

Cluster Networking and Business Development of Composite and Textile Industries: A Regional-Global Case Study

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Abstract

The present study was conducted as a component of the cluster analysis conducted by the Bursa Technical Textile and Composite Materials Cluster. The primary objective of this study is to establish the foundation for future stages of cluster development in Bursa, encompassing the formulation of a cluster strategy and the development of a comprehensive implementation plan. The industrial scope of the study encompasses tech textiles and composite materials, as Bursa possesses a robust infrastructure and a portfolio of innovative enterprises that enable it to specialize in several disciplines. It has become a global center for industry. Moreover, the present study has successfully identified the key stakeholders, skills, and areas that necessitate improvement within the Initial Phase of the Bursa Technical Textile and Composite Materials Cluster framework. The first stage of cluster development in Bursa was initiated, with a specific emphasis on the formulation of the cluster strategy and the establishment of an implementation roadmap. This study will examine the impact of Networking and Development on the Composite Material and Technical Textile Prototype Production and Application Center (BUTEXCOMP) Cluster Coordination Unit in Türkiye. The objective is to establish networks and engage in business development activities that enhance the competitiveness of cluster actors and create business opportunities with other clusters and platforms. This document was created as a guide for Business Development Services. Within the realm of business development services, the service handbook encompasses comprehensive details pertaining to project development. Prior to commencing cluster communication and tool development, it is advisable to thoroughly examine the topic of this work.

Keywords

composite materials, technical textiles, clusters analysis, bursa

1. Introduction

Over the past three decades, cluster thinking has made notable progress in the economic policy agenda, academic circles, and the corporate world [1]. Clusters are groups of businesses and organizations that operate in the same industry, are located near one another, and are connected by common qualities and differences [2]. The aforementioned clusters possess the capacity to engage in collaborative efforts and produce synergistic outcomes [3]. In February 2015, a search on Google for 'Cluster Competitiveness' produced 14,900,000 results. The pages obtained predominantly originate from esteemed institutions, including the World Bank, as well as organizations that advocate for clustering, such as the US Cluster Mapping Project and the European Foundation of Cluster Excellence. The widespread recognition of Michael Porter's contributions to the widespread use of clusters and their association with competitiveness is well acknowledged. Porter (year) underscored the significance of clusters as the primary driver of competitive advantage [4]. The significance of clusters in national competitiveness is considered crucial by the World Economic Forum (WEF), an organization that conducts regular assessments of the economic environment of prominent countries worldwide. The level of cluster development in a country is seen as a factor within the pillar of 'business sophistication' according to the annual Global Competitiveness Report (GCR) by WEF. The WEF's Global Competitiveness Index places utmost importance on the business sophistication and innovation pillars. The level of interest in clusters can also be assessed by examining the interconnections between the

concept and a wide array of contemporary events. Cluster growth is widely seen as a potential remedy for the prevalent challenge of the "missing middle" predicament encountered by small and medium enterprises (SMEs) in emerging nations [5]. In specific cases, clusters have been recognized as catalysts for facilitating regional advances and fostering globalization. The notion is highly intriguing, attracting the attention of governmental entities as a means of policy implementation and corporations as a strategic decision. Governments in the majority of countries are increasingly embracing the concept of promotion. The existing body of literature significantly encompasses research on cluster development, encompassing studies conducted in both advanced and emerging nations. According to Zeng, the notable ascent of China in the last forty years can be attributed to the presence of industry clusters, which serves as a compelling demonstration of their significant impact [6]. China's position as the second country in cluster development, behind Italy, which was the pioneer in implementing clusters (formerly referred to as industrial districts), among 144 nations in the Global Competitiveness Report (2014–15) by the World Economic Forum, provides substantiation for this assertion. The trajectory of a burgeoning nation like China serves as a prime illustration of the ingenuity inherent in Michael Porter's notion of clusters, which serve as the primary catalysts for the competitiveness of governments, regions, and sectors. The analysis of the competitiveness of clusters is currently restricted [7]. The prevailing body of research on clusters primarily consists of unidirectional studies [8].

According to the World Economic Forum (WEF), a nation's competitiveness encompasses a range of institutions, legislation, and factors that exert an influence on the level of production inside the country. Porter (2000) envisioned clusters as the fundamental foundation for enhanced productivity [9]. Clusters are characterized as a subset that constitutes a component of a nation. Clusters can be seen as a concise depiction of a nation, with the aim of evaluating its level of competitiveness. Their ability to successfully integrate local institutions, policies, and influences enables them to extend to the national level. Hence, the quantification of cluster competitiveness is of utmost importance in comprehending the whole competitiveness of a nation [10].

In our previous studies, we have undertaken regional and global market research as well as done an analysis of the added value of technical textiles [11] and composite materials [12]. Our research suggests an increasing need in international markets for high-value-added products such as technology textiles. Over the course of the last decade, a multitude of nations have undertaken significant restructuring of their production systems with the aim of prioritizing the manufacturing of these commodities, thus augmenting their global economic competitiveness [13-18]. The overall value of global exports of technical textiles exceeded 118 billion dollars, indicating a growth rate of 3.38 percent compared to the preceding year. In 2021, Türkiye's exports amounted to \$2.413 billion, representing a decline of 12.91% compared to the previous year. The calculation of the Grubel-Lloyd Index for technical textile product groups in Türkiye reveals minimal instances of bilateral intra-industry trade. We calculated a mean index value of 0.7968 for all technical textile articles. We anticipate the subcategories of Mobiltech, Indutech, and Packtech within the technical textiles industry to become the dominant sectors in the commercial market by 2028.

Contemporary global markets are witnessing an increasing demand for high-value composite items, such as technology textiles. Over the course of the last decade, a multitude of nations have implemented alterations to their production procedures with the aim of prioritizing these commodities, thereby augmenting their competitiveness in the global economic landscape. In 2021, Türkiye experienced a notable growth of 19.48% in its composite material exports, amounting to a total of 2.7 billion lira as compared to the preceding year. According to the Grubel-Lloyd Index calculation, the study concludes that intra-industry trade in Türkiye's composite material product categories is predominantly bilateral, with only a few minor deviations. We computed the composite materials' mean index value as 0.6890.

The authors [19] analyzed the competitive factors within the technical textiles and composite sectors. This study indicates that the technical textiles and composites industry has a significant influence on the global economy, mostly due to factors such as production costs, technological advancements, product quality, innovation, and sustainability. The expansion and success of the technical textiles and composite industries are contingent upon their ability to transform competitive features into commodities that possess added value. Distinctive attributes, functions, and advantages

distinguish value-added commodities from raw material goods. This facilitates businesses raising prices and generating higher profits.

Furthermore, this research identified the primary stakeholders, competencies, and domains requiring enhancement within the Bursa Technical Textile and Composite Materials Cluster framework in its initial phase. We established the initial phase of cluster development in Bursa, focusing particularly on formulating the cluster strategy and establishing an implementation roadmap. In this study, Networking and Development will be followed by the Composite Material and Technical Textile Prototype Production and Application Center (BUTEXCOMP) (Türkiye, Bursa) Cluster Coordination Unit while creating networks and business development activities to increase the competitiveness of cluster actors and business opportunities with other clusters and platforms. It was prepared as a Business Development Service Guide. The service manual also includes information on project development within the scope of business development services. It is recommended to review the content of this work before starting to establish cluster communication and create tools.

2. Methodology

The investigation into the operational needs of enterprises within the textiles and composites sector underwent two main stages. Initially, we surveyed 140 companies using a questionnaire. In the second phase, we employed two objective scoring tools to narrow down a subset of 50 companies from the initial pool. These selected companies underwent detailed diagnostic interviews conducted by specialists in technical textiles and composites. To start, we drafted a preliminary questionnaire and conducted pilot trials with leading companies in the textile and composite industries. We refined the questionnaire based on these trials to ensure effective data collection. The final questionnaire for the comprehensive screening phase consisted of nine modules, totalling 91 questions covering various aspects such as industry/manufacturing, distribution/sales, personnel management, research and development, excellence, sustainability, value chain, transformation, and clustering.

