



**ECCA PROJECT - 690364**

Adopting Circular Economy for internationalization and  
global competitiveness of European SMEs in Building and Construction



Internationalisation strategy plan

(Deliverable D4.2)



Co-funded  
by the COSME programme  
of the European Union

**Funded by:**

---

#### Disclaimer

This document contains material, which is copyright of certain ECCA PARTICIPANTS and may not be reproduced or copied without permission. The information contained in this document is the proprietary confidential information of certain ECCA PARTICIPANTS and may not be disclosed except in accordance with the regulations agreed in the Project Consortium Agreement (PCA).

The commercial use of any information in this document may require a licence from the proprietor of that information.

Neither the PARTICIPANTS warrant that the information contained in this document is capable of use, or that use of the information is free from risk, and accepts no liability for loss or damage suffered by any person using the information.

## 1 Circular Construction - global challenge and internationalization opportunity

Buildings still account for 45% of worldwide energy<sup>1</sup> but also for enormous resource consumption. For example, the construction industry and the EU28 renovation segment is the largest single waste source being generated (42% covering 461 Mt/year of CDW and expected to reach close to 570 Mt/year in 2030)<sup>2</sup>. EU policies and policies worldwide recognise that the sector needs immediate mitigation actions for greenhouse gases (GHG) emissions, climate change and resources, **focusing on circular economy approach**. This is a global challenge and **opportunity for growth and internationalization**. Transition to a more circular economy requires changes throughout value chains, from product design to new business and market models, from new ways of turning waste into a resource to new models of consumer behaviour<sup>3</sup>. **Circular construction adopts the principles of circular economy along the life-cycle of buildings**. Design and construction of resource efficient, smart, modular, durable, easy to dismantle buildings, building as a service, off-site production, integration with mobility services, re-use of components, use of recycled materials, reduction of waste at retrofitting and demolishing, CDW management - are some of the challenges of the circular construction. Circular construction involves the entire supply chain, it changes many traditional business models and requires cross sector collaboration with different business actors which need to integrate their products and services in a complex product such as smart building. European construction companies have played **leading role in development and implementation of energy efficient, sustainable, eco-innovative and smart solutions** which are being upgraded to circular solutions, for example in CDW management and in many other fields. This international competitiveness need to play an increasingly important role for the long-term sustainability of the construction sector, especially if we consider that the European markets are predicted to be overall less dynamic than emerging markets in the Asia-Pacific region, in the Middle East, in North and Sub-Sahara Africa and in Latin America<sup>4</sup>. Despite a huge potential for internationalization, European cluster and their members face a number of barriers to foster internationalization of circular construction solutions:

1. A number of circular construction has been put to the market and many are still being developed, or face barriers of rigid regulation, low trust among customers, slow changes of value chains and business models.
2. While the resource efficiency within company borders has been addressed by industry for years – the circular approach in most cases requires collaboration beyond the companies' borders but also cross-sector collaboration.
3. Going on a third or any market is for circular construction solution (such as circular approach to CDW management) much more market (framework conditions), dependent and challenging compared to some consumable or product for end users. The market barriers in any, including third countries, need again collaborative approach with local value chain actors, and new business models of capturing and sharing of the value delivered.

These are the reasons that ECCA stresses the importance of, and support the collaborative approach to development, promotion, and internationalization of the circular construction solutions. **Winning in emerging or growing markets is a business of partnerships**, whether with local individuals or firms with which a journey of mutual interest can be commenced together<sup>5</sup>. Increased digital connectivity between people, products and systems, driven by the internet and mobile technology, enable effective global collaboration. Collaborative working is increasing in the construction sector (and in many other domains), where large projects require both cross functional teams, multiple actors and sub-contractors as well as

<sup>1</sup> <http://www.nature.com/news/2008/080402/full/452520a.html?p=133>

<sup>2</sup> <http://www.hiserproject.eu/index.php/our-goal>

<sup>3</sup> Towards a circular economy: A zero waste programme for Europe

<sup>4</sup> Analytical Report Fostering the international com. of EU constr. enterprises, ECSO report, April 2017

