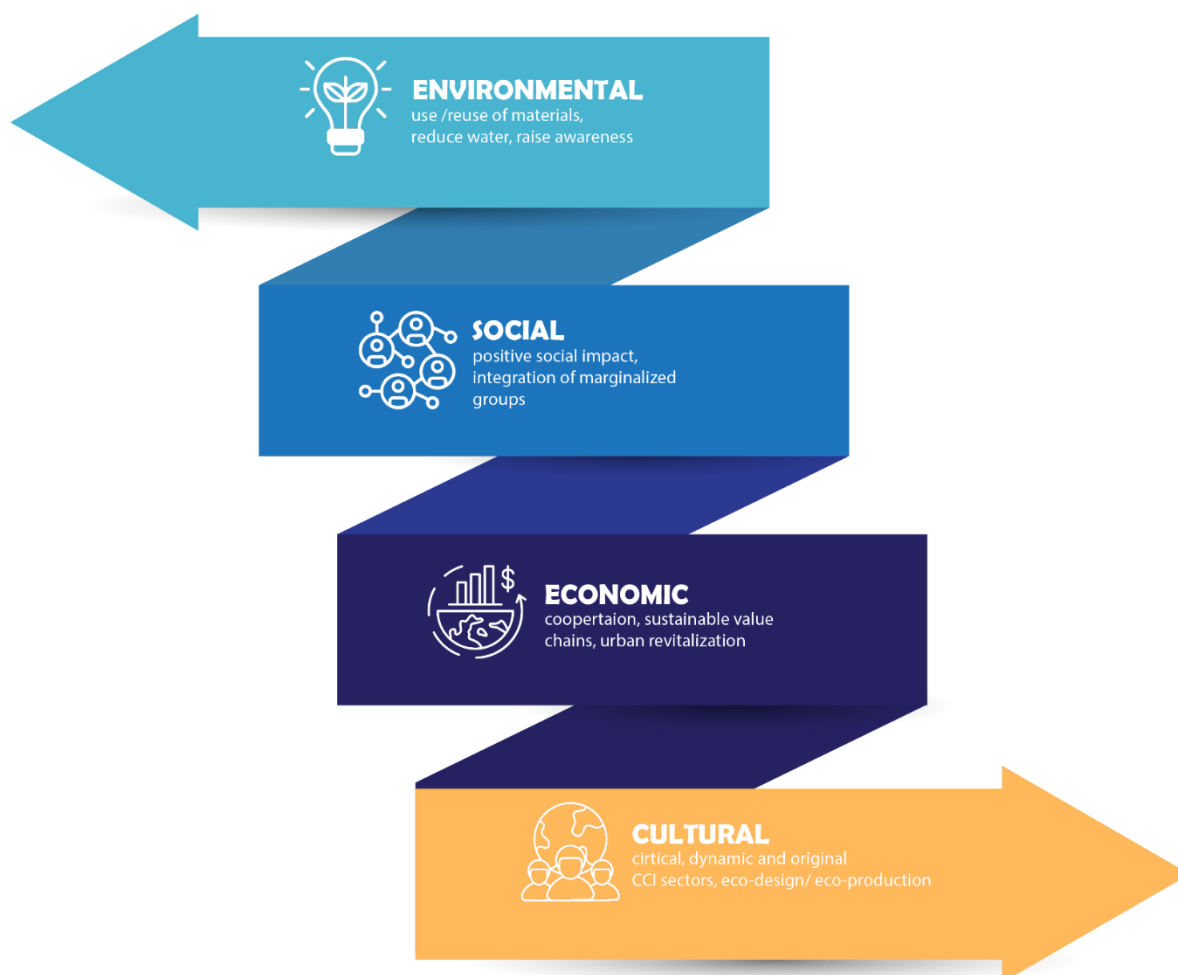




**ENPI CBCMED CROSS BORDER COOPERATION IN THE MEDITERRANEAN
Programme**

**INNOMED-UP Project: Promoting UPcycling in Circular Economy through
INNnovation and education for creative industries in MEDiterranean cities.**

INNOMED-UP: Final Conference Proceedings



رقم الايداع لدى دائرة المكتبة الوطنية (2023/7/3529)

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يتحمل المؤلف كامل المسؤولية القانونية عن محتوى مصنفه ولا يعبر هذا المصنف عن رأي المكتبة الوطنية أو أي جهة حكومية أخرى.

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The 2014-2020 ENI CBC Mediterranean Sea Basin Programme is a multilateral Cross-Border Cooperation (CBC) initiative funded by the European Neighbourhood Instrument (ENI). The Programme objective is to foster fair, equitable and sustainable economic, social and territorial development, which may advance cross-border integration and valorise participating countries’ territories and values. The following 13 countries participate in the Programme: Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Malta, Palestine, Portugal, Spain, and Tunisia. The Managing Authority (MA) is the Autonomous Region of Sardinia (Italy). Official Programme languages are Arabic, English and French. For more information, please visit: www.enicbcmmed.eu”.

The European Union is made up of 27 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders”.

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First edition 2023

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1. INNOMED UP Project Partners

National Technical University of Athens (LEAD BENEFICIARY)



Environmental Planning Engineering and Management (PP1)



Municipality of Prato (PP2)



Center for Economic and Social Research for the South of Italy (PP3)



Municipality of Tunis (PP4)



Birzeit University (PP5)



Future Pioneers for Empowering Communities' Members in the environmental and educational fields (PP6)



2.Conference Proceedings Introduction

The Final INNOMED–UP Conference organised in Athens by the team of National Technical University of Athens, at the Historical Building of Architectural School of NTUA, on 29 May 2023.

The theme of the Conference on *City Creative and Circular Clusters: Towards a new Mediterranean Model* focuses on the final project results. Seven city clusters were presented by the partners along with their characteristics, the roadmaps that have been followed, the specific features, the future steps to be taken, and by whom the clusters are to be enhanced and widen.

Above all, the result of the project was presented and discussed: the INNOMED-UP Model for the Mediterranean as a new, place and evidence-based paradigm that can be adopted by the policymakers, stakeholders, local/regional/national authorities, and international organizations. During this Conference, INNOMED-UP partners, researchers, stakeholders, micro-entrepreneurs, sub-grantees and the general public were informed and discussed the final results of the project.

Specifically, at this International Scientific Conference presented:

- The INNOMED-UP project's final results.
- Seven INNOMED-UP Clusters.
- Two round tables on:
 - Digital fabrication procedures towards the INNOMED-UP Clustering Smart Tools
 - Benefits of applying circular practices and the opportunities of adopting the INNOMED-UP Model
- The tow guides of INNOMED-UP
 - The INNOMED-UP Model
 - Guide for access to financial tools for CCI SMEs who want to innovate in the Circular Economy

3.Conference Program

CONFERENCE AGENDA

Final Conference

City Creative and Circular Clusters: Towards a new Mediterranean Model

Monday 29/5/2023 | 9:30 – 18:00

Place : National Technical University of Athens (NTUA) // Ceremony Hall of the Averof Building

9.30	Registrations	
9.45 – 10.15	Openings	<p>Sofia Avgerinou Kolonias, Em. Professor, Project Coordinator, National Technical University of Athens</p> <p>Eirini Klampatsea, Professor, Dean of the School of Architecture, National Technical University of Athens</p> <p>Dr. Khaled Elsaadany, Senior Expert- Education, Research & Innovation (JTS) ENI CBC MED Programme</p> <p>Sotiris Antoniou, Director General, Athens Traders Association</p> <p>Haris Biskos, Project Manager, Athens Development and Destination Management Agency of the City of Athens</p> <p>Dolly Boucoyannis, Member of the Athenian Jewellery Association</p> <p>Dimitris Giakoulas, Scientific Executive of the Hellenic Confederation of Professionals, Craftsmen and Merchants</p> <p>Pavlos Ravanis, President of Athens Chamber of Small & Medium Industries</p> <p>Timotheos Rekkas, Alternate Director, Directorate for Entrepreneurship & SMEs, Ministry for Development & Investments</p>
10.15 – 10.45	Keynote Speech	Antonis Mavropoulos , CEO Environmental Planning Engineering and Management S.A., Title: <i>“From Circularity to Creativity”</i>
10.45 – 11.15	INNOMED-UP project Final Results	National Technical University of Athens research team Sofia Avgerinou Kolonias , Em. Professor Aggeliki Demertzi , Researcher
11.15 – 11.45	Coffee Break and Project videos display	

11.45 – 13.15	INNOMED-UP Clusters	<i>Presentation of city clusters by all partners</i> <ul style="list-style-type: none"> • <i>Maria Koutsari</i>, National Technical University of Athens team • <i>Lorena Vidas</i>, Municipality of Prato team • <i>Alessandro La Grassa</i>, Centre for Social and Economic Research in Southern Italy team • <i>Samia Saad</i>, Municipality of Tunis team • <i>Baher Dikeidek</i>, Birzeit University team • <i>Obyda Hummash</i>, Future Pioneers team
13.15 – 14.30	Lunch Break	
14.30 – 15.30	Round Table 1	<i>Digital fabrication procedures towards the INNOMED-UP Clustering Smart tools</i> <ul style="list-style-type: none"> • <i>Mattheos Papavasiliou</i>, Associate Professor School of Architecture, National Technical University of Athens (moderator) • <i>Dimitrios Soudris</i>, Professor, School of Electrical and Computer Engineer, National Technical University of Athens • <i>Stefanos Komninos</i>, Athens Chamber of Small Medium Industries, Senior Consultant, Market Analyst and Business Mentor • <i>Imad Tartir & Haitham Elkhaili</i>, Birzeit University • <i>Marco Vella</i>, Centre for Social and Economic Research in Southern Italy • <i>Shadi Ahmad Hammash</i>, Future Pioneers
15.30 – 15.45	Coffee Break	
15.45 – 17.00	Round Table 2	<i>How are creatives adopting circular practices? Problems and opportunities</i> <ul style="list-style-type: none"> • <i>Eirini Klampatsea</i>, Professor, Dean of the School of Architecture, National Technical University of Athens (moderator) • <i>Paolo Guarnieri</i>, Municipality of Prato (on open market) • <i>Samia Saad</i>, Municipality of Tunis (on open market) • <i>Aurelio Ciaperoni</i>, Fuori Catalogo Enterprise, Centre for Social and Economic Research in Southern Italy • <i>Spyridon Kizis</i>, LOCUL Subgrantee Athens
17.00– 17.15	INNOMED-UP Model	<i>Leonardo Borsacchi</i> , Professor, Polo Universitario Cita di Prato

17.15– 17.30	INNOMED-UP Guide for access to financial tools for CCI SMEs who want to innovate in the CE	<i>Afnan Quttieneh & Baher Dikeidek</i> , Birzeit University
17.30 – 18.00	Discussion and closures	
18.00	Farewell Dinner	

4. Welcome - Opening speeches

Sofia AVGERINO KOLONIAS,

Em. Professor, National Technical University of Athens, INNOMED UP Project Coordinator

Dear friends and INNOMED UP partners, please allow me to express my great pleasure as I have the honor to welcome you all, on behalf of National Technical University of Athens, at the opening of the International Scientific Conference *City Creative and Circular Clusters: Towards a new Mediterranean Model*.

I am also delighted, because after three years of research and close cooperation, we have now reached very interesting conclusions and fascinating achievements of our Project. I am also delighted that after three years of research and close cooperation we have come to some very interesting conclusions and exciting achievements. Because together with the spirit of understanding, close cooperation, and friendship, we have managed to overcome many difficulties that emerged from the pressure of the pandemic crisis, the conditions around the Mediterranean south, and of course the peculiarities of local governance.

Our starting point was the need for the revitalization of Mediterranean cities by exploiting productive and creative networks, connecting them to modern circular economy practices. INNOMED UP introduces a new approach combining creativity and the circular economy. Particularly it also proposes the implementation of their combination in local societies and economies, attempting to limit negative impacts such as environmental degradation, increased tourism, deindustrialization, and social inequalities, in order to ensure the sustainability of Mediterranean cities.

Today, the INNOMED UP International Scientific Conference, has the primary purpose of communicating to all our partners and the wider public the key findings, the final project results, and proposals. Seven city clusters will be presented by the partners along with their characteristics, the roadmaps that have been followed, the specific features, the future steps to be taken, and by whom the clusters are to be enhanced and broadened. A main topic to be presented and discussed will be the *INNOMED-UP Model for the Mediterranean*, as a new place and evidence-based paradigm, that can be adopted by policymakers, stakeholders, local/regional/national authorities, and international organizations.

