health Tourism | SUPPLY CHAIN MAPPING

Identification of USA and EU bases good practices done

- Sonifi Health
- Embodied labs
- St. Pölten University of applied Sciences – Digital Health Lab
- MyWay Digital Health
- AAL projects + IE GPs

Value chain mapping

Key enabling technologies identified d with **special focus on REHABILITATION**

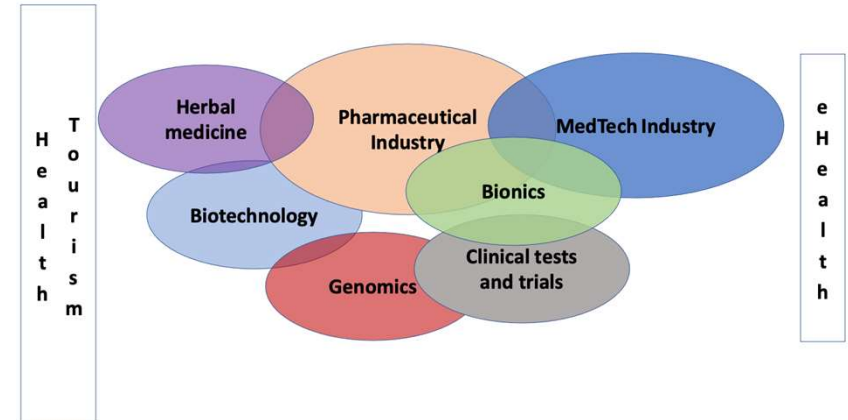
(see the charts next page)

SME interviews and stakeholder interview are under organization

- limited number of questions, very focused for SMEs
- Stakeholders to be involved: relevant Ministries, clusters, Pálos Károly Elderly home, etc.

Focus on interregionality – identification with help of the value chain mapping

- Analysis in the radius of 300-500 km of the West-Transdanubian region
- Cooperation with project partners in BRIDGES
- Identification of interregional cooperation possibilities in the value chain



