

# Final Publishable Report



**Strengthening clusters  
Management  
Activities and  
Running  
Trans-national for  
implementation of  
nearly Zero Energy  
Buildings**

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# Foreword

As part of a global common effort to reduce greenhouse gas (GHG) emissions and develop sustainable, energy independent, competitive, eco-friendly, cost-efficient, and cost-effective built environment systems, engineers, architects, and policymakers have engaged themselves in a continuous endeavour to develop new building concepts that would respond to these challenges of today and better prepare our society for tomorrow. One key outcome of this common effort is the concept of nearly Zero-Energy Buildings (nZEB), which stands as one of the main pillars in the wider concept of sustainable building systems.

The SMART4nZEB project was implemented in order (1) to boost the competitiveness and support the scaling-up of 577 SMEs active in construction, energy efficiency and renewable energy sectors through strengthening & building up the organizational capacity of 5 representative clusters as drivers of innovation in Central and Eastern Europe (Poland, Romania, Serbia and Slovenia) and (2) to facilitate trans-national exchanges and strategic partnerships with a focus on sharing experience between different practices, skills gaps, policies, target goals and level of engagement related to nZEB.



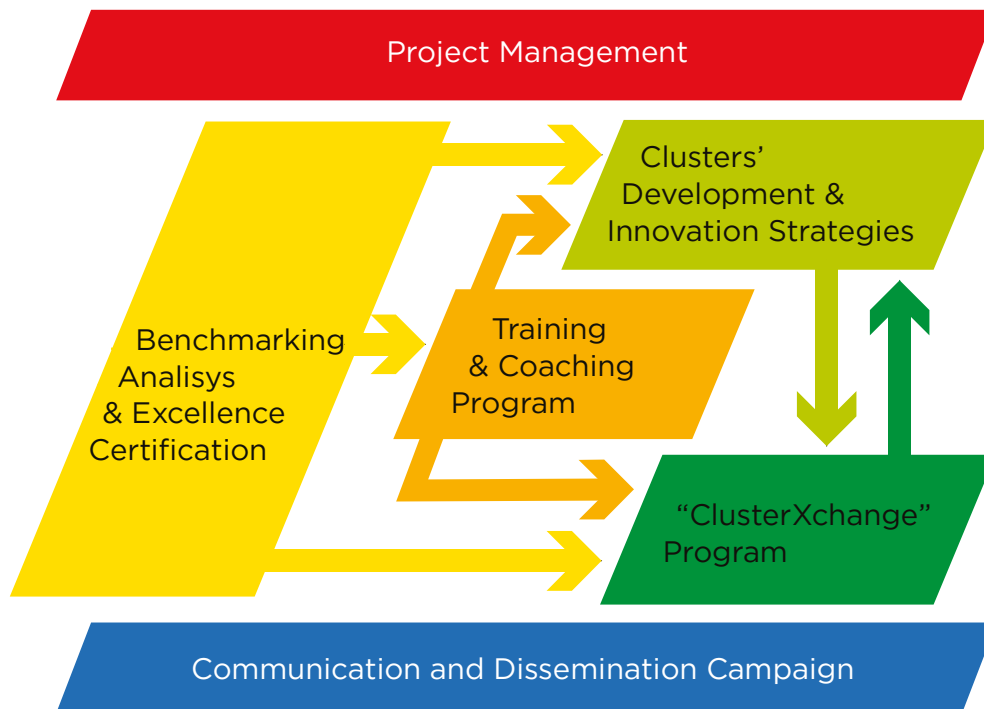


# Objectives of the SMART4nZEB Project

## Main objectives & Achievements

- The Strengthening of clusters management excellence of 5 representative clusters in Central and Eastern Europe was achieved through enhancement of cluster managers' skills via various trainings, Cluster Management Excellence certification (ESCA labels have been obtained by all five partnering clusters) and reviewed/new development and innovation strategies, which consequently assures that all participating clusters are now able to provide top quality services for their members, especially for their SMEs.
- Project activities allowed the strengthening of the business model innovation, marketing, and sales skills both for participating clusters' managers and linked SMEs.
- Based on the new skills acquired during project implementation and through the new comprehensive innovation strategies, all partnering clusters are now ready to support the boosting of the competitiveness and to supporting the scaling-up of more than 577 SMEs active in the construction, energy efficiency and energy from renewable sources sectors - the project led to improved and tailored services offered by the clusters, services oriented towards addressing the specific needs of their members.
- Beyond the project implementation period, now, all partnering clusters are able to facilitate strategic and sustainable partnering in the EU, as in line with their new mission and values developed in common partnership strategies and joint collaboration activities. This capacity is also achieved after the participation of 50 stakeholders - as Visiting Organisations to other countries - in the ClusterXchange Programme.
- Partnering clusters will continue to build up synergies and value chains between the three targeted key sectors: construction, energy efficiency, and renewables, in order to facilitate the effective implementation of nZEB throughout Central and Eastern Europe.
- Implementing a Communication & Dissemination Campaign for promoting the results and nZEB concept was an objective which will continue to be one of the main endeavours of all partners.