To discuss:

- a new productive paradigm, enhancing the sustainability of the small medium enterprises and the cities while deepening local productive clusters, as well as the benefits that could be multiplied for the traditional productive networks and clusters, the preservation of cities' cultural identity, and the environmental goals.
- the process as a result of the engagement of different design and fabrication innovations, smart tools, programming, digital fabrication, and assemblage from open-source procedures towards upcycling, and the potential future implementation and use of such systems.

Let me express my sincerest thanks to the INNOMED UP partners that embraced the issue of revival of Mediterranean cities, the craftsmen and designers from the partner cities, for their

effort in order to create a cross-border cooperation and dialogue through the joint creation of INNOMED UP Clusters, Smart Tools, and Pilot Products, as well as the Managing Authority and the Joint Technical Secretariat Officers, for their support and trust in our project.

INNOMED UP is the continuation of a long Mediterranean research process. In 2019, we started an exciting journey. From the beginning of our adventure, we tried to succeed:

- Respect for local specificities and their characterization.
- Strengthening cross-border cooperation and trust between the Mediterranean North and South communities.

I strongly believe that INNOMED UP conveys the message of communication, intercultural dialogue, creativity, and cooperation in a Mediterranean context that shares common perspectives and threats.

Let me believe that this conference is not the end of our wonderful journey in the Mediterranean, but that our common effort for sustainable urban development, modernization, innovation, and Mediterranean culture will soon continue with further activities.

*Eirini Klampatsea, Professor,
Dean of the School of Architecture, National Technical University of Athens*

Dear colleagues, partners, and JTS officers:

I would like to welcome you to Athens, to the historical building complex of NTUA, and to the final conference of the INNOMED-UP Project in person and virtually. It's a great pleasure for us to meet you in the School of Architecture at NTUA. I am here today in my double role as the Dean of the School of Architecture, and as a member of the NTUA research team.

The National Technical University of Athens (NTUA) is the oldest and most prestigious public university in Greece offering high-quality, tuition-free education to young architects within a historic environment.

Our students have the unique opportunity to learn and enjoy long hours within the “Averoff” building, an architectural landmark within the surrounding neoclassical complex, which was awarded the EUROPA NOSTRA HERITAGE AWARD in 2013 and in which six days ago was hosted the Prize Pritzker Awards 2023 with the lecture of Laureate 2023 Sir David Chipperfield. The “Averoff” building is in itself a living lesson in Athenian architecture, as well as an example of architectural preservation excellence.

The core of the INNOMED-UP Project “Promoting Upcycling in Circular Economy through INNOvation and education for creative industries in MEDiterranean cities”, reinforces many of the contemporary challenges of our school's research and teaching experience through the use of innovative tools for diagnosis, mapping, and promotion of policies and actions for the revitalization of the historic centers of Mediterranean cities in relation to the inclusion of the circular economy in the value chain of SMEs in traditional and new sectors of the creative and cultural industries.

The School of Architecture focuses, among other topics, on the complex problems of the central area of Athens as well as the correlations, similarities, and differences with other central areas on a European and international level. In this way, the processes and results of the implementation of the INNOMED-UP Project add value to our teaching and research experiences.

I would like to thank all of the partners, our research team, the administrative staff of NTUA, and the JTS officers for that.

I wish you a fruitful meeting and give the floor to Prof. Emeritus Sofia Avgerinou Kolonias, Project Coordinator and the soul of the INNOMED-UP Project.

Dr. Khaled Elsaadany,

Senior Expert- Education, Research & Innovation | (JTS) | ENI CBC MED Programme

The concept of "City Creative and Circular Clusters" as a means to foster sustainable development and economic growth in the Mediterranean region. With the increasing urbanization and environmental challenges faced by cities, there is a growing need for innovative approaches that integrate creativity, circularity, and collaboration. The proposed model emphasizes the formation of dynamic clusters, where diverse stakeholders from various sectors come together to co-create solutions for urban challenges. The model aims to unlock the full potential of cities in the Mediterranean, fostering sustainable growth and enhancing the quality of life for their residents.

The Mediterranean region is known for its rich history, vibrant culture, and diverse ecosystems. However, rapid urbanization, population growth, and environmental degradation pose significant challenges for cities in the region. To address these challenges, a paradigm shift is required that moves away from linear and resource-intensive economic models towards more sustainable and circular approaches. The concept of "City Creative and Circular Clusters" offers a promising solution by harnessing the power of creativity, innovation, and collaboration to drive sustainable development.

The City Creative and Circular Clusters model presents a compelling approach for Mediterranean cities to navigate the complex challenges of urbanization, sustainability, and economic development. By embracing creativity, circularity, and collaboration, cities can unlock their potent...

Sotiris Antoniou,
Director General, Athens Traders Association

Dear all,

I am very proud to represent the Athens Traders Association in the "INNOMED-UP program", promoting upcycling in the circular economy through innovation and education for creative industries in Mediterranean cities, including Athens.

Our association and I personally have had many years of cooperation with the National Technical University of Athens, especially with Professor Sofia Avgerinou - Kolonia. We will always be open to such collaborations, which aim to upgrade Greek commerce and the quality of life of all citizens who live in the city of Athens and all over the Mediterranean region.

I don't want to waste more of your precious time.

Many thanks to all participants in this project, for their cooperation and I am sure that the final results will be very useful for all of us.

Haris Biskos,

Project Manager, Athens Development and Destination Management Agency of the City of Athens

Dear Dean of the National Technical University of Athens, School of Architecture,
Dear Emeritus Professor Sofia Avgerinou Kolonias,
Ladies and gentlemen,

We express our sincere gratitude for allowing us to be part of your active stakeholder community and for the fruitful collaboration established through our dedicated Memorandum of Understanding contract with the National Technical University of Athens under the INNOMED UP program. This partnership enables us to support innovative initiatives that inform and enhance our city's public policies.

As the Athens Development and Destination Management Agency of the City of Athens, our focus lies in designing and implementing development and promotional activities that enhance our city's resilience. We prioritize the promotion of innovation, competitiveness, and entrepreneurship, with a particular emphasis on the tourism and cultural sectors. Additionally, we strive for smart and sustainable management of Athens' urban environment, as well as the promotion of social cohesion and integration, through various programs and initiatives.

On behalf of the Athens Development and Destination Management Agency, I extend our deep appreciation to the National Technical University, especially Emeritus Professor Sofia Avgerinou Kolonias, for the opportunity to support and learn from the innovations generated by the INNOMED UP program.

Dolly Boucoyannis,
Member of the Athenian Jewellery Association

Dear all,

I am very happy to be here and share this event and all the previous proceedings of the INNOMED-UP project with you. As a member of the Athenian Jewelry Association, I would like to pass on our enthusiasm about this project and our hope that it will generate new habits and substantial results for the microeconomy of jewelry making in the historic center of Athens.

A big thank you to all the participants who have worked hard to accomplish what we can see today at this conference.

Dimitris Giakoulas,

Scientific Executive of the Hellenic Confederation of Professionals, Craftsmen and Merchants

The impacts of climate change have raised serious concerns about the dominant post-war linear model of production and consumption and forced a shift to more sustainable practices.

In a circular economy, we use the waste from production processes as inputs to other production processes, but we also try to increase the lifespan of products so that they continue to be useful for a longer period of time before they are recycled or discarded.

In this respect, SMEs that maintain, repair, and reprocess products contribute substantially to the promotion of the circular economy. However, manufacturers continue to produce products that are not friendly to repair and focus only on recycling, which is not always the most sustainable practice.

GSEVEE, as a representative of SMEs, promotes their transition to the circular economy, and in this context, we believe that our cooperation with the National Technical University of Athens within the framework of the INNOMED-UP project directly responds to our priorities.

Pavlos Ravanis,
President of Athens Chamber of Small & Medium Industries

Dear Prof. Sofia Avgerinou Colognia,

We would like to thank you for our long-term collaboration throughout the years. INNOMED-UP has been a very inspiring journey for all of us, proposing new ways to further connect small and medium creative enterprises in the historical center of Athens. We are convinced that the results of INNOMED-UP will support SMEs in becoming more sustainable.

Clustering and joining forces have always been a challenge in Greece, but they are also a great necessity. The values of recycling and upcycling in the creative industries sector need to be adopted by SMEs to remain viable and competitive.

In that respect, we have been more than happy to be part of the INNOMED-UP project.

Timotheos Rekkas,

Alternate Director, Directorate for Entrepreneurship & SMEs, Ministry for Development & Investments

Good morning,

On behalf of the Directorate of Entrepreneurship and SMEs of the General Secretariat for Industry of the Ministry for Development and Investments, I would like to thank you for your invitation to participate in this conference on this extremely interesting project concerning the circular economy. A project designed and implemented within the framework of the European Union's strategy for the promotion of innovative circular economy business practices at the local level through the cooperation of several public and private entities. A project that, in the context of political science, is based on what is called the "nexus" of interactions and interconnections between different actors in the framework of multi-level governance in the European Union.

The Directorate of Entrepreneurship and SMEs has a special role in supporting the political leadership with reliable data regarding entrepreneurship in the country. In this context, our directory manages the Observatory for SMEs, a co-financed project that aims to provide reliable data for designing and implementing evidence-based public policies. Our recently published research (https://www.ggb.gr/el/sme_observatory/map_handcraft_smes) for the mapping of craft entrepreneurship in Greece revealed data regarding the number of craft enterprises, their activities and size (the vast majority are businesses with less than 5 employees and an annual turnover of less than 30,000 euros), as well as their needs for financial support and the development of skills for both entrepreneurs and job-holders in the era of Industry 4.0.

Once again, I would like to warmly thank you for the invitation and wish you every success in today's work.

5.Keynote Speech

“From Circularity to Creativity»

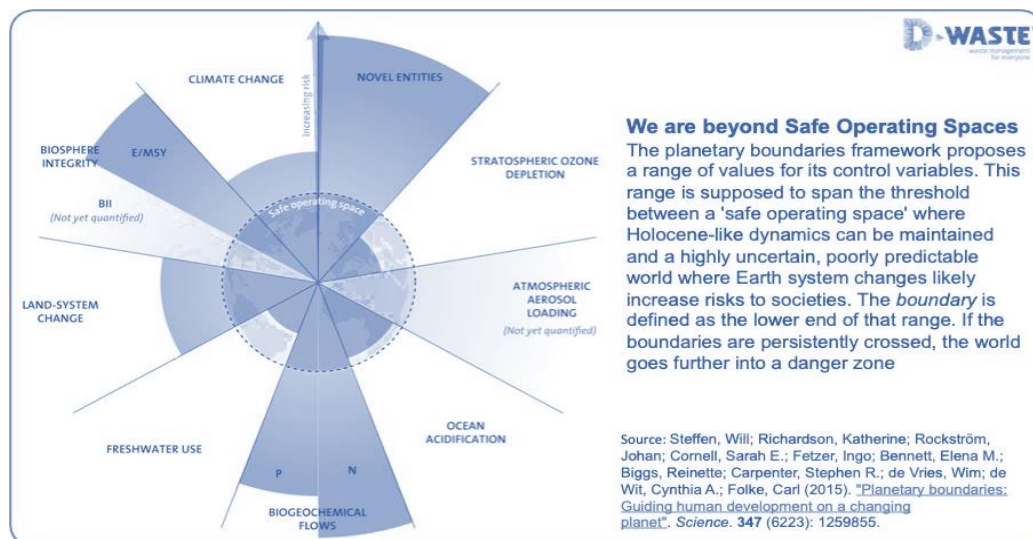
by Antonis Mavropoulos, CEO Environmental Planning Engineering and Management S.A.

From Circularity to Creativity

Abstract: In this presentation, we will discuss the interconnections between circularity and creativity. To do that, we will first approach the circular economy as a restriction and address the importance of planetary boundaries. Then we will discuss the role of restriction as a key to the development of creativity through some examples from artistic creations. Finally, we will close the triangle of “Circular Economy”, “Restrictions”, “Creativity” by linking creativity and circularity and explaining the different types of creativity that the circular economy stimulates. A key point of our conclusions is the need not just to think outside the box but to get rid of the box of economic orthodoxy (jumping out of the system, jootsing), as a condition for radical circular innovation.

