BERST
Building Regional BioEconomies

University of *Ljubljana*
Biotechnical faculty

BioEconomy Regional Strategy Toolkit – CoP 2

August 29-30, 2014

Ljubljana

Biotechnical Faculty – University Ljubljana (Slovenia)

http://www.a10.eu/magazine/issues/33/biotechnical_faculty_ljubljana.html

- ✓ **Biotechnical Faculty combines different fields of sciences – 7 scientific departments**
- ✓ **About 3000 students**
- ✓ **The Faculty's scientific and research work combines basic, applied and developmental research work, enabling the rapid transfer of research results into practice.**
- ✓ **Close connection with the production needs of individual professions and implementers of societal development.**

Learning needs identified by questionnaire to CoP participants

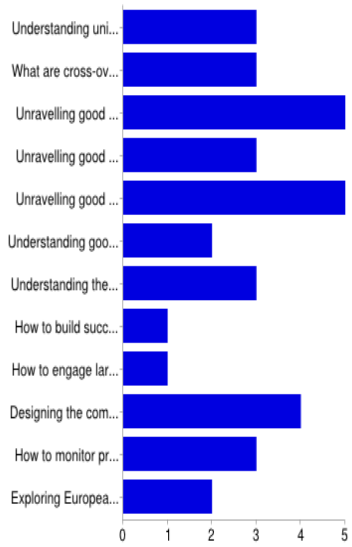
- **Outcomes used to develop CoP2 program**

8 reacties

Alle reacties weergeven Analyse publiceren

Overzicht

Indicate what topics you would like to be at the core of CoP2 program.



Understanding unique selling points of regions with regard to their bioeconomy development	3	38%
What are cross-overs of companies in bioeconomy and existing industries?	3	38%
Unravelling good practices: understanding underlying business models and financing schemes	5	63%
Unravelling good practices: understanding establishment and functioning of public-private partnership	3	38%
Unravelling good practices: understanding the role of policy and measures	5	63%
Understanding good practices: understanding tools and approaches to scale up bioeconomy innovations	2	25%
Understanding the success of measures	3	38%
How to build successful public-private partnership?	1	13%
How to engage larger society in bioeconomy development?	1	13%
Designing the components of the regional profiles to be developed in BERST	4	50%
How to monitor progress in bioeconomy development?	3	38%
Exploring European bioregions for strategic alliances	2	25%

- ✓ Regional public private partnerships: functioning
- ✓ Science-practice partnerships: functioning
- ✓ Understanding the role of policy and research measures to build bioeconomy
- ✓ Exploring characteristics of bioregions
- ✓ Understanding mechanisms of good practices
- ✓ Components of regional profiles
- ✓ Understanding cross over with existing economies and local characteristics

Day 1: 29 August 2014

Welcome

Dean of the Biotechnical Faculty

News from BERST project

Myrna van Leeuwen (Wageningen UR)

Introduction to CoP 2

Ingrid Coninx (Wageningen UR)

Keynote - Exploring the importance of regional partnerships

Willem Sederel (Biobased Delta)

Regional initiatives in Slovenia

PoliMaT Mateja Dermastia, Alexis Zrimec, PhD

KOTO (collection of biowaste and biofuels production) – Lea Lavrič (KOTO d.o.o.)

Strategic framework and public initiatives for promotion of bioeconomy and bioregions in Slovenia

Strategy of Smart specialisation of the Republic of Slovenia and role(s) of bioeconomy - dr Peter Wostner, Ministry of Economic Development and Technology)

Public R&D initiatives to boost bioeconomy - Marta Šabec (Ministry of Science and higher Education,) and Jana Erjavec (Ministry of Agriculture and Environment)

Discussion about intermediary outcomes of BERST-Work packages European bioregions discovery

Cluster analysis and comparing European bioregions - Ben Gardiner and Jon Stenning (Camecon)

Good practices explored - Gareth Brown (Imperial College)

Day 2: 30 August 2014

Sharing eye-openers of previous day

Remco Kranendonk (Wageningen UR)

Exploring the building blocks of the regional profile

Anneli Ylimartimo (JAMK)

Status of online BERST webtool

Ruben Guisson (VITO)