- Further more, increasing the recognition of clusters and clustering was an objective of the project, which was successfully achieved and led to an increased number of SMEs that are participating in Clusters' activities - activities in conjunction to this objective will continue beyond the project implementation period.





The overall objective of the SMART4nZEB project was from the very beginning to strengthen the management excellence of five representative clusters in Central and Eastern Europe through a specific work plan which was designed to respond to the seven specific objectives mentioned previously. This will further allow the five clusters to gain the capacity and premises for providing top quality services and a solid ground for the sustainable development of their associated members, especially SMEs.

Starting from a Benchmarking analysis in which the market complexity and nZEB readiness of each of the SMART4nZEB partnering cluster were assessed, the clusters' management performance was evaluated for obtaining Cluster Management Excellence certification. This allowed all project partners to set the grounds for Clusters' Development and Innovation Strategies, and three years Action Plans. Among other, this process included an important step in which training needs for the clusters' management team and other relevant stakeholders were identified and specific training and coaching programs were developed and provided, this allowing the upskilling of all those who benefited from this scheme.

Above all, the work plan developed under the SMART4nZEB project was designed to facilitate transnational, cross-regional, sectoral and cross-sectoral cooperation between clusters and their members through a tailored ClusterXchange Programme. An effective coordination of the project and a strong Communication and Dissemination Campaign supported the creation of a sustainable collaboration between the involved partners and relevant stakeholders that are representative for the nZEB market in all participating countries (Poland, Serbia, Slovenia, and Romania).

## What is nZEB?

- nZEB stands for a building that has a very high energy performance, meaning that it requires a nearly zero or very low amount of energy to function. This energy should be extensively covered from renewable sources, including renewable energy produced on-site or nearby.
- The European Performance of Buildings Directive requires that all new buildings be nZEBs from the 31st of December 2020. All new publicly owned buildings were already supposed to comply with the nZEB requirements from the end of 2018 onwards.
- The concept of nZEB and its successful implementation depends on the strength and extensive collaboration between several key market sectors, such as construction, energy efficiency (EE) and energy from renewable sources (RES).



# What are Clusters?

Cluster organisations are legal entities that support the strengthening of collaboration, networking, and learning, while acting as innovation support providers. They deliver specialised and customised business support services to stimulate innovation activities, especially in SMEs.

Clusters should be considered as regional ecosystems of related industries and competences featuring a broad array of inter-industry interdependencies. [1]

*1 (Delgado, Mercedes/Porter, Michael E./Stern, Scott, 2013: Defining Clusters of Related Industries, Working Paper 20375 of the National Bureau of Economic Research. Available at: [www.nber.org/papers/w20375](http://www.nber.org/papers/w20375).)*



