

The Romanian S3 experience in setting the 2021-2027 financial period

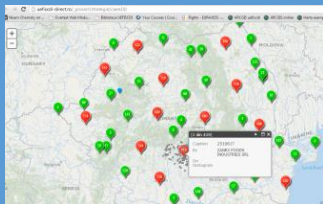
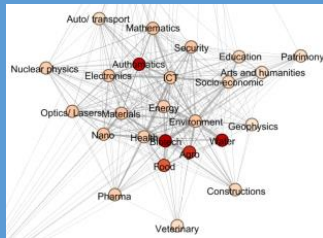
Radu Gheorghiu



Executive Agency for Higher
Education, Research, Development
and Innovation Funding

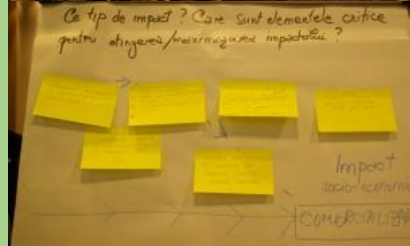
The first EDP in Romania (2013)

Structuring the consultation (data analytics)



12 fields

12 Panels
x 20 experts
x 4 days



90 fiches of proposals with arguments and estimated costs for reaching critical mass

Online Argumentative Delphi (4000 respondents)