VALUE CHAIN ANALYSIS															
Key technologies	Products/Services	Application	Supply locations				Market localisation			Development initiatives (policy impact Type 1 for Western Transdanubia)				First product	
			Available capabilities in Western Transdanubia	Available capabilities in Hungary	Available capabilities in rest of the research area	Further required Bridges partnership competency	Western Transdanubia	Hungary	International	In-shoring and new development initiatives within Western Transdanubia	Near shoring within Hungary	Nearshoring within the research area	Opportunity matching with other BRIDGES regions	Including cooperating partners	
Advanced Materials	Robotics	Essential Manufacturing and Development	Rehabilitation for stroke patients	Robotics manufacturing, prole hospital center	ESSENERGIE User Labs company, National	BMA Tech Ltd. Turkey and lightweight materials Germany	VR simulation environment needed	Regional mid-caps as producers	Hospitals and rehabilitation institutions	Hospitals and rehabilitation institutions	Build ecosystem manufacturing unit with R&D department	Testing cooperation with national rehabilitation institutes	Integrating lightweight structure and new functionalities	Co-operate in advanced wearable robotics competences	MedDevice Ltd. - exoelict
	Biomaterials	Bioresorbable, In vivo materials	Surgical materials	-	-	-	Good practices in applications	Regional mid-caps as producers	Hospitals	Hospitals in Central Europe	-	-	-	-	-
	Smart Memory Polymers	Intelligent 4Dprinted materials	Smart product and production development	Manufacturing companies ready to introduce such prototypes	FWF/IT Technology Department - Budapest - Business incubator	Fraunhofer IPT Dresden Germany	SMP materials, examples of market entries	Regional mid-caps as producers, regional large businesses as customers	Central European mid-caps as customers	Develop applications for globally innovative 4Dprinting technology	Collaborative research between academia-business for 4Dprinting	Cross-border collaborative research between academia-business for 4Dprinting	Exchange experience in developing novel technology of 4Dprinting	IWI - SMC smart materials	
	Rapid prototyping	Open Lab for broad usage	New product fast route to market	Thermal water based rehabilitation facilities	Existing benchmarks	Professor Vienna Austria	Good practices in applications	Start-up companies as customers	Same as WF but limited to neighbouring countries	Develop digitalized new product ideas based on thermal water	Set up and support thematic start-up environment in cross-border market	Thermal-water based start-up environment in cross-border market	Set up and support thematic start-up promotional environment	Leisure Master Ltd. - tube robot	
Life Science Technologies	Neurotechnology	Applications developed for dementia prevention	Living Lab as test environment	Social care organizations - Pálos Károly Social Care Ltd.	Neuro-science institutions	Cross-border thematic working group - Austria-Hungary	Technological solutions for dementia-related innovation	Regional start-ups as producers	National professional institutes	Senior citizens, formal and informal caregivers as customers	Develop innovative products, services that combat early dementia	Act as test-environment for novel product app development	Develop and test products for dementia prevention	Develop jointly dementia- prevention related products	Cross-border WG Austria-Hungary
	Bioengineering	Certified MSc education	Biomedical Engineer MSc certificate	Local health companies - Mam, Senec, Egis Pharma	Óbuda Technical University accredited program	-	Joint degree program	Mechatronics engineers, as students; large enterprises as customers	Same as WF but limited to neighbouring countries	Dual education programme with other universities	Increase regional technological knowledge in medical devices	Recruit new students for specialized MSc programme	-	Develop joint degree programme in MSc -Biomedical Engineering	-
	Service platform	Test and Experimentation infrastructure	Connected households for product validation	Households available, legal contracts being prepared	Communication platform - Spirinco Ltd.	ECHAlliance senior housing working group	Connectivity with local test beds, contractual examples	Seniors with household, as test subject	Pharmaceutical and medical device manufacturers	Large enterprises as customers; senior citizens, caregivers as customers	Create a unique test environment for prototype validation targeting seniors	Provide a large scale reference site for new telemetric platform	Involve series of test households into a heterogeneous European test infra	Bilateral connectivity for diverse societal test infrastructure	ECHAlliance Senior Housing d
	Medical engineering	MDR quality inspection	MDR education	First graduates at Mam and Egis	Education by Óbuda Technical University, Medilaster	-	Training curriculum, international enrollment	Medical device manufacturers, as customers	Medical device manufacturers, as customers	Dual education programme with other universities	Augment regional capacity to host new medical device manufacturing	Mobilize academic capacity in MDR education	-	Exchange of training materials, experiences in MDR education	Óbuda University - EGIS MDR ed
Artificial Intelligence	Deep Learning	Neural network development for quality control	Quality inspection with machine vision and robotics	Robotics knowledge, machine vision competencies, Iteq	Neural network knowledge - AI Services Ltd.	Professor Vienna Austria	Integrated applications - Good Practices	Regional large companies, midcaps as customers	Large companies, midcaps as customers	Joint research with applied research centers and companies	Develop automated quality inspection to improve productivity and quality	Apply academic knowledge into practice in neural network	Jointly develop flexible of robot-camera hardware pilation into production	Exchange knowledge in machine-vision and neural network applications	MAM quality inspection develop
	Autonomous Systems	Teaching and Learning Factory	Preoperative functionalities with robot interface, digital twin	In-house competences at TOK Ltd., Nestlé Ltd.	Robotics Institute and Óbuda Technical University	DIH2 F2WARE applications	Good practices in applications	Regional large companies, midcaps as customers	Large companies, midcaps as customers	Joint research with applied research centers and companies	Create solutions for efficient production extension, maintenance	Connect academia with businesses to apply statistics	Exchange knowledge in applying statistics into production improvement	Rubik Cube Ltd. - Technical Uni	
Security and connectivity	Standards (5G)	Local 5G network	Test and Experimentation Facility connected and available	In-house competences at TOK Ltd., Nestlé Ltd.	Robotics Institute and Óbuda Technical University	EIT Manufacturing Austria	5Gnetwork enabled care infrastructure	Regional large companies, midcaps as customers	Large companies, midcaps as customers	Joint research with applied research centers and companies	Connected inspirational environment for senior care development	Apply 5G capacity to a large scale, fragmented references	Develop innovation action with multidisciplinary partnership	Exchange experience in applying 5G local network for development purposes	Vodafone - Pálos Károly Social C
	Cryptography	Cybersecurity competency development	Cybersecurity for production systems	Available teaching and learning infrastructure	Óbuda Technical University	Forschung Burgenland DJH Ost	Training and education in cybersecurity	Regional large companies, midcaps as customers	Large companies, midcaps as customers	Joint research with applied research centers and companies	Increase regional knowledge about cybersecurity domain	Offer application opportunity for academic knowledge in cy	Cross-border pilot-development for cybersecurity applications	Exchange experience about cybersecurity application introductions	Forschung Burgenland - SK