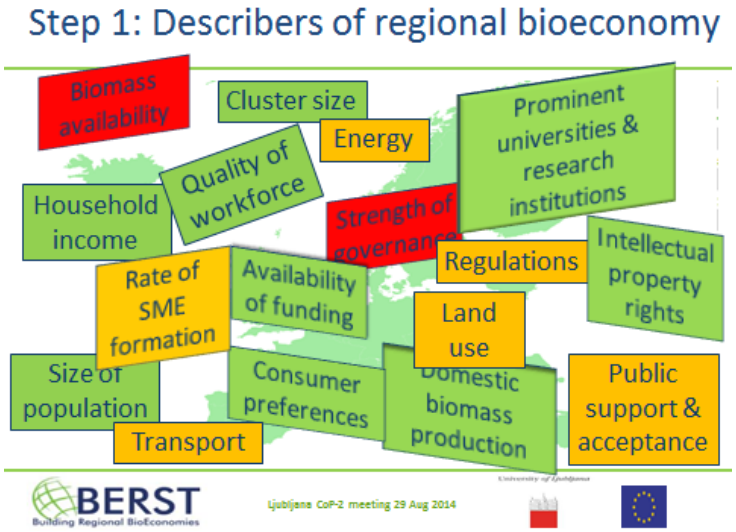
Field trip

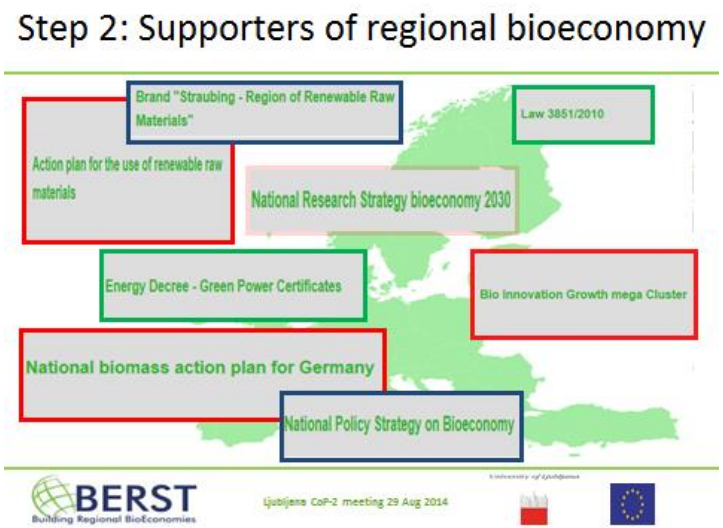
- Ig: Silvapro®Wood – Dušan Radoš (Silvaprodukt d.o.o.)
- Ljubljana moors landscape park (LAG Barje z zaledjem)
- xxx

Introducing BERST

- It takes time to develop and manage
- Berst aims to support the bioeconomy development

Regions with certain characteristics can develop toward bioeconomies





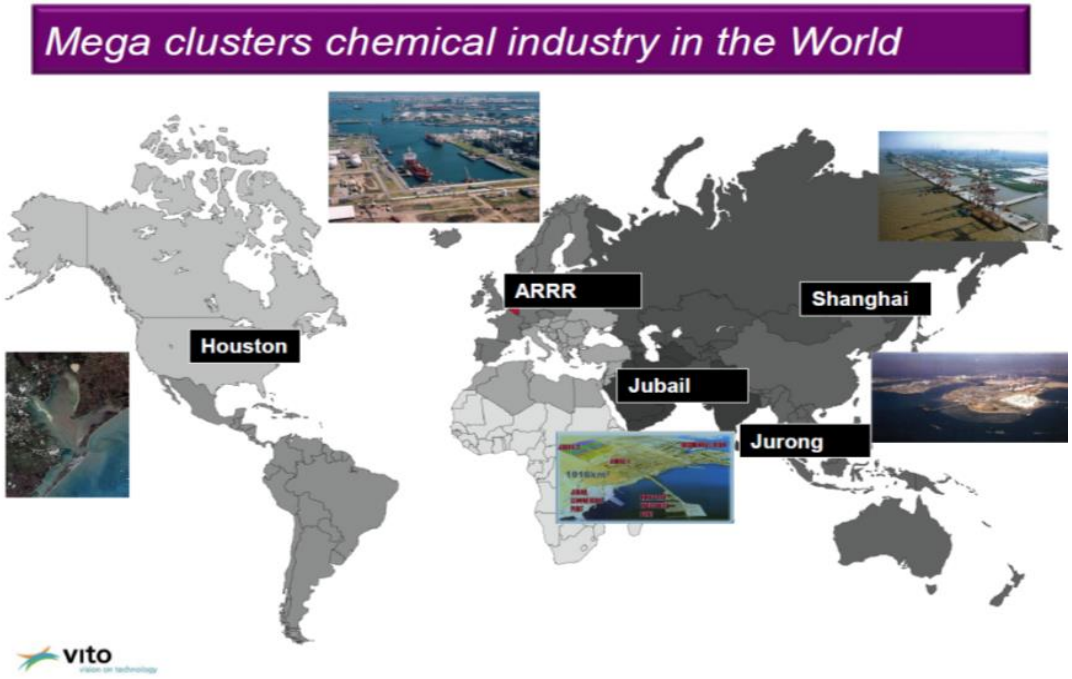
Support these regions to build bioeconomy by instruments and measures

Exploring the importance of regional partnerships

- ✓ situated between Rotterdam and Antwerp
- ✓ Position of harbour is crucial to develop biobased activities
- ✓ Agro meets chemistry
- ✓ Cross border connections
- ✓ Regional partnerships by triple helix model:
  - ✓ the formula is companies in the lead.
  - ✓ knowledge plays a key role
- ✓ Biobased Delta is a foundation
- ✓ Innovation partnerships:
  - ✓ Open innovation along the value chain
  - ✓ Closed innovation toward the outside world
  - ✓ Topfacilities accelerate innovation

Exploring the importance of regional partnerships

- ✓ Developing a strategy within global perspective of clusters
- ✓ Developing intra regional value chains on plant ingredients, natural fibers, new (aquatic) crops, agrofood rest streams, soil, products/applications
- ✓ Developing interregional value chains on Bioaromatics, functional molecules, C-1 chemistry, sugars, lignin, CO2, syngas, CH4
- ✓ Ways to reinforce clusters: focus, segmentation, international collaboration, programs, projects, business cases and demo's, create new value chains



Exploring the importance of regional partnerships

- ✓ Connection with Flanders + ERR cluster Paris-Reims, because of biomass and leading in cluster development
- ✓ Connection BIG C – collaboration on RIS3 strategy, policy network, large chemical industries, knowledge institutes
- ✓ Connection with Canada: because of biomass availability, setting up a business network and also exchange on the knowledge side
- ✓ Connection with Brazil on knowledge

= > Strategy is not to pick one partner – but try to find partners to collaborate and get experience – not looking for THE best route, but different routes can be used.