2017-2019 Continuation of the EDP process

2. HYPOTHESIS OF PROMISING DOMAINS
- Reports on domains

1. COMMUNITY BUILDING

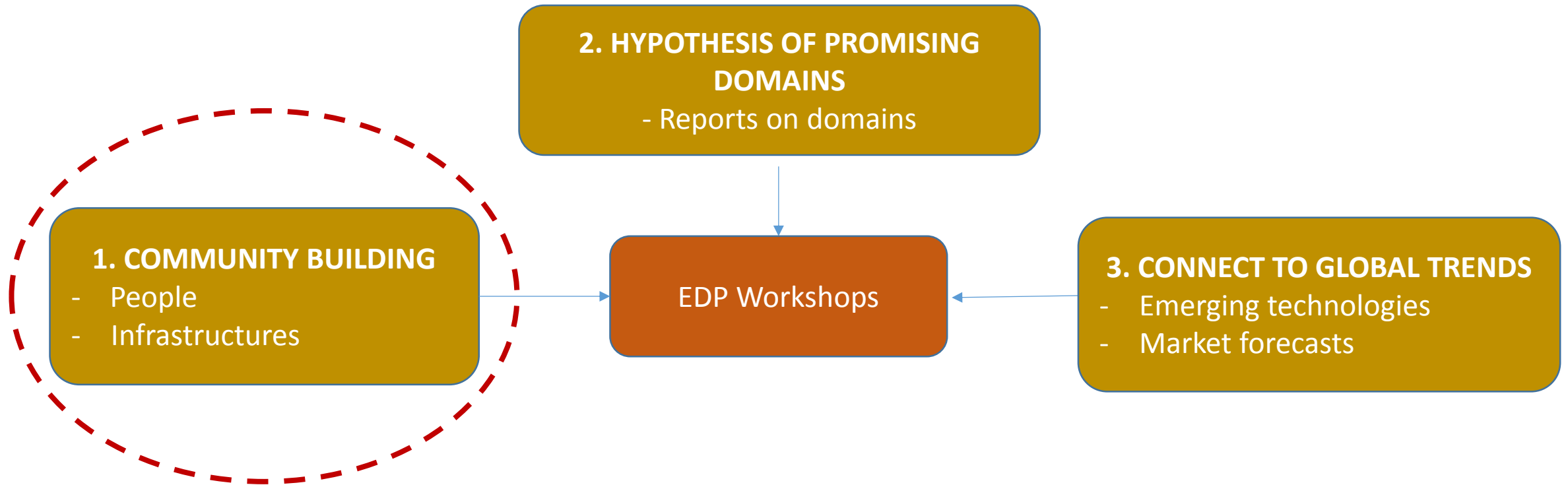
- People
- Infrastructures

EDP Workshops

3. CONNECT TO GLOBAL TRENDS

- Emerging technologies
- Market forecasts

2017-2019 Continuation of the EDP process



The online community of researchers, innovators, technicians and entrepreneurs

27.261 accounts



We connect your expertise to Romania,
for your voice to matter

Explore by Skills



NEW

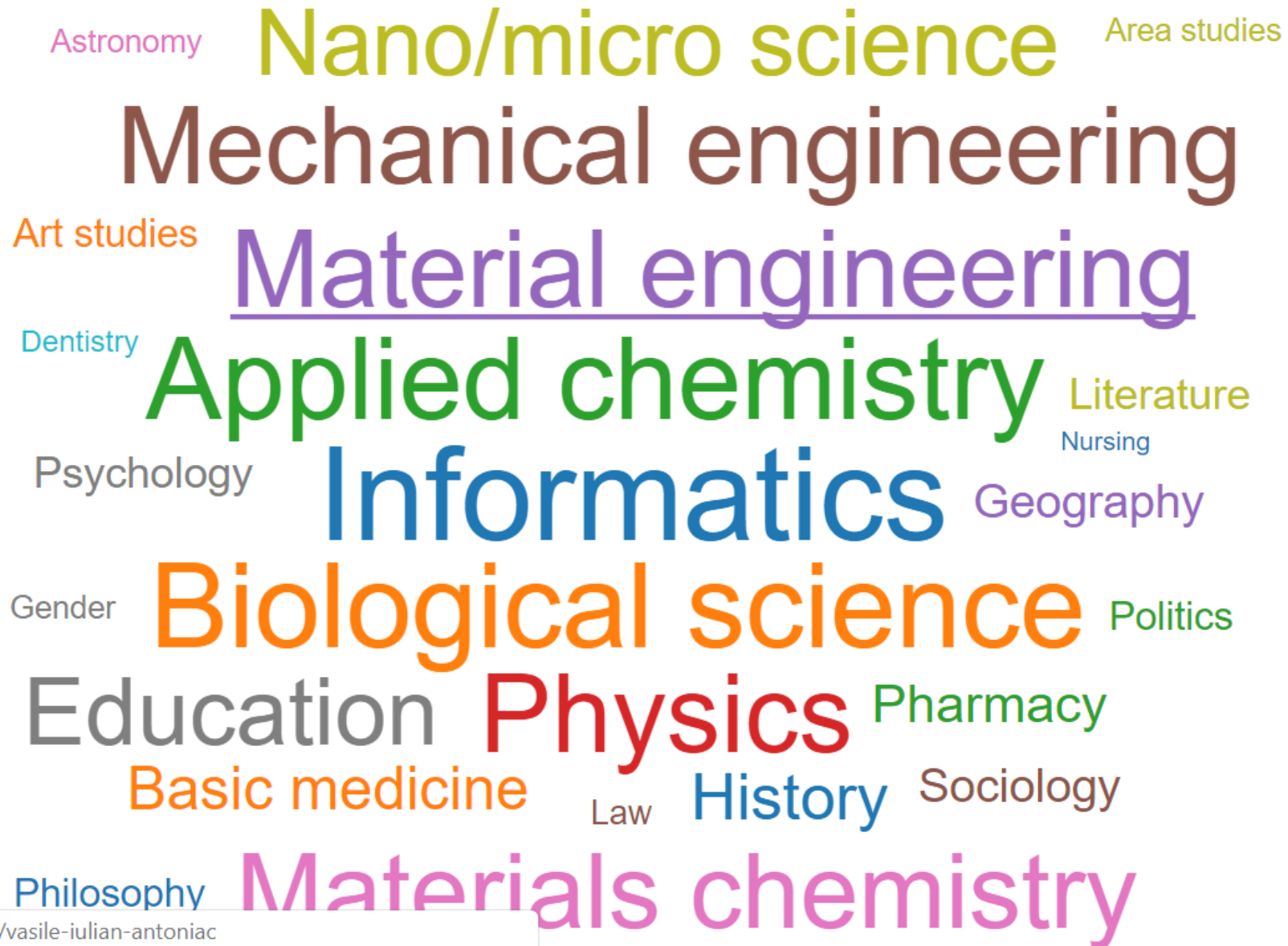
Research Outputs Registry



















Explore by Map



Requires authentication, Romanian language



Expert

-  Leila Acmola
-  Iñigo Acosta
-  Ac...
-  Pe...
-  Lu...
-  Iul...
-  Vasile Iulian Antoniac
 - Biomaterials
 - Material sciene
 - Metallic biomaterials
 - Dental material
 - Biomaterials, structural and functional materials
-  Sebastian Teodor Aradoaei
-  Florin Baci
-  Cristina Antonela Banciu
-  Adela Băra
-  Dan Batalu
-  Tibor Bedő
-  Simona Elena Bejan
-  Costica Bejinariu
-  Adrian Be...



Romania
Citizenship: Romania
Ph.D. degree award: 2007

Mr. Vasile Iulian ANTONIAC

Professor

Professor - UNIVERSITATEA POLITEHNICA DIN BUCURESTI

Teaching staff

17 years

Personal public profile share link. Curriculum Vitae (29/06/2018)

Expertise & keywords

- Biomaterials
- Metallic biomaterials
- biomaterials, structural and functional materials
- Dental material
- Material sciene
- Nanomaterials
- Carbon materials
- Materials design
- Microscopy techniques
- customized medical implants
- Dental implants
- Orthopaedic implants
- Naotechnology
- Tissue engineering
- Bone regeneration

Projects

Publications & Patents

Entrepreneurship

Reviewer section

OBTAINING AND EXPERTISE OF NEW BIOCOMPATIBLE MATERIALS FOR MEDICAL APPLICATIONS

Call name: P 1 - SP 1.2 - Proiecte complexe realizate in consorții CDI

PN-III-P1-1.2-PCCDI-2017-0239 2018 - 2020

Your role in this project:

Coordinating institution: UNIVERSITATEA TEHNICĂ "GHEORGHE ASACHI" IAȘI

Project partners:

UNIVERSITATEA TEHNICĂ "GHEORGHE ASACHI" IAȘI; UNIVERSITATEA POLITEHNICA DIN BUCURESTI; UNIVERSITATEA DE MEDICINA SI FARMACIE "GRIGORE T. POPA" DIN IAȘI; UNIVERSITATEA DE STIINTE AGRICOLE SI MEDICINA VETERINARA "ION IONESCU DE LA BRAD"; UNIVERSITATEA "ALEXANDRU IOAN CUZA" IASI; UNIVERSITATEA "DUNAREA DE JOS"; UNIVERSITATEA DE MEDICINA SI FARMACIE TARGU MURES; INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU OPTOELECTRONICA INOE 2000 INC; INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU FIZICA TEHNICA-IFT IASI; INSTITUTUL NATIONAL DE CERCETARE-

www.erris.gov.ro

ERRIS
ENGAGE IN THE ROMANIAN
RESEARCH INFRASTRUCTURES
SYSTEM

Search using LIST  Search using MAP 

 Register  Login

 Selectați limba | ▼

Welcome to ERRIS

Registry of Romanian Research Infrastructures,
the booking gate for **research infrastructures**,
research & technological services.

INFRASTRUCTURES MAP **BROWSE REGISTRY**

1.715 Infrastructures with **8.689** Research Services, **215** Technological Services, **23.561** Equipments



Search using LIST



Search using MAP



Register



Login



Selectați limba



Organization name:

County:
All

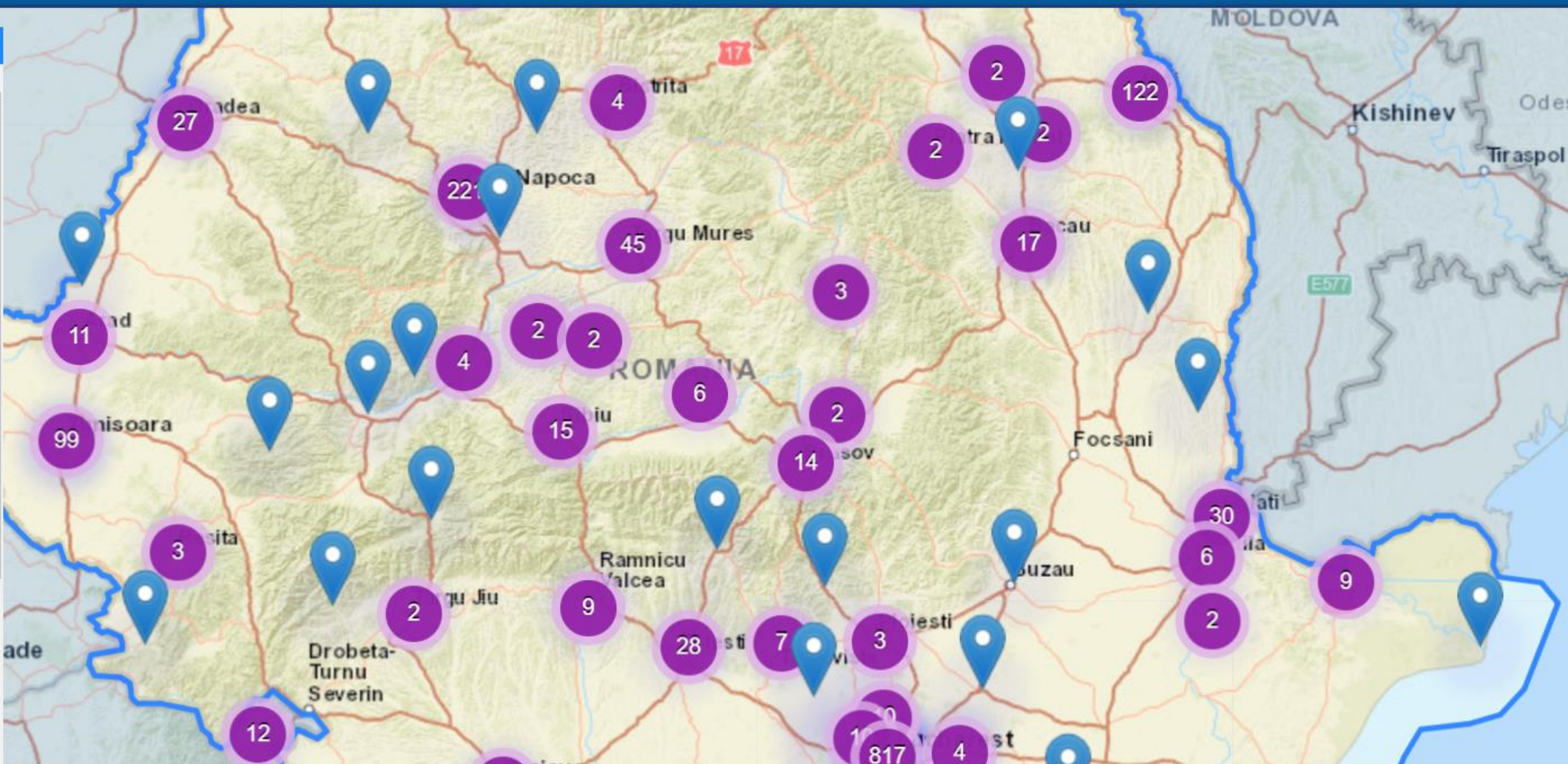
City:

Domain:
All

Infrastructure name:

Equipment name:

Research Service name:



Information updates every 15 minutes



Center of Excellence for Robotics and Autonomous Systems

MILITARY TECHNICAL ACADEMY

Center of excellence with a laboratory for research & development in the field of robotics, automation, and autonomous systems. Using the current infrastructure, researchers and students can design, simulate, manufacture and test solutions from various fields of research, such as robotics, artificial intelligence, computer vision and embedded systems. The laboratory is related also to the "Applied electronics in robotics for security and defense" master program.

Domains of activity

Electrical and Optical Engineering Facilities
Communication Networks
Centralised Computing Facilities
Robotics and Autonomous Systems

Infrastructure direct public link in ERRIS: <https://erris.gov.ro/CERAS>

942
VISITS

0
REVIEW(S)



SCIENTIFIC & TECHNICAL TEAM:



Coordinator:
Associate Professor Eng.,
Ph.D.
Cristian MOLDER



RESEARCH SERVICES:

- Embedded Systems Design
- Industrial Robot Programming
- Computer Vision Applications
- Robotic Platforms Design
- Data Telemetry & Data Transmission
- Robot Kinematics

TECHNOLOGICAL SERVICES:

- PCB Design

EQUIPMENTS:

- FANUC LR Mate 200iC Industrial Robot
- Tektronix TDS2001C 50 MHz Two Channel Digital Dual Storage Oscilloscope
- Fluke 179 True RMS Digital Multimeter with 80BK Temperature Probe
- Velleman VTSSC30N 48W Soldering Station
- Velleman PS1503SB Digital Power Supply 0-15V/0-3A
- Pro'sKit 8PK-979B SMD Rework Station
- Proxxon FBS 240/E Precision Drill/Grinder
- Velleman DVM20FGCN Function Generator 0.1Hz - 2MHz
- Meterrman PM55 Automatic Pocket Multimeter

CONTACT:

Phone: +40 21 335 46 65 / int 434
Fax: +40 21 335 57 63
Zip code: 050141
Address: George Coșbuc, 39-49, Bucharest
Bucuresti - Sector 5, ROMANIA



Service Details



Paul Stoica



Chiorean Paul



Dinu Varta

ACCESS THIS SERVICE:

You need to be logged in to request access to this service. [Login Here](#)

If you don't have an ERRIS account yet, please register [here](#)

Equipment Details

EQUIPMENT NAME

FANUC LR Mate 200iC Industrial Robot

PART OF:

Center of Excellence for Robotics and Autonomous Systems

CATALOG NAME: A05B-1139-B204

YEAR: 2013

PRODUCER: FANUC

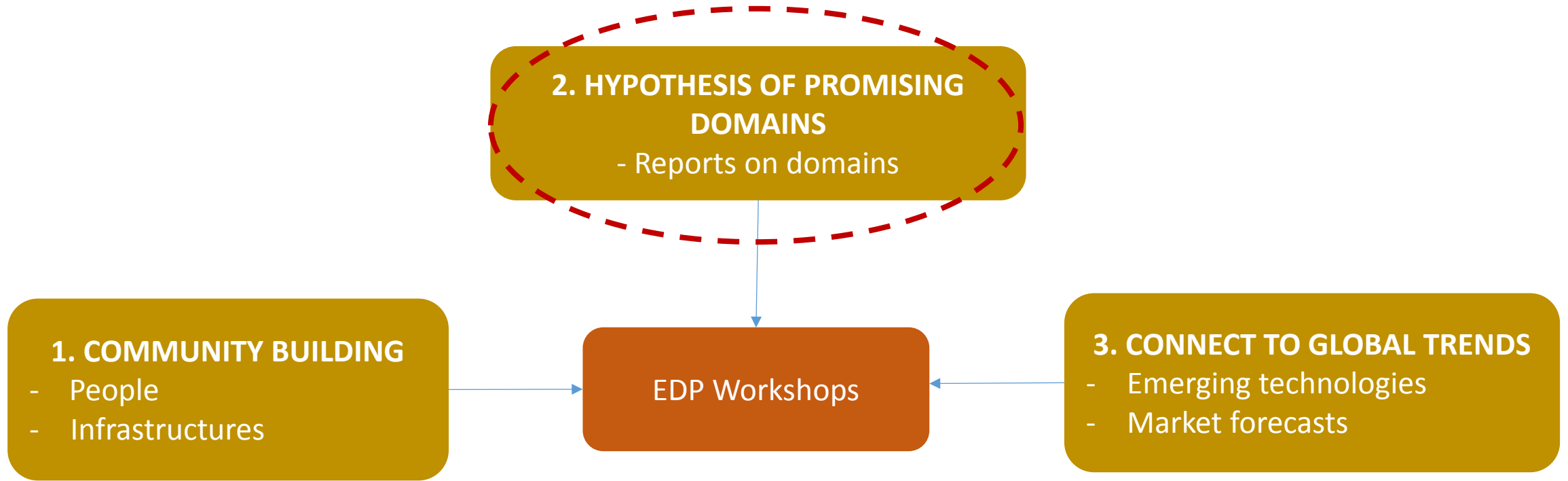
DATA SHEET: [datasheet.pdf \(724.67kb\)](#)

DESCRIPTION:

The LR Mate 200iC Series is an electric servo-driven mini-robot series offering best-in-class performance in a light, efficient, accurate and nimble (LEAN) package. The LR Mate 200iC's tabletop size, slimmer arm profile, lighter weight, highest dexterity, faster sustained speed and superior positioning accuracies make it the perfect solution for countless industrial and commercial applications.