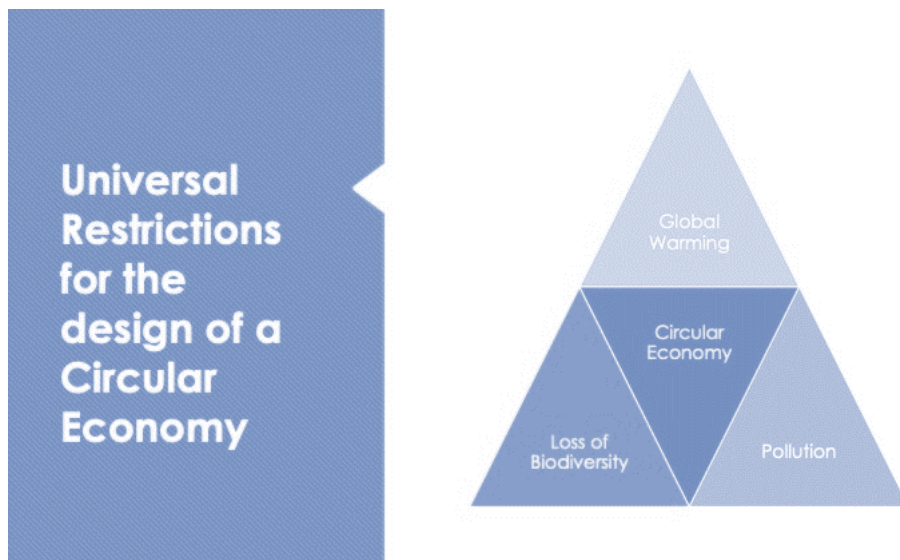
Circular Economy as a Restriction

The main problem that we need to understand and explain today is that a circular economy is a necessity on a global scale to control the human footprint on Earth and keep the global economy within planetary boundaries. Planetary boundaries refer to the limits within which humanity can safely operate to maintain a stable and sustainable planet. The concept was first introduced in 2009 by a group of Earth system scientists led by Johan Rockström¹. It identifies nine critical environmental processes and parameters that define the boundaries of human activity. These boundaries include climate change, biodiversity loss, land use change, freshwater use, ocean acidification, ozone depletion, atmospheric aerosol loading, chemical pollution, and the nitrogen and phosphorus cycles. The planetary boundaries framework serves as a reminder that human activities must operate within the safe operating space provided by Earth's systems. Respecting and staying within these boundaries is crucial for maintaining a habitable and resilient planet for future generations.



Today, there is a high possibility that within certain planetary boundaries we are moving out of safe operating space, especially in terms of climate change, bio-geochemical flows, loss of biodiversity (biosphere integrity), and the rapid introduction of thousands of chemicals into our environment (novel entities). But why is this happening?

In brief, this is happening because our economy, as a socio-technical metabolic system, becomes bigger than the natural ecosystems can afford. In practice, this means that we consume much more resources faster and cheaper, and we produce much more waste (air pollution, wastewater, chemical pollution, and solid waste) at faster rates than the natural ecosystems can afford and absorb without substantial negative impacts.



This means that the circular economy should be considered as the necessary introduction² of the restrictions required to avoid global warming, protect biodiversity, and decrease pollution levels, so our societies remain within the safe operating space of the planetary boundaries.

Restriction as a key for Creativity

There is a long history and great literature about the importance of restrictions for developing all types of human creativity. Restrictions play a significant role in developing creativity in the arts by providing structure, focus, and challenges that can inspire innovation and unique artistic expressions³. While it may seem counterintuitive, limitations can stimulate creative thinking and problem-solving in the following ways:

- Encouraging resourcefulness
- Fostering creativity within boundaries
- Sparking unconventional ideas
- Enhancing problem-solving skills
- Stimulating artistic growth

Ultimately, restrictions provide a framework that artists can navigate, allowing them to channel their creativity in meaningful and purposeful ways. By embracing constraints, artists can uncover new possibilities, refine their artistic vision, and produce truly unique and impactful works of art.

Different examples can inspire the discussion on the importance of restrictions for artistic creativity. Swedish installation artist Michael Johansson¹ (1975) re-contextualizes the readymade, freeing mundane objects from their function to produce geometric sculptures and neatly constructed installations. His art pieces are recognizable yet unique, archaeologies of everyday life compressed into rectangles or cubes. Playfulness and a great sense of humor characterize the art of Michael Johansson, who is obsessed with investigating and defining the limits and possibilities of space and objects.



Ernest Hemingway was the story's author, who bet some friends that he could write an entire story in just six words. Here's how Hemingway did it: "For sale: baby shoes, never worn". With such an extreme brevity limitation, not only did Hemingway have to choose his words carefully, but he also had to craft them in a way that imbued the silence around those words with the rest of his story since he'd run out of words to tell it.

Phil Hansen² is another great example. As an art student, Phil relied on a specific pointillist style he'd developed. He was understandably distraught when an injury from creating art this way meant he couldn't do it anymore. After walking away from the art world completely for three years, Phil returned and started using constraints to his advantage. His shaky hand, a result of his art injury, led him to a new style incorporating the shaky lines he couldn't help making. Eventually Phil realized how powerful constraints could be and started creating his own, from drawing on coffee cups to painting with karate moves to creating temporary art with matches, candles, and chewed-up food.

¹ <https://www.michaeljohansson.com>

² https://www.huffpost.com/entry/phil-hansen-ted-embrace-the-shake_b_4744768?ref=buffer.com

**We need first to be
limited in order to
become limitless**

Phil Hansen



The importance of restrictions for creativity drives us to ask the following questions:

If restrictions are keys to unlock creativity, then the type of restrictions imposed drives a certain creative direction. In principle, we have to choose our restrictions between two broad options. Option 1: We choose to have endless economic growth as a restriction and try to fit nature and ecosystems into it, using our creativity. Option 2: We choose to set planetary boundaries as a restriction and try to change the economy in creative ways to fit it within the planetary boundaries.

Two types of creativity

Endless Economic Growth

Creativity Type 1

- Optimization
- More Efficiency
- More, Cheaper, Faster

Creativity to sustain growth
and markets



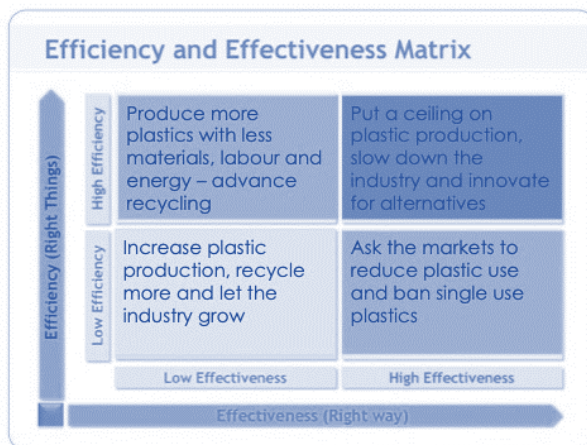
Planetary Boundaries

Creativity Type 2

- Repurpose
- More effective
- Control resource consumption

Creativity to sustain life and
societies

This discussion is bringing us to the usual dilemma between efficiency and effectiveness. While the business-as-usual choice is to sacrifice effectiveness for efficiency⁴, it's time to do exactly the opposite now.



**Stop
sacrificing
effectiveness
for efficiency**

Creativity as a driver for the Circular Economy

Our economy used to be circular, as long as the natural ecosystem was capable of absorbing and “neutralizing” the outcomes of the techno-social metabolism. The great linearization started with the industrial revolutions, and it continues today⁵. Now, our task to find ways to make the economy circular again. While there are too many different definitions of circular economy, we chose a very simple one for this presentation.

The circular economy is an economic model that allows human societies to flourish within the safe operating spaces of the planetary boundaries in harmony and without undermining the wealth of the rest of the biosphere to which we belong. But there are certain restrictions on such an approach that we need to consider.

These restrictions should stimulate our creativity and drive us to new ways of thinking capable of linking effectiveness and efficiency in new ways.

Let's dive into restrictions

71% of all resources cannot be recycled or re-used (44% of which are energy sources and 27% of which are added to existing stocks), you can only really get better numbers by reducing total use.

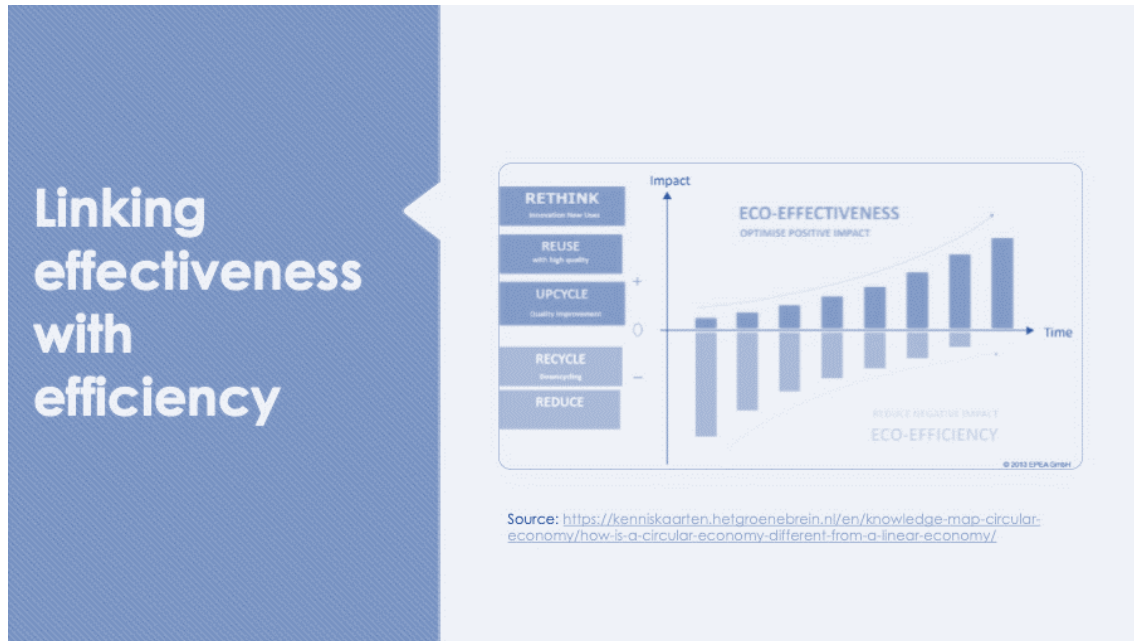
A circular economy would therefore demand that we use less fossil fuels (which isn't the same as using more renewable energy), and that we accumulate less raw materials in commodities. Most importantly, we need to make less stuff: fewer cars, fewer microchips, fewer buildings. This would result in a double profit: we would need less resources, while the supply of discarded materials available for re-use and recycling would keep growing for many years to come.

It seems unlikely that the proponents of the circular economy would accept these additional conditions. The concept of the circular economy is intended to align sustainability with economic growth – in other words, more cars, more microchips, more buildings. For example, the European Union states that the circular economy will “foster sustainable economic growth”.

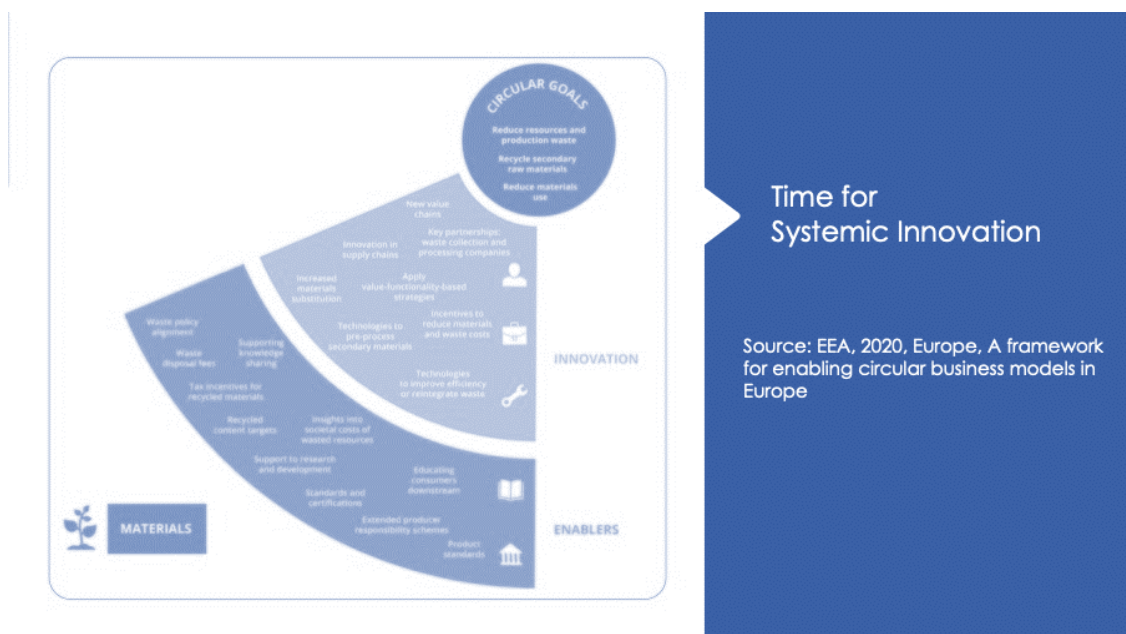
Even the limited goals of the circular economy – total recycling of a fraction of resources – demands an extra condition that proponents probably won't agree with: that everything is once again made with wood and simple metals, without using synthetic materials, semi-conductors, lithium-ion batteries or composite materials.