# What are innovation Clusters?

The European Commission is defining innovation clusters as "structures or organised groups of independent parties (such as innovative start-ups; small, medium and large enterprises; as well as research and knowledge dissemination organisations, non-for-profit organisations and other related economic actors) designed to stimulate innovative activity by promoting sharing of facilities and exchange of knowledge and expertise and by contributing effectively to knowledge transfer, networking, information dissemination and collaboration among the undertakings and other organisations in the cluster".[2]

*2 (<https://www.clustercollaboration.eu/cluster-organisations>)*

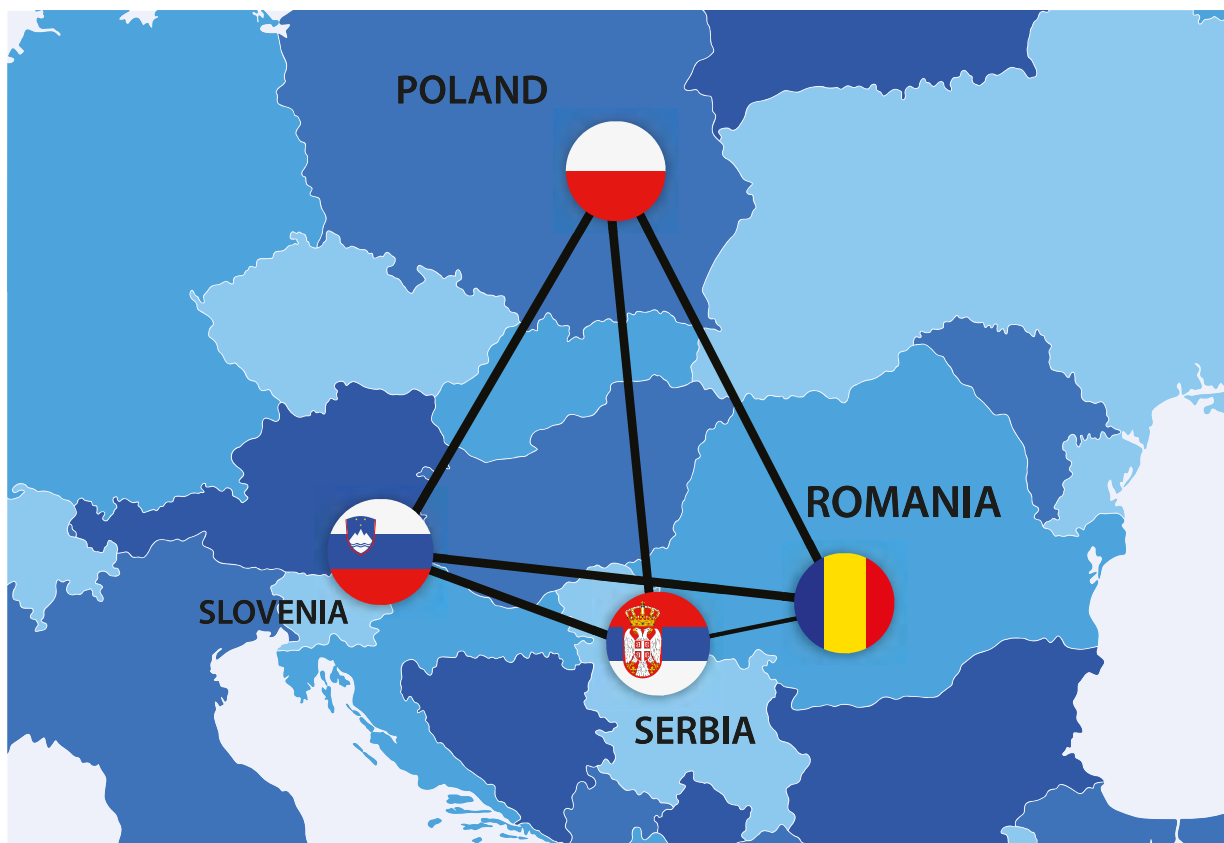


## What is the new proposed nZEB partnership cooperation?

SMART4nZEB sought and managed to create a sustainable collaboration, co-learning and capacity building environment for the involved partners - cluster managers, cluster members and relevant stakeholders that are representative for the nZEB market in the selected Central and East-European countries (Poland, Romania, Serbia, and Slovenia). The SMART4nZEB partners will continue developing their clusters management excellence and support interregional partnerships, facilitating therefore the development of competitive products and technological solutions intended for new and existing buildings. This will support a concrete market penetration of nZEBs.