<sup>5</sup> The New Ways to Win in Emerging Markets, by David Wijeratne, Gagan Oberoi, and Shashank Tripathi, [https://www.strategy-business.com/global\\_perspective](https://www.strategy-business.com/global_perspective)

multidisciplinary inputs<sup>6</sup>. With disruptive technologies such as BIM, 3D printing, IOT, blockchain, the construction is going through deep changes. And this applies for internationalization too. **Inter-regional, cross-country collaborative innovation and collaborative innovation partnerships supported by advanced web collaboration platform are in the core of the ECCA internationalization strategy plan.**

## 2 ECCA – supporting collaboration and internationalization in circular construction

The ECCA alliance (<http://circularconstruction.eu>) started within the EU COSME supported project (Grant Agreement 690364). **European Circular Construction Alliance is a voluntary, open alliance of complementary clusters and supporting organizations (meta cluster)** interested for inter-cluster, cross-border and cross-sectoral collaboration adopting circular economy for internationalization and global competitiveness of European SMEs in building and construction. **ECCA vision** is to position European cluster organizations and equivalent network organization and their members in construction sector and related industries as globally competitive actors in innovation, deployment and marketing of circular economy solutions and technologies in European and global markets, and thereby, to contribute to the European Commission's objectives to boost growth, jobs and investment in Europe. **ECCA mission** is to develop and implement a joint internationalization strategy in the field of circular construction, fostering EU-wide collaboration for innovation and market-uptake, and marketing of competitive products, services and technologies in the field of circular construction and support SMEs in global competition. **ECCA strategic objectives:**

- To intensify cluster and business network collaboration across borders and sectoral boundaries
- To promote the pan-European Strategic Cluster Partnerships to lead international cluster cooperation in new areas
- To help SMEs to contribute to the emergence of new value chains and take a leading position globally
- To develop a roadmap for implementation with a long-term cooperation agenda to foster the sustainability of the partnership

**ECCA partners** are clusters represented through innovation cluster organizations, circular economy related cluster organizations, or similar business network organizations. **ECCA supporting organizations** are other organisations and individuals such as R&D organisation, universities, public organisations, policy makers, experts, individual SMEs and large companies which are not members of particular cluster but clearly support the mission and objectives of the alliance.

SWOT analysis of circular construction internationalization:

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>Cluster competences on collaboration</li> <li>Circular economy – highly supported by policies</li> <li>High level of knowledge / IPR for number of solutions</li> <li>Partnerships can close/complete new value chains</li> <li>Complementary knowledge and technologies in thematic areas</li> </ul>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Replication of solutions for different markets</li> <li>Demonstration and pilots in EU</li> <li>Highly growing market</li> <li>R&amp;D collaboration with third markets</li> <li>Internationalization support services on national level, and EU</li> <li>Web based promotion, communication and collaboration</li> <li>EU brand / quality mark</li> </ul>
<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Communication (language) in partnerships</li> <li>Lack of market intelligence</li> <li>Lack of competences on business and value chain collaboration</li> <li>CE principles implemented on whole value chain level</li> <li>Lack of expertise to implement circular solutions</li> <li>Low competences (SME) on internationalization</li> <li>Risk of changing business model</li> <li>Difficulties to identify business partners</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Change of mind set needed</li> <li>Low market readiness of CC solutions</li> <li>Low market acceptance of CC solutions (price, regulations)</li> <li>Quality of the (meta)-cluster management</li> <li>SME – funding for internationalization / demonstrators</li> <li>Cost of meeting regulation and standards</li> <li>Complex/unknown administrative and legal barriers</li> <li>Cost / prices consideration compare to traditional solutions</li> </ul>

<sup>6</sup> LinkedIn, Stefano Corosio, September 2017

### 3 Advanced circular solutions for global markets

The circular construction builds upon intensive clustering of activities and industry actors in construction sector, in the whole construction value chain, and most importantly with other industries (eco-innovative, green technologies, waste management) and stakeholders (such as municipalities or knowledge actors). The following thematic focus areas for new value chain creation were defined:

1. Smart building & city
2. Construction and demolition waste management
3. Wood based building sustainability
4. Bio house

Based on two surveys (April 2017, October 2017) the **competences and interest for particular technologies and solutions within thematic areas** were outlined. The survey in October 2017 addressed also the potential markets where clusters and cluster members (SMEs) would like to cooperate. 14 out of 23 clusters – ECCA Alliance members – responded to this survey. Analysis of the collected answers suggested that the most interesting third-country market for Alliance members are Canada (21%), India (18%) and Morocco (17%).