We have to start with this simple approach: to make the economy circular, you need to reduce it first⁶. This will allow a better balance in the ecosystems.

And at this point, we need to move from circular creativity to circular innovation⁷. How can we define it? A simple definition could be that circular innovation is something different that creates circular value: making a service or product without exceeding the planetary boundaries, directly or indirectly.



We need to consider circular innovation as a systemic outcome. This will allow us to move beyond optimization to Jootsing. Jootsing stands for "jumping out of the system." It can be applied to science, philosophy, and the arts. Being creative is not about searching for something new, but about making the novelty jump out of some system, that has become somewhat established, for right or wrong reasons.



Instead of conclusions

- We need to consider the circular economy as a restriction that boosts creativity.
- We need to choose the restrictions that sustain life and not the ones that sustain markets and endless growth.
- Our era calls for creativity and innovation beyond optimization.
- Thinking outside the box is not enough; we need to get rid of the box of economic orthodoxy

Further Reading

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6. INNOMED-UP project Final Results

By Sofia Avgerinou Kolonias,

Em. Professor and Aggeliki Demertzi, Researcher, NTUA

INNOMED UP Project under the full title: Promoting UPcycling in Circular Economy through INNnovation and education for creative industries in MEDiterranean cities is a euro Mediterranean project funded by the ENI CBC MED at the thematic objective: A.2 Support to education, research, technological development and innovation and the Priority: A.2.2 SMEs access to research and innovation. The total budget amounts to 3.1 million, of which 2.8 is the EU Contribution. The project duration is 48 months. Athens from Greece, Palermo and Prato from Italy, Tunis from Tunisia, Nablus and Hebron from Palestine and Irbid from Jordan are participating through many research and community activities, pilots and clusters.



Concept and Idea: **INNOMED UP At a Glance: Cities in Circular and Digital Transition**

Cities are the spaces where productive activities are concentrated, forming productive relations, networks, and consequently new spaces.

It is known that Mediterranean cities historically hosted a wide variety of creative industries networks, applying old techniques and cooperative practices and contributing to urban vitality and sustainability. Local economies and urban settings are determined by the creative networks.

This feature makes the Mediterranean cities a great field for testing the new era's challenges regarding the circular and digital



transition: on one hand, creative industries build strong networks of cooperation, formulating non-typical value chains, and on the other, based on their intrinsic creativity, they quickly and easily embed the new technologies.

Having said that, the core INNOMED UP idea is to enhance creative networks in Mediterranean cities, deploy their creativity towards inventing and adopting existing and new circular practices, and create new knowledge through the integration of new technologies.

INNOMED UP Cities and Partners

Project Partner	City
National Technical University of Athens	Athens
Environmental Planning Engineering and Management	
Municipality of Prato	Prato
Center for Economic and Social Research for the South of Italy	Palermo
Municipality of Tunis	Tunis
Birzeit University	Nablus & Hebron
Future Pioneers for Empowering Communities' Members in the environmental and educational fields	Irbid

INNOMED-UP proposes to work with CCIs **to shift local urban economies towards a circular production and consumption paradigm** including optimal use of material

resources, **innovation enhancement for SMEs, knowledge transfer among cities**, social inclusion, and citizens' engagement. The project will work at a cross-border level, supporting both technological developments (such as modern procedures of upcycling, technological informative platforms, etc.) and traditional recycling practices.

In the Mediterranean North, the pilot application of clusters, through existing networks of creativity, was carried out through the transfer and exchange of know-how and technology (Prato, Athens, and Palermo). In the cities of the south, however, the informal but close productive relations (Hebron, Nablus, Irbid, and Tunis) seem to maintain an example of cooperative networks within the urban fabric. This exchange of techniques, tools, experiences, and know-how was considered to be able to work for the benefit of all Mediterranean cities, which, despite geographical differences, maintain a common Mediterranean identity.

Regarding the partnership: (a) two universities (NTUA and BIRZEIT of Palestine) contributing to the subjects of urban planning, geography of creative professions, and new technologies; (b) two municipalities (Pratos and Tunis) shaping policies and practices for the urban environment in circular economy and urban revitalization; (c) an expert (EPEM) in matters of circular economy applications and the development of new cooperation models; and (d) two non-governmental organizations, which are active in informing and developing communities, in the inclusion of vulnerable and marginalized groups, and in their education.

Project Overview and Methodology

Regarding the methodology, and how the necessity of a cluster can be diagnosed, designed, supported, and implemented.

1. Desk Research: Conduct the reporting of the state-of-the-art discourse regarding CCI SMEs and the circular economy in the cities and data collection to formulate the Strategic Context.
2. Fieldwork: SWOT Seminars with the participation of various stakeholders and interviews with SMEs to map the CCIs value chains and modes of cooperation towards the configuration of the clustering roadmaps.
3. Design of the smart tools and their digital (and physical) interconnection.
4. Training activities for SMEs in each participating city.
5. Financial support for selected SMEs through different grants.
6. Pilot clusters establishment.

7. INNOMED UP Model: Circularity Strategy for CCI SMEs in the Mediterranean

Horizontal Actions: info points, campaigns, guides, and handbooks; conferences; Sociourban Workshops; and open reuse markets.

Work Package	Main Activities
WP1: Management	Project & Financial Management, Internal & External Evaluation, Project Meetings
WP2: Communication	Awareness Campaigns , Results Dissemination, Publications, Digital Platform , Info Points Project Capitalization
WP3: INNOMED-UP model	Desk Research & Data Collection , Inputs from other activities→ INNOMED UP Model & Guide for Circularity in the Mediterranean
WP4: SMEs Clustering Capacity Enhancement through Roadmaps & Smart Tools	Fieldwork : SWOT Seminars & Interviews→ Mapping the CCIs Value Chains & CE potential→ Clustering Roadmaps & Smart Clustering Tools
WP5: Pilot Integration Actions	Community Engagement , MoUs with Stakeholders, Pilot Products (grants), Open Re-Use Market, Socio-Urban Workshops→ Clusters
WP6: SMEs access to innovation & finance	Training for SMEs & End-Users, Innovation Vouchers (grants), Cross-border Mentorship Schemes (grants) → Guide for access to financial tools for CCI SMEs who want to innovate in the CE

INNOMED UP In Numbers

Within the INNOMED UP Project, several activities have been accomplished:

- **7 clustering roadmaps** (one per city)
- Over **200 SMEs** are in the fieldwork
- Over **1.000 trainees and 88 end-users** gained new knowledge in training seminars
- Over **50 stakeholders** and **28 MoUs (Memoranda of Understanding)**
- **2 sociourban workshops** in Athens and Hebron/Nablus & **1 Consolidation Workshop** in Prato
- **2 open reuse Markets** in Prato and Tunis
- **3 awareness campaigns** and over **70 videos** uploaded on the project video channel: <https://www.youtube.com/@INNOMEDUP>
- **8 bicycles, over 50 Smart Bins** (Smart Tools)
- **86 subgrants** (~400k euros in grants and awards to local creative SMEs)
- **1 platform, 1 open repository and 1 smart application**
- <https://innomedup.eu/>
- **2 Info Points** in Irbid and Palermo
- **2 Guides**
- **7 Pilot Clusters – one in each city**

What is worth mentioning, is that despite the pandemic restrictions, the INNOMED UP Partnership remained focused on community engagement at the local level. It is estimated that the community-led activities included more than 2.500 people as target groups and addressed over 10.000 members of the general public.

INNOMED UP Cities' Strategies: Clustering Roadmaps

Each participating city, through various research and fieldwork, strategized its vision as follows:

“Athens Circles of Creativity.”

“Prato, a sustainable, innovative, and circular city.”

“Palermo cooperation among profit and non-profit creative craft SMEs for the renovation of traditional techniques based on natural materials.”

“Tunis closer to the real needs of SME’s and to make youth a real force of change.”

“Hebron/ Nablus: Sustaining History for a Sustainable Future.”

“Irbid: Repair and Reuse for as long as possible.”



Smart Tools - A: Bins, Bicycles, Applications

In order to sustainably establish the city clusters, the NTUA designed a series of smart tools that were piloted in the cities and are openly available for future use:

- A smart bin prototype
- A bicycle prototype
- A digital application that interconnects the parts of the cluster (available for smart phones)
- An open repository with designs and guidelines (<http://innomed-up.eu/OSREP/>)



Smart Tools -B: Digital Platform and Asynchronous E-Learning for SMEs

Birzeit University, along with NTUA, built the digital platform and the asynchronous e-learning platform where the project material, results, and involved target groups can be accessed. Also, tens of hours of asynchronous distance learning are available on the platform.

<https://innomedup.eu/>

INNOMED UP: Living Lab/Participatory Activities

As it has already been mentioned, several participatory activities took place during the project's duration.

SWOT seminars in each city with stakeholders and SMEs

Sociourban Workshops

Open reuse Markets

Training seminars for SMEs and end users

INNOMED UP Horizontal Results

Horizontally, the following activities were accomplished:

1. **Guide for access to financial tools for CCI SMEs who want to innovate in the CE** (*printed publication - expected*)
2. **Guide for Circularity Strategy for CCI SMEs in the Mediterranean** (*printed publication - expected*)
3. **Digital Campaigns** (available at the INNOMED UP YouTube Channel)



4. Info Points
<http://future-pioneers.org/innomedup/>
<https://www.cresm.it/en/innomed-up-info-point-palermo/>
5. Newsletters
6. 50 press releases (in all languages)
7. 71 Videos – 2.229 Views
8. 350 Facebook Posts – 5.637 followers
9. 146 Tweets – 103 followers

SMEs Grants

Three categories of grants/awards (2-10.000 each, ~400.000 euros in total) were distributed across the participating cities to support local cultural and creative industries that innovate in circular economy practices.

Cross-Border Vouchers: Activity Description

The project offered mentorship schemes for CCI SMEs that seek cross-border cooperation. 21 SMEs in EUMC and MPC were granted grants for industrial research and experimental development in high-tech systems or other collaborative schemes with third institutions in order to integrate high-technology and innovate on Circular Economy principles.

Innovation Vouchers:

The innovation vouchers provide non-refundable direct financial support to CCI SMEs that seek funding in order to adopt circular practices in their production lines through specialized innovative equipment at a transnational cross-border level. 26 grants/awards were given in total.

Innovation Products:

The new innovative products were designed by local CCI SMEs that participated in the pilot clusters, using materials from the pilot testing of the smart tools (a Bicycle and Garbage Bin). 39 innovative products were produced within the INNOMED-UP Project.

	Cross-Border Vouchers	Innovation Vouchers	Innovation Products	Total
Athens	2	2	2	6
Prato	2	2	2	6
Palermo	2	2	2	6
Tunis	2	4	9	15
Nablus/Hebron	5	6	4	15
Irbid	8	10	20	38
Total	21	26	39	86

INNOMED UP Clusters and INNOME UP Model

Finally, seven city clusters were established within INNOMED UP, resulting in the INNOMED UP Model.

Every city focused on a specific area of interest and on a specific production cycle, involving selected branches of the CCIs. That's how the smart clustering tools were tested in real case clusters and involved real CCI SMEs. That's how clustering roadmaps were implemented. Grants and awards that were given to local SMEs supported this direction and provided a policy tool for local and national authorities on how circular and creative urban clusters can be established and implemented.

The engagement and involvement of local communities in the pilot clusters were also of great importance. In the same view, 28 Memoranda of Understanding with Stakeholders and selected local CCI SMEs that participated in the pilot cluster of each city were signed, assuring the project results' sustainability.