2017-2019 Continuation of the EDP process



3D printing
Cosmetics
Robotics
Wearables

IT for automotive
Electric equipment for automotive
Food industry
Tourism
Biopharma

Digital health
Internet of Things
Textile & advanced materials
Dietary and fitotherapeutic supplements

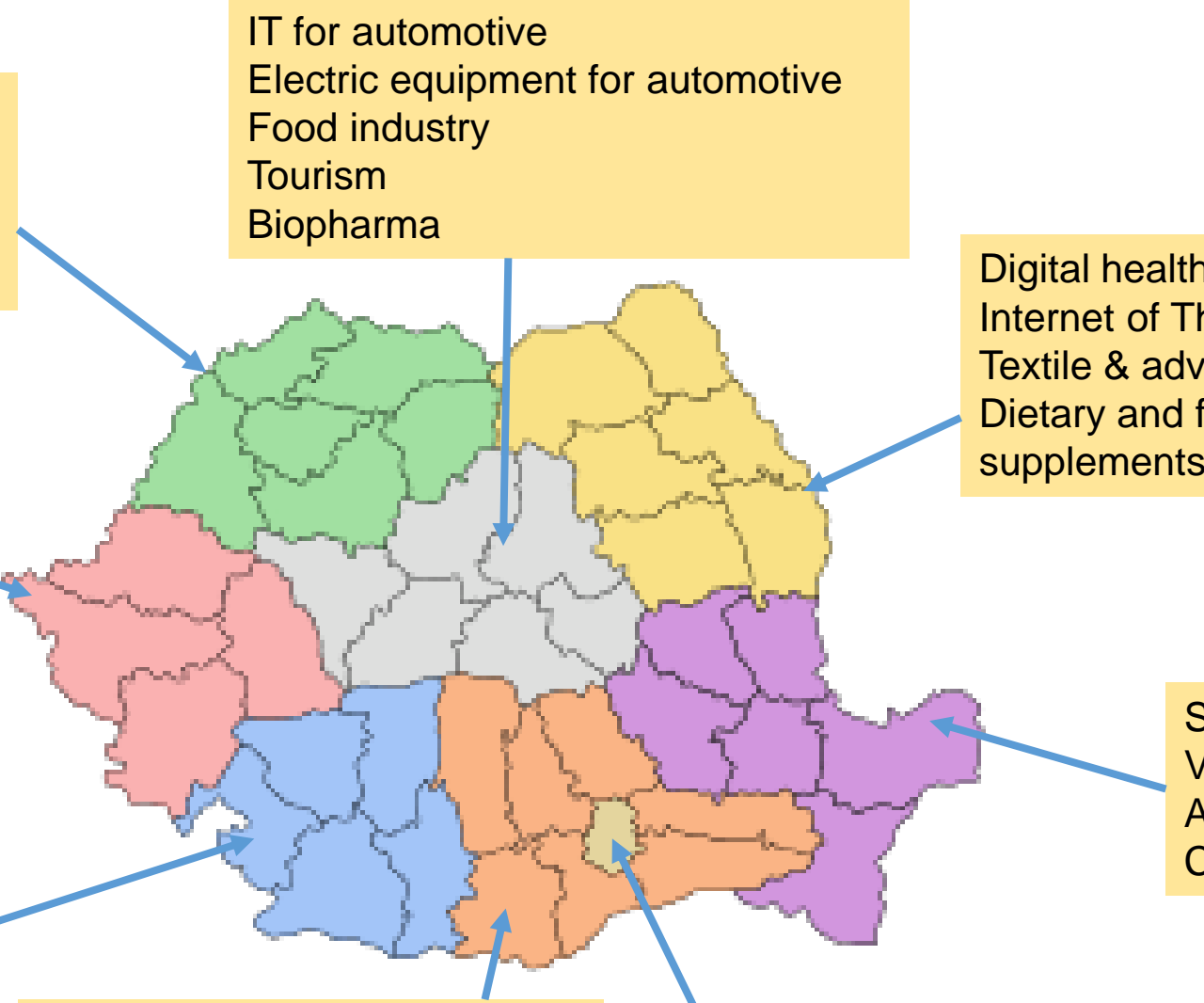
Mobile applications & cloud services
Smart city & sensors

Ship engineering & design
Viticulture
Aquaculture
Cereals

Rail equipment
Automotive components
Electrotechnics
Aluminium products

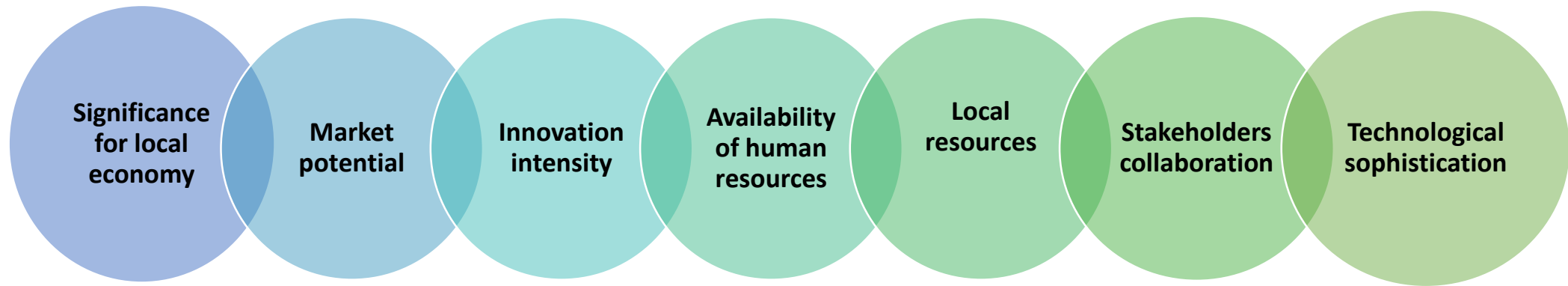
Automotive components
Vegetables and viticulture
Cereals
Food industry
Animal farming
Electronic equipment