Due to time constraints, we condensed the extensive iteration of 73 inquiries. The selection of companies for the initial phase utilized logical sampling methods. The Bursa Chamber of Commerce and Industry (BTSO) provided a database of 2734 companies, each with at least one listed employee, established in Bursa, using NACE codes to categorize their operations. Initially, a sample of 20 companies was chosen for a trial questionnaire, biased towards larger corporations more likely to engage in technical textile and composite manufacturing. We then used stratified sampling to randomly select an initial sample of 175 companies. When non-response rates exceeded expectations, we further sampled 144 enterprises and 80 companies, imposing a turnover threshold. High non-response rates in the initial sample were attributed to the busy schedules of company owners or high-level managers and the inclusion of smaller companies uninterested in transformation or project involvement. Smaller enterprises with low turnover were excluded from subsequent samples.

In the second phase, we utilized a semi-structured questionnaire to identify constraints and obstacles in prototyping and new product development. The study examines companies' requirements and strategies concerning technological capabilities, decision-making processes, barriers to innovation, R&D challenges, new product initiatives, project team needs, skill gaps, marketing strategies, transition to technical textiles and composites, and perceptions of clustering. The questionnaire serves as a tool to investigate companies' requirements thoroughly.

3. Cluster Networking and Business Development

"The existence of various networks within geographic boundaries distinguishes clusters from geographic agglomerations. Networking facilitates linkages and collaborative working relationships between local suppliers, customers, competitors, universities, and research institutions. When trust is also created the flow of knowledge and information between enterprises and institutions increases and therefore, the establishment of a trustful environment is a precondition for clustering as a source of growth." [20]

Networking is a constant activity of the cluster management teams and ensures development of the cluster through building relations between relevant actors through different means such as informative meetings, regular events, company visits, B2B meetings and business development actions.

Networking and business development are two actions have to be undertaken hand in hand. It is seen in many clusters that involvement of cluster actors in cluster activities increase as long as they benefit from business development activities and/or find opportunity and environment to access their business goals. Business development in cluster terminology is mostly used for developing projects for the cluster management and cluster value chain.

Before proceeding with essentials of networking and business development for cluster coordination unit, it is important to remember actors of a cluster and how it is seen with increased networking ties. Below figure shows actors in a cluster in the light of Porters cluster definition.

It is seen in the Figure 1 that actors are industry, university, public bodies, finance, media and organisations for collaboration. This presentation of cluster actors presents a broader perspective than well-known definition of tripe-helix, which includes university, public bodies and industry. It is known that in cluster environment access to finance and role of media are important parameters contributing visibility, attracting new members, involvement of potential external actors etc. The term organisations for collaboration can be seen also as business support institutions in different sources. Term covers organisations such as sectoral associations, chambers and umbrella organisations.

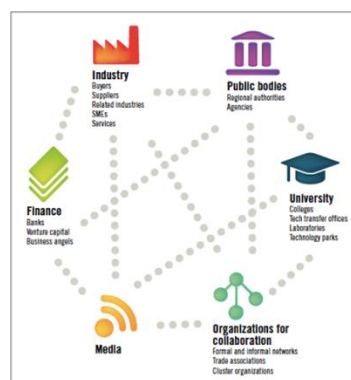


Fig. 1. Actors in a cluster environment [21]

The actors on the cluster stage:

- Upstream and downstream firms involving both large firms and SMEs. Private industry includes competitors, suppliers of goods (e.g. machinery and input components) and services (e.g. consulting, legal and business services), buyers, and firms in related technologies sharing common factors, such as labour skills or technologies.
- Financial institutions, involving traditional banks, commercial banks, venture capital, private equity and angel networks.
- Public actors including:
 - National ministries and agencies involved in: industry and economic development policy (SME, entrepreneurship, networking, cluster, and investment attraction), regional policy (e.g. readjustment funds, infrastructure, and cluster programs), science and technology policy (innovation, incubator, university-industry cooperation and technology transfer, and technology cluster).
 - Regional agencies and regional units of national bodies (e.g. county administrative boards), and regional public bodies based on federative initiatives from local communities.
- Academic actors including universities and colleges, research institutes, technology transfer offices and science parks.
- Private and public-private organizations for collaboration (NGOs, chambers of commerce, formal networks, cluster organizations, etc.).
- Media of different kinds creating “stories” around the cluster and building a regional brand.

Clusters coordinated through networking and business development approach can be called as dynamic clusters. Dynamic clusters create the foundation for sophisticated strategies and act as a driving force behind upgrading and innovation and business development among incumbent firms. In summary:

- Firms in dynamic clusters develop strategies and routines across the value chain, engendering new capabilities in a process of prestigious backyard rivalry;
- Firms in clusters tend to share many activities through cooperation, e.g., swapping technology, components or products. Clusters facilitate both horizontal and vertical (buyer-supplier) cooperation within a setting of a “common language”, trust and high social capital;
- Firms in clusters can operate more efficiently, drawing on specialized assets, suppliers, and buyers with short lead times. Critical resources and capabilities often do not exist within the firm but are accessible through networks inside the cluster;
- Firms in clusters can achieve higher levels of knowledge creation and innovation. Knowledge spillovers and close day-to-day interaction between buyers, suppliers and organizations lead to incremental improvements, which are in turn the foundation of both technical (product and process improvements) and non-technical (business model improvements) innovations. Furthermore, both types of innovations tend to diffuse quickly within clusters;
- Clusters offer an environment where different resources (individuals, technologies, capital, etc.) can quickly be reshuffled and restructured (spin-offs, labour mobility transferring skills across organizations, etc.), allowing for new and better economic combinations of skills, capital and technology. The need for changing the strategy or “recipe” of the firm can quickly be accommodated within a cluster.

Figure 2 shows the difference between an agglomeration and presence of actors without any linkages and the form of a cluster with developing linkages among internal cluster environment. Networking is also essential for cluster development stages, which is also highly important for cluster coordination unit team has to well review. Cluster is an evolving system in which networking and facilitation supports development of business, innovation, specialisation and internationalisation. Below figure shows relations in different growth stages of a cluster. Relations in this case can be considered also as networking.

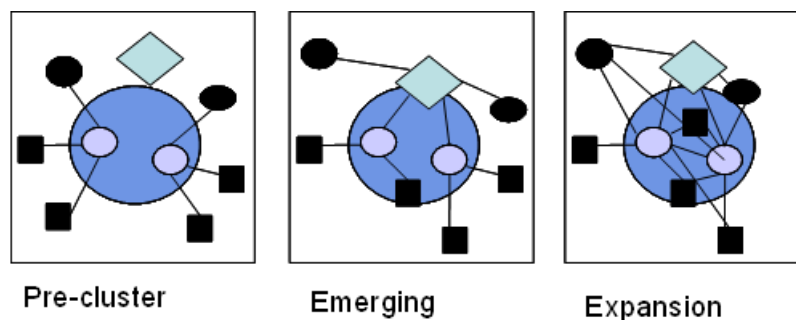


Fig. 2. Cluster life cycle [22]

The Pre-cluster stage is the simple co-location of various actors. There is a little relevance in terms of competitive performance; firms do not emphasize the local area. In the Emerging stage, a number of actors in the agglomeration start to build linkages. During the cluster expansion stage, formal or informal institutions of collaboration start to play a much more active role in the clustering process and the internal dynamic of new firm creation through start-ups, joint ventures, spin-offs become a hallmark of the cluster. As time goes by, markets, technologies and processes change thus, the core competencies of firms and that of clusters also change. In order for a cluster to survive, become sustainable and avoid stagnation, it has to innovate and adapt to changes. This can mean a transformation into one or several new clusters that focus around new core activities.