A key objective of the action that was achieved during project implementation was to drive the partnering clusters towards innovative and modern organisations able to address cross-sectoral and cross border collaboration, and tackle main environmental, economic, and social challenges

# Regional partnership and partners presentation





## PRO-Akademia



### **Research and Innovation Centre Pro-Akademia:**

Non-profit research organization founded in 1996, supervised by the Polish Ministry of Science and Higher Education, which:

- established 7 laboratories conducting interdisciplinary industrial research and development works in the field of sustainable energy, transport, and circular economy.
- has implemented over 200 R&D, training and consulting projects within Horizon 2020, European Regional Development Fund, and others
- provides certified research and innovation services for industry (PN-EN ISO 9001:2015)
- won the 2nd place among 993 Polish research organisations in the field of material effects of scientific activity (according to the Ministry of Science and Higher Education 2017).

<http://www.proakademia.eu/en/>

### **Bioenergy for the Region Cluster:**

- Co-operation platform of companies, research institutions, local administration and business support institutions established in 2007.
- The cluster's goal is to work for the development of sustainable bioenergy in Central Poland in the context of the European Commission's policy in the field of energy and climate change.

<http://www.bioenergiadlaregionu.eu/en/>





## PSDiK



**The Polish Advisory and Consulting Association** (Polskie Stowarzyszenie Doradcz i Konsultingowe) is an association of consulting and financial companies. It provides services in the field of fundraising/European funds (accessing), as well as knowledge and necessary experience in managing and implementing projects co-financed by the European Union. The flagship project is the Polish Construction Cluster. PSDiK associates over 300 companies operating in the construction industry, with headquarters located throughout the whole country. The cluster includes, among other, general contractors, architects, manufacturers of construction materials and chemicals, manufacturers of joinery, interior designers, furniture and roller shutters producers. Due to the fact that the partners provide such a diverse range of services, PSDiK manages to merge them into prosperous consortia. It is a difficult and very sensible task. However, the effects of cooperation between cluster members are excellent. Moreover, the activity of the Cluster is supported by universities and business environment institutions, which, thanks to R&D activities, help companies develop their innovative potential and achieve a competitive advantage. PSDiK is the largest cluster in Poland.

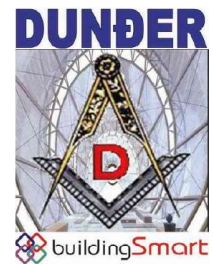
PSDiK has extensive experience in promoting Polish enterprises on the international arena. For many years, it has been supporting affiliated entities in exporting their products and services by co-financing participation in international fairs and economic missions. Thanks to these activities, many Polish companies have successfully entered foreign markets with their offer.







## DUNDJER



Construction cluster **Dundjer** is founded in 2007, in Nis, as a national cluster, and it gather 6 faculties, 2 R&D centers, 40 SMEs and companies from construction sector, and 2 municipalities. The main goal of the cluster is to strengthen capacity of SMEs and companies from construction sector for EU market through trainings and education in order to make them more competitive. For that purpose cluster has oriented its activities to R&D, innovation, education, and introduction of ICT in construction process. Cluster has trained over 1000 participants in basic and specific ICT skills, ISO Standards, risk assessment, dual education for deficit construction workers, energy efficiency, ecology, solar energy, renewables, etc. For this achievements cluster was first rewarded with ESCA bronze label for cluster excellence in 2017. At the international level, with partners from Europe, cluster has participated in several EU projects:

- H2020 COSME PROJECT SMART4nZEB
- FP7 STOREPET
- FP7 OPEN HOUSE
- TEMPUS PROJECT ARWQM
- Adriatic Danubian Clustering (ADC)
- ACQUIS 3
- INOPS-GIFIP project

At national level cluster was rewarded several times for the innovations:

- BIOTOXINOMER - best innovation of the year
- ON LINE ROMA-SERBIAN DICTIONARY- best innovation of the year
- ISORETEX- best innovation of the year
- SMART LED STREET LIGHTING

In the past few years cluster is focused to energy efficiency and renewable energy sources and has built FIRST SOLAR PV PLANT in Serbia and heating systems based on renewables focusing on zero energy consumption.