Core: different **SME** clusters to implement BBE SME agenda

Network of **knowledge** partners organised in biobased delta

Keynote: Willem Sederel, Biobased Delta (NL)

Tips to develop regional bioeconomy

- Building bio-economy requires **long term commitment** and endurance of triple helix partners
- **Triple helix cooperation** with companies in the lead is a good model to foster bioeconomy
- Focus on **business cases** is key
- **Segment agenda** for proper focus (large companies vs SME's)
- Develop a project portfolio with **short, medium, long term** in mind
- Experiment with **open innovation** where and when possible
- Build vision and **strategy based on regional SWOT** and set ambitious point at horizon
- Cross-overs are required for value chain and innovation, but challenging – **requires intermediaries**
- **Financial instruments of governments** help business development
- Transition process takes more than 15 years - management of expectations (of politicians)
- **Monitor** program and progress – Dutch national monitoring initiative to support regions / development of balance scorecard
- Educate society to create **a better understanding** of Bio Economy by the public

Regional bioeconomy initiatives in Slovenia

Center of Excellence PoliMaT®
Polymer Materials and Technologies

- Independent private non-profit center of excellence
- collaboration between academia and industry
- Founded in 2010

CE PoliMaT

Brings together innovative minds from diverse fields and countries to harness the power of polymers & biopolymers

To improve human wellbeing and enhance global competitiveness

PoliMaT

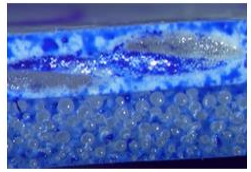
Bechmarking of CE PoliMaT with EU 61 peers within EU*

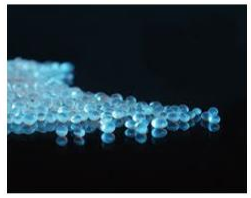
- CE PoliMaT young center → first impacts already visible
- CE PoliMaT business models
  - integrate industry and academia along the value chain,
  - creating new cross-sector interconnections, and
  - supporting cross-industry clusters
- CE PoliMaT plays an important role in the exploitation of research results
  - not only funds for R&D but offers a wide spectrum of SME support services
- CE PoliMaT is a new model for investing Structural funds to initiate innovation

*European Management Excellence Initiative, 2013

Advanced materials applications

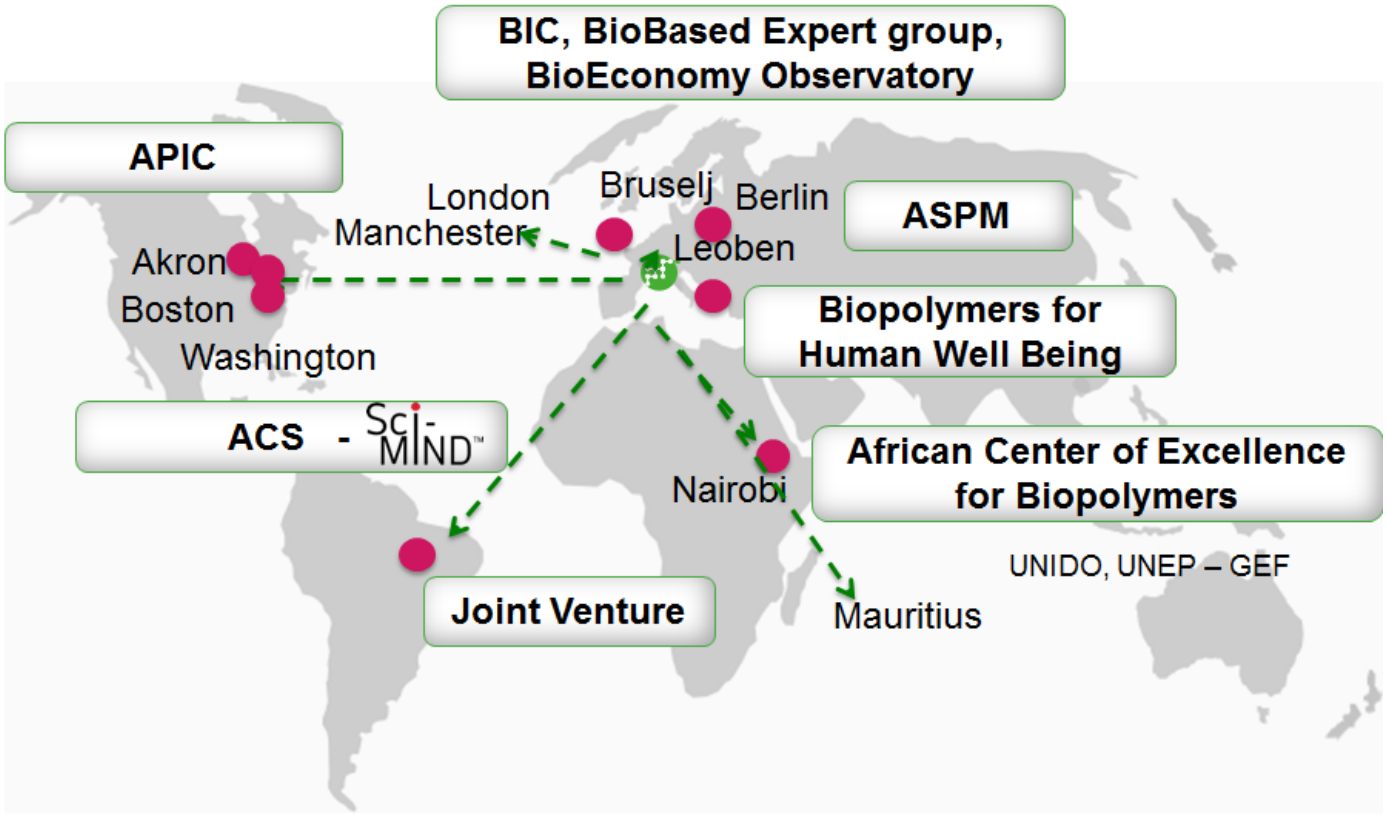
1. Nanomaterials, polymer composites and nanocomposites with significantly improved or new properties
2. Coatings and adhesives
3. Health (implants, wound healing, drug delivery systems)
4. Photovoltaic (plastic solar cells, color selective coatings)
5. Agriculture (micro irrigation, microencapsulated fertilizers, pesticides)
6. Microelectronics, nanoelectronics and optoelectronics, sensors, energy storage