3.1. Importance of Networking for Upgrading Value Chains

Competitiveness of clusters most of the cases depends of upgrading value chain in the light of market trends and creating value for cluster actors by integrating missing competences into the value chain. At this point well-structured and strategy-based networking and business development plays crucial importance for cluster development and managing change.

For BUTEXCOMP Cluster, based on the cluster value chain analysis, cluster workshop and reviews undertaken with cluster actors, lack of raw materials especially fibres and chemicals for technical textile manufacturing has been identified. Along with core strategies of the cluster networking actions has to support integrating players in chemical and fibre manufacturing/development and/or material suppliers and develop joint actions can increase competitiveness of the cluster and cluster companies.

4. Highlights on Networking

Face to face interaction with cluster members

Cluster growth and development is often based on development of projects and collaborations among cluster actors through facilitation of the cluster management team. Along with many other activities, cluster management teams, CCU in BUTEXCOMP Project has to know cluster actors closely and develop relations. Best way to understand needs and goals of a cluster member knows cluster SMEs, firms and institutions by person. Face to face interaction especially key actors of a cluster is a must for the management team. Face to face interaction also works as an important part of trust building process among cluster companies. Not only the cluster management team but face-to-face interaction among cluster members at regular basis has been organised.

Regular company visits

Cluster managers should organise 5-10 visits per month, which should be documented by a brief visit report. The reports should give an overview of the activities and needs of a company. This information may be among important information for the generation of co-operation projects. In many cases, especially during the initial phases of cluster development process, cluster management teams may not set an agenda for visiting companies. It is always important to have a concrete reason to visit the cluster company. Another key aspect for cluster management team and/or BUTEXCOMP CCU team is; always be in touch with the company owners and key people who are in the position for taking decisions.

Regular events

For the success of a cluster, it is essential to organise regular events. These events can aim at promoting cluster growth and establishing an exchange with other clusters and potential actors to develop collaborative actions and projects. Regular events can be in the form of; workshops, expert round tables, specialist events, fairs, cluster days etc. It can be clearly seen in BUTEXCOMP Cluster Action Plan that, regular events have been considered under key action areas including cluster networking, internationalisation, training and Informatory services.

Co-operation

Since competitiveness of regions is not determined by single companies, but more and more by the innovation ability of entire industries and branches, co-operations are essential to improve this ability. With the help of co-operation projects, synergy potentials can be exploited and thereby not only single companies are strengthened but also the entire economic structure in a crucial and sustainable way.

Target group companies often have high interest in co-operation projects with other firms or with R&D institutions. An important area of activity for the cluster initiative is therefore the initiation, development and support of co-operation projects. These kinds of projects can deal with the following areas:

- R&D – Qualification
- Production – Organisation
- Marketing - Information Technology
- Logistics – Internationalisation

Attracting new cluster members

Before starting any targeted activities to attract new cluster actors, there must be a common understanding about the purpose of doing so. Reasons to attract new actors are:

- Quantitative reasons: New cluster actors will help to increase critical mass. Additional membership fees will contribute to the sustainable financing of the cluster organisation,
- Qualitative reasons: The quality of the member portfolio will be increased in the event that some nodes of the value chain are not properly covered or if there is an opportunity to attract large “anchor” firms.

When attracting new cluster actors, there is often a cluster core consisting of persons with good experience of collaboration and who have established mutual trust. This core might create an appeal for further actors to join cluster. Marketing and acquisition activities of the cluster organisation are crucial levers for member growth. Also, committed cluster actors can act as important promoters alongside the cluster management and can help to increase the attraction.

Clusters that are unable to provide marketing services may experience difficulties in acquiring new actors, as partnership benefits are not immediately visible. Development of a persuasive advertising process is therefore greatly important. Particularly, SMEs request a stepwise approach showing clearly articulated benefits to convince them to actively engage in the cluster. There is no specific blueprint for a step-by-step approach. However, it is always important to convincingly market and present the cluster, its topics, activities, and related benefits for members.

5. Managing Cluster Projects

Business Development of a cluster can be defined as managing projects at different levels in the cluster. The term “business development” can be interpreted also as “utilizing sources for cluster growth and sustainability”. Below information is selected from different sources to best guide BUTEXCOMP CCU team for their business development efforts.

The structure and management of a cluster demand high quality teamwork in which numerous tasks and functions are handled by different cluster actors. Clusters are strongly project-oriented organisations where concrete activities are mostly implemented in projects. This requires professional project management. Project management relieves cluster management and enables the cluster to achieve operational goals quickly and in accordance with its resources. It sets clearly defined, limited and manageable tasks and enables cluster members to handle important project work for the cluster in addition to their current daily business, jointly and in a goal-oriented way.

A project is a major, unique and complex undertaking, with several actors involved in its planning, management and implementation. Specifically, a project involves a large number of individual processes which together lead to the project result. For example, a number of different specialists have to work together as a team in building a house, with each of them handling specific partial tasks and processes so that a viable building emerges at the end. Cluster projects can be defined as:

- Internal projects: the project is carried out by participants for cluster members (internal customers),
- External projects: the project is carried out by cluster members for customers outside the cluster (external customers).

In the cluster context, project management can be defined as the planning, management and implementation of a unique and complex undertaking involving several cluster actors, with temporally and materially defined starting and finishing points. The goal of project management is to implement individual projects as punctually and in line with performance and resources as possible. With most projects there is a project executing entity, which issues the project commission and takes the overall decisions, while the project management (project manager and team) are responsible for concrete project implementation.

So how do you organise and manage projects as efficiently as possible in a cluster? Organising cluster projects requires in depth consideration of the following aspects:

- Technical management aspect: setting goals, planning, managing and monitoring project phases,
- Methodological aspect: applying project-specific methods and techniques,
- Behavioural aspect: project rules and behavioural rules for project participants,
- Organisational aspect: rules on the project structure and procedures.

It is advisable when implementing a cluster project to split the project into several phases and deal with these in steps together with the project participants (Figure 3).

Phase 1: project start & definition

In the initial step, all the data relevant for the project is collected and analysed, and project goals are defined. Setting clear and realistic goals is very important for project management, as it sets the general approach. Project goals should be realistic, unambiguously defined and recorded in writing. When setting project goals, we can distinguish between material, deadline and cost goals. All three aspects

must be precisely formulated as early as possible. This is also the phase when the project participants or project staff is identified. The data analysis is then used to generate an initial joint project concept, which acts as a basis for discussion and the project plan.

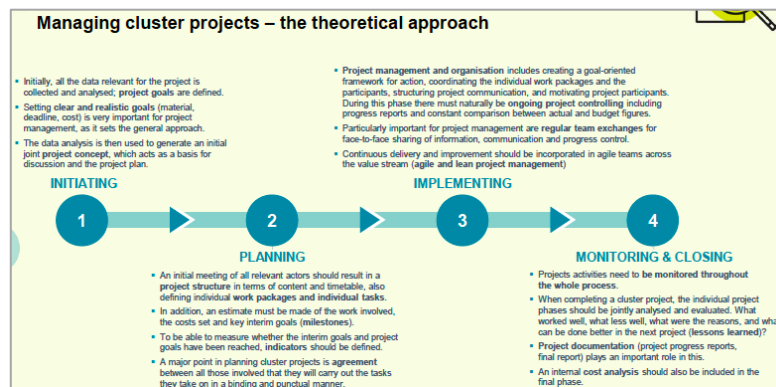


Fig. 3. Cluster project processes [23]

Phase 2: planning

The planning phase should start with a meeting of all those involved in the project and should result in a project structure in terms of content and timetable. It is important to identify the individual tasks and divide these up. In addition, an estimate must be made of the work involved, the costs set and key interim goals (milestones) identified. To be able to measure subsequently whether the interim goals and project goals have been reached, indicators should be defined. A major point in planning cluster projects is agreement between all those involved that they will carry out the tasks they take on in a binding and punctual manner. The following tools can be used for project organisation:

- Structure, procedure and timetable planning,
- Capacity, resource and cost planning,
- Project matrix.