## PRO-nZEB



**PRO-nZEB** Cluster is a non-profit association, established in early 2016, with the main objective to promote the nearly zero-energy building concept (nZEB) in Romania.

Since the beginning, pRO-nZEB was engaged in several EU funded project, such as:

- Fit-to-nZEB - „Innovative training schemes for retrofitting to nZEB-levels”, HORIZON 2020 Program, GA #754059 (15.06.2017-14.06.2019) – partner.
- SMART4nZEB - „Strengthening clusters Management Activities and Running Trans-national for implementation of nearly Zero Energy Buildings”, COSME Program, GA # 874425 (03.02.2020-02.02.2023) – coordinator.
- „The NZEB Roadshow”, HORIZON 2020 Program, GA # 892378 (01.06.2020-31.05.2023) – partner.
- SMAFIN - „Supporting smart financing implementation for energy efficient Balkan Buildings”, HORIZON 2020 Program, GA # 955857 (01.09.2020-31.08.2023) – partner.
- „CONGREGATE – Building Renovation and Renewable Energy Cooperatives”, contract under implementation within EUKI European Climate Initiative (01.11.2020-31.03.2023) – partner.
- COST ACTION PED-EU-NET (CA19126) - Positive Energy Districts European Network – member of the Management Committee.

The aim of the Pro-nZEB Cluster is to bring together key players from the building materials market, energy from RES, research and development institutions, educational representative organizations, public authorities, professional associations, and other organizations, in order to create and improve collaborative relationships for developing and implementing the concept of nZEB in Romania.





## SGG



As a cluster **SGG** exists to help companies, many of which are small and micro and do not have their own development and innovation experts.

SGG is as an organization that helps and supports the development of its members on four priority areas:

1. Innovation and new business models
2. Circular economy
3. Digitization
4. International cooperation and internationalization

Innovative, development-oriented companies are more competitive in the market and more resilient to challenging situations such as, for example, the one that occurred in 2020 (the Covid-19 pandemic). By joining SGG, such companies also become more attractive for high-quality staff.

SGG is a fast-growing Cluster, seeking to play a leading role in the transition to circular construction, through a strong involvement in European and global communities of clusters, innovation ecosystems, circular economy activities, economic transformation, including in what concerns the attraction of investment for the development of green and circular construction projects.

This also opens-up new markets and new connections for SGG members through the wide network of partnering clusters.

# Main Project Components

implemented



# Excellence certification



- Obtaining a wide recognition for the partnering Clusters, building up their capacity around common values and enhancing their collaboration perspectives, are key objectives of the SMART4nZEB project.
- The process and related activities having in view these achievements will allow for a better understanding of the market of high-performance buildings, at local, regional level and international level. This will further lead to effective and well-tailored Cluster actions, adapted to the existing context.
- Growing the capacity of the Clusters is a path towards achieving increased strength of their members, as this process opens a door for new opportunities and long-term collaboration between various business sectors, public authorities, and non-governmental organisations, in a shared effort to address common economic and social challenges.
- All five partnering Clusters involved in the SMART4nZEB project were subject to assessment based on benchmarking, and obtained international recognition through Cluster Management Excellence labels.