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**)

Clusters are interested the most in:

- 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

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

**Third markets presence and internationalization competences:** ECCA partners are present on many European markets, including countries which are not members of the European Unions (e.g. Russia and so called associated countries such as Serbia). However, several American and Asian markets seem to be crucial for activities taken by the examined clusters and ECCA members. For the internationalization, the

promotional activities on third markets, and collaboration developed were clearly indicated as the most valuable, beside consultancy/training, and commercial agreements.

**International activities and cross-sectoral cooperation activities:** Internationalization competence of ECCA partners are mainly in networking during matchmaking events, fairs and forums as the most common starting activity for entering new markets. Most of the ECCA partners (clusters) have already established cooperation – mainly in R&D projects - with at least one of the Alliance member which can be considered as a good starting point for further cooperation and building of trust among potential partners.

**Competences for circular value chains development:** Internalization based on clustering activities assumes that each member can get support for development of international activity, but only if contributes to the initiatives with their own competences. ECCA partners main strength for internationalization is related to **research and development** of new products but can also contribute to market intelligence and technology transfer.

**Benchmarking information on existing international cooperation initiatives:** Circular economy as a global challenge is addressed by different international activities, or national and even local ones. Allen Mc Arthur Foundation, national circular policies` implementation, Smart Specialization implementation (in Slovenia there is national partnership focusing on circular economy), forums (CEP Americas), clubs are promoting the concept, provide training and advice, and networking. A number of H2020 and other EU programmes on R&D are dealing with this topics and support collaboration at the level of project consortia. ECCA complements these activities with a concept of eco-system for support of International collaboration innovation partnerships aiming at development and transfer of novel circular solutions to global markets.

### 3.1 Target markets

In the survey, a broad area of international markets were mentioned as being of clusters` interest. To define narrower target markets, a set of framework conditions was used:

- 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.

**The target circular construction markets beyond Europe to be included in the strategy and action plans are China, India, United Arab Emirates, Mexico, Canada and Morocco, not excluding other countries if there will be active engagement of ECCA partners.** These are the countries in which the ECCA clusters` members would like to undertake internationalisation activities with regard to their products / services. The circular construction potential of the selected markets was approved by desk research analysis. Although, Europe has been a global leader in promoting sustainable growth, at least a few **Asian countries** have also moved towards a highly efficient circular economy.

The **Chinese** government was a first adopter of circular economy in Asia - China's Circular Economy Promotion Law came into force in January 2009. Another Asian target market indicated by the ECCA clusters` members is **India**. To meet the needs of its rapidly urbanising population, India must build 700-900 million square metres of new commercial and residential space every year – the equivalent of what now exists in Chicago.<sup>7</sup> Initiatives such as 100 Smart cities have been initiated.

In the **United Arab Emirates (UAE)**, waste is a major challenge for the country as the average UAE resident produces approximately 1.8 to 2.4 kilograms of waste per day, which is about three times higher than the global average and predominantly disposed of in landfills. Thus, the UAE has a target of diverting 75% of waste from landfills by 2021 via waste-to-energy and other approaches and has already launched sustainability and innovation strategies that are well aligned with multiple forms of circular innovation.

---

<sup>7</sup> CIRCULAR ECONOMY IN INDIA: RETHINKING GROWTH FOR LONG-TERM PROSPERITY by ELLEN MACARTHUR FOUNDATION, p.30

Also **Canada** is moving towards a circular economy model. Amongst several federal and provincial environmental and climate related policies, Canada's drive towards a circular economy has been partially led by the Canadian Council of Ministers of Environment's 2009 Canada Wide Action Plan. The initiative was introduced across provinces to focus on products and packaging waste diversion while reducing public expenditure and encouraging innovation and new jobs through Extended Producer Responsibility (EPR) programs. With EPR programs growing from 33 product categories in 2009 to 94 categories in 2014, governments have actively sought to make industry environmentally and financially responsible for the costs related to collections and recycling.

