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”eBio-hub” EU project: From Excellent Science in Bioengineering to Business

Prof. Cornel Cobianu

Translational Research Manager,

Center of Excellence in Bioengineering ”eBio-hub”,

*National University of Science and Technology POLITEHNICA Bucharest (**NUSTPB**)*

Project financed from the Horizon Europe Work Program 2021-2027,
Grant agreement 101087007-eBio-hub

Prof. Dr. Ing. Cornel Cobianu

Education

- Ph.D. Degree in *Microelectronics*, Politehnica University Bucharest (NUSTPB)
- M. Sc. Faculty of *Electronics*, Politehnica University Bucharest (NUSTPB)

Experience

- ***Engineering in an IC production facility: "***Microelectronica Bucharest" for CMOS technology
- ***Teaching*: "**Valahia" University, Romania and "University of Twente" from The Netherlands
- ***Academic Research*: "**IMT Bucharest", "University of Twente", "UNSTPB Bucharest"
- ***Industrial Research***: "Microelectronica" Company, "Honeywell International", "NANOM-MEMS"
- ***Institution co-founder***: "Center of Microtechnology" (1992), "Honeywell Sensor Lab" (2003)

Achievements

- Co-authored 50 US granted patents
- Co-authored 33 EU granted patents, and other WO, CN, JP, RO patents
- 83 published papers in international journals
- 108 published papers in International and National Conferences
- 5 book chapters

Recognitions

- Titular Member of Academy of Romanian Scientist
- Vice-President of Science and Information Technology Section
- Honeywell Engineering Fellow

Organigram of ”eBio-hub” EU project

*“We can only unlock the full potential of the European Research Area (ERA) **if** we come together in support of the excellent researchers and innovators across all countries and regions of Europe.”*

Mariya Gabriel Commissioner for Innovation, Research, Culture, Education and Youth

Prof. Alexandru Marin

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Deputy project director


Dr. Jana Ghitman

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Translational research manager


Prof. Cornel Cobianu

Accreditation of the new PhD program


Dr. Iuliana Biru

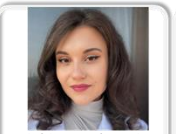
Center of Technological Transfer (UPB)

