

CIRCULAR ECONOMY - A GLOBAL CHALLENGE FOR CONSTRUCTION INDUSTRY.

2ND ECCA CONFERENCE

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MIĘDZYNARODOWA KONFERENCJA
„BUDOWNICTWO WOBEC
GLOBALNYCH WYZWAŃ GOSPODARKI
O OBIEGU ZAMKNIĘTYM”

5 grudnia 2017 r., Kołobrzeg



Internationalization Strategy and Action Plan for third countries

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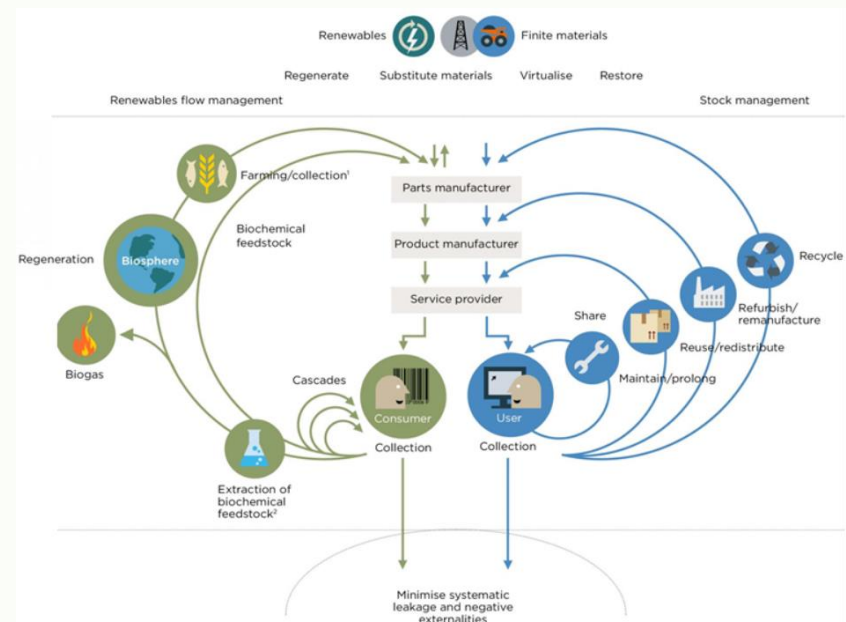


A pile of CDW – global challenge?