PoliMaT

✓ International collaboration/partnership



Poly4EMI

What we intend to do

- Reshape existing and create new value chains based on the transformative power of biopolymer materials
- Strengthen the competitiveness of the biopolymer industry
- Promote the creation and growth of innovative SMEs
- Create jobs
- Improve resource efficiency and quality of life

Alexis Zrimec, PoliMaT

ChooseBIO - Innovation ePlatform for Bioeconomy to communicate to SME's, develop public private funded innovation, bridge between public grant market and investment and customer market

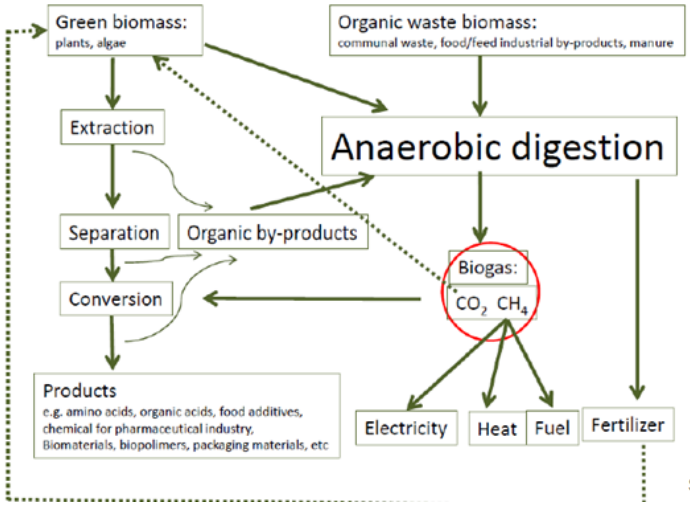
KOTO – collection of biowaste and biofuels production

Biogas plant KOTO Ljubljana

- Built in year 2007
- From organic waste we produce biogas which is used for coproduction of electricity and heat