Finally, the Guide for Circularity Strategy for CCI SMEs in the Mediterranean, i.e., the INNOMED UP Model, capitalized on the whole knowledge gained from the project by suggesting a strategy for the creation of CCI SMEs circular economy clusters locally and their participation in cross-border innovation networks promoting urban and social inclusion. We are confident that this project's output can play a key role in policymaking at the Mediterranean level.

In closing this presentation, we express our sincere thanks to the INNOMED UP partners for adopting the theme of the revitalization of Mediterranean cities, to the craftsmen and designers from the partner cities for their efforts to create cross-border cooperation and dialogue through the joint creation of INNOMED UP Clusters, Smart Tools, and Pilot Products, as well as to the Managing Authority and the Joint Technical Secretariat Managers for their support and confidence in our project.



Let us be optimistic that this Conference is not the end of our wonderful journey in the Mediterranean and that our joint effort for sustainable urban development, modernization, innovation, and Mediterranean culture will soon continue with new activities.

7.INNOMED-UP Clusters

Athens, Greece: NATIONAL TECHNICAL UNIVERSITY OF ATHENS (LB)

By Maria Koutsari, Architect – Urban Planner, NTUA Researcher, and Aggeliki Demertzi, Economist – Urban Planner, NTUA Researcher

Main Characteristics of the city.

Specific features of creativity and the circular economy

The city of Athens is an old, historic city with a rich cultural heritage and is the capital of Greece. The metropolitan area of Athens is the center of political decision-making, houses 40% of the total population, and produces about 50% of the national GDP. It could be described as an open city, as political and social movements often develop and the social stratification is wide and includes minorities such as immigrants, refugees, LGBTQ communities, and so on.



Monastiraki square and the Acropolis

Athens was and remains the gathering place of SMEs with a tradition in the creative arts professions (silver and goldsmithing, tannery, fashion design, clothing, and footwear manufacturing, ceramics). The presence of creative professions remains obvious and dynamic despite the adversity created by the crisis. Especially in the historic center, the activities of jewelry, clothing and (more recently) design show remarkable dynamism.

These characteristics compose a complex image and create the conditions for these activities to emerge as critical, dynamic, and original, so that on the one hand they integrate more and more cyclical practices in their production but also serve as a guide to good practices regarding the use and reuse of materials, eco-design of products, and eco-production, as well

as a guide to good practices of cooperation, the establishment of sustainable value chains, and urban revitalization.

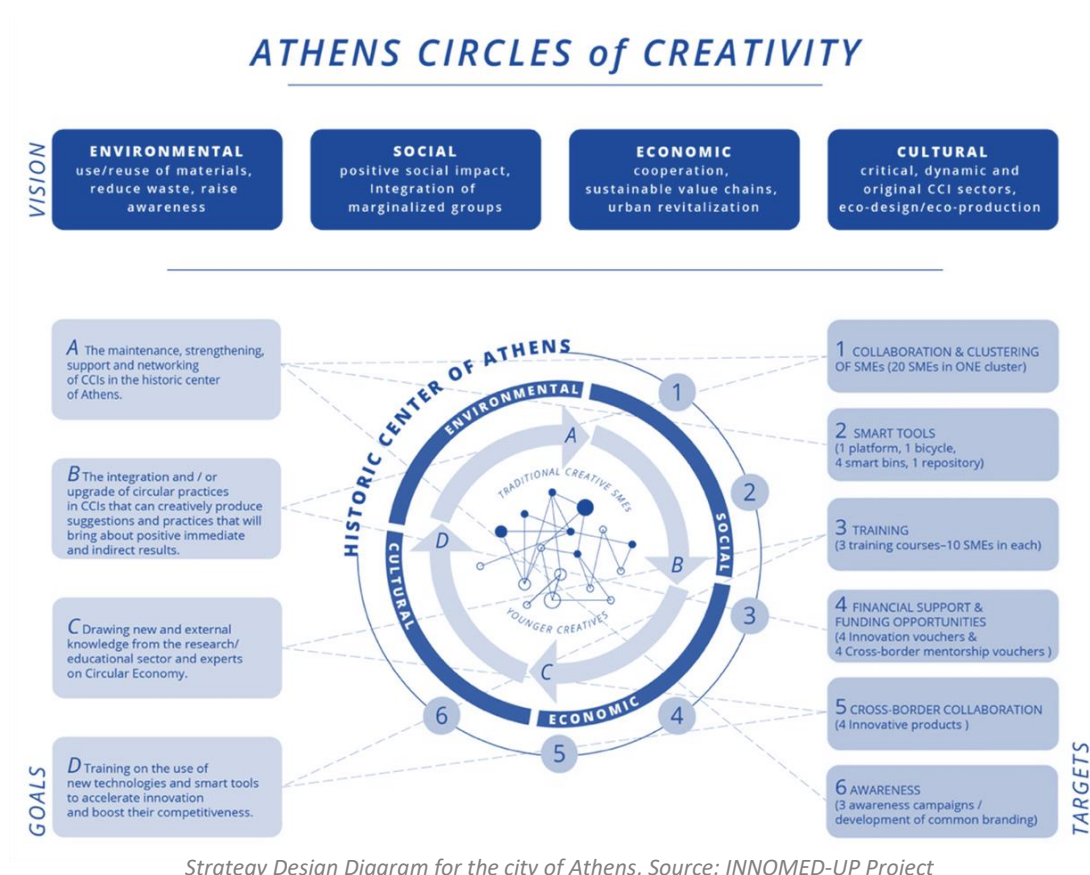
Strategy design at local level

Under the motto “*Athens Circles of Creativity*,” the strategy for the Pilot Clustering in Athens has the following **vision**:

- Emerge as critical, dynamic, and original so that, on the one hand, they integrate more and more cyclical practices in their production but also serve as a guide to good practices regarding the use and reuse of materials, eco-design of products, and eco-production.
- Guide to good practices in cooperation, establishment of sustainable value chains, and urban revitalization
- Create a positive social impact through the integration of marginalized groups (homeless, refugee and immigrant women, garbage collectors, etc.).

It aims at the following goals:

- The maintenance, strengthening, support, and networking of CCI in the historic center of Athens
- The integration and/or upgrade of circular practices in CCI can creatively produce suggestions and practices that will bring about positive immediate and indirect results.
- Drawing new and external knowledge from the research and educational sectors and experts on the circular economy.
- Training on the use of new technologies and smart tools to accelerate innovation and boost their competitiveness.



Involvement of local communities and stakeholders in the Cluster

The Involvement of local communities in the Cluster has been an important goal throughout the implementation of the program. First of all, the involvement of stakeholder has been considered critical in terms of providing important information and access to databases, key contacts, and SMEs. For this reason, NTUA has signed five MoUs with important stakeholders, such as chambers, associations, and local authorities, that provided great support towards the establishment of the Pilot Cluster; Access to databases; Dissemination; Voucher award support:

1. Athens Chamber of Small and Medium Industries (Enterprise Europe Network Hellas), a chamber involved with the support and networking of Small and Medium Industries in Athens. (<https://acsmi.gr>)
2. Hellenic Confederation of Professionals, Craftsmen, and Merchants - Small Enterprises' Institute (IME GSEVEE), a chamber involved with Research supportive to Professionals, Craftsmen, and Merchants at the panhellenic level. (<https://imegsevee.gr>)
3. Athens Trade Association, an association involved with the Support and Networking of Trade Enterprises in Athens. (<https://www.esathena.gr>)
4. Silver and Goldsmiths' Association of Athens, an association involved with the Support and Networking of Silver and Goldsmiths. (<http://www.saath.gr>)
5. Athens Development and Destination Agency, a local authority responsible for the Design and Implementation of programs relevant to Athens Urban Development and Destination Management (<https://develop.thisisathens.org>)



Antoniou, Director Athens Trade Association, during workshop "Athens Circles of Creativity"



D. Boucoyiannis, Dep.Secretary-General silver and goldsmiths' Association of Athens, during workshop "Athens Circles of Creativity"

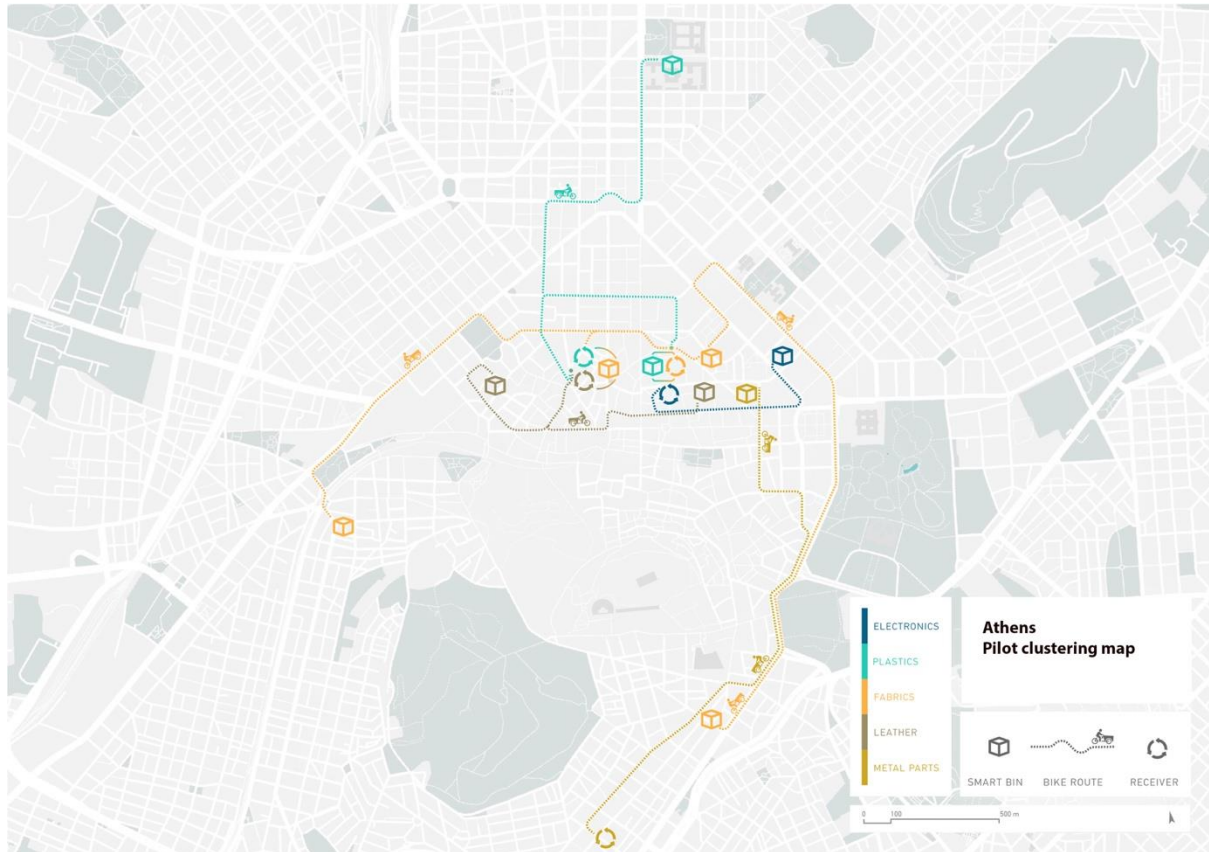
As far as the involvement of CCI SMEs is concerned, this focused on the following actions:

- Interviews and photo shooting sessions
- Presentation of available waste and materials
- Discussions about their needs and proposals
- Participation by as many CCI SMEs as possible in the cluster's activities

In total, more than 50 CCI SMEs were involved in the program in several ways, like the participation in training activities, the participation in focused surveys, the attribution of Sub-Grants, and the participation in workshops, exhibitions, meetings, and conferences.

Finally, the involvement of local communities has been guaranteed through the three awareness campaigns, the publicity events, the informational material, and the dissemination of the activities on social media.

Pilot Cluster in Athens



Athens Pilot Clustering Map

NTUA has chosen the historic center of Athens as its Pilot Area of study. It is an area characterized by a deep-rooted existence of traditional creative activities such as leather, ceramics, carpentry, goldsmithing etc., as well as clothing and footwear production and merchandise. Historically, these enterprises and their operating networks played a key role in shaping the urban space of Athens' center, becoming at the same time part of its cultural heritage. In recent years, the historical center has been more and more attractive to modern creative activities, including new fashion designers, jewelry designers, and object designers, as well as graphic designers, architects, and artists, as well as touristic activities, including the emerging short-stay rentals.