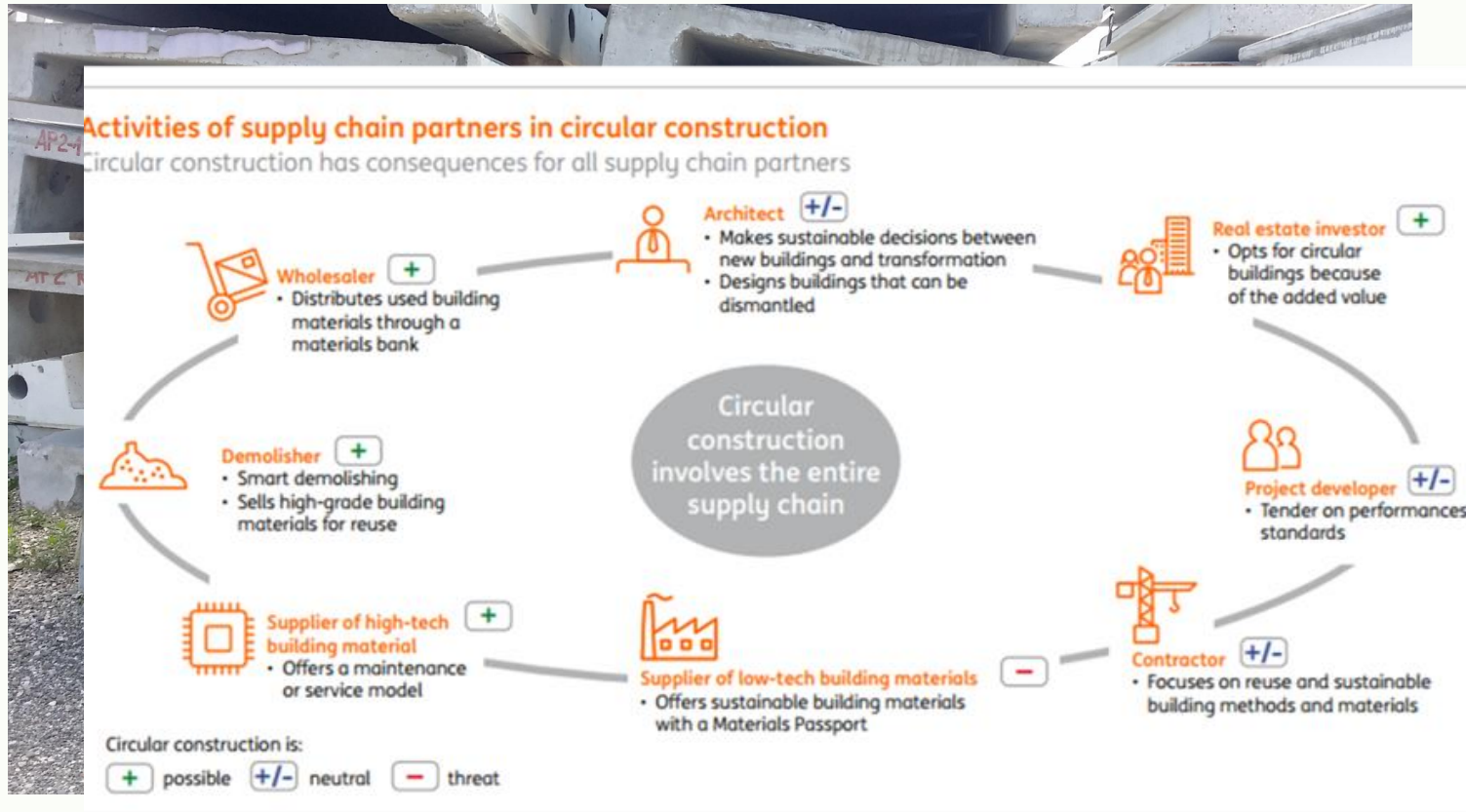


Circular economy

- ▶ Industrial system that is restorative or regenerative by intention and design
- ▶ Designs out negative externalities, for example the waste – waste becomes resource
- ▶ Added value of products is designed and maintained as long as possible
- ▶ Resources are re-used / cycles of reuse
- ▶ Innovation throughout value chain and life cycle: new designs, new customers behaviour, new business models



Circular construction



- ▶ Construction value chain integrated solutions (products, services, technologies) applying circular economy
- ▶ Competitive advantage of a group of collaborative SMEs supported by clusters

Circular construction – a global challenge

- ▶ 45% of worldwide energy consumption
- ▶ EU28 renovation - 570 Mt/year of CDW by 2030
- ▶ Unstable prices of raw materials
- ▶ Sustainable performance on lower life cycle costs
- ▶ Rigid regulation, low trust among customers, slow changes of value chains and business models
- ▶ Collaboration beyond the companies' borders but also cross-sector collaboration



Internationalization opportunity

- ▶ Fast growth of emerging markets - Asia-Pacific region, in the Middle East, in North and Sub-Sahara Africa and in Latin America



- ▶ Advanced construction services, products and solutions are expected to be delivered by local construction industry



- ▶ European circular construction solutions delivered by alliance of clusters and their members (ECCA)

Circular construction for third markets

- ▶ solutions integrated into a value chain
 - ▶ collaborative approach with local value chain actors,
 - ▶ win-win approach
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- ▶ **Winning in emerging or growing markets is a business of partnerships**



Focus areas

1. Smart building & city
2. CDW management
3. Wood based building sustainability
4. Bio house



Smart building & city

- ▶ Energy Efficient / Nearly Zero Energy Buildings - integration with CE principles
- ▶ Production and supply smart building components, HVAC and other equipment
- ▶ Building management systems (energy management, operation, monitoring)
- ▶ Smart building components/appliances/utilities integrated with BMS
- ▶ Smart/Circular design: modular& flexible design, replicability
- ▶ Building & e-mobility integration
- ▶ Smart materials and components
- ▶ Building as a service (replacing ownership to service)
- ▶ Interoperability/ inter-linkage with smart city (with energy/water/other utilities)
- ▶ Circular urban/district planning
- ▶ Construction 4.0: IOT/BIM supported building material and components database,
- ▶ Existing building digitalization (3D scanning and modelling)



CDW management

- ▶ Dismantling, selective deconstruction, re-use even on site
- ▶ Resource efficient separation and collection systems,
- ▶ On site-recycling & use of recycled materials
- ▶ Use of industrial waste/end-of-life materials from other industries
- ▶ CDW market development,
- ▶ Recycling techniques/technologies
- ▶ Light weight products development,
- ▶ Manufacturing of construction products by using recycled materials and reusing existing materials,
- ▶ Use waste (inner loop) as a fuel in production processes,
- ▶ Eco-remediation of queries
- ▶ Design for disassembly, re-use and remanufacturing
- ▶ Extending lifetime durability of products and components