PhD students/PostDoc/Researchers


PostDoc Bioinform Irina O. Lixandru


PostDoc Microfluics Anca Roibu


PostDoc Electr Eng A.I. Constantin


PhD student 1 Elena Radu


PhD student 2 Laura E. Andrei


PhD student 3 FE.Boukhemacha


PostDoc Chem Eng Amarachi R. Osi


PostDoc Cell Biol A.M. Zamfirescu

PostDoc Vacant position


PhD student 4 Andreea I. Dinu


PhD student 5 Madalina Nicolae


PhD student 6 Ana Maria Voicu

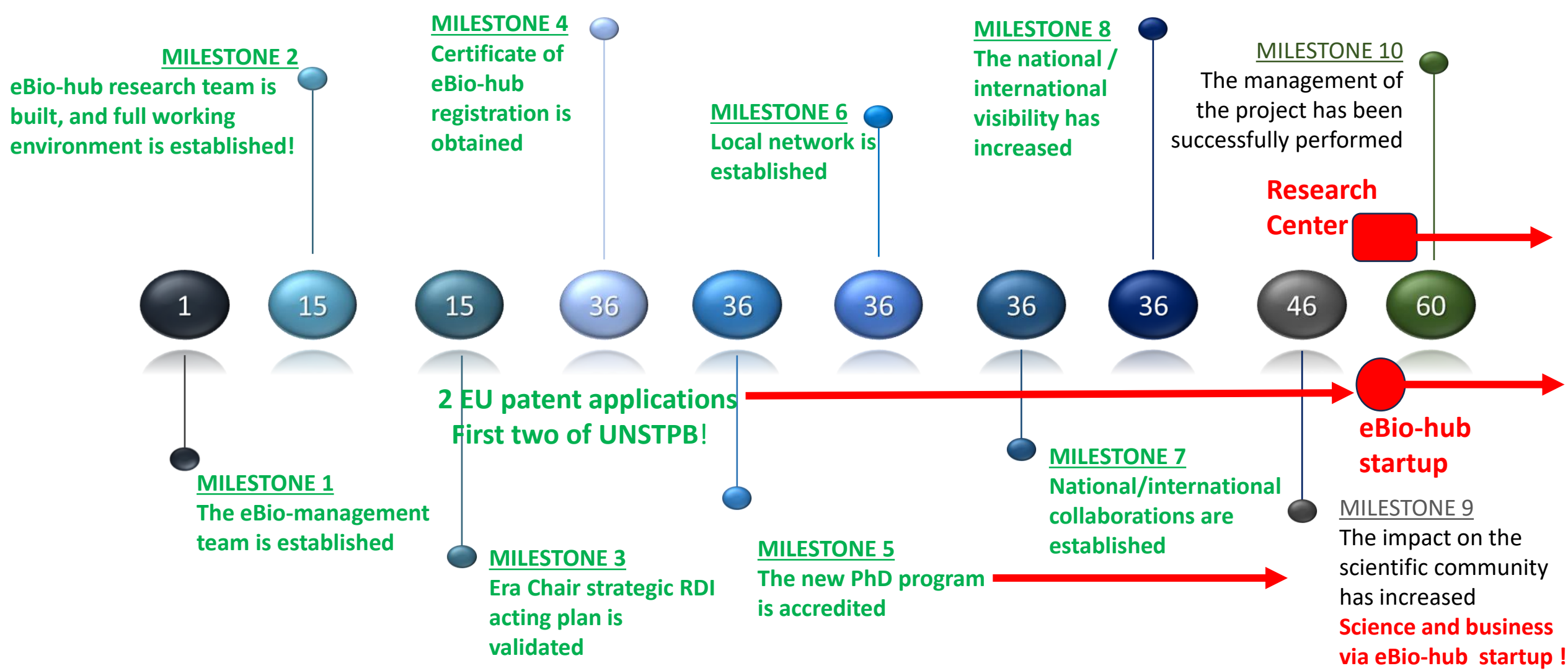
Overall objectives of the “eBio-hub” EU project

Strategic mission of ERA Chair Holder, Dr. Ciprian Iliescu, and his management team:

- Attracting and Maintaining ***High Quality Human Resources***
- Create an ***excellent Research Centre in Bioengineering in POLITEHNICA Bucharest***
- ***Setting up of a PhD program in bioengineering***
- Develop of an ***innovation culture*** contributing to the knowledge-based economy
- Implement ***Structural Changes in NUSTPB*** aiming to achieve excellence on a sustainable basis !

Policy objective: Help excellent scientists to became game changers !

Milestones and timeline for eBio-hub project



“eBio-hub” Structural Changes in Politehnica Bucharest

Achievements:

- ✓ **Center of Excellence in Bioengineering**
- ✓ **New Doctoral School in Bioengineering**
- ✓ **High Level Innovation School : the first two EU Patent Applications with 100% ownership of NUSTPB are done by “eBio-hub” team.**

***Proposals*: Targeting the academic research acceleration and entrepreneurial ecosystem development within NUSTPB**

1. **Add to the NUSTPB hiring contract an Individual Intellectual Property (IIP) Agreement** related to employee’s IP rights and obligations during hiring period!

2. **Create within NUSTPB *a separate, fast-response administrative office for research*** to be responsible for the *procurement activities of all research projects from NUSTPB*, so that to avoid long waiting times in performing research projects.

3. **Develop a *network of Open-Access Labs* facilitating contract-based access of startups to the experimental basis of NUSTPB**!

What would be the best and safest way to translate the science into business ?

Panel organized by “eBio-hub”:

From Science to Business

GEORGE CRETU, PhD

- Expert in innovation, digitalization, sustainability, business processes and venture building, with experience in European projects, carbon management, AI and organizational transformation.
- Expert in the knowledge economy, Enterprise AI driven solutions and the mechanisms through which science can generate economic and societal impact.
- Consultant with experience with Deloitte (NY), Education Developed Center (NY), Kettering Foundation (Dayton-OH), Brown & Company (UK)

- PhD în Management **(Ohio State/SMC)**
- Master of Science in Management (**New York University)**
- BSc in Economics **(ASE Bucuresti)**
- BSc in Engineering (**Universitatea Tehnica din Cluj)**.

Creator of InferenceAI™, a deep-tech method/framework for knowledge digitization, process automation, and enterprise AI agent development. With important contributions to the understanding of the concept of SLM (small language model).

Founder of Enterprise Concept – a company specialized in BPMN and BPMS and contextual digital transformation.

Founder of Axiobit Limited- company specializing in Enterprise AI Agents and automation technologies.

