

# Building Blocks of Health-Oriented Innovation Ecosystem

Pannon Business Network - Hungary

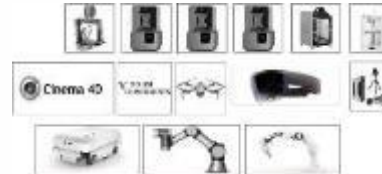
**Advanced management** – from benchmarking analysis to AI

- Audits and analysis of companies for over 300 SMEs
- Policy recommendations
- New business models and trainings



**Advanced technologies** – from data analytics to additive manufacturing

- Digital Innovation Hub with broad portfolio
- 50 SMEs and mid-caps trained and applied R&D
- Good Practice for international benchmark



**Western Hungary** location

**2006** Year of foundation

**25** FT staff members

**450+** international partners

**70+** R&D and partnership projects



# Components of digital innovation hub services

## ROBOTICS

Collaborative robotics  
Mobile robotics  
Drone  
Industrial robotics

Drone – autonomous flight on pre-programmed route

Drone – live stream of QR codes and real-time data processing

CoBots – simultaneous, coordinated work of various robots

CoBots – camera-based solution from organized material pool

CoBots – customized 3DPrinted grippers

Industrial Robot – industrial with collaborative functions

Robot ROS – program applications

Mobile robot – complex application with integration

**3Dprinting** – fire resistant coating, plastic recycle

## DATA SCIENCE/AI

Control platform  
Database  
Sensors

Visualisation – real-time data collection, data display directly from sensors

Dataplatform – development of standard platform for device operation

ML/AI algorithms – segmentation, classification on data sets

**3Dscanning** - reverse engineering

## AR/VR

Hololens1-2  
Cinema4D  
CGI

AR Display – HL1-2 data display, product prototype

3DAnimation – tailor-made developments, model building

Mobile AR – leaflets, business cards

Gamification – first game app being developed

**Prototype development** – idea-animation- prototype

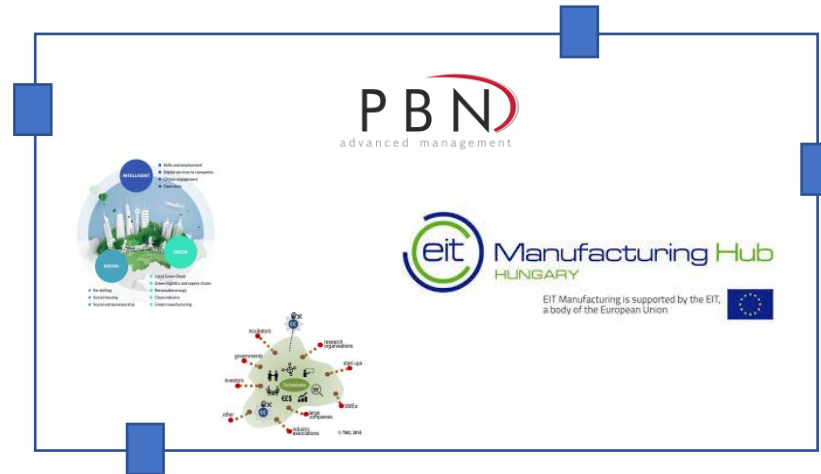
# Current support elements of Health-Oriented ecosystem

## Transnational and National projects

**Thematic EU learning platforms** – artificial intelligence, smart materials and production  
**Tech Transfer EU projects** – know-how transfer and cross-border partnerships

## Intelligent City Challenge

**Economic restructuring** – shift towards health manufacturing industry  
**Local Green Deal**



## EIT Manufacturing

**Autonomous teaching factory** – experimentation and learning platform  
**Smart material application** – education and testing into production

## Digital Innovation Hub

**Advanced laboratory** – available digitization tools and in-house engineering  
**Competencies** – manufacturing focus with 3 universities in 4 technological domains

# Shift towards health-care

## First applications

### Services for seniors

- Brain@home
- Fit for Health
- Combatting social distancing
- Voluntary juniors for seniors

2016-2018

## Knowledge accumulation

### Services for Institutions

- CE Health Think Tank
- Learning Hub in health-care
- Sensor-based systems

2017-2019

## Research and Strategy

### Involvement of people

- Inclusion model in health
- European Good Practices
  - Territorial planning
  - Research in social care

2019-2021

## Fundamentals, Infrastructure

### Skills development

- Smart Senior Room with applications
- Healthcare Engineering Education
- Dedicated Research Lab

2021-2022

## Health Services

### Health-care development

- Test Facility
- New health-science industrial park

2022-2025

**CE THINK TANK FOCUS AREAS**

The CE Think Tank is working on the following focus areas to foster innovation in digital and healthcare services and to build trust:

- 1. BIG DATA & DIGITAL HEALTH TRENDS**
- 2. CONNECTED HEALTH & NETWORK BUILDING**
- 3. DIGITAL ASSISTANCE IN HEALTHCARE DELIVERY**
- 4. DIGITISATION FOR HEALTHCARE MANAGEMENT**
- 5. DIGITISATION FOR HEALTH PROMOTION & PREVENTION**
- 6. TECHNICAL & ORGANISATIONAL INFRASTRUCTURE FOR INTEGRATED HEALTHCARE**
- 7. DATA SECURITY & COMPLIANCE IN HEALTHCARE**

**CE THINK TANK**  
The CE Think Tank is a platform for experts from Central Europe to discuss and develop solutions for digital and healthcare services.



# Research and Strategy – 2019-2021

Inclusion of citizens and broader ecosystem into design

Understanding of methods to integrate seniors, care organizations into designing new services. Concept of the smart patient room.

Analysis and understanding of local social care context

Qualitative and quantitative analysis was implemented to have insights about seniors' drivers, needs and features of the care system.

Preparation of the health-oriented 10-year city programme

With the involvement of multiple stakeholders strategy was elaborated how to assist shift of the local economy towards healthcare industry in 10 years.

**INTENCIVE**  
Interreg Europe



# Fundamentals and Infrastructure – 2021-2022

Smart Senior Room facility realization

Building a demonstration, training, test and research unit with the demanded features, with connected devices and applications.

Healthcare engineering education

Launch of engineering BSc and MSc education with specialization in healthcare, in the form of multiple universities involved and combined.

Dedicated international research laboratory

The combination of various scientific stakeholders, both Hungarian and foreign, dedicated to health-related research in manufacturing and rehabilitation.

# Health services – 2022-2025

Test Facility realization in  
Szombathely

The facility is planned to be dedicated to simulation and testing of the care institution of the future, with autonomous and AI-driven solutions.

Health-science industrial park for  
new companies

The goal is to orient the FDI activities of the city successfully towards the diversification of the local industry and enable healthcare industrial manufacturing.



# Thank you for the attention.

Balázs Barta

[www.pbn.hu](http://www.pbn.hu)

[www.am-lab.hu](http://www.am-lab.hu)

[barta@pbn.hu](mailto:barta@pbn.hu)