Wood based building sustainability

- ▶ Forest-wood-building-energy value chain integration
- ▶ Advanced wood and composite products, hybrid wood products
- ▶ Prefabricated houses
- ▶ Wood- based building refurbishment systems



4. Bio house

- ▶ Bioclimatic house, nature based design,
 - ▶ Rational use of local and natural renewable materials
 - ▶ Production and supply of bio-based and biodegradable materials
 - ▶ Use of products and by-products of agriculture
 - ▶ Natural, bio based insulation material
 - ▶ Integration of eco/sustainable design and solutions to new and retrofitted buildings,
 - ▶ Biomass use in construction
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Target markets

- ▶ Growing markets, options to expanding to markets in the region
- ▶ Openness for collaboration with EU
- ▶ Interest and needs for technology transfer
- ▶ Financing opportunities, support programmes and incentives
- ▶ **China, India, United Arab Emirates, Mexico, Canada and Morocco**, not excluding other countries if there will be active engagement of ECCA partners.



Competences and cooperation interest for thematic areas and targeted third markets

- ▶ Thematic area: Smart buildings and cities (**Canada, China, India, UAE**)
- ▶ Smart materials and components (30%) – target markets: **China, India, Canada, Morocco**
- ▶ Smart/Circular design: modular& flexible design, replicability (29%) – target markets: **Canada, China, India, Morocco**
- ▶ Energy Efficient / Nearly Zero Energy Buildings - integration with CE principles (28%) – target markets: **Canada, Morocco, Mexico**
- ▶ Smart building components/appliances/utilities integrated with BMS (27%) – target markets: **China, India, UAE, Canada**
- ▶ Existing building digitalization (3D scanning and modelling) (27%) – target markets: **Canada, UAE**
- ▶
- ▶ Thematic area: Construction and demolition waste management (**India, Morocco, Canada, Mexico**)
- ▶ On site-recycling & use of recycled materials (30%) – target markets: **Morocco, India, UAE, Mexico**
- ▶ Resource efficient separation and collection systems (27%) – target markets: **India, Mexico, Morocco**
- ▶ Use of industrial waste/end-of-life materials from other industries (27%) – target markets: **India, Mexico, Canada, Morocco**
- ▶
- ▶ Thematic area: Wood based building sustainability (**Canada, Mexico**)
- ▶ Prefabricated houses (27%) – target markets: **Canada, Mexico**
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- ▶ Thematic area: Bio house (**Canada, India, Morocco, Mexico**)
- ▶ Integration of eco/sustainable design and solutions to new and retrofitted buildings (26%) – target markets: **Canada, Mexico, Morocco**
- ▶ Biomass use in construction (25%) – target markets: **Canada, India**

SWOT analysis of circular construction internationalization

Strengths

Cluster collaboration
Circular economy – highly supported by policies
High level of knowledge / IPR for number of solutions
Partnerships can close/complete new value chains
Complementary knowledge and technologies in thematic areas

Opportunities

Replication of solutions for different markets
Demonstration and pilots in EU
Highly growing market
R&D collaboration with third markets
Internationalization support services on national level, and EU
Web based promotion, communication and collaboration
EU brand / quality mark

Weaknesses

Communication (language) in partnerships
Lack of market intelligence
Lack of competences on business and value chain collaboration
CE principles implemented on whole value chain level
Lack of expertise to implement circular solutions
Low competences (SME) on internationalization
Risk of changing business model

Threats

Change of mind set needed
Low market readiness of CC solutions
Low market acceptance of CC solutions
Quality of the (meta)-cluster management
SME – funding for internationalization / demonstrators
Cost of meeting regulation and standards
Complex/unknown administrative and legal barriers
Cost / prices consideration compare to traditional solutions

▶ Difficulties to identify business partners

SWOT analysis of circular construction internationalization

Strengths

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High level of knowledge / IPR for number of solutions

Partnerships can close / complete new value chain internationalization support services on chains

Complementary knowledge and technologies in Web based promotion, communication and thematic areas collaboration