The simplest approach is a presentation using a project matrix where the tasks of those responsible are assigned, inputs and outputs defined and deadlines set. The project manager is responsible for following up deadline overruns, as otherwise the cooperation will lose discipline. The following tools can be used to structure projects:

- Milestone plans / lists,
- Networking schedules,
- Activities plans.

There is a range of useful software for facilitating planning and visualizing the various tasks, activities, sequences, interim goals and timetables. For example, MS Excel can be used for project planning, or specific project management software such as MS Project.

The results of the planning phase can then be summarized in an overall document, the project plan. This plan includes the following elements:

- Project description,
- Brief description of the project executing agency,
- Project manager, organization,
- Description of the project partners,
- The initial situation and motivation,
- Subject of the project, project goals,
- Project structure, procedure and timetable planning,
- Personnel and resources plan,
- Cost and financing plan,
- Timetable and work plan, project matrix.

It is important in the project or project structure plan to break down the overall project into subprojects and break these down in turn into sub-tasks. The sub-tasks or “work packages” then have

to be broken down further into individual activities. It is useful here to draw up work package descriptions. Each work package should be clearly assigned to one individual, and the time and resources (costs) for them should be defined.

Phase 3: project implementation

During project implementation, two central management functions have to be performed – concrete project organisation, and management of the execution of the work. The main tasks in project organisation are creating a goal-oriented framework for action, i.e. ensuring clearly defined obligations in implementation and creating a structure for communication. This is particularly important because every project is subject to a specific dynamic, and there may be changes over the course of the project. These need to be communicated to project participants quickly and transparently, in order to be able to respond appropriately. As far as project management is concerned, the primary tasks are coordinating the individual work packages, coordinating the participants, structuring concrete project communication, and motivating project participants. During this phase there must naturally be on-going project controlling, in the form of a comparison between actual and budget figures, carried out by the project manager. With very extensive projects, controlling can be done by separate controlling teams. Project controlling covers monitoring project progress, costs, and time and quality tracking. However, controlling should also enhance the ability of project participants to reflect and provide feedback to enhance project management skills (keyword: self-organisation capability). Particularly important for project management are regular project team meetings for face-to-face sharing of information, communication and progress control. These meetings are also important for team building, as they promote group coherence.

An important instrument for project implementation is the project plan or project matrix mentioned earlier, as this serves as a guideline and gives all participants an exact overview of the status of the project.

Another important point is to ensure up-to-date project documentation, which makes it possible for individual team members to coordinate their work and ensures a uniform level of knowledge within the group. The principle is that the status of documentation should always match the status of the project. Project documentation covers documentation of both the progress and the results of the project. The reporting system required for documentation should largely follow the structure of the project plan.

Phase 4: project completion

Project completion should be defined in qualitative and quantitative terms in the project plan (goal attainment). The project can only be regarded as complete if 100 percent of the defined project goals have been reached. In any case, after completion of a cluster project the individual project phases should be jointly analysed and evaluated. What worked well, what less well, what were the reasons, and what can be done better in the next project (lessons learned)? Project documentation (project progress reports, final report) play an important role in this.

An internal cost analysis should also be included in the final phase. The last step is to wind up the project and project group. The project manager has a central role in project management. The most important tasks for the project manager are:

- Overall coordination and management of the project team,
- Project planning and controlling (performance, deadlines, costs),
- Leading the team, i.e. goal-oriented assignment of project participants,
- Motivating project participants,
- Allocating and distributing resources,
- Moderation,
- Representing the project, internally and externally,
- Project communication (internal, external),
- Project administration and documentation.

5.1. Cluster Project Funds

As stated, earlier business development and networking activities of clusters are in most cases implemented through utilizing national and EU level funding sources. At national level widely known cluster related and/or specific funds are UR-GE Funding from the Ministry of Trade and Cluster Support Programme run by the Ministry of Industry.

The Cluster Support Programme is set up to support cluster initiatives in order to transform Turkish manufacturing industry towards a higher share in world exports in high-tech products, sustain a qualified workforce, and increase general competitiveness and productivity while being sensitive to the environment and the society. The Programme pursues a broad range of cluster-supporting objectives including strengthening cluster capacity and networking (cross-clustering), cluster branding; developing factor conditions and markets like a skilled labour market, access to raw materials, and infrastructure development; more efficient supply chain governance including sharing best practices; and promoting innovation activities from applied R&D to product, process and market innovation. Since the 2022 amendment of the regulation governing the Cluster Support Programme, it contains a domestic sourcing provision guaranteeing higher support rates for buying machinery and equipment with a domestic goods certificate.

Over the course of this service manual preparation, the cluster expert has provided supervision to CCU team for applying cluster support programme of the Ministry of Industry. The Project, namely SETEK II, has been designed and developed together with CCU team and application was made. The project has been prepared in line with the Cluster Strategy and Action Plan and technical textile companies were integrated in the project.

UR-GE Programme provides cluster management bodies; business support organisations to run efficient cluster development projects, including export, capacity building, and consultancy and promotion opportunities. Up to 2 staff can be appointed under the programme. Ministry of Trade reimburse 75% of all activities and staff cost provided with the Need Analysis Report prepared under the project. Application for UR-GE Project has been planned under the cluster action plan.

Over the course of the cluster implementation activities, relations with cluster stakeholders in other words institutional cluster members were strengthened. KOSGEB and BEBKA were among the public bodies visited with CCU Team. Funding opportunities has to be continuously consulted with local and national public institutions. In the light of experience CCU Team gained during cluster visits, other stakeholders should be visited.

Possible fund raising national and international sources can be reviewed from the table provided below.

Table 1. Cluster development related supports at national and EU level

Name of the Support Programme	Description	Available Budget
UR-GE Support Programme, Ministry of Trade	UR-GE Programme provides cluster management bodies; business support organisations to run efficient cluster development projects, including export, capacity building, and consultancy and promotion opportunities. Up to 2 staff can be appointed under the programme. Ministry of Trade reimburse %75 of all activities and staff cost provided with the Need Analysis Report prepared under the project.	Available budget for UR-GE project is up to 46 million TL. Cost for up to 2 staff equivalents to similar positions is additional to mentioned budget. (Clusters can apply)
Sectoral Trade Delegation Support	Sectoral Trade Delegation Support covers expenses of trade delegations visiting target export countries or delegations visiting host organisation and companies in Türkiye.	Support covers various expenses related to export (matchmaking events, hall rents, travel expenses etc.) Expenses reimbursed up to %75 percent. (Clusters can apply)
Ministry of Industry, Cluster Development Support Programme	Cluster Support Programme designed by the Ministry of Industry and Technology for supporting cluster collaborations representing regional collaboration and comprising at least 20 cluster companies through cluster value chain.	Duration of the support programme is for five years and up to %70 of grant. (Clusters can apply)
Design and Product Development Support, Ministry of Trade	Support programme for the companies developing design and products. Programme covers salaries of industrial designers and/or engineers, software and equipment expenses.	Support is provided for %50; Up to 10 engineers and/or designers for 3,000,000 TL, Membership to internet sites, portals for 500,000 TL, Software, equipment etc. costs for 1,500,000 TL