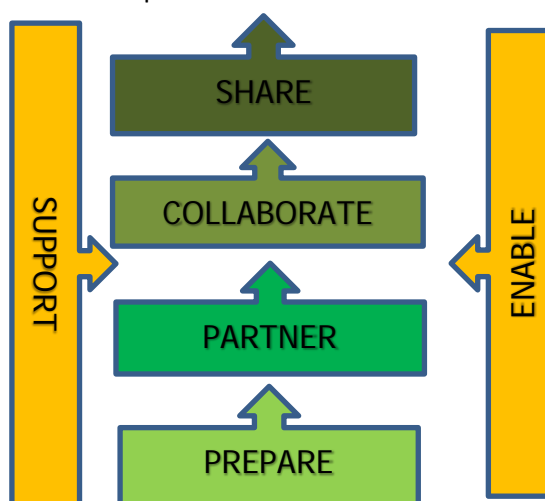
Despite the fact that circular economy thinking and practice is still at an early stage in **Latin America (incl. Mexico)**, an attempt to move away from the current 'take and dispose' approach to exploiting natural resources has already started. Latin America has plenty of natural resources but historically the region has had difficulties translating its wealth into long-term economic development processes. Thus, the circular economy model represents an enormous financial opportunity for businesses in Latin America. Moving towards a circular economy can become a key industrial policy strategy for a job-rich economic recovery, providing triple wins for jobs, business and the environment. **Morocco**<sup>8</sup> is a growing market with a population of more than 11 million. Morocco has strong relationships with EU, USA, Canada, Japan, Turkey, Arab League and other Islamic countries, and is an interesting gateway for sub-Saharan market. Relationships with EU are based in the Euro-Mediterranean Association Agreement EU-Morocco. There are no special barriers for good in building sectors and this is an important sector for trading in Morocco. Morocco is the second country in Africa with larger infrastructures and public work investment, representing 24% of the total in the region. In field of green initiatives, the first activities started Green city where partners might participate in public tenders with circular solutions.

#### 4 Internationalization strategy plan

**International collaborative innovation is the main driver of the ECCA Internationalization strategy plan.**

Collaborative innovation relationships are highly sensitive to the unique situation of each participating cluster, company and/or other stakeholders, and highly dependent of broader framework conditions. ECCA internationalization strategy and innovation eco system defines three pillars (see figure below):

- Collaborative innovation partnerships is implementation framework where promoted market opportunity generate ideas for international collaborative innovation, where the partnerships between business actors are formed, collaboration implemented and benefits shared.
- Supporting framework are the organisations, infrastructure, and services supporting the partnerships by promotion, by enabling advanced digitally supported collaboration, networking and trust building, training, mentoring, IPR services, joint branding, and financing.
- The enabling framework ensures supportive legal, regulatory, economic, social environment which empowers and enables international R&D, innovative and business collaboration.



<sup>8</sup> Analysis for Morocco and Algeria was made by Cluster Construcción Sostenible mainly based on ICEX sources.

**International collaborative innovation partnerships (ICIP)** is the main organisation tool, promoted by ECCA to overcome the challenges and barriers of individual firm (normally SME) going international. The partnership is twofold. Firstly, joint offer of complementary circular construction solutions in the construction value chain brings together different firms and knowledge providers with different competences, making them stronger actor on international market. Secondly, partners in target third markets bring to partnership additional, missing competences, for example access to the market, and complementary value chain actors. In terms of organisation, this can be informal and can grow toward Joint Venture at the mature phase. For ECCA supported international collaborative innovation partnerships the following processes are outlined and will be in detail prepared in action plans:

1. **Prepare:** Market research, identification of opportunities, reasons and objectives for collaborative innovation in across borders, mapping of partners in the partnership, business case and value provision outline, feasibility study, prepare organisations for open, international collaboration and innovation.
2. **Partner:** define partnership's organisation, define win-win collaboration strategy and the partnership's dynamic, build trust, choose optional type of collaboration across border, from traditional sales/procurement, to long the strategic partnership and joint ventures.
3. **Collaborate:** prepare the projects/activities to be done, with roles, schedule and outcomes, mapping the benefits, set-up project management, financing, and performance indicators, manage risks, implement project and promote results,
4. **Share:** 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 internationalization eco system will build on strong and **sustainable supporting framework** of organisations, infrastructure, and services provided by ECCA alliance, clusters involved, and different so called gateway partners, such as ELAN Network or private consultancies.

