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Scientific and innovation excellence through interdisciplinary science

ForestValue Research Programme Midterm Seminar

Virtual event, November 17, 2020



SWST – International Society of Wood Science and Technology

Prof. Andreja Kutnar, PhD



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InnoRenew CoE Renewable Materials and Healthy Environments Research and Innovation Centre of Excellence

Horizon 2020 Framework Programme of the European Union; H2020 WIDESPREAD-2-Teaming: #739574



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What is InnoRenew CoE

The InnoRenew CoE:

- Independent, not-forprofit
- Research institute
- Ongoing
- Founded 15 Feb. 2017

The InnoRenew Project:

- H2020 Teaming Project
- 6,5 year duration
- EU & National funding
- 9 Slovenian partners
- 1 German partner
- April 2017 September 2023
- Coordinated by University of Primorska



Main objective

Establish InnoRenew CoE - not-for-profit private institute with an independent organisational, operational, and management structure



- Human resources
- Infrastructure
- Scientific excellence
- Sustainability



November 17, 2020

- 70 Employees (56,6 FTE)
- 46 % women and 54 % men
- 44 % international employees



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The InnoRenew CoE is tasked with advancing the state-of-the-art and achieve scientific and innovation excellence through interdisciplinary science





Restorative Environmental and Ergonomic Design & Modified Wood



Key to success

Interdisciplinarity

Bundling modern research fields with concepts of **sustainability** and **sensible use of natural resources.** In this case, *wood*.





Why we need interdisciplinary approach?

- Inject creativity and new ideas
- Maturing research area(s), but still need basic and applied research
- Manufacturers need growing markets to continue producing
- Need to educate and include end users (designers, architects, engineers, the public)









How to focus interdisciplinary research?

- Create common goals
- Create feedback loops for new process and product ideas
- Get user input early



Focus on broad goals that include diverse groups

- Basic science
- Applied science
- Industrial applications and production
- Engineering
- Design
- Business and Marketing



RDI Interdisciplinary Structure

InnoRenew is structured to advance interdisciplinary research:

- Human health in the built environment
- Wood Modification
- Renewable materials composites
- Sustainable building with renewable materials
- ICT in renewable materials and sustainable building
- Experimental Design and Data Analysis

How do we integrate these together to answer a question or develop a new field of research not common to InnoRenew?





RDI Interdisciplinary Structure

Example: Building system sensor networks (David DeVallance)





Human Health in the Built Env.

The main goal of the **HH** group is to conduct research that will build an evidence base for the restorative environmental and ergonomic design paradigm, as well as other aspects of human health in the built environment.





Human Health at InnoRenew CoE

Raise the <u>quality of science</u> examining human health in the built environment, particularly related to the use of renewable materials

- i. Understand the <u>fundamental science</u> related to the psychophysiological response to buildings and materials
- ii. Understand the <u>kinesiological interactions</u> between users and buildings, furniture, and other assistive devices in buildings
- iii. Understand the <u>physiological reaction</u> to material extractives such as VOCs







Infrastructure

Architecture:

 Eva Prelovšek Niemelä, Aarne Niemelä

Construction:

- Iztok Šušteršič, Sašo Vozel **HVAC:**
- Rudi Grahek, Robert Krese Lab technology:
- Matthew Schwarzkopf, Jakub Sandak

Restorative design:

• Mike Burnard



Municipality of Izola

- 6.174 m² lot in Izola, Slovenia valued at 135 EUR/m² = 833.490,00 EUR
- exempted the InnoRenew CoE from municipality tax = 700.000,00 EUR





Novel and advanced uses of wood create new opportunities to replace non-renewable materials in buildings while creating healthy working environments.





Why ICT & wood?

Digitalisation changes how companies operate and provides benefits to society. We can help industry navigate these changes.





Pilots for healthy active ageing – PHArA-ON (Innovation Action)

PROJECT LEADER: SCUOLA SUPERIORE DI STUDI UNIVERSITARI E DI PERFEZIONAMENTO S ANNA (IT)

PERIOD: 1.12.2019 to 31.11.2023

BUDGET: 18.8 M Euro (3.5 M EUR for InnoRenew CoE, 3 M to be redistributed through open call)

FINANCED: European Union – H2020 Health, demographic change and wellbeing - Trusted digital solutions and Cybersecurity in Health and Care: Smart and healthy living at home (H2020-SC1-FA-DTS-2018-2020)

PARTNERS: 41 / 12 COUNTRIES: Italy, Spain, Portugal, Netherlands, Slovenia, Croatia, Germany, France, UK, Belgium, Austria, Estonia.

Project objective:

develop and pilot test a platform to **integrate digital services** that **support the health and well-being** of Europe's **ageing population**.







Key to success



Collaboration

Living Lab InnoRenew - Structured engagement with other researchers, industry, policy makers, and the public



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Key to success

Involve the society – be close to society

Study programs fit to digital society:

Sustainable Built Environments



MSc at UP from 2016/2017

Renewable Materials for Healthy Built Environments

PhD at UP from 2020/2021

Data Science

MSc at UP from 2019/2020



Interdisciplinary Perspectives on the Built Environment (IPBE)

new open access, peer-reviewed journal presenting high-quality research at the nexus of sustainability, health, and the built environment.



https://ipbe.innorenew.eu



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REPUBLIC OF SLOVENIA MINISTRY OF EDUCATION, SCIENCE AND SPORT







Thank you for your time.

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