KOSGEB SME Development Programmes (Business Development)	There are various KOSGEB supports for SMEs can apply including business development, R&D and innovation development development, foreign trade and market entry support etc.	Please see web page of KOSGEB for budgets of different programmes. Companies can apply.
KOSGEB Collaboration Support Programme	Known as “İş Birliği Güç Birliği Program”, programme aims to contribute collaboration and common working culture among SMEs and/or large-scale companies. Common projects for productivity, manufacturing, common design, and laboratory, common marketing, upgrading skills and competence through commonly developed collaboration structures.	Up to 10,000,000 TL (At least 2 companies can apply for fund) Cluster companies can apply.
TUBİTAK Projects	TUBİTAK National Funds are available for strengthening not only innovation capacity of individual firms but also supports collaboration between university and private sector. Support programmes; 1501, 1503, 1505, TUBİTAK TEYDEP and other TUBİTAK support programmes can be activated.	TUBİTAK Calls and opportunities should be followed and consulted among cluster management team, universities, stakeholders and cluster companies.
Horizon Programme	Horizon Europe is the EU's key funding programme for research and innovation. It tackles climate change, helps to achieve the UN's Sustainable Development Goals and boosts the EU's competitiveness and growth. Türkiye is part of the programme.	Calls for Horizon Projects can be followed from Ufuk Avrupa web portal and funding and tender's portal of the EU.
COSME Programme	COSME Programme is one of the EU's competitiveness programmes for SMEs. COSME Programmes are designed as strategic European Partnerships, where each of the project under COSME Programme designs, develops and implements projects for the benefit of SMEs in EU. Calls for prioritised areas open for Institutions for Collaborations. Call can be followed from Funding and Tenders Portal of the EU.	Each call has different budget for proposed actions. Projects formed by setting up consortiums. Consortium partners share related budget upon the proposal goals and defined work packages.
Other	Other funding opportunities including regional funds may be subject to cluster and companies for application.	The Cluster Management Team should closely follow funding opportunities.

At EU level, cluster related fundings are under Single Market Programme (SMP) and Horizon Europe Programmes. Between 2021 and 2027 SMP COSME Programme covers SMEs supports including specific calls also for clusters. Between 2014 and 2020 COSME Cluster calls have supported partnership actions between different clusters in EU and other countries. European partnership approach will continue in the programming period. Horizon Europe programme covers partnerships will also continue supporting R&D studies under thematic clusters. It is highly recommended BUTEXCOMP CCU team to follow specific calls under clusters defined by the programme. For both funding opportunities calls should be followed from funding and tender's portal of the EU.

6. European Strategic Partnerships

For competitiveness of European economy and growth, the European Commission puts substantial emphasize on clusters and support of SMEs through clusters. Clusters are accepted as important means for increasing innovation, productivity and exchange of specialized expertise and provide opportunities for improving economic dimensions. Development of joint projects through shared values between clusters of Europe and clusters out of Europe's border has been supported through vast number of funding mechanisms. Clusters are mainly supported in their efforts and partnership projects in internationalization and cluster management excellence.

The European Commission launched the “European Strategic Cluster Partnerships” through financial incentives to encourage clusters from Europe to actively build up collaboration across regional and sectoral borders. These partnerships aim at bundling resources and knowledge in order to elaborate joint strategies with concrete actions for the benefit of the SME members.

The European Strategic Cluster Partnerships are comprised of four modules:



- The **European Strategic Cluster Partnerships for Going International (ESCP-4i)** is designed to develop and implement joint internationalization strategies to support SME relationships with third countries. They contribute to the development of common actions such as business missions, cooperation agreements, gateway services, export consortia, and more. This effort is designed to strengthen the access of European SMEs to specific third markets and initiating a long-term cooperation agenda with strategic partners in third countries*.

- The **European Strategic Cluster Partnerships for Excellence** are transnational cluster partnerships selected under the European Cluster Excellence Programmed as part of the European Commission's COSME programmed. The action is designed to facilitate cross-cluster networking and learning as well as to support the professionalization of specialized and customized business support services for SMEs. The action will help drive the development of cluster management excellence and formation of strategic cross-regional collaboration among industrial clusters across Europe.

- The **European Partnerships for Innovation**: The EU needs to support the development of emerging industries, which will provide the growth and employment of the future. The reindustrialization of the EU's industrial base has to focus on the development of long-term internationally competitive goods and services that require combining different competences and innovative solutions. The development of new industrial value chains calls for the collaboration and integration of different innovation actors, including large enterprises and especially SMEs, across different sectors towards the implementation of a joint vision. For each INNOSUP funded project, at least 75% of the total proposed budget shall be allocated to support innovation in SMEs directly. Indeed, SMEs need help to generate, take up and better capitalize on all forms of knowledge, creativity, craftsmanship and innovation – including for the application of existing cross-cutting or emerging technologies, ICT, eco-innovative and resource-efficient solutions, new business models, service innovation and design. The potential of clusters, that represent favorable ecosystems for innovation, needs to be better exploited in this respect.

The Scope of the INNOSUP initiative: Cross-border and cross-sectoral collaboration, innovation and entrepreneurship across different regions and value chains shall be promoted. The coordination and facilitation is led by cluster organizations and other intermediary organizations, by following a systemic approach that combines different resources, tools and instruments. Innovation actors, especially SMEs with mutually reinforcing competences, shall be supported in view of creating new industrial value chains that foster the development of emerging industries in Europe.

- The **“European Cluster Partnerships for smart specialization investments” (ESCP-S3)** action of the COSME Framework Programmed of the European Commission contributes to boost industrial competitiveness and investment within the EU. The ESCP-S3 are facilitating cluster cooperation in thematic areas related to regional smart specialization strategies and to increase the involvement of the industry in the context of the Smart Specialization Platform for Industrial Modernization. The nine ESCP-S3 were successfully launched on 25th October 2018 in Brussels (Belgium) in the context of a Partnering Event, which gathered as well the European Cluster Partnerships for Going International (25 projects); for cluster excellence (5 projects) supported under COSME; and for new industrial value chains (13 INNOSUP-1 projects) supported under Horizon 2020. The full list of these nine new EU Cluster Partnerships, including the cluster organization members, number of SMEs involved and countries can be found on the ECCP.

6.1. Euroclusters

As the continuation of European Cluster Partnerships, Euroclusters were launched by 2022 under COSME Programme supports. From 1st September 2022, 30 Euroclusters have been launched to implement the EU Industrial Strategy. Euroclusters are cross-sectoral, interdisciplinary and trans-European strategic initiatives of industry clusters and other economic actors such as research organisations, companies, etc.

€42 million from the Single Market Programme have been allocated to this first wave of Euroclusters, composed of 171 partners, covering 23 different countries (22 EU Member States) and all 14 industrial ecosystems (Figure 4). 20 Euroclusters work on concrete initiatives in specific industrial ecosystems while 10 Euroclusters work across several industrial ecosystems.



Fig. 4. Euroclusters [24]

6.2. Examples of Cluster Internationalization and Excellence Projects

6.2.1. Cluster internationalization

ADMANTEX2i main objective is to lead international cluster cooperation in advanced manufacturing and advanced textile materials as an enabler for globally competitive sustainable products functional in a broad range of high-end applications. Its strategic cooperation vision is that digitalization is key enabler for both sectors to boost circular economy business solutions to strengthen resilience and to drive the recovery growth the economic opportunities of European SMEs. ADMANTEX2i focuses on three main pillars to build up internationalization opportunities: cooperation development, strong value proposition and international missions as demonstrators. The ADMANTEX2i partnership is composed by six European clusters: three advanced textile materials clusters (AEI Tèxtils in Catalonia as project coordinator, ATEVAL in Valencia and CITEVE in Portugal) and three advanced manufacturing clusters (PRODUTECH in Portugal, EMC2 in France and AFIL in Italy).