Bioeconomy

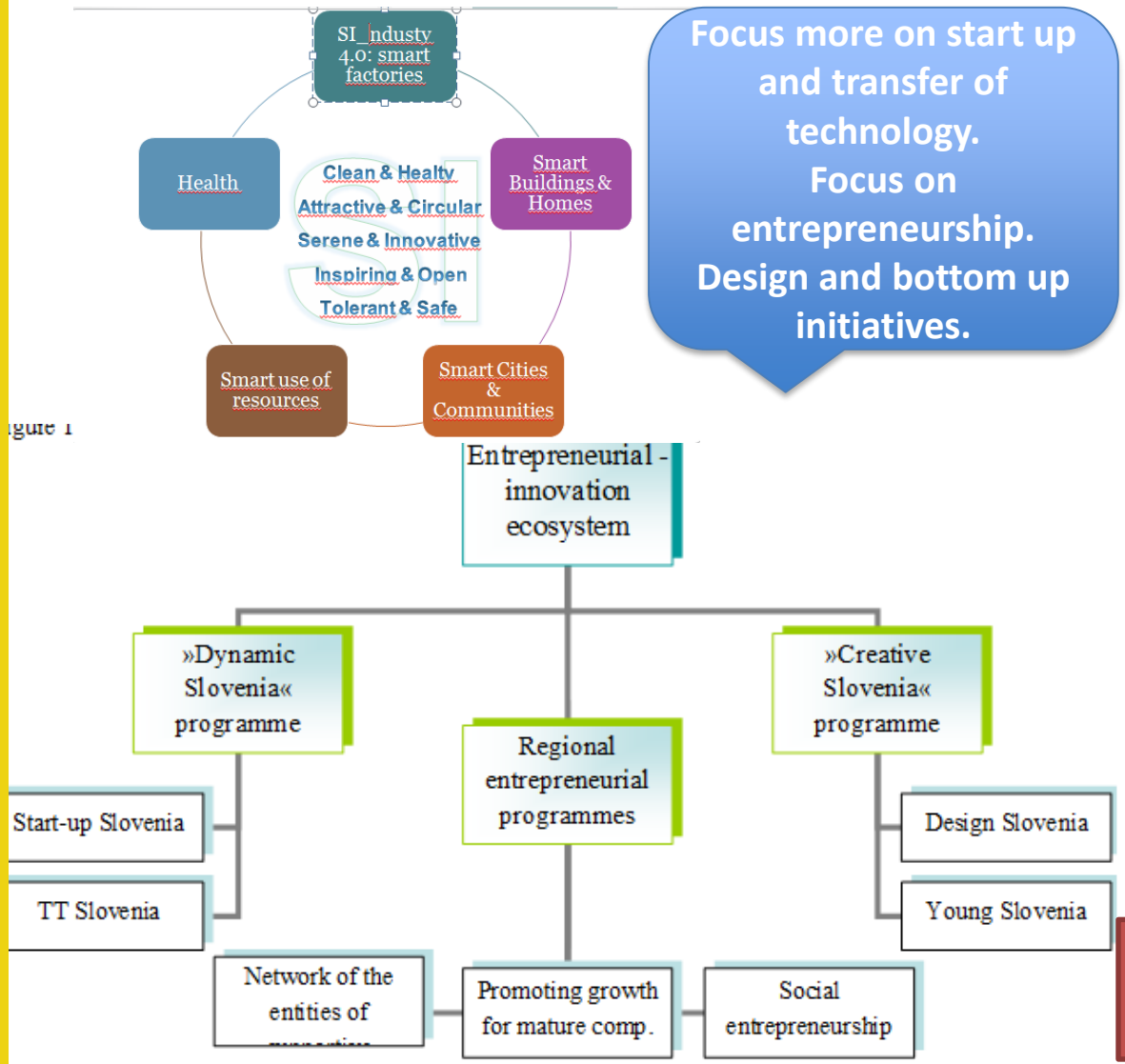
Anaerobic digestion as a bio-refinery



Source EBA

Peter Wostner, Office for Development and European Cohesion Policy

Smart specialisation strategy Slovenia



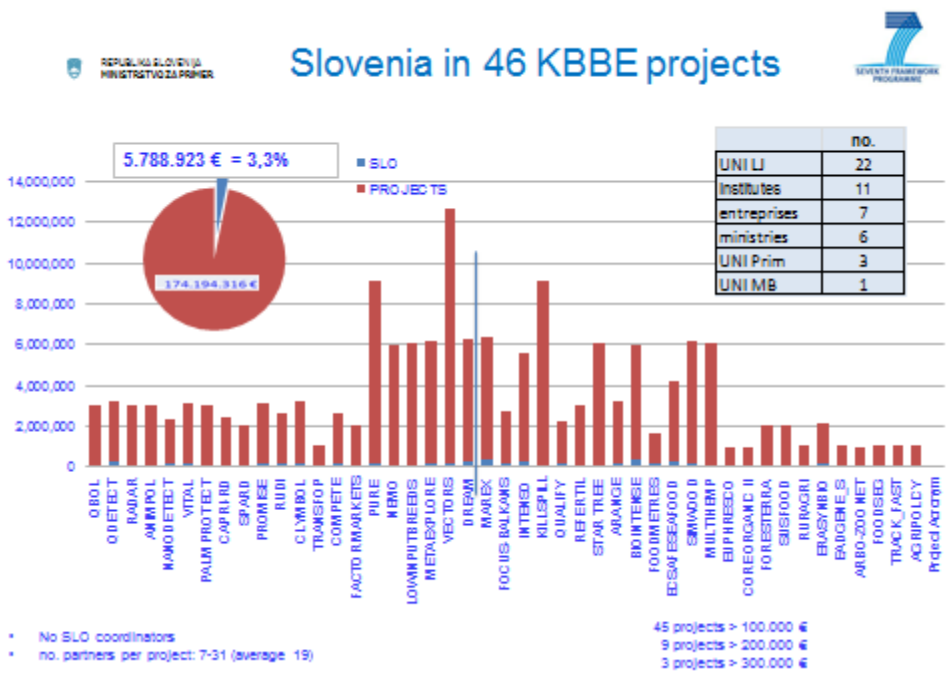
Focus more on start up and transfer of technology. Focus on entrepreneurship. Design and bottom up initiatives.

- Participative process to develop RIS3
- Knowledge transfer – have it but do not make use of it
- Entrepreneurship, creativity and talent – could be improved
- Internationalisation – to bring the world to Slovenia and vice versa.

Bioeconomy is one of the most important industries of Slovenia

Marta Šabec, Ministry of Education, Science and Sport, Directorate for Science

Research to boost bioeconomy



- European funding to boost bioeconomy
- Other EU funding: Era net and JTI BBI (Joint Technology Innitiative BioBased Industries)