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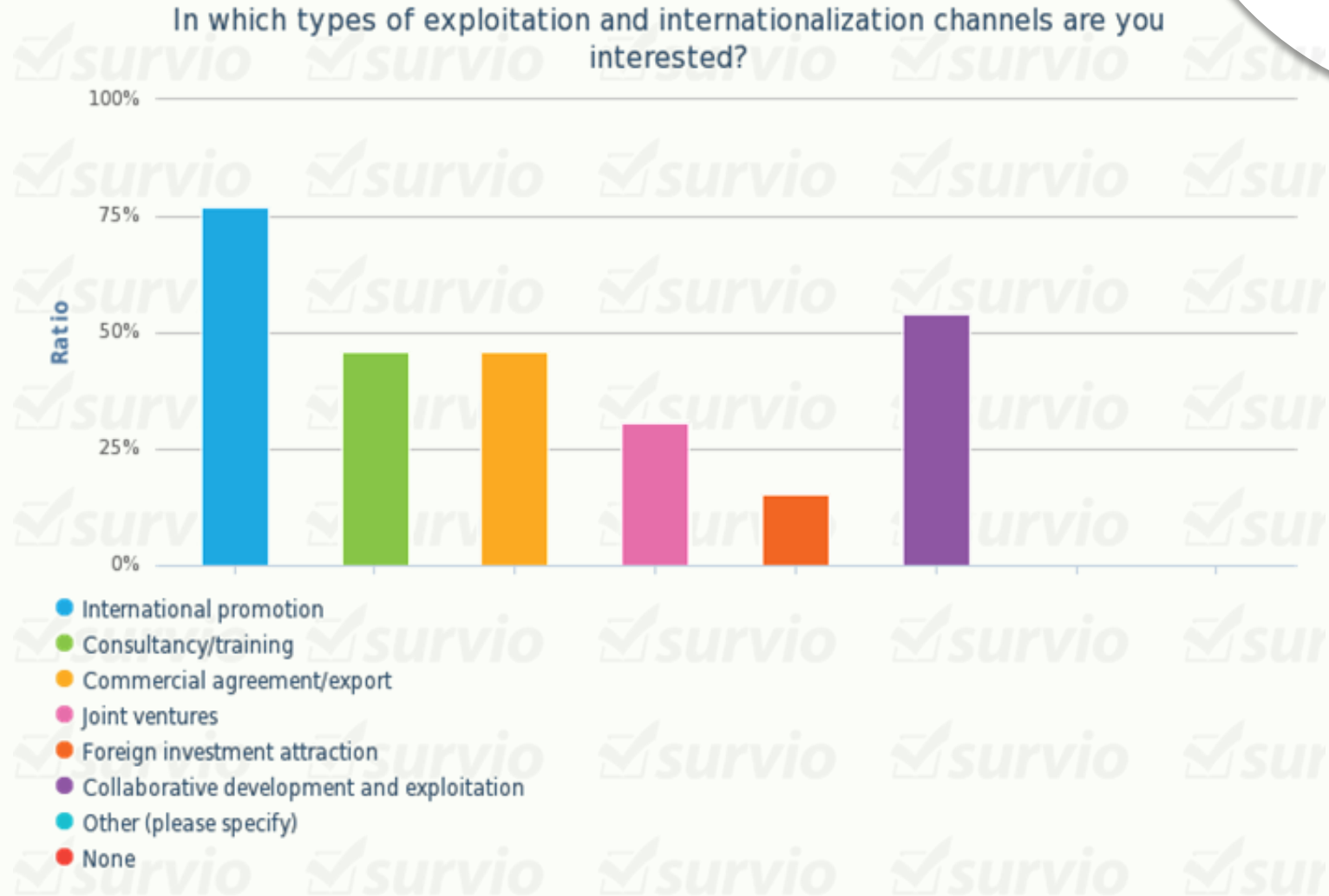
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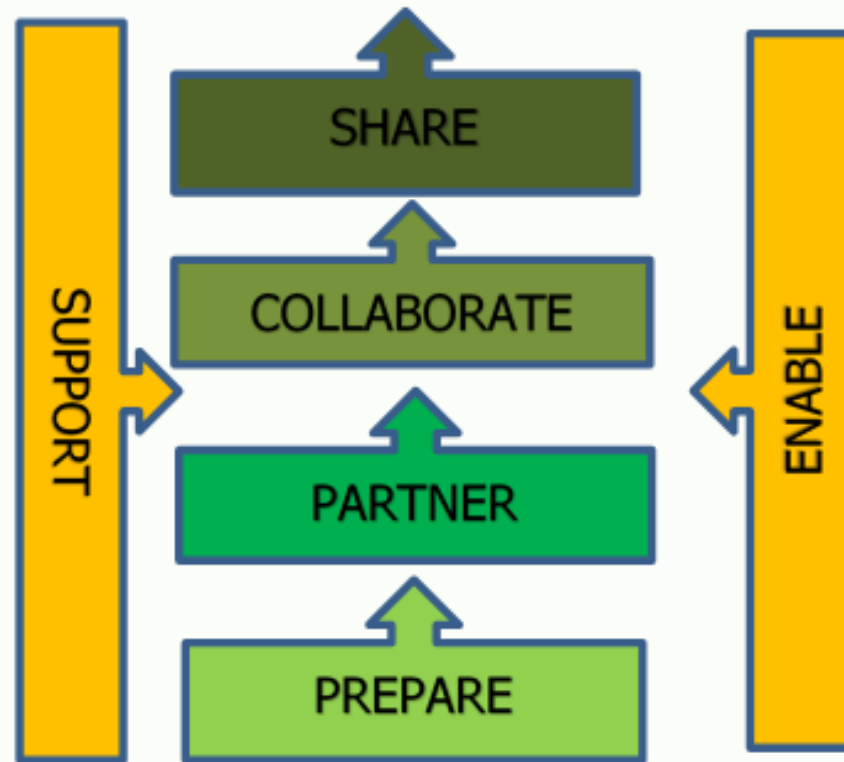
Winning in emerging or growing markets is a business of partnership