The CCI sectors that have been chosen were: CRAFTS – DESIGN – MAKERSPACES. NTUA's working assumption is that the current situation presents a unique opportunity to plan and apply an innovative model of circular clustering between the activities that reside in the Athenian city center: a. tourism related; b. traditional crafts; c. new CCIs, in order to cooperate in a circular cluster, enhance their resilience, and promote circularity.

Ten spots were chosen for the placement of the Smart Bins in order to collect fabric (3 spots), plastic (2 spots), leather (2 spots), metal parts (1 spot), electronics (1 spot), and paper (1 spot). The SMEs that are interested in receiving these materials and giving them new life were mostly subgrantees, like Thela, 3Quarters, Thanou, and LOCUL. Moreover, through the platform and the presentation of the available materials, future collaborations with new SMEs can be promoted. The smart bicycle is hosted in the center of Athens in the 1st Municipal Community of Athens in order to be available for the cluster and the transportation of secondary material to the interested SMEs.



The "smart" tools of the Pilot Cluster in Athens

Results and Challenges

The project's milestone is the establishment of the Pilot Cluster in the historical center of Athens. This is the testbed of all preparatory activities and the means to reach critical conclusions. The main goal of the Pilot Cluster in Athens has been to become a living lab installed in the historical center. This living lab comprises the project Stakeholders (5), the Sub-Grantees (6), and the hosts of the Smart Bins (10). The materials that have been chosen for the cluster are fabrics, metal parts, leather, electronics, and plastic. Two bicycles are

	Eating the Goober - Akrivi Moudilou Upgrading equipment		Technical equipment for the production of upcycled products inhouse.
Innovation Vouchers	Creation of a Center for Fabrics Upcycling	Garyfalia Pitsaki	Technical equipment (schreder) for the schredding of disposed fabrics from relevant CCI SMEs
Cross-border Mentorship	Incorporating upcycling practices in the jewelry making process	Erato Boukogianni	Mentorship program in order to incorporate upcycling practices in the jewelry making process
	Developing Educational Curriculum on Circularity	Diti Kotecha	Mentorship program in order to develop an innovative educational program on Circularity
Innovative Products	re-Futon: Objects of body and ecologic wellbeing through upcycling	Ioanna & Polyxeni Thanou	Innovative product based on the shredding and upcycling of fabric remnants
	LOCUL: Pottery with metal finishes	LOCUL (Kizis Deligianni EE)	Object design using the remnants of silver and goldsmiths workshops

available in the cluster for the transfer of the materials. The recipients of the materials have a dual role, because most of them are also Sub-grantees.

There are six Subgrantees that participate in the Cluster:

- Eating the Goober and 3Quarters, received the Innovation Voucher, and they have obtained technical equipment for the production of upcycled products.
- Erato Boukogianni and Diti Kotecha, have obtained the voucher for Cross-Border mentorship and have attended a mentorship program in order to, respectively, incorporate upcycling practices in the jewelry making process and develop an innovative educational program on Circularity.
- Ioanna, Polyxeni Thanou, and LOCUL obtained the Innovative Products voucher and created two Innovative products based on upcycling practices. The first product is a yoga mattress with filling created from shredded fabrics, and the second product is pottery made with the use of metal remnants from jewelry workshops.

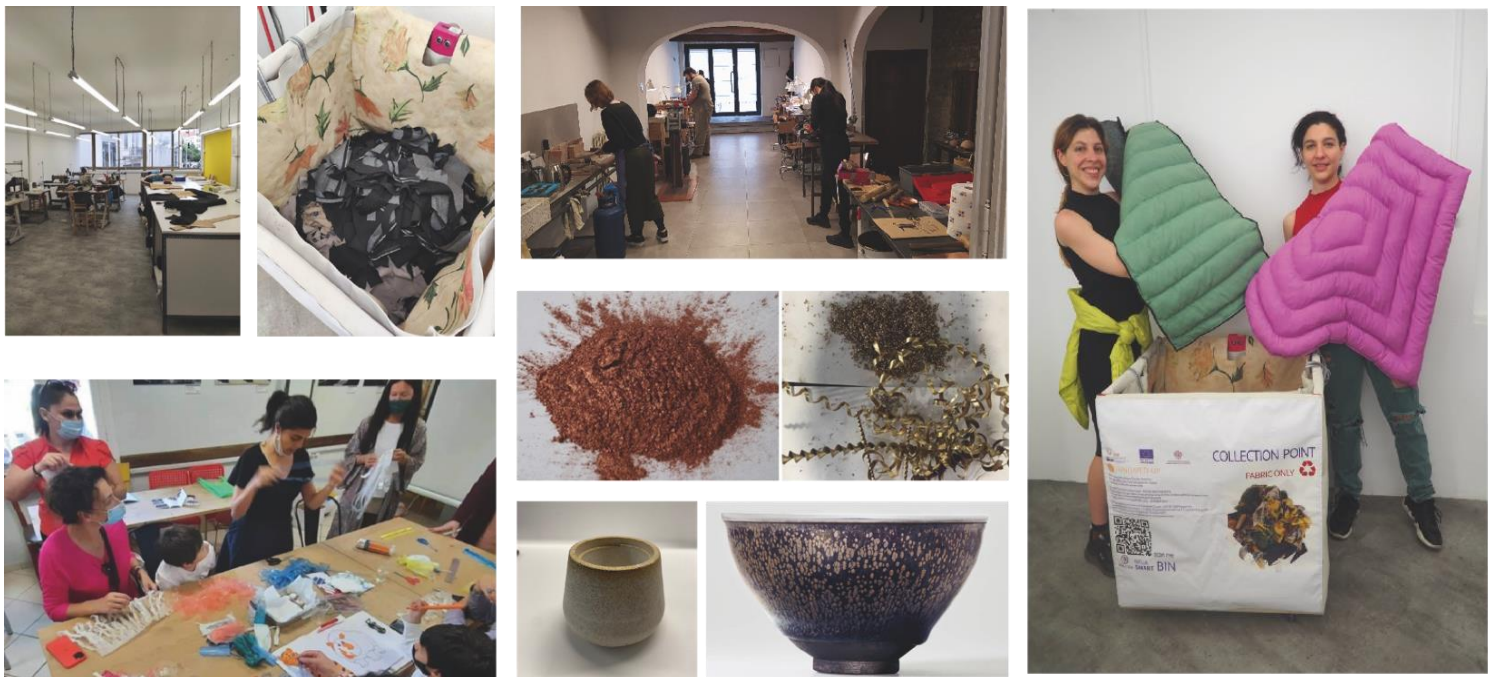
With its completion, INNOMED-UP integrates the experience of all research and practical activity in the "Circular Strategy Model" for Mediterranean cities and aims in the long term at the following goals in the city of Athens:

- revitalization of the historical center of Athens through the adoption of circular processes by creative SMEs,
- utilization and promotion of local know-how and the creation of new business models,
- creation of new cooperation networks and circular clusters
- production of new creative products from recycled and reused materials.

The challenges that were faced, especially as regards the sustainability of the project, were multiple, such as:

- *To continue the cooperation and interaction between local CCI SMEs*
- *To involve local authorities in order to adopt the INNOMED-UP Strategy*
- *To engage local communities in order to adopt circular practices at the local level*

The project introduces a new approach by combining creativity with the circular economy. It proposes their combination in local societies and economies, attempting to offset the negative effects (environmental, tourism, deindustrialization, social inequalities) in order to ensure the vitality and sustainability of Mediterranean cities.

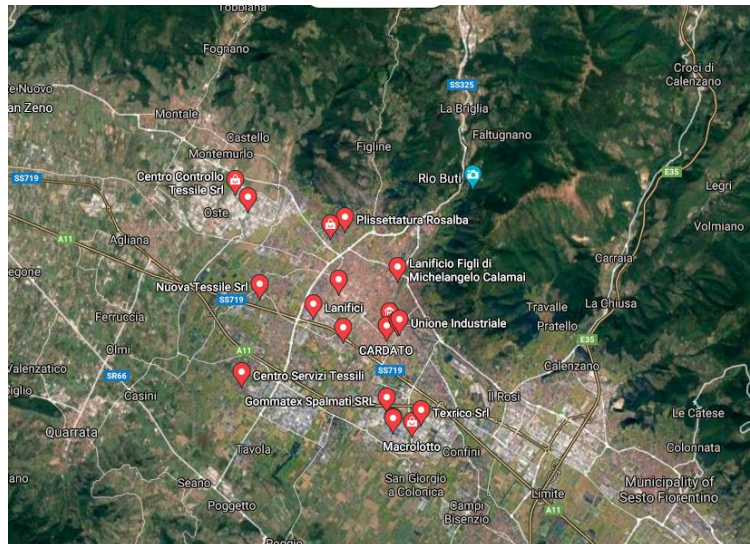


Prato, Italy_MUNICIPALITY OF PRATO (PP2)

By Lorena Vidas, Project Officer of the European Projects Office

Prato is one of the largest Italian industrial districts and one of the most important Textile and Clothing (T&C) production centers in the world. According to the Prato Chamber of Commerce, the district counts 35,000 direct employees and 7,200 companies, producing 17% of Italian textile exports.

T&C has been the pivot for the city's growth, particularly after the second World War. With the third wave of industrialization starting in the 1970s, Prato became Europe's most important T&C productive center, and the entire area came to be known as Prato's "industrial district". Prato's activities in T&C go back to the 12th century, when the manufacturing of clothes was regulated by the Wool Merchants' Guild, but it was only with the introduction of machinery in the 19th century (and the accompanying boost of capitalistic production) that a very strong geographic concentration of producers in the city occurred. Next to that, the industrial district got increasingly stronger as, between the 1950s and the 1970s, fashion and design turned into a mass phenomenon.



Geographical location of textile firms involved in the Innomed-Up project by the city of Prato



The Macrolotto Zero area (red rectangle) in the larger context of the City

These were the years of “economic boom”, when the city saw the simultaneous, spatially concentrated growth of residential and industrial buildings, next to each other. As an example of that, areas called “Macrolotto Zero” (Macrolotto = Industrial Area) developed within the city. At that time, the Macrolotto area, lying next to the city center, had textile mills frantically working and producing new items (mostly fabrics), and therefore wealth for the people, whose daily lives were geared to the pace and modes of industrial production, alone.

In the period 2018-2021, the Municipality of Prato represented Italy in the European Partnership on Circular Economy, coordinating the debate on the re-use of wastewater, the economic incentives for the circular economy, and the sustainable re-use of buildings and urban spaces. Among the others, the Prato Circular City project aims to accelerate the transition towards a circular economy. Since 2022, Prato has been selected by the European Commission as one of the 100 European cities participating in the “Climate-Neutral and Smart Cities by 2030” program.

Prato’s objective to become a sustainable and thriving city is pursued through its local development strategy, whose motto is “Prato, a sustainable, innovative, and circular city”. The strategy envisions the creation of a city where residents enjoy a high quality of life, the economy is strong and diversified, the environment is healthy, and culture and creativity are thriving. The goals of the local strategy include:

1. Sustainable urban development: the city of Prato aims to reduce its carbon footprint by promoting sustainable urban development and green infrastructure.
2. Economic diversification: Prato seeks to diversify its economy by promoting innovation and entrepreneurship; this includes supporting startups, small businesses, fostering innovation, and collaborations within the textile district.
3. Urban regeneration: Prato seeks to revitalize its urban areas through regeneration projects that improve the quality of life by improving public spaces, improving the quality of houses, and promoting the reuse of abandoned or underused buildings.
4. Circular city planning: the city aims to incorporate circular principles into urban planning, which includes designing buildings and public spaces that are energy-efficient and accommodate green spaces.
5. Zero waste: the city aims to minimize waste and promote recycling and upcycling. The city supports local businesses that use circular business models.

To achieve its goals and targets, Prato uses a collaborative approach that involves stakeholders from various sectors, including the local government, businesses, community organizations, and citizens. Overall, the local strategy aims to create a sustainable, innovative, and inclusive city that ensures a high quality of life for residents. Through its collaborative approach and evidence-based decision-making, the city is positive about achieving its vision and goals for the future.

The stakeholders involved in the pilot cluster include textile manufacturers, the local government, Business support organizations, trade unions, consumer associations, academic institutions, CCI, SMEs, NGOs, Startups, and citizens.