**Promotion** through web based channels will focus on European circular construction solutions (products/technologies, services/processes, business models enabling implementation of circular economy) already on the market (real investment projects) or being developed. Additionally, current and finished R&D and demonstration projects will be promoted and disseminated to circular construction community, being potential starting point for cross-sectoral and international collaborative innovation. Promotion through digital media will be complemented with international promotion on trade missions into targeted countries, participation on international matchmaking events, brokerage events, conferences and workshops to reach the potential and already identified partners in target third countries.

**Virtualization:** ECCA plans to set-up an advanced digital collaboration platform, enabling effective communication with e-conferences, virtual matchmaking, virtual workspace and co-work management, event management and e-learning tools.

**Networking and trust building:** ECCA SMEs need professional support which would allow them to find good international partners for cooperation and overcome barriers resulted from lack of experience in the area of circular construction and international collaboration. To do this, intermediary organizations that is clusters, partners of ECCA will play the key role when joining in international inter cluster initiatives to facilitate interlinkage of SMEs. Networking activities will focus on setting-up communication and cooperation agreements with clusters and cluster like organizations in target markets, e.g. countries, potential international cooperation partners in countries where clusters are not present or active, and existing gateway partners, that is organisation supporting international cooperation and trade, such as

ELAN network<sup>9</sup>, EU gateway<sup>10</sup>, chambers, governmental bodies/agencies, and consulting organisations for international trade. To set-up win-win partnerships (ICIPs), a number of **trust building activities** will be planned and integrated into the action plans for particular countries.

**Training services** will address the lack of skills in field such as collaborative innovation, management of open innovation, IPR protection, business model design, digital collaboration, international trade and internationalization, and financing. Webinar and distant learning will be complemented with trainings implemented at ECCA meetings.

**Mentoring services** will be provided by competent experts within ECCA partners and by external one, assuring professional and independent service to ICIPs. The ECCA supporting organisation will provide different types of mentoring services optionally via voucher scheme:

- ICIP coordination – the mentors will provide advices and/or coordination services for initiated ICIPs, mainly by cluster managers
- Circular construction mentoring: these services will be provided by experts for the circular economy, for technological focus areas and key enabling technologies, , mainly from *ECCA supporting organisations* (institutes)
- Market mentoring: experts, consultant with hands-on knowledge and information on particular third markets, mainly provided by Gateway partners or external consultants
- IPR services: services provided via EEN, Help Desk, Help Desk Latin America, Help Desk China

**ECCA Joint branding** is not about measuring the quality compare to some standardised or existing market benchmark but about the information how circular economy is addressed. ECCA branding activities will be divided to:

- ECCA brand development related to RESOLVE<sup>11</sup> scheme or some other scheme measuring circular performance.
- Brand protection: ECCA trade mark (graphics) development and protection
- Brand building: promotion of ECCA branded solution on different occasions and channels such as international trade fairs, and brand performance evaluation.

**Financing** services will be very important ICIP coordination services will consulting for the financing of ICIP implementation from financing options for R&D support (H2020, COSME, Interreg...), options for technology transfer (as EUREKA) to options for trade fairs attendances as the most common internationalization activity. One of the key strengths of clusters in general is the knowledge on public co-financing and competence to acquire different co-financings for their members and projects. ECCA being a meta-cluster these competences will exploited on much broader scale than within individual cluster. Different options will be mapped and channelled via mentors to ICIPs` partners.

The main aim of ECCA financing support is to optimize the financing for ICIP and not vice versa. Normally, consortiums are formed to apply to particular call and end when the project is over. The ICIP financing plan should consider internal firms` sources (in-kind, in IPR) and different external ones (public co-financing mix) for different stages of ICIP implementation, also geographically dispersed. That means ICIP partners are going to be assisted to apply for co-financing in different regions where they are eligible for. The co-financing is still the main driver for innovation for SMEs, especially young entrepreneurships. ECCA will opt for acquiring funds for vouchering scheme or develop other scheme of ICIP co-financing.