Jon Stenning (Camecon), WP1 leader

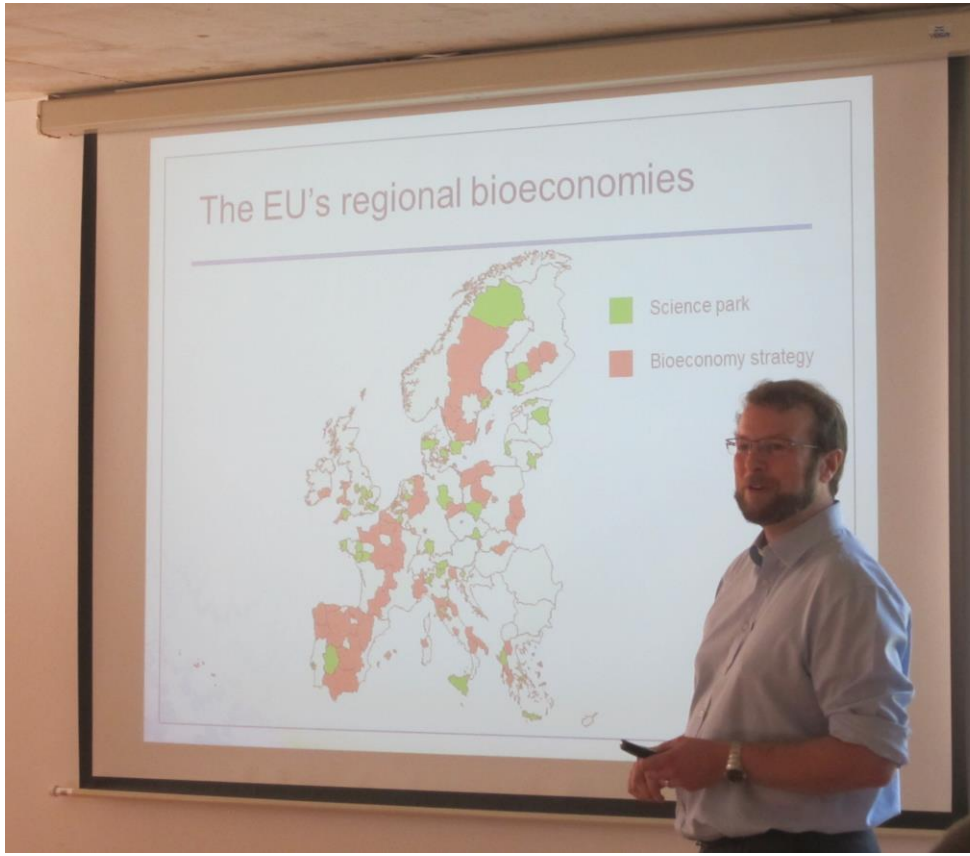
Comparing European bioregions

- Comparing data on nuts2 level to identify characteristics of European bioregions
- Clusters are difficult to identify in the data

- **Finding 1:** Agriculture is not a prerequisite of bio-economy
  - import potential of biomass is also important– Madrid has no biomass in itself
  - if it was a prerequisite, then Greece would have much potential
- **Finding 2:** bioeconomy does not result in much more employment - Max 9% employment in bioregions - Science and technology employment is not a good proxy for bioeconomy
- **Finding 3:** Bioeconomy underperforms in terms of patents

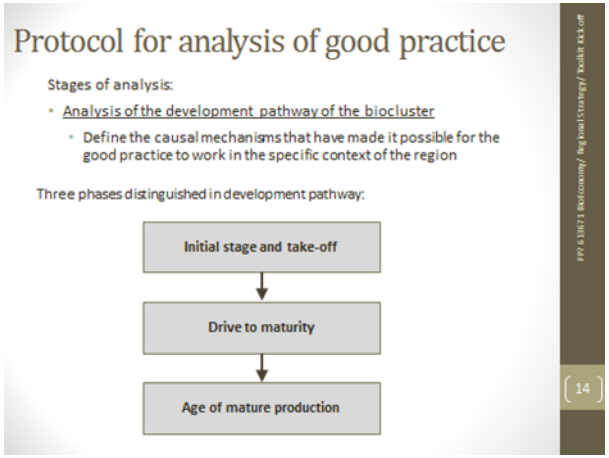
- **Conclusion:** pan-European data is not sufficiently detailed

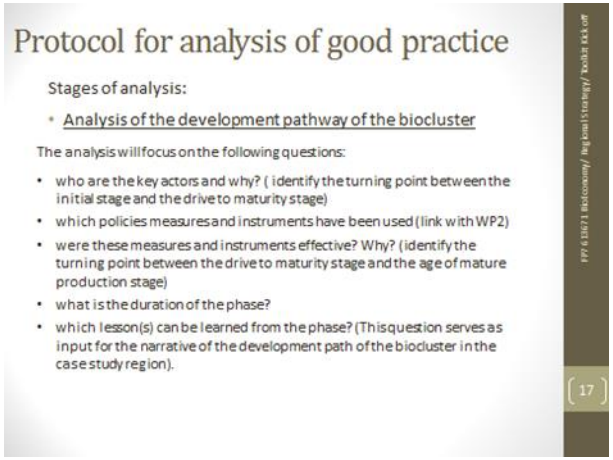
- An alternative approach, would it be possible to collect national or regional data?
- make use of Raw Material Index, which is to be developed
- make use of subsectors, but hard to compare
- typology is necessary, but: keep it simple



Gareth Brown, (Imperial College), WP3 leader

Ways to explore good practices





- ✓ CoP participants are:
  - ✓ In search for the common ingredients of good practices
  - ✓ Wants to understand the processes underlying the good practices
  - ✓ Prefer to get the information about good practices in an easy-to-read way
- ✓ Different ways in collecting information about good practices: to be further explored in next work session
- ✓ Key questions:
  - ✓ How do we ensure applicability of demonstrated practice to new sites? Can we?
  - ✓ How do we account for changing contexts (what is a good practice today may not be good enough or even good in the future)?