Embedded software
Food industry
Optoelectronics
Mobile applications
Gaming



Multicriterial analysis of each domain

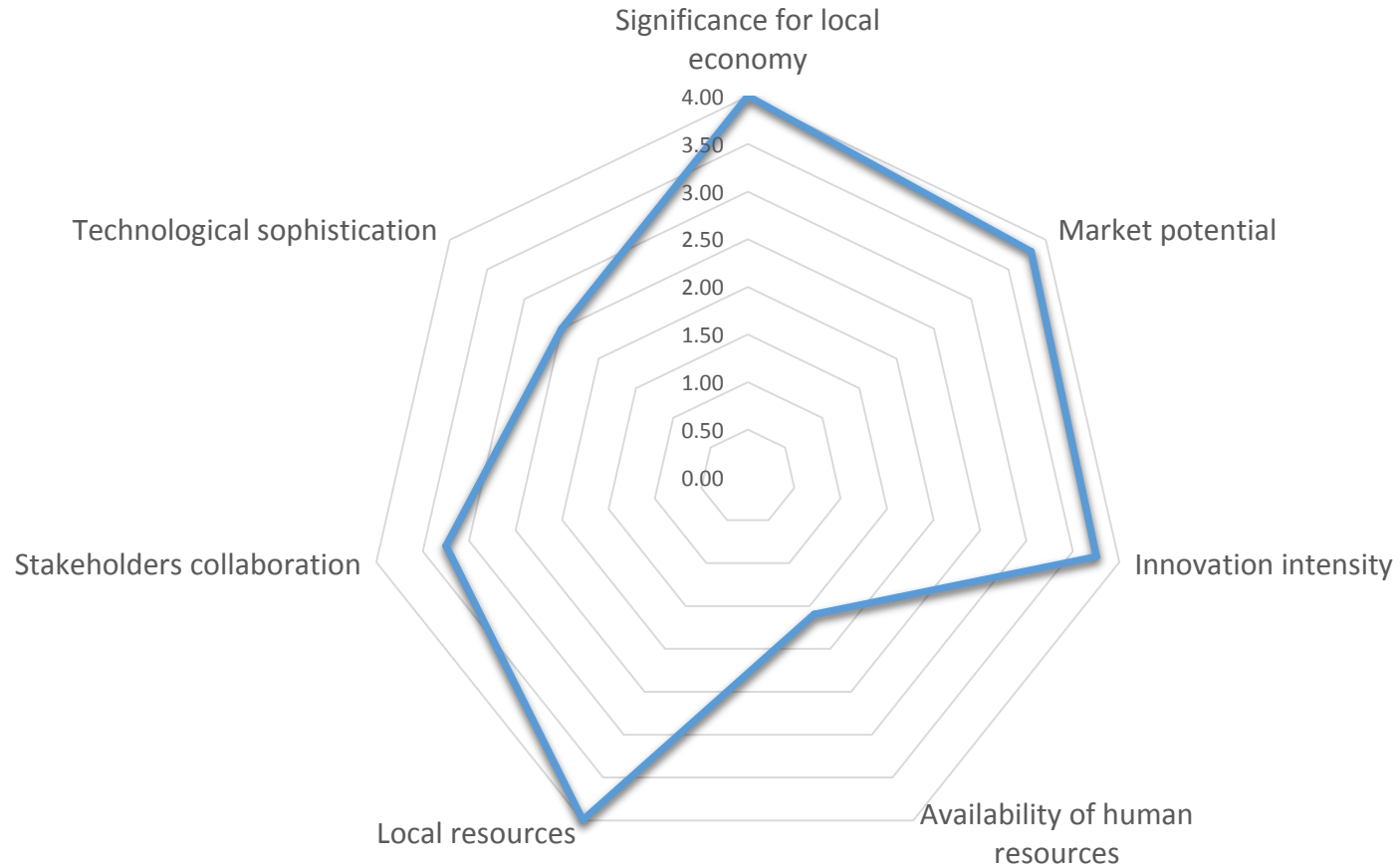
7 criteria



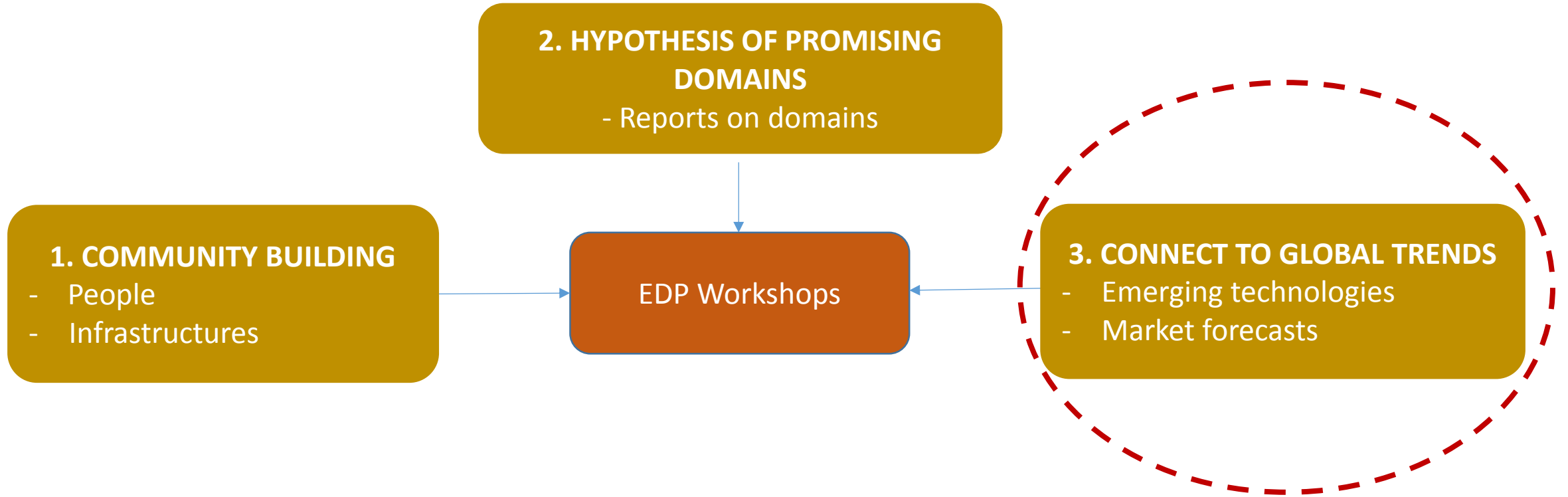
+ **arguments** for each criteria

+ **score** 1-5 per each argument & aggregated per criterion

Example: Dietary and fitoherapeutic supplements (NE Region)