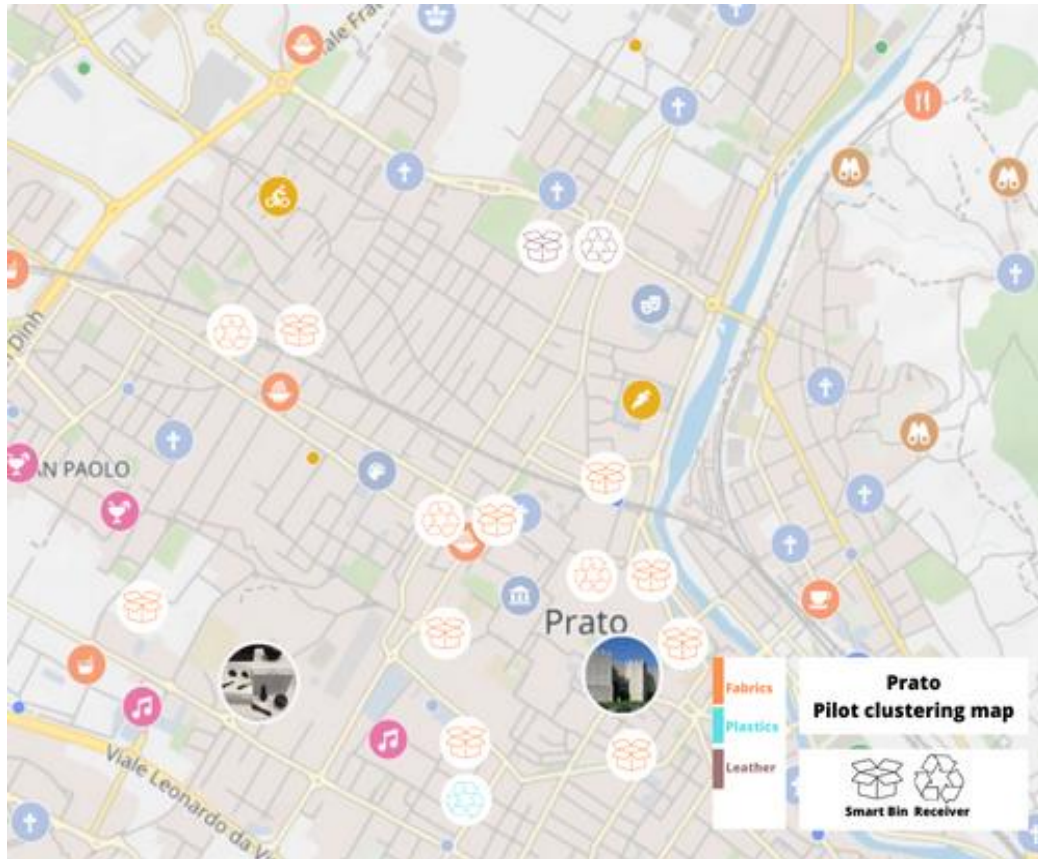
Workshop – Creative clusters and circularity; Prato Textile Museum

Textile manufacturers play a crucial role in the cluster as they drive the industry's growth and represent the main source of employment in the area. The local government and the chamber of commerce provide support to the textile industry through infrastructure development, financial aid, and marketing strategies. Trade unions and consumer associations represent workers and customers, respectively, and advocate for their rights and interests. Academic institutions provide research, education and training in the circular economy and in sustainability-related disciplines. A vibrant community of CCIs, NGOs, and startups contributes to the diversification of socio-economic activities, and injects innovation and creativity into the cluster.

The cluster was designed to act as a meeting point for these diverse groups, allowing them to connect, share knowledge, and collaborate on the pilots. Through this approach, the project aims to create a sustainable CCI ecosystem that could support the growth and development of the T&C sector in the long term, through an open and collaborative approach.

In practical terms, the community of stakeholders was involved through the organization of a SWOT/PEST workshop, a consolidation workshop, an open market and exhibition, open to the participation of both stakeholders and community members, and a dissemination event.

The in-depth knowledge of the textile district, paired with good technical and design competences, provided by the participants guaranteed high quality contents for the workshops, where the community of stakeholders was guided by experts through specific topics, thereby improving their understanding and sensitivity about sustainability issues. The total number of hours (40) allowed the 27 participants to also create prototypes and upcycled products, thanks to the knowledge they had gained.



Pilot Cluster map of Prato

Thanks to the INNOMED UP project, it was possible to create a CCI SMEs roadmap, interview 20 SMEs, sign six Memoranda of Understanding with local actors, and establish a network of collecting points for waste materials.

Eight €5,000 vouchers were awarded to the following winners:

- 3 vouchers for the implementation of cross-border tutoring and consultancy in the Cultural and Creative Industries sector.
- 2 vouchers for the acquisition of innovative equipment needed to kick-start circular production processes and business models;
- 3 vouchers for innovative products and services, experimenting with upcycling techniques to develop new circularly marketable products;

“New market positioning for Moebeus innovative services”

Moebeus' proposal is about developing a business and a marketing plan on sustainability and circularity, focusing on specific features of the supply chain and on ethical branding.

“Rethinking Spools”

Mariplast delivered a study benchmarking research and practices on circular, creative, and collaborative economy practices related to the plastic industry, and the application of design thinking for potential upcycling scenarios for the company.

“Plasticraft”

Ipercollettivo and Codesign Toscana collaborated in this pilot that created sample objects with shredded plastic using innovative machinery. The pilot worked through the creation of a collection point and a workspace.

“Circular Wool Lab”

Lottozero Textile Laboratories produced samples of yarn made from waste material by using innovative machinery. The pilot created a permanent Lab for artists and designers, who were invited to use the innovative machinery for upcycling a specific kind of wool.

“Be Circular! Innovative service with C2C approach for the adoption of circular business models”

Through its pilot *“Innovative service with a C2C approach for the adoption of circular business models”*, Moebeus developed a web app for SMEs and companies to assess their Cradle-to-Cradle (circular) status and approach.

“Arte Industriale”

Accaventiquattro Arte developed a successful collaboration between an artist and a few local companies to create an exhibition on waste fabric, specifically a wool waste called "Rossino" that is typically produced in the Prato textile district.

“Poltrone Rifà”

Sample objects like chairs, etc. Were made by the Recuperiamoci! NGO by using special machinery that can work on plastic, leather, inner tubes, and all kinds of waste material that is usually difficult to work on. A lab for the recovery and upcycling of specific scrap materials was created for the pilot.

“Vetrina Upcycling and Ecodesign”

Through this pilot project, Recuperiamoci! NGO developed communication activities by exhibiting upcycled lamps in different areas of the city. All lamps were created using waste materials.



The successful tenderers worked in the Prato area to introduce new circular practices into traditional production, leveraging creativity. The pilots lasted for 5 months and concluded with an open event where the results were presented. The sub-grants played a crucial role in fostering new synergies and collaborations among the various stakeholders.

Overall, the results of the pilot programs were very positive. The project encountered several challenges, including the lack of awareness and understanding of circular economy concepts within the community, despite the SMEs and stakeholders having in-depth knowledge of textiles.

On the other hand, several important lessons were learned, such as the importance of communication and cooperation between stakeholders, as well as the need for tailored training and support for CCIIs.

The expected impact of the pilots is a shift towards more sustainable and circular practices in CCIIs, leading to a reduction in waste generation and an increase in resource efficiency, which in turn will transform the traditional textile district of Prato into a more circular one.



Finally, the lack of financial support for micro and SMEs, NGOs, and creatives, as well as the absence of proper regulations to qualify waste as reusable material by all actors, thereby avoiding the necessity to dispose of it as special waste, has been the focus of some sub-grant activities and one of the problems highlighted by almost everyone in the cluster. These acknowledgments are a positive step forward in triggering new debates among stakeholders and the public decision-making bodies.

Palermo, Italy_ CENTRE FOR SOCIAL AND ECONOMIC RESEARCH IN SOUTHERN ITALY (PP3)

By Alessandro LA GRASSA, President of CRESM

The creative craft sector represents a crucial segment in the CCI sector in Palermo and in Sicily. Circular Economy constitutes an important opportunity for facing the challenging problem of waste management, promoting, at the same time, the local CCI SMEs networks. Public policies, nevertheless, currently do not (at national, regional and local level) include any small-scale local-based solutions or clear paths for a circular transition.

Despite the lack of encouraging public policies, some creative craft SMEs clusters are experimenting with the renovation of traditional techniques based on the use of traditional sustainable materials.

In Palermo creative craft SMEs, often organised as non-profit entities in the start-up phase, have strong cooperation networks with other non-profit NGOs. In this context, the INNOMED-UP project in Palermo promoted the involvement of local creative craft CCI SMEs in a Circular Economy pilot cluster, thanks to the use of smart tools, for the development of innovative products and production chains implementing upcycling processes based on a mix of traditional and innovative techniques using mainly wood, fabric and high-density cardboard. The pilot cluster contributes to involve local communities and to launch a debate about innovative solutions for a sustainable waste management and circular reuse of secondary raw materials.

Local Strategy Design

Motto:

The INNOMED-UP strategy promotes cooperation among profit and non-profit creative craft SMEs for the renovation of traditional techniques based on natural materials, mainly through the introduction of digital fabrication, in the framework of creative craftship and of the development of CE networks.

Vision statement of Palermo:

In a context where public policies do not actively support the circular transition, networks of CCI SMEs will promote Circular Economy focusing on cooperation and renovation of traditional techniques within their businesses.

General goal

Supporting the development of CE business models among local CCI SMEs.

Specific goals

- Supporting the renovation of traditional techniques in a CE perspective in the field of creative craft.
- Supporting the design of innovative products in a CE perspective.

Targets

- Number of products developed in a CE perspective.

- Number of SMEs trained in circular, sustainable and green practices.



The analysis conducted in the framework of the INNOMED-UP project, identified the peculiarities of the pilot case area, in terms of business models, models of cooperation and urban fabric:

- A focus on the creative craft sector, within the CCI.
 - A tight link between the creative craft sector and the non-profit one.
 - A high interest for low cost practices.
- A high interest for the reintroduction of some traditional renovation techniques, based on natural materials.
 - A high interest in the introduction of digital fabrication techniques both in order to renovate the traditional ones and to reach economic sustainability.

The creative craft sector represents a crucial segment in the CCI sector in Palermo and in Sicily. It includes several SMEs, mostly located in the historic city-center of Palermo. The establishment of small craft shops and of other CCI activities significantly contributed to the revitalization of the area in the last decade.

The creative craft sector nowadays includes two main categories of SMEs:

- Family-run enterprises usually have solid manufacturing skills based on strong family tradition and experience. They often face troubles in surviving the contemporary market dynamics.
- New enterprises are often founded by highly-educated young people with strong technical skills and attitude to innovation.

In both cases, and often from different perspectives, creative craft SMEs focus a lot on renovation of traditional techniques and reintroduction of eco-sustainable materials. The development of a network of creative artists/crafters trying to innovate local traditions is quite transversal to these categories. The most peculiar element of the CCI SMEs business model in Palermo and in Sicily is probably the tight connection with the non-profit sector.

CCI SMEs, in fact, during the start-up phase, are often organized in the form of non-profit entities because of the very high management costs of a new-born enterprise. This circumstance fosters cooperation between the world of social work and the cultural & creative one. For this reason, several CCI SMEs are involved in social inclusion and/or educational projects. At the same time, “traditional” NGOs are influenced by creative and innovative processes. This peculiar creative context both facilitates the involvement of SMEs and makes it necessary for their real engagement. For this reason, CRESM has always adopted a widely participatory approach.

The renovation of traditional techniques, in particular through digital fabrication tools, represents an interesting path in terms of market positioning, cultural heritage protection and reintroduction of traditional eco-sustainable materials.

Creative craft SMEs often have a quite high environmental awareness resulting in the choice of natural materials. Nevertheless, there is a very low awareness about the concepts of Circular Economy and about the life-cycle management of production systems. Upcycling examples are just isolated experimentations.

Green and circular transition needs to be promoted also as a cheaper and easier alternative to standard waste disposal (actually very expensive and complicated, according to local regulations). Creative craft SMEs often have no entrepreneurial education or experience and struggle in reaching economic sustainability, heavily relying on tourism flows. Networking skills are often lacking.

The INNOMED-UP cluster, in particular through the INNOMED-UP InfoPoint, are experimenting with innovative models of cooperation, focusing on sharing equipment, knowledge and skills, in order to develop sustainable business models and the use of secondary raw materials.