6.3. Cluster Excellence

6.3.1. Hi Tech Tex Project

Hi-Tech-TEX project envisages to foster SME competitiveness and assist companies to successfully access global markets, facilitate exchanges and strategic partnering between clusters and specialized eco-systems and cities across Europe, including through implementation of the ClusterXchange mobility scheme. Additionally, Hi-Tech-TEX will strengthen cluster management excellence of the participating European clusters to boost their specialized innovation eco-system by facilitating the cross-sectoral and cross-regional collaboration to facilitate the uptake of emerging technologies for the development of technical textiles.

Besides CITEVE, from Portugal, Hi-Tech-TEX partnership integrates AEI Tèxtils and ATEVAL from Spain; NTT from Italy; **DCC TTC from Türkiye**; CLUTEX from Czech Republic.

Therefore, Hi-Tech-TEX partnership brings together 4 EU countries and 1 Non-EU Participant in the COSME Programmed and representing 6 regions: Norte in Portugal, Catalonia and Valencia in Spain, Tuscany in Italy, Severovýchod in Czech Republic, and Aegean in Türkiye.

6.3.2. Clamtex Project





CLAMTEX main objective is to strengthen cluster management excellence of the participating European clusters to boost their specialized innovation eco-system by facilitating the cross-sectoral and cross-regional collaboration to facilitate the uptake of digitalization within and beyond the partnership with the implementation of ClusterXchange pilot scheme.

CLAMTEX partnership is composed of 5 clusters from 3 European Member states (France, Portugal and Spain) and representing 4 regions: Catalonia and Valencia in Spain, Pays de la Loire in France and Norte in Portugal. CLAMTEX is a strategic project for all partners as it will enable the alignment of each individual cluster strategy with the RIS3 priorities at each region and the uptake digitalization as a common driver for growth and innovation towards excellence. CLAMTEX will also favor the cross-regional value chains involved and foster the cross-regional cooperation with specialized eco-systems across Europe with strong focus on the industrial smart specialization priorities where all partners are already active.

7. Examples of Networking and Business Development Channels

Networking and business development of clusters especially at international level can be undertaken through involvement in international networking and cluster platforms. Below are the platforms mostly used for networking and business development purposes of clusters.

Table 2. Cluster Networking Platforms

	<p>Mission of ECEP is to be the European online hub for cluster stakeholders (cluster organisations, policymakers and other related stakeholders from the cluster ecosystem) and the reference one-stop-shop for stakeholders in third countries aiming to set up partnerships with European counterparts. The ECCP acts as a service facility aiming to provide cluster organisations, cluster partnerships, initiatives, networks, cluster associations and resource efficiency support actors with a variety of modern tools.</p>
	<p>TCI Network is the leading global network of people and organizations working in clusters and innovation ecosystems around the world. We create global connections, inspire clusters and improve policy learning. Founded in 1998, TCI Network is a non-profit, non-governmental organization open to members from all continents. The core of TCI Network's expertise is exchanging experiences, benchmarking initiatives, identifying key features of successful policies and the ability to identify best expertise throughout the network for active participation in joint projects and activities. TCI has led a wide range of experiences related to cluster development in its over 20 years of history.</p>
	<p>The Enterprise Europe Network (EEN) helps businesses innovate and grow on an international scale. It is the world's largest support network for small and medium-sized enterprises (SMEs) with international ambitions. The Network is active worldwide. It brings together experts from member organisations that are renowned for their excellence in business support. Member organisations include: chambers of commerce and industry, regional development organisations, universities and research institutes, innovation agencies, Individual businesses can't become Network members, but they can enjoy the many services offered.</p>
	<p>EBN (European Business and Innovation Centre Network) is a not-for-profit that serves a pan-European, global community of people that use innovative business as a driver for regional (economic) development. EBN's initiatives include EU BIC certification, development and distribution of quality business support programmes, facilitation and initiation of project collaborations, global networking and advocacy for excellent business support actors like the EU BICs.</p>

8. Why European Cluster Collaboration Platform is Important?

ECCP Platform is an active platform and network organisation, which brings clusters from globe together and actively, implements tools for developing collaborations and partnerships at specific improvement areas in line with the EU's competitiveness goals. ECCP has become the reference point for cluster, cluster members and cluster managers to follow up-to-date information on thematic areas, cluster development, innovation and cluster management excellence information for developing projects and improving networking potential of clusters. Being a part of European Cluster Collaboration Platform has to be goal of a cluster for internationalisation, know-how and management development, network and business development of cluster management teams.

8.1. How to Validate BUTEXCOMP Cluster in ECCP Platform?

Within the scope of networking and business development goals of the BUTEXCOMP Cluster, being part of ECCP Platforms has to be considered as a mandatory step. Being a member / part of ECCP

Platform requires completion of set of criteria for validation. CUU Team has to follow steps for ECCP Validation which can be found within this service manual.

Mission of ECCP is being the European online hub for cluster stakeholders (cluster organisations, policymakers and other related stakeholders from the cluster ecosystem) and the reference one-stop-shop for stakeholders in third countries aiming to set up partnerships with European counterparts.

ECCP has become the first reference point for a cluster to be accepted as “validated” cluster by being a member of European Cluster Collaboration Platform.

The ECCP acts as a service facility aiming to provide cluster organisations, cluster partnerships, initiatives, networks, cluster associations and resource efficiency support actors with a variety of modern tools. Furthermore, these tools also enable training providers and public/policy institutions to:

- Make efficient **use of networking instruments** (search and find potential partners and collaboration opportunities),
- Develop collaboration trans-nationally (within Europe) and internationally (beyond Europe),
- Support the **emergence of new value chains** through cross-sectoral and cross-industrial cooperation,
- Access the latest quality information on cluster development through news announcements and events,
- Improve their performance and increase their – as well as their members’ – competitiveness,
- Build up knowledge and capacities on industrial ecosystems and cluster development,
- Build up knowledge and capacities on industrial ecosystems and cluster development,
- Dynamic mapping of over 1,200 profiled cluster organisations worldwide,
- The largest information hub for clusters offering the latest news and open calls to a broad community via the quarterly ECCP newsletter,
- A variety of events (webinars, capacity building seminars, conferences) organised by the ECCP, European Cluster Partnerships and the cluster community to foster capacity building and peer discussions,
- Matchmaking events supporting the development of cooperation between clusters in Europe and beyond,
- An extensive knowledge database featuring a mapping of regional, national, international and sectoral cluster networks, toolkits and publications developed by the ECCP, European Commission, academia and larger community, as well as the EREK knowledge database with best practices of environmental and resource efficiency technologies,
- Detailed information on four the European Cluster Partnerships and a dedicate Partnership forum for members,
- Another forum for Cluster Associations and Networks to foster mutual learning and the exchange on activities and funding opportunities,
- A partner search facility, where cluster organisations can find potential partners and a ClusterXchange facility for them to exchange offer and demand directly through private messaging,
- Dedicated pages supporting international cooperation including profiles of selected countries of strategic interest and a technical assistance facility (SMEs Go International),
- The most up-to-date information on key policy areas of the European Commission: green and digital policy, social economy, economy resilience and industrial ecosystems (in focus sections).

8.2. Cluster Definition of ECCP

It is important to first position and define cluster as “innovation clusters” and in line with the cluster definition provided in ECCP Platform. According to definition given by the ECCP, cluster is;

Clusters should be considered as regional ecosystems of related industries and competences featuring a broad array of inter-industry interdependencies. They are defined as groups of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialised expertise, services, resources, suppliers and skills. Clusters are referred to both as a concept and a real economic phenomenon, such as the Silicon Valley, the effects of which, such as employment concentration, can be measured.