What ECCA clusters expect in terms of internationalization



Internationalization strategy

- ▶ Focus: International collaborative innovation
- ▶ ECCA internationalization strategy and innovation eco system



International collaborative innovation partnership (ICIP)

- ▶ Partnerships across countries – different stakeholders involved
 - ▶ Not only business entities
- ▶ Integration of circular construction solutions in the construction value chain
 - ▶ Not market related
- ▶ Complementary competences for target markets
- ▶ Join commercialisation of innovative solutions
 - ▶ WIN-WIN
- ▶ From informal organisation / network to long term strategic partnerships and Joint ventures
- ▶ Step wise approach from promotion and networking to different means of internationalization (commercial, knowledge exchange, technology transfer, Joint venture)



Internationalisation activities

1. Market intelligence, access to market
 2. International promotion and visibility
 3. Matchmaking, networking, partnerships
 4. Collaborative research & development
 5. Consultancy/training/capacity building
 6. Pre-commercial development and innovation
 7. Demonstration activities/projects
 8. Technology transfer
 9. Commercial cooperation / trade
 10. Foreign investment attraction
 11. Strategic innovation partnerships and joint ventures
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ICIP action plan

► Prepare:

- Identification of internationalization opportunity
- Outline the offering of complementary solutions in value chain
- Networking with potential partner on third market
- Feasibility study
- Training for internationalization and collaborative innovation

► Partner:

- partnership's organisation
- win-win collaboration strategy
- build trust,
- choose optional type of collaboration across border, from traditional sales/procurement, to long the strategic partnership and joint ventures.

► Collaborate:

- prepare the projects/activities to be done, with roles, schedule and outcomes, mapping the benefits,
- set-up project management, performance indicators, manage risks
- financing plan,
- Drive the project implement
- promote results,

► Share benefits:

- Update the exploitation plan and plan of sharing benefits,
- set-up clear business agreements, including protection of IPR.
- Plan efforts and activities to sustain and upgrade the partnership,
- expand to other value chains, search for complementarities and additional benefits,
- maintain communication and engagement of partners.



ECCA supporting framework

- ▶ Promotion
- ▶ Advanced digital collaboration platform
- ▶ Networking and trust building
- ▶ Training services
- ▶ Mentoring services
- ▶ ECCA Joint branding
- ▶ Financing

Infrastructure and services provided by ECCA alliance, clusters involved, and different so called gateway partners, such as ELAN Network or private consultancies



ECCA enabling framework

**ensures supportive legal, regulatory,
economic, social environment which
empowers and enables international R&D,
innovative and business collaboration**



Sustainability plan

- ▶ Leading team for excellent meta- cluster.
- ▶ ECCA as a co-financing agency
- ▶ Short term sustainability plan



Synergies with other funding schemes

- ▶ regionally dispersed co-financing mix
 - ▶ clusters will be channelling different co-financing options they can access in their countries or regions to collaborative innovation programmes
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- ▶ EU Horizon 2020, COSME ...
 - ▶ Inter-regional activities, notably cluster cooperation funded under the European Territorial Cooperation Regulation (INTERREG) and the European Structural and Investment Fund (ESIF) - **reference to smart specialisation strategies**
 - ▶ Other sources such as crowd funding (End-users that in return for their input receive the end-product/service), disruptive financing schemes (crypto currencies/blockchain).
 - ▶ Business angels, ventures investments, investment funds (private, public), loans schemes (EIB, national entrepreneurship loan schemes).
 - ▶ International funding schemes (UN; UNESCO, WEF...)
 - ▶ Co-financing programmes, incentive schemes in third partnering countries of ICIP, bilateral R&D funding schemes between countries.



Conclusion



Thank you for your attention

Dziękuję za uwagę