[www.cluster-analysis.org](http://www.cluster-analysis.org)





# Training & Coaching Programme

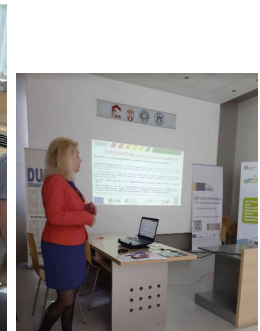
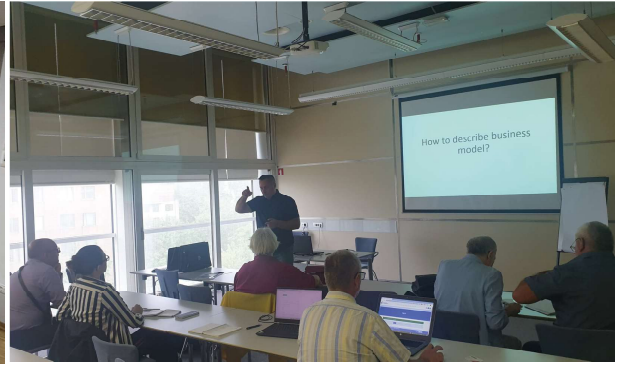


- Via SMART4nZEB, 45 training & coaching events were organized for Clusters' managers on topics adapted to the needs and interests of each partnering Cluster. The skills gained are essential for increasing Clusters' performance.
- Apart from the Cluster Managers, other stakeholders gained access (incl. via the ClusterXchange Programme) to trainings on subjects of high interest, such as globalization and internationalization, innovation & new business models, decarbonisation and resource efficiency, cross-sectoral and cross border collaboration.





## Gallery - Different Trainings





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# ClusterXchange

under the SMART4NZEZ project

Pilot scheme supporting short-term exchanges for connecting Europe's industrial ecosystems.



The #smart4nzez project helps implement the ClusterXchange scheme

The ClusterXchange Programme objectives are to promote cross-cluster learning, exchange of knowledge and expertise among the beneficiaries of the action through activities such as twinning, networking, B2B meetings. Other learning activities are organised through the scheme, such as workshops, site visits, training, and coaching activities, which target both cluster organisations and their members (especially SMEs).

Nine short-term exchanges (2 online and 7 face-to-face) were organised during project implementation in Romania, Poland, Slovenia and Serbia - 50 Visiting Organisations participated in the Programme via SMART4NZEZ and, based on our estimation, more than 80 organisations were involved altogether in the activities, among which 44 SMEs - participants benefited from various activities which were developed and implemented to support their capacity building - agendas included activities such as:

- trainings & workshops;
- B2B and networking events that facilitated the sharing of experience and information between visiting organisations, host organisations & guests on the obstacles and challenges as well as potential solutions in pre-identified areas - with a focus on fostering collaboration in the region;
- B2B & networking meetings for enhancing market access and identification of potential partners for new and established cluster organisations / SMEs / technology centres / scaling-up support organisations.



<https://clustercollaboration.eu/>

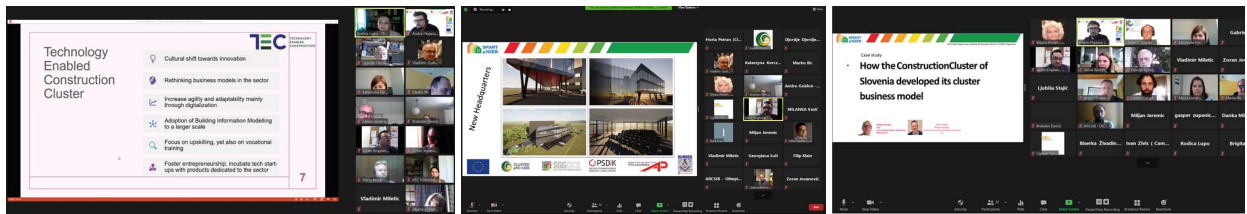


<https://clustercollaboration.eu/clusterxchange>

## Gallery - 1st Virtual Exchange



## Gallery - 2nd Virtual Exchange





Gallery - ClusterXchange in Poland (23-26 May 2022)



Gallery - ClusterXchange in Slovenia (06-10 June 2022)