Group reflection

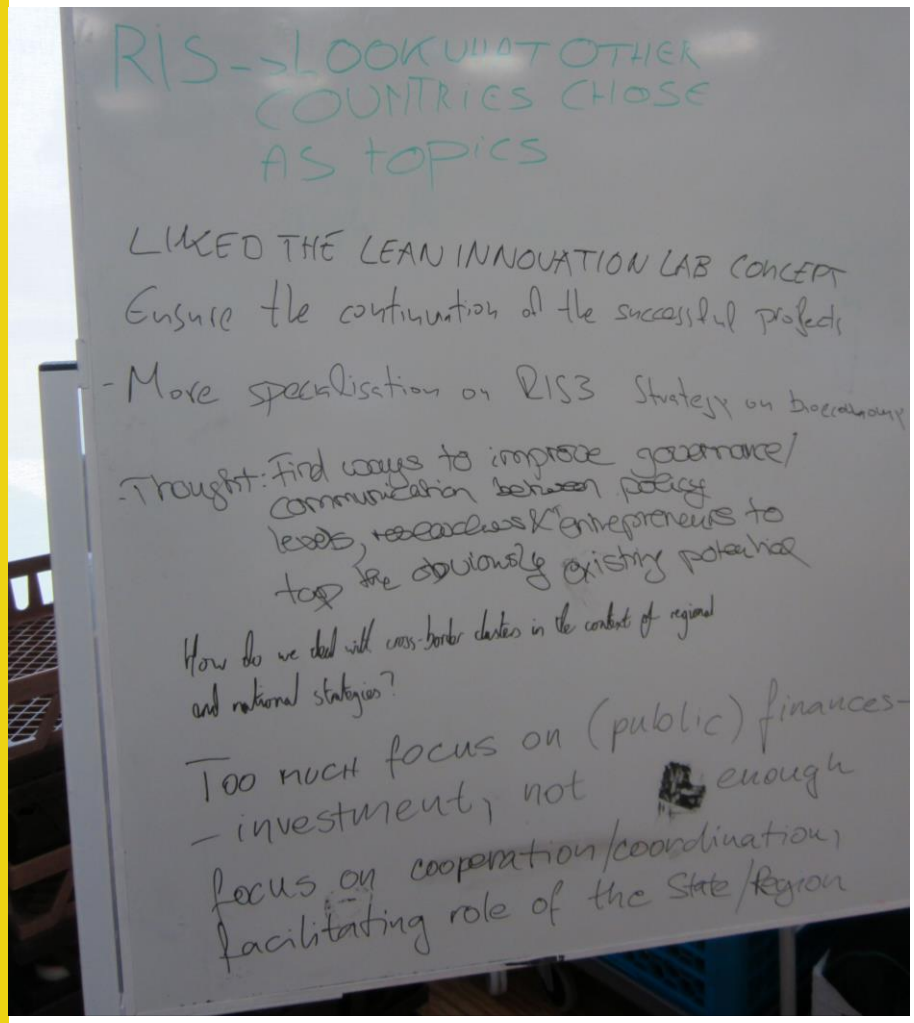
Eye-openers of day 1

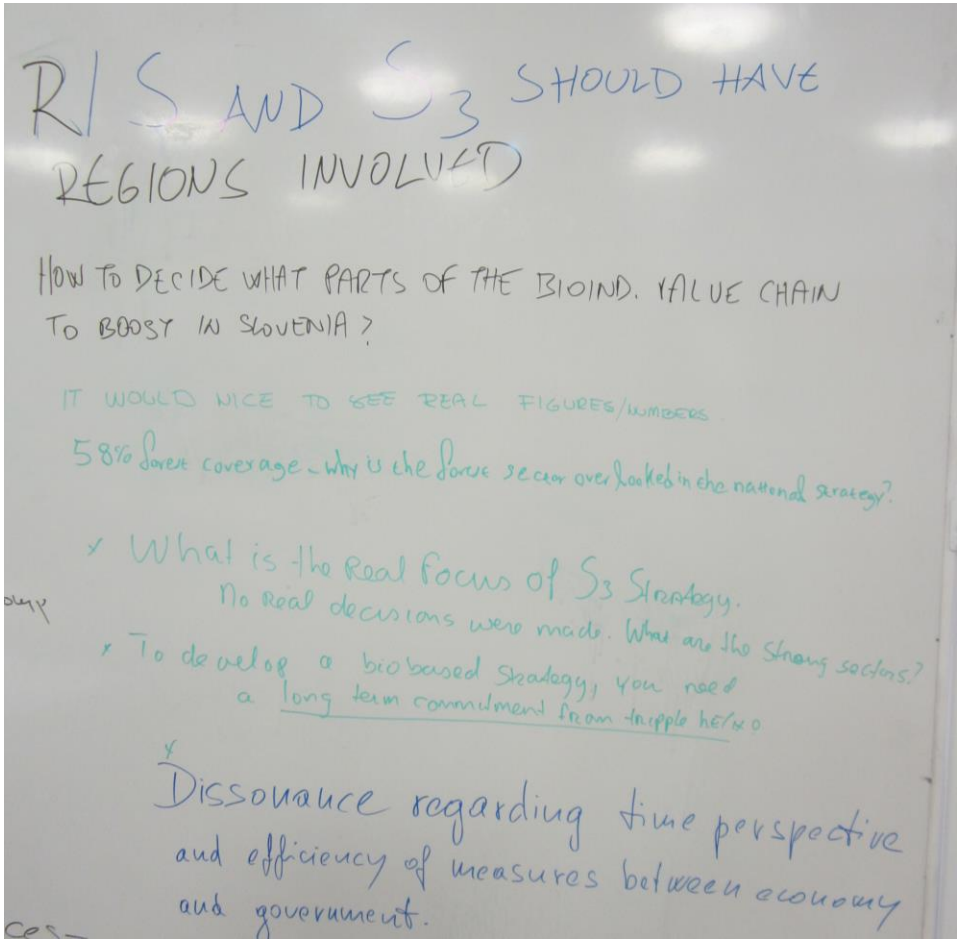
Group reflection

Eye-openers of day 1

Group reflection

Reflection on Slovenian Bioeconomy





Anneli Ylimartimo, WP4 leader, JAMK

Developing regional profiles

Regional profile

- Assesses the bioeconomy potential, based on socio-economic, environmental and technological criteria
- Improve / develop the present bioeconomy status of the region