<sup>9</sup> Construction Cluster of Slovenia is a member of ELAN network

<sup>10</sup> ECCA, e.g. Construction Cluster of Slovenia has establish partnership agreement with EU Gateway in January 2017

<sup>11</sup> Allen Mc Arthur Foundation, <https://www.ellenmacarthurfoundation.org/circular-economy/interactive-diagram>



## 5 Expected economic impacts to ECCA members

In the current stage of ECCA development, where we prepared the strategy how to support ICIPs as a key approach, we can describe the optional economic and other impacts as an important driver for engagement of SMEs and other actors. Internationalization and meta-cluster engagements motivates different actors in different forms; some references are the following:

- Benefits to the businesses in the cluster, such as; access to knowledge, to use in new products and services or access to new markets and partners abroad among others.
- Benefits to other organisations in the cluster such as; access to knowledge, or access to new markets as well as access to new international partners for collaboration among others benefits.
- Benefits to the cluster organisations such as; raised profile, gain access to new international or improved ability to benchmark performance and others, share of services, improved competences to serve their members.
- Benefits that the cluster organisations can deliver to the region/member state, such as increased competitiveness and export performance by key businesses, etc.

Potential expected economic impact in terms of quantitative indicators, notably in terms of growth and employment in Europe for the ECCA as partnership in circular construction is enormous, for example: WEF considers **circular economy to be a trillion-dollar opportunity**, with huge potential for innovation, job creation and economic growth<sup>12</sup>, while other sources claim that it can increase economic growth by up to 4% over the next 10 years<sup>13</sup>. The European potential for efficient use of materials and energy has been estimated to be €122 billion/year in additional profit<sup>14</sup> and circular economy could bring EU companies annual net material cost savings from €250 to €465 billion (12% to 23% of their material costs)<sup>15</sup>. Finally, it was reported that €100 billion in profit before tax per year could be gained when ensuring material efficiency, energy efficiency, and sustainable energy with a capital investment (CAPEX) of €66 billion<sup>16</sup>. Data from 2008<sup>17</sup> revealed that: 1.67 jobs could be created per 1,000 tonnes of material collected for recycling /composting and only 0.56 jobs per tonne for disposal; additional 2 jobs per 1,000 tonnes of material may be created related to processing recyclable materials and 2 to 17 jobs per 1,000 tonnes can be created in manufacturing using recyclable materials as raw material feedstocks. WEFForum anticipates that for example **additive manufacturing (3D printing as one of the key-enabling technologies in circular construction) will generate additional 339,000 new jobs in architecture/engineering directly linked to the construction sector**, machine making and maintenance.

## 6 Sustainability plan

The final aim is to sustain after the end of action ECCA COSME project as EU wide meta cluster as a long term strategic cluster partnership. The ECCA innovation eco system described addresses the ECCA sustainability in three major contexts:

1. A strong, well organized and developed team of people from different Eu clusters should lead the ECCA as any excellent meta- cluster. This will be achieved with trainings on collaborative innovation, e-co-work, ICIP implementation where clusters will have important coordination role, and in the field of circular economy as common denominator. Secondly, actual the co-work within ICIPs, and sharing of results in step-wise approach will be the key trust building driver.

---

12 WEF, 2014

13 ING Economics Department (2015) Rethinking Finance in a Circular Economy (Financial implications of circular business models).

14 Di Pietrantino, 2012; Poschen, 2014

15 <http://www.europarl.europa.eu>

16 Lavery/Pannell (2014)

17 TFAMR, 2015

Additionally, supporting ECCA communication and collaboration infrastructure will connect them in resource effective way, but also in terms of outcomes of e-collaboration. The main challenge to be address is the mix of the co-financing needed for ECCA meta cluster common activities and services, including relevant infrastructure.