Founder of First Chapter Studio – a Venture Studio dedicated to transforming ideas into entrepreneurial initiatives and deep-tech startups.

Q1-Panel

How can academic institutions *redesign their incentive mechanisms* so that scientific excellence and entrepreneurial action support each other?

1. How can we avoid the perception that entrepreneurship "dilutes" academic prestige?
2. What role does formal recognition (scoring, promotion, grants) play in motivating researchers?
3. Should universities encourage individual entrepreneurship or rather mixed teams (researchers + entrepreneurs + managers/entrepreneurs)?
4. Is there a risk that the pressure for applicability will distort fundamental research?

Q1 Take away message

General Electric CEO Jack Welch :
“You get what you reward".

“If we do not measure translational impact, we cannot expect researchers to prioritize it.”

Examples: ETH Zurich, EPFL, Imperial College London
Two evaluation tracks:

- **Academic excellence track**
- **Innovation & Impact track**

Douglass North : Nobel Memorial Prize in Economical Sciences in 1993

Institutions must create incentives so that scientific discovery and entrepreneurial action are complementary not competing !....

Our proposal for academic promotion : To consider Science-Innovation-Entrepreneurial Performances TOGETHER for academic promotion !

« We, Europeans, are excellent at making science with money. But we are not so good at making money out of science »

Q2 Panel

2. What mechanisms (formal or informal) are most effective for transforming scientific knowledge into applicable business models, and how can universities systematize this process without diluting academic rigor?

1. What type of interactions between researchers and industry are the most productive (living labs, co-design, hackathons)?

2. What risks arise when business models are built too early, before scientific validation?

Q2 Take away messages

Most effective mechanisms (global evidence):

(a) Living Labs (Delft, Aalto, MIT City Science)

- Researchers and industry co-design solutions
- Early user feedback reduces risk
- Works well for engineering, robotics, e-health, IoT

(b) Co-design with industry via sprint methods

- 3–10 day deep-dive design sprints
- Rapid testing of assumptions
- Extremely effective for TRL 3–6

(c) Deep-tech hackathons / Innovation Challenges

Not the usual “idea hackathons,”
but **prototype-focused** events run by Fraunhofer, IMEC, MIT Media Lab.

Q3 –Panel

In your experience, what are the bottlenecks that most often hinder the transition from prototype (TRL 3–4) to market-ready innovation (TRL 7–9) and what structural reforms could reduce this valley of death?

- What is the most critical lack: funding, project management, access to industry or entrepreneurial skills?
- What role do test infrastructures (TRL 5–7) play? Are they designed?
- Who should hold the risk at this stage: the university, a public fund, a private investor?
- How do we correctly assess the commercial potential of a scientific result?

Q3 Take away message

“The transition from TRL 3–4 to TRL 7–9 fails not because of science, but because of :

- missing infrastructure,
- missing translational capabilities,
- missing risk-holding institutions.

The universities that solved this — MIT, Stanford, TU Delft, Fraunhofer, IMEC — did so by

- **building testing infrastructure,**
- **embedding industry in co-design programs,**
- **creating translational organizations with a mix of competencies from science, to business, venture capitalists, market researchers!**

Q 4-Panel

What role should institutional innovation platforms play in connecting research with entrepreneurship and how can it coexist with traditional technology transfer offices?

- Can universities be a support for technology transfer departments?
- What are the advantages of a "build first, invest later" model over accelerators and even incubators?

CONCLUSIONS

-The value chain Research-*Innovation-Entrepreneurship* is underdeveloped on the last two components, in Romania !

-Major structural changes are required in the academic institutions for an increase of return of investment to the society !

- Education and awareness of the importance of intellectual property generation as a foundation of the new product
- Reduced bureaucracy in the administration and management of the European and National Projects !
- Creation of a pro-business ecosystem in Romanian Universities by means of":

1. **Add to the NUSTPB hiring contract an Individual Intellectual Property (IIP) Agreement** related to employee's IP rights and obligations during hiring period!

2. **Create within NUSTPB *a separate, fast-response administrative office for research*** to be responsible for the *procurement activities of all research projects from NUSTPB*, so that to avoid long waiting times in performing research projects.

3. **Develop a *network of Open-Access Labs* facilitating contract-based access of startups to the experimental basis of NUSTPB**!

4. **Develop a business infrastructure in universities** where the scientists to work together with industry experts, marketing strategists and business investors.

Thank you for your contribution !

Q from audience ?

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