8.3. ECCP Validation Context



Below are the key steps and criteria for ECCP validation; Dedicated cluster management organisation/team with at least 0.5 FTE (Full Time Equivalent)

- Website link – English version (automatic translation available also considered) – the validation team will look for consistency of information provided in the profile and on the website – proof of actively operating organisation – activities, services provided to members, common projects, recent news/events, etc.
- Number of members - minimum 15 clearly committed cluster participants preferably minimum 15 committed cluster companies (Committed means companies signed letter of intent and/or cluster membership form).
- Triple helix approach – member composition should include industry, research/universities and public bodies. It is not obligatory that public bodies are members in the CO, but it should be visible that there is a collaborative (interactive) approach between these actors (e.g. the CO is supported by public bodies or it is funded via a programme or that it has a mandate to perform activities of overarching interest for the industrial cluster). It is nevertheless obligatory to have a diversity of at least 2 types as members (either civil society bodies and SMEs, or industry and research).
- Thematic focus: clear focus (technical or sectoral focus).
- Services: minimum 2 different cluster specific activities that are also reflected in the cluster organisation’s website/service offer.

9. Examples of Industry Specific Business Networks and Platforms

Table 3. Examples of Industry Network Platforms

Name	Description
	<p>Automotive Meetings Bursa is the only supply chain event in Türkiye based on a matchmaking program. It brings together automakers, tier suppliers and contract manufacturers. Engineering, procurement, supply chain, fabrication, commodity teams, suppliers and service providers will meet through pre-arranged one to one meeting. Next event will be held between 12 – 14 November 2024. Participation of CCU to this event is highly recommended.</p>
	<p>HIGHTEX International Technical Textiles and Nonwovens Exhibition which will be held simultaneously with ITM International Textile Machinery Exhibition which will be organized by Teknik Fairs Inc. and TÜYAP in partnership, has the distinction of being the first and only exhibition of Türkiye’s and the region. At HIGHTEX Exhibition, which has been organized since 2005, becoming one of the most important markets of today; the latest technological innovations of the technical textiles and nonwovens industry are on display. Next event will be held between 4 – 8 June 2024. Continuous participation of CCU to this event is highly recommended.</p>
	<p>Industry experts from all over the world meet every two years at Techtexsil. The trade fair's recipe for success is the overarching character of the product groups and areas of application. International exhibitors will present the entire spectrum of technical textiles, nonwovens, functional apparel textiles and textile technologies. Texprocess, the leading trade fair for the apparel and textile processing industries, will be held parallel to Techtexsil. At the upcoming Techtexsil from 23 to 26 April 2024,</p>
	<p>JEC is the most important international event bringing market, technology and manufacturers together along with the value chain. BUTEXCOMP Cluster has to participate in the event every year not only for the market targets but also for positing as an international actor in the sector. JEC World is the global trade show for composite materials and their applications. Held in Paris, JEC World is the industry’s leading event, hosting all the major players in a spirit of innovation, business, and networking. JEC World is the “place to be” for composites with hundreds of product launches, awards ceremonies, start-up competitions, conferences, live demonstrations, Innovation Planets, and networking opportunities.</p>
	<p>Automotive Interior Fair / Germany Automotive Interiors Expo Europe exhibitors represent the A-Z of car interiors, with our exhibitors’ products being found in vehicles from just about every car manufacture. It I highly recommended for the CCU and cluster members to participate in the exhibition.</p>
	<p>Composites United e. V. (CU), one of the world’s largest networks for fiber-based multi-material lightweight design, emerged by the two associations Carbon Composites e. V. and CFK Valley e. V. About 350 members have joined to association. CU is a business support organisation highly recommended for BUTEXCOMP cluster to be a member and continue relations which were established during the study visit.</p>

	<p>AVK is the oldest association for plastic comprising composite materials as a separate segment. As a service provider for its member companies and the entire reinforced plastics market segment, AVK offers numerous services from a single source. AVK is a business support organisation highly recommended for BUTEXCOMP cluster to be a member and continue relations, which were established during the study visit.</p>
	<p>The European Technology Platform for the Future of Textiles and Clothing (Textile ETP) is the largest European open expert network of professionals involved in textile and clothing-related research and innovation. ETP is a business support organisation highly recommended for BUTEXCOMP cluster to be a member and continue relations, which were established during the study visit.</p>

10. Examples of Clusters for Future Collaboration

Below is the list of clusters given as examples for future collaboration. Further clusters can be seen from European Clusters Collaboration Platform by utilising partner search engine.

Table 4. Examples of Clusters for Future Collaboration

Name	Description
	<p>Po.in.tex is an association of Companies, research organizations, foundations and associations, with a focus on textile, founded in 2009 by Piemonte Region and managed by Città Studi Biella. Since its foundation, its aim is to promote competitiveness and cooperative innovation, favouring the constant exchange between innovation demands and offers. The Textile Innovation Cluster gathers and works with many participants, belonging to every part of the textile chain. Piedmont Region's 7 innovation Cluster are characterized by a thematic area on which they focus their activities. Moreover, over time, a deep synergy has been created among the 7 regional innovation clusters: this has stimulated a new "vertical" approach to innovation, which creates great added value through cross-fertilization and synergic competences. The 7 Clusters actively collaborate in order to help Piedmont's production system meet the challenges of green transition, digital transformation, and well-being.</p>
	<p>Founded in 2017, the Portuguese Textile Cluster is a sectoral support structure whose main purpose is to stimulate processes of interaction, articulation, collaboration and information sharing within the economic aggregate itself, acting in a way that is supplementary to the performance of its own as an instrument of obtaining increments of competitiveness for innovation and internationalization, in a logic of collective efficiency. The Portuguese Textile Cluster has currently implemented 5 Special Interest Groups (SIG) with fundamental functions of strategic thinking around the main pillars of Cluster intervention. These groups are an active instrument of intelligence, strategic thinking and monitoring. Composed by 60 members, the Portuguese Textile Cluster is a platform where these entities establish win-win relationships, with the ultimate objective of producing and sharing knowledge as a support for innovation and competitiveness.</p>
	<p>The European Automotive Cluster Network EACN is the leading network of clusters active in the fields of automotive, transport and mobility in Europe. It has been initiated in 2017 by eight clusters and grew to reach today 24 clusters from 11 European countries. EACN represents more than 3,000 companies covering the whole value chain, R&D institutions, public authorities, and other institutions. All OEMs and main Tier-1 suppliers with plants in Europe are members in at least one of EACN's clusters. For BUTEXCOMP Cluster, being member of this platform can be considered and platform has to be closely followed.</p>
	<p>The ACstyria mobility cluster represents a network of over 300 companies in the automotive, aerospace and rail systems sectors - with over 70,000 employees and a total turnover of more than 17 billion euros. The core service of the cluster, which has existed since 1995, is the networking and support of Styrian companies along the entire value chain. It sees itself as a link between business, industry, research and public institutions. The cluster is one of the best examples in terms of its goals, cluster member composition and similarity of cluster end markets and innovation service areas. It is recommended CCU to review and closely follow the cluster and initiate relations for future collaborations.</p>
	<p>Techtera is the competitiveness cluster dedicated to the French textile industry, leading a network of companies, laboratories, technical centres and training establishments in order to stimulate competitiveness through innovation. Competitiveness clusters are structures created in 2005 to mobilize the key factors of competitiveness: the capacity for innovation, the development of growth and employment in growing markets. They bring together, on a well-identified territory and a targeted theme, companies of all sizes, research laboratories and training establishments. National and local public authorities are closely associated with this dynamic.</p>

11. Networking and Collaboration at Local and National Level

Networking at local and national level has significant role on development and success of clusters. Value chain and cluster analysis of BUTEXCOMP revealed that collaborations with similar and complementary clusters can help cluster to grow and contribute better integration of cluster companies in national and international supply chains. With this purpose, within the scope of the BUTEXCOMP Project two regional seminars were held in Ankara and İstanbul. Relations established during regional seminars have to be continued. Examples of clusters and networks can be listed as follows:

- Ankara Ostim Clusters, especially ARUS, Rubber, Energy, Medical Devices and Defence and Aviation,
- Eskisehir Aviation Cluster,
- Business Support Organisations specialised in Chemistry,
- SAHA, Defence and Aviation İstanbul,
- İSEK, Health Cluster, İstanbul,
- İTKİB for areas on developing ready wear specific technical textile solutions,
- Composite Technologies Excellence Centre, Sabancı University,
- Composite Industrialists Association,
- AFFETTEK Platform,
- Technopark's in Türkiye,
- BASDEC in Bursa,
- BTSO Clusters in Bursa.