2. ECCA as a co-financing agency: In ECCA we noticed that many solutions which are to be internationalized are still on lower TRL. In terms of sustainability, a strategically very important strength of ECCA will be the set-up of the ECCA as a co-financing agency being able to channel financial support to ICIPS (SMEs and other partners) via vouchers or via tendering. The funds will be raised by applying for H2020 INNOSUP<sup>18</sup> call, other financing options, even novel disruptive approaches such as cryptocurrency and blockchain technology.
3. A mitigation plan for “value of death” after the end of Strand 1, e.g. ECCA short term sustainability plan, to be financed by ECCA partners, was prepared. It will be considered at the next ECCA General Assembly meeting. Shortly, these also called follow-up activities are addressing promotion activities, collaborative preparation of application for funding for implementation of outlined plans for internationalization, intensive communication and networking with gateway partners and clusters in third countries, and on digital collaboration platform as s tool to support mentioning activities.

ECCA partners clearly indicated that key supporting activities to be implemented should address the international promotion, effective communication and collaboration support between clusters and also third country partners. The activities described can be adopted to declared interest and readiness of ECCA partners and their members to finance ECCA short term sustainability plan. The follow-up activities will be implemented by Construction Cluster of Slovenia and other ECCA partners.

With the realization of described activities and services, the ECCA partners will maintain and strengthen the international collaboration with other clusters in circular constructions and will be engaged to Cluster go international Strand 2 and other proposals related to ECCA plans. On the other hand, cluster members (SMEs, large companies) will enable their solutions (products, services, technologies) to be promoted at different events and through digital media after the end of project.

### **Exploitation of synergies with other funding schemes**

For both pillars of ECCA sustainability, which is strongly related to financing, the regionally dispersed co-financing mix is planned to be implemented. This in practice means that (mainly) clusters will be channelling different co-financing options they can access in their countries or regions to collaborative innovation programmes prepared within particular ICIP. This mix means searching of synergies with other funding schemes applicable for different phases of collaborative innovation process:

- EU Horizon 2020 Research and Innovation Programme, notably the H2020 INNOSUP-2015-1 action for “Cluster facilitated projects for new industrial value chains”
- COSME; other EU programmes (LIFE...)
- 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 innovation schemes (crypto currencies, blockchain).

---

<sup>18</sup> In 2017 ECCA (e.g. the majority of ECCA`s partners) applied for co-funding to H2020 INNOSUP call to gather some more funding for the development of those solutions - to be used this funding in parallel with internationalization activities in Strand 2. But the proposal has not reached the threshold.

- 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.

## 7 Conclusions

Circular economy - a trillion-dollar opportunity has been unveiled as an important challenge but also opportunity for growth and internationalization in the construction sector. More than 25 clusters joined the alliance and are interested to collaborate on international markets under the European brand. For focus areas of circular construction solutions have been identified: smart buildings and cities, CDW management, wood based value chain, and bio house. ECCA as a meta- cluster aims to address this opportunity and support clusters and their members in international collaborative innovation partnerships, setting up and implementing win-win innovation strategies with partners - clusters and firms - in third markets. In the first stage these markets will be China, India, United Arab Emirates, Mexico, Canada and Algeria/Morocco, not excluding other countries if there will be strong complementary interest and active engagement of ECCA partners.

ECCA internationalization strategy sets innovation eco system within three pillars: international collaborative innovation partnerships (ICIPs), supporting framework, and enabling framework. Collaborative innovation partnership is implementation framework where promoted market opportunity generate ideas for international collaborative innovation, where the partnerships between business actors are formed, collaboration implemented and benefits shared. Supporting framework are the organisations, infrastructure, and services supporting the partnerships by promotion, by enabling advanced digitally supported collaboration, networking and trust building, training, mentoring, IPR services, joint branding, and financing. The enabling framework ensures supportive legal, regulatory, economic, social environment which empowers and enables international R&D, innovative and business collaboration.

ECCA sustainability plan outlines the strategy to assure strong position of the alliance and its sustainability. It foresees ECCA a co-financing agency, being able to provide co-financing to ICIPs along the innovation cycle via vouchers or other means, and being able to collect and manage financing mix for maintaining the ECCA infrastructure and services. A short-term sustainability plan suggests to implement the main elements of the ECCA internationalization strategy at the end of ECCA project, to bridge the gap to Strand 2 financing.