2017-2019 Continuation of the EDP process



Market forecasts

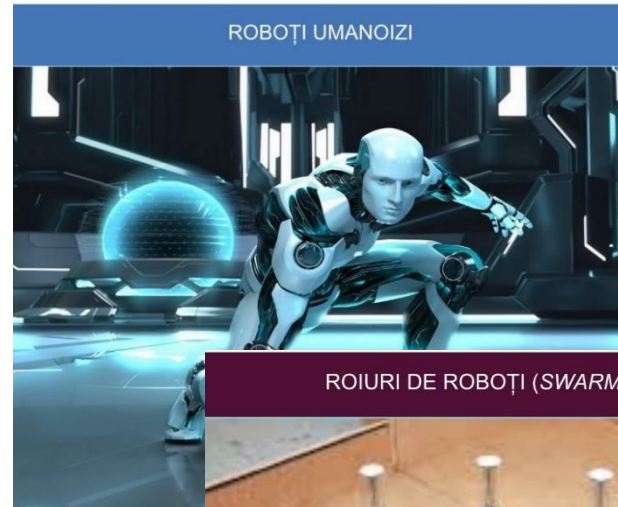
Example: Fast growing markets in “Sensors and control”

Market	CAGR	Current value (mil USD)
LTE (Long-Term Evolution) Advanced Pro	122%	150
Micro-LED	80%	600
Blockchain in Manufacturing	80%	30
PC as a Service	63%	11460
Automated 3D Printing	56%	196
Crypto ATM	55%	16
Collaborative Robot	50%	710
Artificial Intelligence in Healthcare	50%	2100
Artificial Intelligence in Manufacturing	50%	1000
Data Center Accelerator	49%	2840
5G Chipset	49%	2030
AI in Computer Vision	48%	3620
Augmented Reality in Retail	47%	1156
Artificial Intelligence in Aviation	47%	152
Artificial Intelligence in Supply Chain	46%	731

“Radar” of emerging technologies

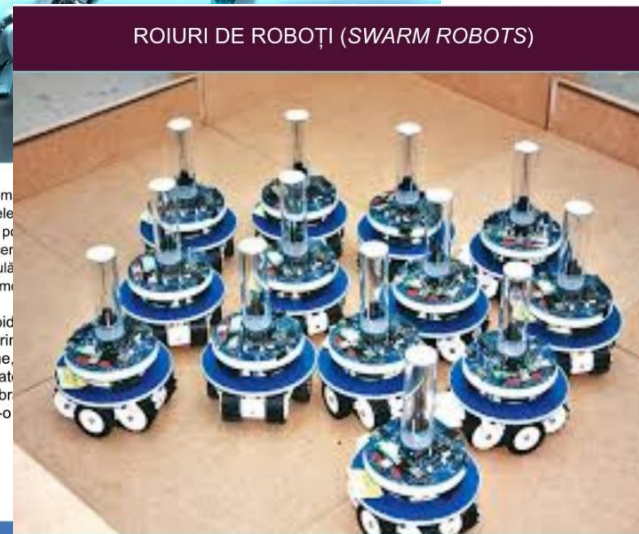
1.5 million tech news from 200+ online platforms from around the world

The mechanism for filtering and evaluating news on promising developments combines expert validation and machine learning.

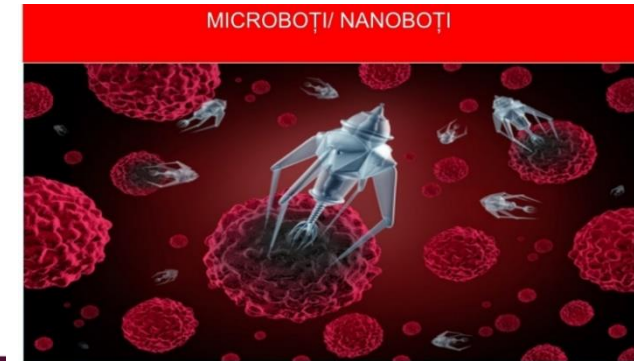


- PETMAN este un robot umanoid conceput pentru protecție folosită de echipajele spațiale pentru a detecta substanțele chimice care se pot găsi în spațiul fizic. PETMAN este folosit în simulările de urgență pentru a simula achilibrul, se mișcă liber, își mișcă capul și are un mod natural de interacțiune cu oamenii, prin urmare urmărirea mișcărilor umane, libertate (un grad de libertate în mișcare) și ridicarea unui braț sau a gâtului sau ridicarea unui braț. Erica vorbește printr-o voce sintetică.

Descoperire Antreprenorială



- NASA a finanțat un proiect de explorare a planetei Marte prin intermediul unui roi de roboți mici, care le permit deplasarea în atmosfera marțiană. Albinele sunt echipate cu senzori și dispozitive de comunicații wireless și au misiunea să cartografieze terenul, să preia mostre sau chiar să caute semne de viață, cum ar fi emisii de metan.
- Xaver este o flotă agricolă de tipul “roi de roboți” (swarm robots), coordonată de o aplicație de management. Agricultorul specifică parametrii de plantare, iar algoritmul determină traseul fiecărui robot. Eșantionul de date include timpul și locația exactă a fiecărei semințe plantate și permite intervenții viitoare de înaltă precizie, cum ar fi fertilizarea țintită, per plantă. Un singur robot poate acoperi până la 25 de hectare pe oră, în condiții ideale, iar bateria funcționează 2.5 -3 ore.



- A fost dezvoltat un robot - neoficial numit millirobot - care poate merge, înota sau transporta o încărcătură, în ciuda faptului că nu are elemente mecanice sau baterii. Millirobotul, care seamănă cu o larvă, este realizat dintr-un material care utilizează tehnologia de rezonanță magnetică pentru a mișca interiorul corpului uman. Spre deosebire de alți roboți iradienți, modulurile sale de locomoție, în designul său biomimetic este inspirat de larvă de gândac, o omidă, un șarpe și un păianjen.

- A fost dezvoltat un nou tip de robot care este un filament mobil în câmpuri magnetice rotative de bacterii vii. Astfel, tehnica ar putea fi aplicată în tratamentul cancerului.