12. Conclusions

Networking and business development is at the heart of the successful cluster development. As stated also in the BUTEXCOMP cluster strategy and action plan, cluster development is an evolving journey in which active participation and collaboration among cluster members required. Involvement of cluster members' participation into cluster development stages depends on strong presence of networking effort given by the cluster management bodies. To this end, networking has been identified as one of the cluster services of the cluster.

Both review of cluster literature and experience on cluster development reveals that along with networking, success of clusters is based on contributing business goals of cluster companies which are supported and empowered with different competences of stakeholders. In Bursa BUTEXCOMP cluster ecosystem, in the coordination of CCU, cluster members can better access to information, funding sources and other services provided by the stakeholders at local and national level.

Networking and business development competence of a cluster management body, in our case CCU, highly depends on capacity of project development. In order to achieve cluster goals, CCU has to design, develop and apply for projects in the light of cluster strategy. Project applications for open innovation, productivity, internationalisation, skills development sustainability and digital transformation have to be accepted as primary and mandatory actions of the CCU.

References

1. Babkin A.V., Kudryavtseva T.J., Utkina S.A. (2013): *Identification and Analysis of Industrial Cluster Structure*. World Applied Sciences Journal, ISSN 1818-4952, Vol. 28(10), pp. 1408-1413, DOI: 10.5829/idosi.wasj.2013.28.10.13923
2. Porter M.E. (1998): *Clusters and the New Economics of Competition*. Harvard Business Review, ISSN 0017-8012, Vol. 76, pp. 77-90
3. Rosenfeld S.A. (1997): *Bringing Business Clusters into the Mainstream of Economic Development*. European Planning Studies, eISSN 1469-5944, Vol. 5, is. 1, pp. 3-23, <https://doi.org/10.1080/09654319708720381>
4. Porter M.E. (1990): *The Competitive Advantage of Nations*. Free Press, ISBN 978-0029253618
5. Herliana S. (2015): *Regional Innovation Cluster for Small and Medium Enterprises (SME): A Triple Helix Concept*. Procedia - Social and Behavioral Sciences, ISSN 1877-0428, Vol. 169, pp. 151-160, <https://doi.org/10.1016/j.sbspro.2015.01.297>
6. Zeng D.Z. (2011): *How Do Special Economic Zones and Industrial Clusters Drive China's Rapid Development?* <https://doi.org/10.1596/1813-9450-5583>
7. Farinha L.M.D.C., Ferreira J.J.D.M., Gouveia J.J.B. (2014): *Innovation and Competitiveness: A High-Tech Cluster Approach*. The Romanian Review Precision Mechanics, Optics & Mechatronics, eISSN 2247-7063, Vol. 45, pp.

- 41-48, <https://api.semanticscholar.org/CorpusID:111411729>, <https://www.researchgate.net/publication/267153595> *Innovation and Competitiveness A High-Tech Cluster Approach*
8. Bhawsar P., Chattopadhyay U. (2015): *Evaluation of cluster competitiveness: review, framework and the methodology*. Competition Forum, ISSN 1545-2581, Vol. 13, no. 1, pp. 75-91, https://www.academia.edu/30463940/Evaluation_of_Cluster_Competitiveness_Review_Framework_and_the_Methodology EXECUTIVE SUMMARY
9. Porter M.E. (2000): *Location, Competition, and Economic Development: Local Clusters in a Global Economy*. Economic Development Quarterly, eISSN 1552-3543, Vol. 14, is. 1, pp. 15-34, <https://doi.org/10.1177/089124240001400105>
10. Bhawsar P., Chattopadhyay U. (2018): *Evaluation of Industry Cluster Competitiveness: A Quantitative Approach*. Benchmarking: An International Journal, ISSN 1463-5771, Vol. 25, pp. 2318-2343, <https://doi.org/10.1108/BIJ-02-2017-0022>
11. Karahan M., Ahrari M., Karahan N. (2023): *Technical Textiles Market Research and Added Value Analysis: A Regio-Global Case Study*. RECENT, eISSN 2065-4529, Vol. 24, is. 71(3), pp. 162-180, <https://doi.org/10.31926/RECENT.2023.71.162>
12. Karahan M., Ahrari M., Karahan N. (2023): *Composite Materials Market Research and Export Potential Analysis: A Regio-Global Case Study*. RECENT, eISSN 2065-4529, Vol. 24, is. 70(2), pp. 113-121, <https://doi.org/10.31926/RECENT.2023.70.113>
13. Ari A., Karahan M., Karahan N. (2024): *Competency Mapping of Textile and Composite Industries: A Regional-Global Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 72(1), pp. 20-39, <https://doi.org/10.31926/RECENT.2024.72.020>
14. Karahan M., Ari A., Karahan N. (2024): *Examination of R&D Capacity in the Technical Textile Sector: A Regio-Global Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 72(1), pp. 4-19, <https://doi.org/10.31926/RECENT.2024.72.004>
15. Karahan M., Karahan N., Ari A. (2024): *Market Trends of Türkiye Textile and Composite Industries: A Regional-Global Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 72(1), pp. 40-54, <https://doi.org/10.31926/RECENT.2024.72.040>
16. Ari A., Karahan M., Karahan N. (2024): *Preliminary Analysis in Clustering and Supply Chain Creation: A Regional Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 73(2), pp. 80-91, <https://doi.org/10.31926/RECENT.2024.73.080>
17. Karahan M., Ari A., Karahan N. (2024): *Cluster Governance Analysis in Technical Textiles and Composite Materials Sector: A Regional Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 73(2), pp. 92-100, <https://doi.org/10.31926/RECENT.2024.73.092>
18. Karahan N., Karahan M., Ari A. (2024): *Cluster Strategy in Technical Textiles and Composite Materials Sector: A Regional Case Study*. RECENT, eISSN 2065-4529, Vol. 25, is. 73(2), pp. 40-54, <https://doi.org/10.31926/RECENT.2024.73.101>
19. Ahrari M., Karahan M., Karahan N. (2023): *Competitiveness Factors in Textiles and Composites Industry and Transformation into Value-Added Products*. RECENT, eISSN 2065-4529, Vol. 24, is. 70(2), pp. 132-141, <https://doi.org/10.31926/RECENT.2023.70.132>
20. Cooke P. (2009): *Development of a Cluster Policy in Turkey*. Conference: Turkish Cluster Roadmapping: Cross Cutting Event, Ref. No. EUROPEAID/122687D/SER/TR, <https://www.researchgate.net/publication/273759303> *Development of a Cluster Policy in Turkey*
21. <https://www.idia.es/en/idias-collaborator-network/>
22. Vivekanand V.C., Bagan B.K. (2020): *Secure Distance Based Improved Leach Routing to Prevent Pnea in Cognitive Radio Network*. Wireless Personal Communications, eISSN 1572-834X, Vol. 113, pp. 1823-1837, <https://doi.org/10.1007/s11277-020-07294-2>
23. Scheer G., von Zallinger L. (2007): *Cluster Management: A Practical Guide. Part A: Overview*. GTZ GmbH, [https://www.clustercollaboration.eu/sites/default/files/document-store/Cluster_Management - A Practical Guide. Part A Overview.pdf](https://www.clustercollaboration.eu/sites/default/files/document-store/Cluster_Management_-_A_Practical_Guide_Part_A_Overview.pdf)
24. <https://www.brusselsnetwork.be/do-not-miss-the-cascade-funding-for-your-company/>