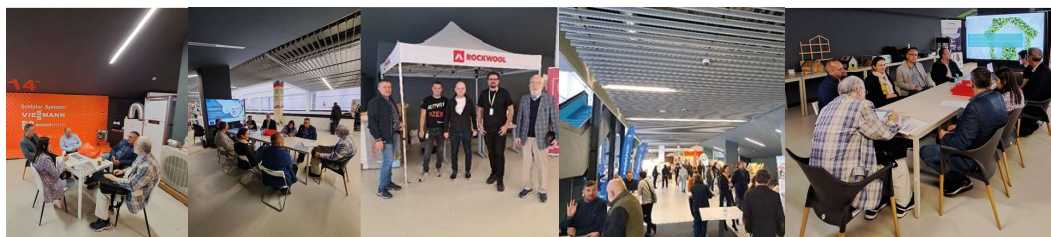
Gallery - ClusterXchange in Romania (04-08 July 2022) \*bilateral



Gallery - ClusterXchange in Slovenia (03-07 October 2022)



Gallery - ClusterXchange in Romania (02-04 November 2022)



Gallery - ClusterXchange in Romania (21-25 November 2022)



Gallery - ClusterXchange in Serbia (23-25 January 2023)

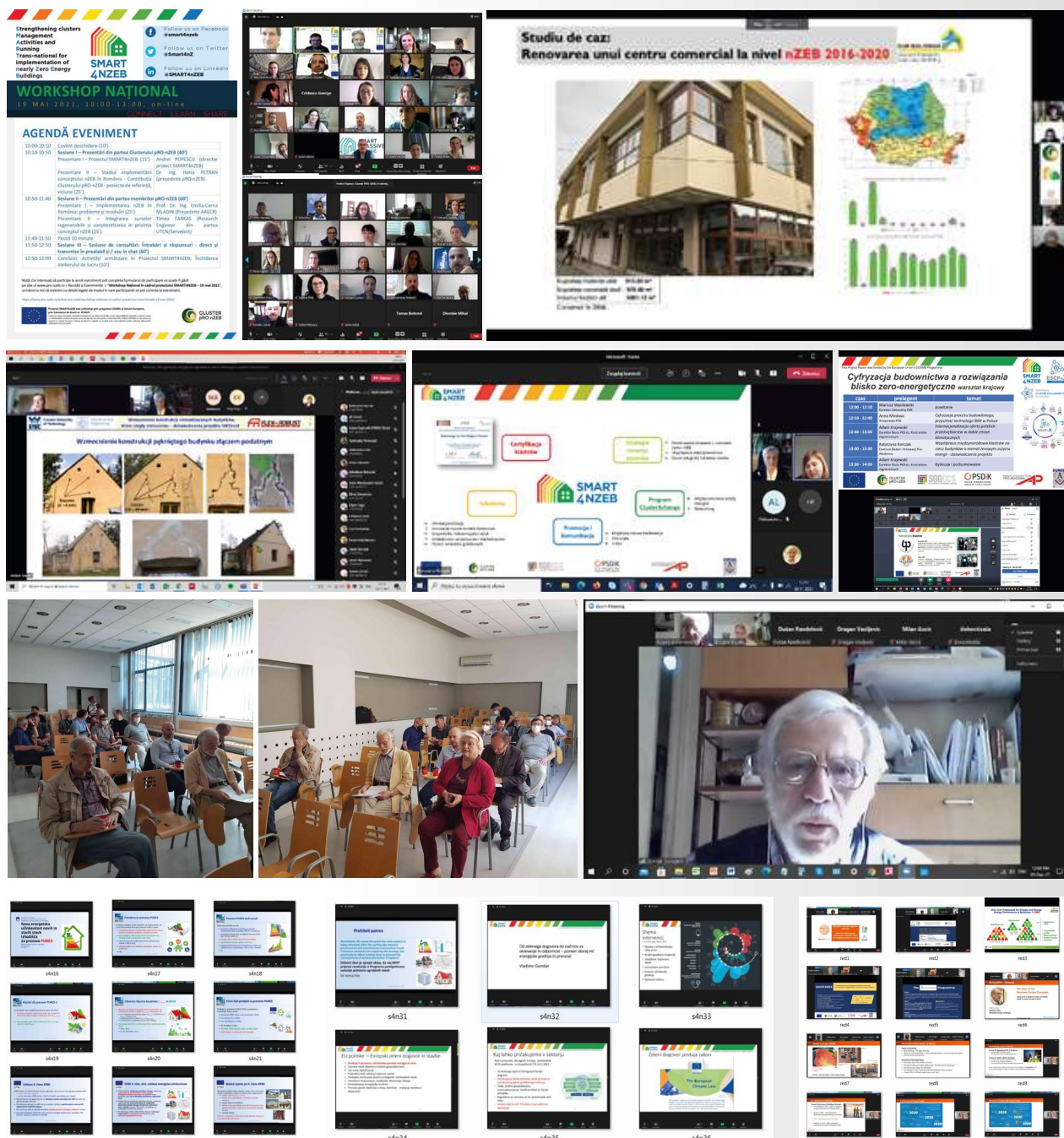




# Networking, communication, dissemination, exploitation of results

Raising the quality of new and renovated buildings is one important pillar in the SMART4nZEB project. One of the main objectives of the partnering clusters was to engage in coordinated communication activities meant to promote the nZEB concept among relevant stakeholders and therefore increase the demand for nZEB in the region. Eight National Workshops and one International Event were organized on-line & face-to-face for this matter. As a result, more than 580 stakeholders were reached by the dissemination & networking activities, including policy makers (central and local authorities), business networks and representative associations, research and education institutions and various other companies.

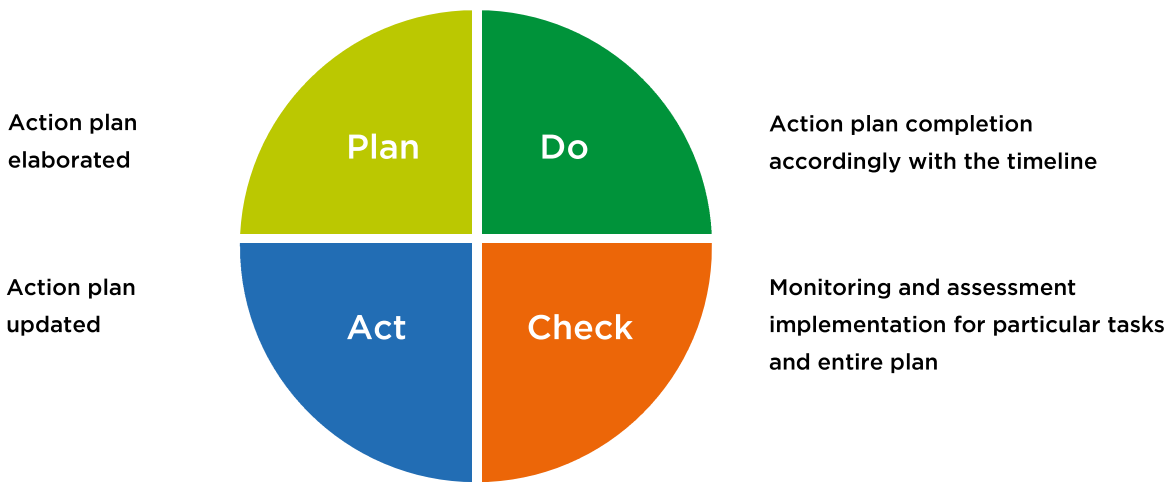
## Gallery from different National Workshops & Networking Events





# Clusters' development and innovation strategies

During SMART4nZEB all the partnering clusters developed individual comprehensive strategies, with a view to support the growth and the competitiveness of their members, as well as a roadmap for the strategy implementation, which will contribute to the up building of synergies and value chains between the 3 key sectors: construction, energy efficiency (EE) and energy from



# Get in touch with us

for more information on how you can contribute to an effective implementation of **nearly Zero Energy Buildings** (nZEB).



Write to us at  
**pro-nzeb@incd.ro**



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