Descoperire Antreprenorială

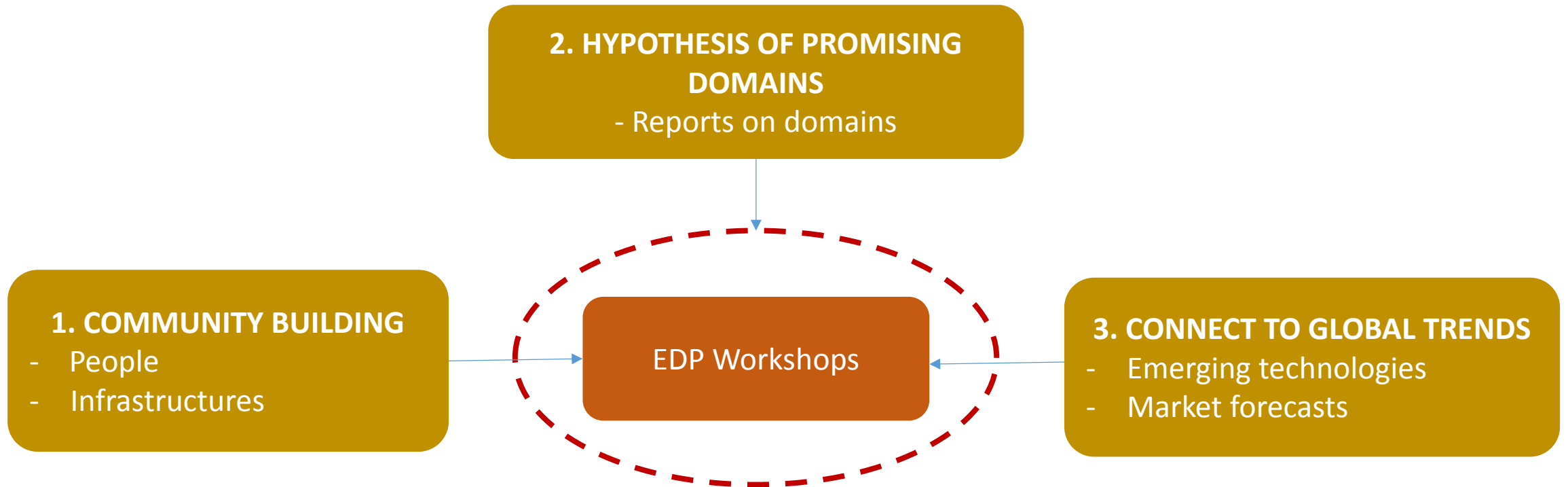


- YuMi este un robot colaborativ cu două brațe, capabil să lucreze la un nivel înalt de precizie, ceea ce îl face perfect pentru asamblarea pieselor mici în industria electronică de larg consum. Sistemul ABB YuMi este proiectat să lucreze împreună cu oamenii în imediata vecinătate. YuMi are mai mulți senzori care îi permit “să vadă” (utilizând capacități de recunoaștere a imaginii) și să simtă și este echipat cu brațe captușite cu materiale moi, care elimină riscul accidentărilor în eventuale interacțiuni cu oamenii.

- BionicCobot este un robot pneumatic ușor, cu un design bazat pe anatomia brațului uman, care utilizează mușchi agonisti și antagonisti (cum ar fi bicepsii și tricepsii) pentru a executa mișcări. BionicCobot folosește un sistem de articulații pentru a imita aceeași funcționalitate, permițându-i să se miște precis pe suprafețe mici, în medii populate de oameni.

- Robotul colaborativ CR-35iA (creat de FANUC) este un robot industrial care are capacitatea de a ridica și a deplasa obiecte grele de până la 35 kg. E dotat cu senzori de detectare a contactului și înveliși moi, ceea ce îl califică să lucreze alături de oameni.

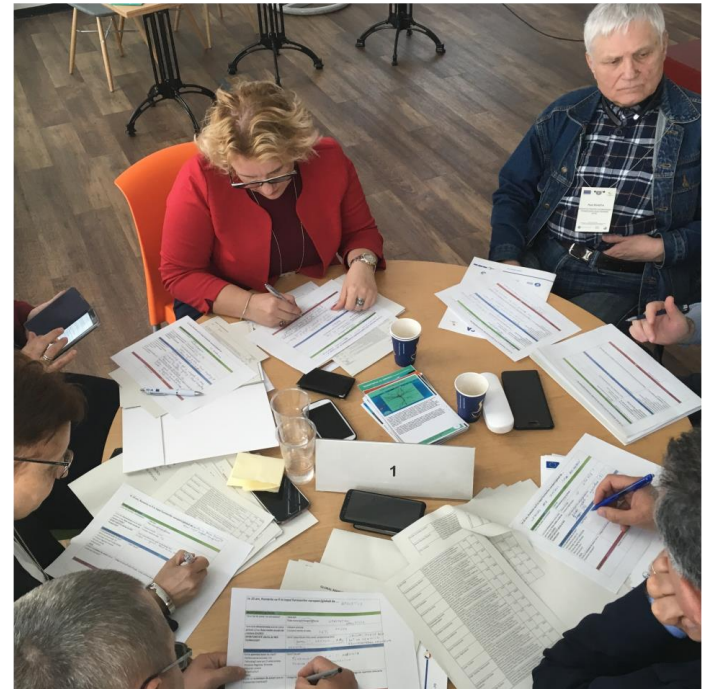
2017-2019 Continuation of the EDP process



EDP workshops

8 Regional & 4 National

- 30 participants (min. 50% business)
- Exploring a domain with SS potential (e.g. robotics)
- Inputs:
 - 20-30 cards of emerging technologies
 - Info on relevant market niches
 - Info on research projects in Romania
 - Info on turnover of companies in the field
- Output: potential niches of smart specialization, with associated arguments



Phrasing a Smart Specialization proposal

In 10 years, the region will be in the top global / EU providers of X.