We examined in VC mapping:

- **Technology focus** with special attention to rehabilitation in Health sector
- We listed **available services and products** and their field of application
- We examined the **supply locations** if its in Western Transdanubia, or Hungary, in BRIDGE partnership and in the analysis location
- We made **market localization** - Western Transdanubia, Hungary, International
- **Development initiatives** (policy impact Type 1 for Western Transdanubia)
- We defined **first possible products**
- Checked **status on the Szombathely2030 Agenda** (included, not included)
- Finally : **available funding source for projects analyzed** – lot of question emerged, uncertain external factors

Value chain | Funding source

	Key technologies	Products/Services	First product	Status on the Szombathely2030 Agenda	Funding source
			Including cooperating partners	1. Explicitly included 2. Included, indirectly 3. Not included	1. Structural fund 2. Other public fund 3. Private fund
	Advanced Manufacturing	Additive Manufacturing	Local advanced polymer 3Dprinting service am-LAB - Varinex Ltd.	3	2
		Autonomous Systems	Doctoral school based on Teaching and Learning Factory SMC-Óbuda University Doctoral School	1	2
		Sensor Technology	Sensors with improved capacity and low energy consumption Spiroco Ltd. - inhalator	3	3
		Robotics	Exoskeleton Manufacturing and Development MedDevice Ltd. - exoskeleton	1	2
	Advanced Materials	Biomaterials	Biodegradable, in vivo materials	3	
		Smart Memory Polymers	Intelligent 4Dprinted materials IWU - SMC smart material	2	2
		Rapid prototyping	Open Lab for broad usage Leisure Master Ltd. - tube robot	2	2
	Life Science Technologies	Neurotechnology	Applications developed for dementia prevention Cross-border WG Austria-Hungary	2	2
		Bioengineering	Certified MSc education	1	3
		Service platform	Test and Experimentation infrastructure ECHalliance Senior Housing group	1	2
		Medical engineering	MDR quality inspection Óbuda University - EGIS MDR education	1	2
	Artificial Intelligence	Deep Learning	Neural network development for quality control MAM quality inspection development	2	3
		Autonomous Systems	Teaching and Learning Factory Rubik Cube Ltd. - Technical University	1	2
	Security and connectivity	Standards (5G)	Local 5G network Vodafone - Pálos Károly Social Care Ltd.	2	3
		Cryptography	Cybersecurity competency development Forschung Burgenland - SMC	3	2

Table 6_ SUPPLY CHAIN

PP7 value chain mapping, what makes it an emerging good practice

The answer is: the way the value chain mapping is applied and the competitive advantage is identified:

(1) PP7 extended the mapping of the capabilities beyond the region, ideally the 'regional programme area', the mapping covers 300km radius. Capabilities were mapped within this radius and this facilitates the identification of similarities that could lead to joint technological development and to complementarities as well.

(2) PP7 attached to the value chain mapping table also territorial aspects, not only production, but also demand side. This indicates where the immediate markets of PP7 are to be found and to orient initiatives taking into account also this parametre.