Outcome group brainstorm

✓ **Benefits of using regional profiles?**

Narrowing down the possibilities into priorities

✓ **Utility of regional profile in practice?**

Tool for monitoring the progress (eg. Quarterly

Information for potential investors (externally) and stakeholders (internally)

✓ **Who will use it?**

Regional developers – both public and private sectors, as well as R&D program managers

Politicians to develop strategies – info must be easy to digest for all the end-users (quest for different kind of regional profiles

Business developers – also working in individual companies - finance and funding

Anneli Ylimartimo, WP4 leader, JAMK

Developing regional profiles

Regional profile

- Assesses the bioeconomy potential, based on socio-economic, environmental and technological criteria
- Improve / develop the present bioeconomy status of the region

Outcome group brainstorm

✓ **Effect of using in regional profiles:**

More comprehensive understanding about the bioeconomy (potential) on the regional level

Stimulation of cross-sectoral cross-overs (triple helix)

Understanding what other regions do – help to find regions to collaborate with

Evidence to compare the region with others (benchmark)

How strong are we in our bioeconomy development?

✓ **What information** core aspects of the regional profile

- ✓ Economic aspects:
  - Jobs, structure of the economy, income
- ✓ How is biomass used
- ✓ What sectors and companies do you have in your region:
- ✓ Building blocks: Landscaping the biobased industry building blocks with connecting flows (material, people, value) = identify hotspots of value chains (networks and webs)

Ruben Guisson, WP2 leader, VITO

Catalogue of Instruments and Measures to build

Aim of WP2 is to make **a catalogue of instruments and measures** that are currently used to build bioeconomies in Europe

September 2014: launch of BERST Instruments & Measures tool

Objective:

- Current European bioregions populate the tool with the instruments and measures that are used in their regions to build the bioeconomy.

- Please feel free to contribute or search within the BERST I&M catalogue at https://biobased.vito.be/

Field trip

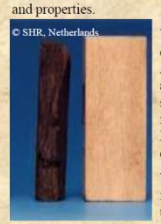
Silvaprodukt d.o.o.

The Modification of Wood - A Network Approach

Wood is an excellent material for the building and construction industry. It also has the benefit of being a renewable material and CO_2 neutral. With the correct treatment it can have a long service life.

Why Modify Wood?

Today there is a growing need for developing methods which allow treatment with little or no environmental issues. This is not to say that all current treatments are harmful and should be banned. It is in the interest of the wood industry to find new ways to treat timber, so keeping or improving the natural looks and properties.



Wood is made up of cells containing **cellulose**, **hemicellulose** and **lignin**. Altering (modifying) these molecules alters the water uptake, and subsequent **swelling**, **shrinkage** and **fungal attack** may be controlled. Increased **UV stability** may be obtained by modifying the lignin.

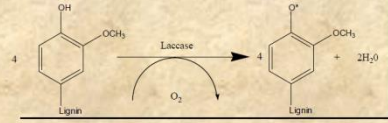
Whilst modification has been known for several decades, it is only now that there is an increased interest.

Three methods of modifying wood exist and will be considered by the Network:

- **Enzyme modification**
- **Chemical modification**
- **Thermal modification**

Enzyme Modification

The use of enzymes offers the chance of modifying timber under **ambient conditions**. **Laccase** can alter the structure of **lignin** within wood, so improving its behaviour, for example increasing the number of active sites available in the hot pressing of fibres.

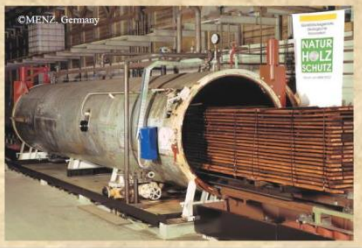


Chemical Modification

This is the addition of a **reagent** which will **react with wood** to add **new chemical groups** into the wood. Most of these reagents react with a **hydroxy (OH)** group in the wood structure. The most common method of chemically modifying wood is the **acetylation process**, which improves several properties considerably.

Thermal Modification

Instead of chemically modifying wood it is possible to change the structure of the wood by a **thermal process**. This can by using **heat**, **steam** or **oil immersion**. The result is a more **stable product**, with **enhanced appearance** and **improved durability**.



How do We Proceed?

There are a lot of groups each working on their own meth modifying wood. To help co-ordinate the work, a **Thematic N** funded by the **European Commission** has been formed betw **partners across Europe**. It is their aim to identify the b forward for the modification of wood.

How the Network can Help

It is hoped that by encouraging the interaction of many E companies and institutes, a common research programme developed. This will allow faster development of new proces improvements to the environment and the end-user.

For more information of the Network, see our Web Page:

http://www.woodmodification-network.org

The Network is funded by the European Union Fifth Framework Programme, namely: "Promoting Competitive and Sustainable Growth"

For more information on the Thematic Network (Slovenia), cont

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Making connection

Ambition is to connect the BERST CoP with existing platforms like:

ERRIN - http://www.errin.eu/

organising feedback and input workshop

Open days

participation October 2014

Online dialogue

fostering

Interested in the toolkit?

Join the Community of Practice!

Policymakers, cluster managers, entrepreneurs interested in Bioeconomy development are welcome to join Community of Practice!

Check our website
www.berst.eu
or contact
Remco.Kranendonk@wur.nl
Ingrid.Coninx@wur.nl