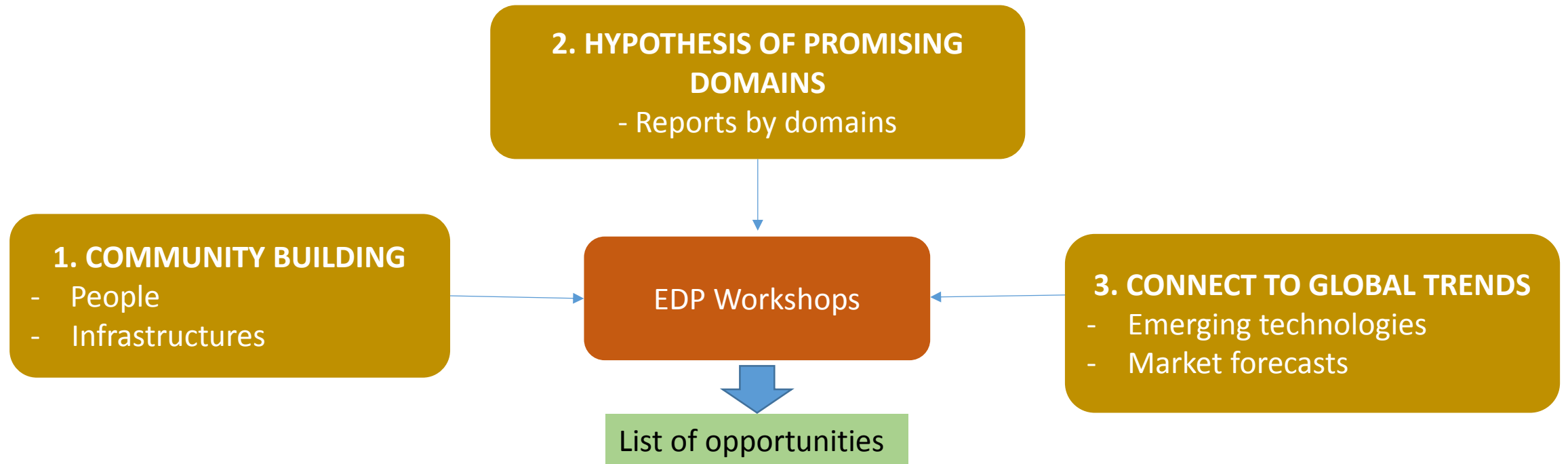
Because

- *The global market of X is increasing by ...*
- *The region has capabilities/proven performances/resources in...*

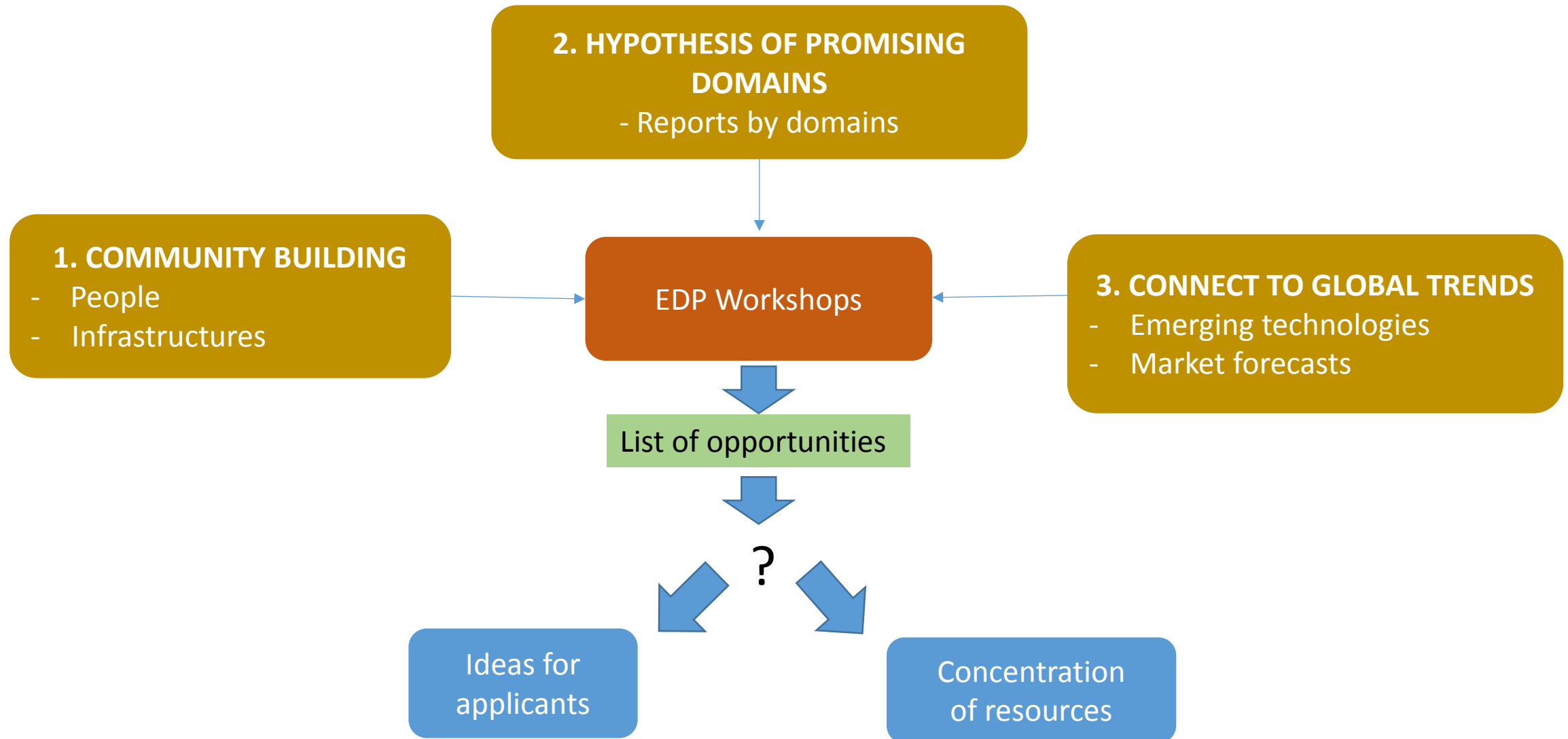
Hence, the stakeholders are committed to advance the following technologies/capabilities:

- *a.*
- *b.*
- *c.*

2017-2019 Continuation of the EDP process



2017-2019 Continuation of the EDP process



2017-2019 Continuation of the EDP process

2. HYPOTHESIS OF PROMISING DOMAINS
- Reports by domains

1. COMMUNITY BUILDING
- People
- Infrastructures

EDP Workshops

3. CONNECT TO GLOBAL TRENDS
- Emerging technologies
- Market forecasts

List of opportunities

?

Ideas for applicants

Concentration of resources



(+) All opportunities are open, broad access of players.

(-) Lower chances of structural transformation

(+) Increased chances of reaching the tech frontier & osmotic innovation ecosystems

(-) Challenge of decision & validation trashhold & domain specific instruments

Closing remarks

Aiming at

- “**Innovation ecosystems**” as the locus of innovation
“ a group of players and processes who through **symbiotic interactions** (both **cooperative and competitive**) make innovation happen and by doing so **coevolve** over time” (Martin Frasnman)
- Reaching the **technological frontier** as basis for structural change (Keun Lee)
 - Long term ambitions, not only immediate project opportunities
 - Focus resources (innovation, frontier research, exploratory research, education etc)

While considering

- The low level of innovation & entrepreneurial culture
- The very low R&I national expenditures (0.2% of GDP)
- A **dual system** is probably desirable for the next cycle, i.e.
 1. an open pipeline for diverse close to market ideas&
 2. a bold governance able to push towards new frontiers around a few opportunities identified in a participative manner

Thank you!

Looking forward to your comments/questions