Community and Stakeholder Involvement

INNOMED-UP developed a network for the promotion of the pilot cluster, the project activities and the cross-border cooperation including:

- Local CCI SMEs.
- Local NGOs active in the field of circular and green economy.
- High education institutions, contributing to the innovation of the cluster.
- Local Chamber of Commerce.
- Local cooperatives networks (Confcooperative).
- The municipality.



As previously mentioned, a widely participatory approach has been adopted in order to involve CCI SMEs in a network fostering the development of the cluster, as well as its long term sustainability and scalability. For this purpose, the Info-point for consultation of SMEs implemented in the framework of the INNOMED-UP project played an important role. Challenges and opportunities for SMEs have been identified and analyzed, in order to respond to their needs in the configuration of the cluster, in terms of business models, product design and production chains.

Attention has been paid to the complex topic of waste disposal and to the wider subject of the compliance to national and local environmental regulations for creative craft SMEs. For this reason, local authorities and experts have been involved in order to start a dialogue with the aim of developing, even after the end of the project, standardized easier and cheaper procedures for small-scale production plants.



The needs analysis arisen from the exchanges with SMEs, experts and local authorities contributed to the identification of innovative services to be proposed to CCI SMEs such as support for the administrative procedures for the business establishment, strategic marketing, business development, support for the access to funding, support for the circular transition in order to collect leftovers as secondary raw materials, before they turn into waste.

The collaboration with the local cooperatives networks and Chamber of Commerce has been essential for the dissemination of the project results, for the involvement of CCI SMEs within and outside the cluster, as well as for developing exchanges with policy-makers and local authorities.

The tight link between the profit and non-profit sectors in CCI on the one hand facilitated the dissemination and the involvement of local communities, on the other hand, fostered synergies in developing innovative business models.





Despite the limitations related to the Covid-19 emergency, the project activities involved the local communities. On the 15th of June 2021, for instance, the Socio-urban Circularity Workshop was the occasion both to engage volunteers in the construction of a temporary bio-architecture structure made of reeds (*arundo donax*), inspired by the typical buildings of Sub-Saharan Africa and Middle East (such as the floating houses of the Tigris-Euphrates Delta). That was the occasion for raising awareness not only about environmental sustainability, but also about the opportunities that come from the Circular Economy for creative craft SMEs, as well as for the local civil society.



Pilot Cluster



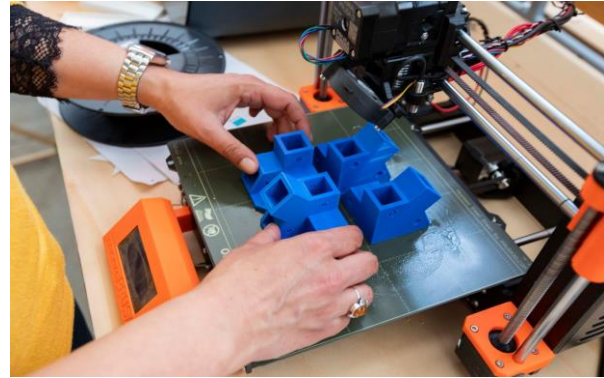
The Palermo pilot cluster is located in the city-centre. It also has a “satellite” division in Castelbuono, a small town within the Metropolitan City.

Nowadays, the expression “city-centre” commonly identifies two areas in Palermo, both interesting in the framework of the project:

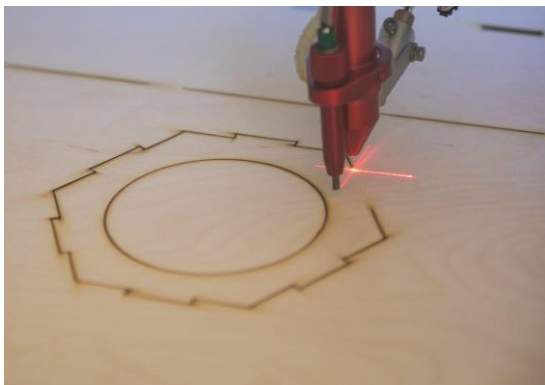
- The ancient city-centre of Palermo (the *walled-city*).
The area is extremely rich in terms of cultural heritage, with highly gentrified neighborhoods next to traditional inhabitants (such as families working in traditional markets), as well as university students and many migrant families. Here creative craft SMEs have been spreading in the last decade, mainly because they focus on tourists as a target, creating hybrid production and sale spaces.
- A wider historical area (developed between the 1860s and the 1920s), the art nouveau centre.
It includes a former early-1900s industrial area, nowadays dedicated to cultural activities (Cantieri Culturali alla Zisa). Here the Municipality of Palermo entrusted CRESM – PP3 with the management of a 1.200 sqm pavilion that today hosts NOZ – Nuove Officine Zisa, an innovative handicraft workshop for the development of innovative CE practices, as well as the Info-point for consultation of SMEs. Cantieri Culturali alla Zisa hosts several other CCI SMEs. In the surroundings it is still possible to find some of the last traditional craft workshops.

The INNOMED-UP cluster, in particular through the Innomed-up InfoPoint, is experimenting with models of cooperation in order to develop sustainable business models and the use of

secondary raw materials. It focuses on sharing equipment, knowledge and skills, in order to support innovative product design and production chains. SMEs exchange mainly wood, carton and fabric. The choice of materials was made focusing on the availability and the potential for upcycling processes, thanks to the creativity of SMEs.



Results





Presentation of the cluster: subgrantees, other members, focus, materials.

The pilot cluster includes the six sub-grantees, as well as other CCI SMEs. All of them contribute to the achievement of the following results through their engagement in the re-use of materials and their creativity in developing innovative business models and products. The cluster, in fact, focuses mainly on sharing equipment, knowledge and skills. The local CCI community has been involved in the development of the cluster, in particular through the Info-point for consultation of SMEs.

The INNOMED-UP Info-point is located in NOZ, a multifunctional space where other services dedicated to SMEs, in particular in the framework of eco-design, are available. NOZ is a project of CRESM for promoting the innovative transition of creative local SMEs. It aims at supporting creative SMEs on a double level. On the one hand it fosters their sustainable and circular transition drawing on their disposition to innovation. On the other hand, it supports SMEs in designing effective long-term sustainability strategies, crucial for emerging on the market in a difficult economic conjuncture. It operates on two different and synergic sides:

- The help-desk offers consultation on:
 - Sustainable and circular transition of SMEs, supporting the development of new business models.
 - Economic long-term sustainability of SMEs, supporting the access to funding and the development of effective business plans.
- A dedicated area in the workshops of NOZ is available as a place to promote knowledge exchange, experimenting materials and upcycling processes, prototypes testing, product development, networking.

NOZ, thus, is a place to share knowledge and equipment and also became the heart of the cluster. Nine of the smart bins are hosted by ten SMEs participating in the cluster (including the six subgrantees and some NGOs). The tenth is located in NOZ, where wood and carton waste are produced by the cluster members in the experimental product design phase. Ten MoUs have also been signed.

Challenges, solutions and lessons learnt

The most important challenges are connected to the lack of national or local regulations concerning Circular Economy and upcycling. National waste management legislation forbids

not-certified transport of waste. According to the law, in fact, exchanging production leftovers could be equivalent to illegal waste trafficking (which is a criminal offence in Italy). After exchanges with local authorities and environmental lawyers, the implemented solution is that SMEs produce a delivery note receipt highlighting that the collected materials are not waste but Secondary Raw Materials (as defined in the EU strategy for Secondary Raw Materials and the Italian regulations).

Obviously this problem does not favour the development of Circular Economy practices. It is necessary to engage experts and policy-makers in a debate in order to propose new answers to create a legal framework for the exchange of materials for SMEs.

The second important challenge concerned the implementation of smart bikes. National transportation legislation, in fact, forbids the use of not-certified or modified vehicles. For this reason CRESM was not allowed to produce or circulate the smart bikes. Nevertheless, the cluster focuses on a strong collaboration.

SMEs members, thus, meet often in NOZ (where they also work and experiment for the development of innovative products and services) and deliver materials by their own means of transportation. NOZ, thus, has the role of “intersection point” for the exchange. The app, nevertheless, is very useful for SMEs, in order to be informed about the available materials and their quantities.

Impact at urban level

The impact of the INNOMED-UP cluster is not only connected to raising awareness about Circular Economy and its advantages for CCI SMEs. The innovative product design, in fact, addresses also the cultural heritage protection. Digital fabrication is a means for crafters to reproduce traditional objects and decorations keeping a very high quality together with low production costs. At the same time, traditional techniques using traditional sustainable materials can be easily renovated.

The debate about the exchange of materials, moreover, will put pressure on the involvement of policy-makers and local authorities in the development of new regulations more adapted to the circular transition. The use of smart tools has been tested in the pilot clusters and will be possibly scaled up to new clusters to be constituted by other SMEs involved thanks to the Info-point.

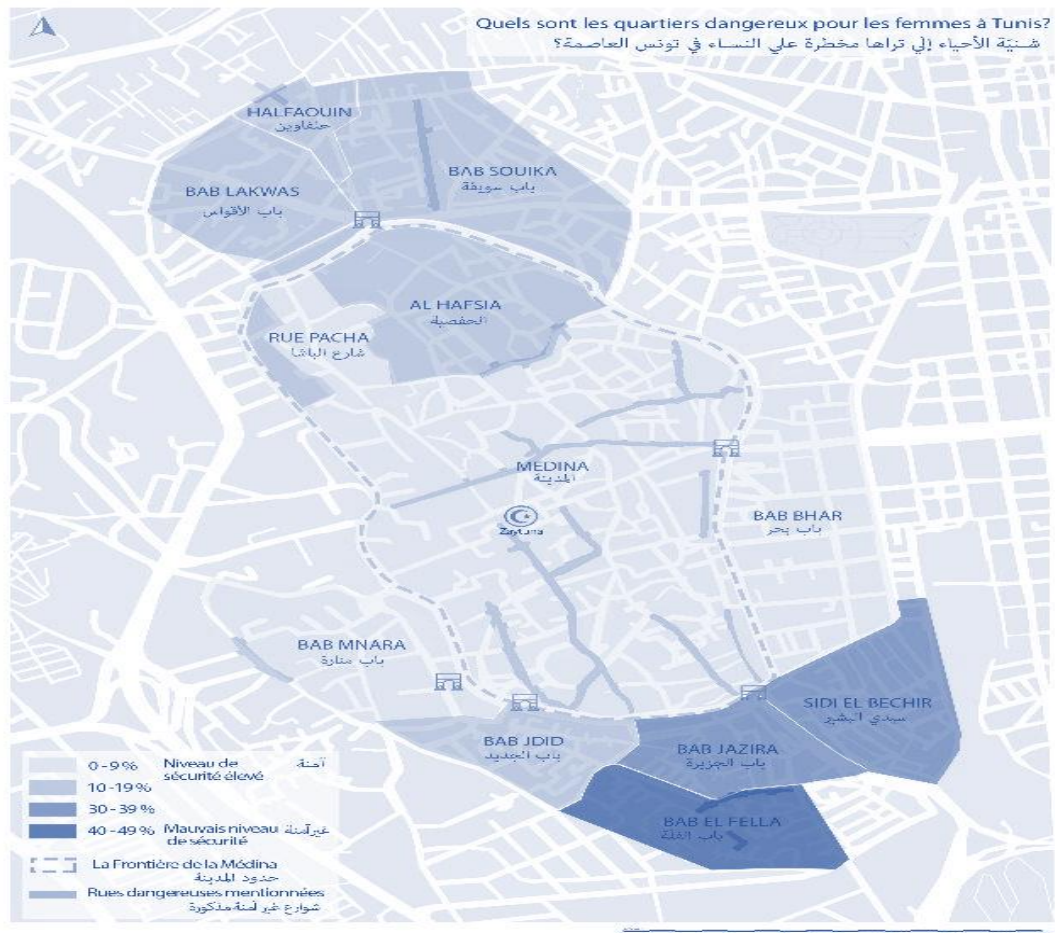
Medina of Tunis, Tunis_MUNICIPALITY OF TUNIS (PP4)

By Samia SAAD, Responsible for training in the municipality of Tunis

During INNOMED-Up survey, the Municipality of Tunis was able to map and identify SMEs located in the Medina of Tunis. Those SMEs generated waste was analysed, and SWOT and PEST analysis generated opportunities in circular economy.

The Municipality adopted a participatory approach, engaging various stakeholders, including civil society representatives and artisans. Open discussions were held to identify suitable solutions, determine viable clusters to promote the circular economy.

Despite challenges in using smart tools, when dealing with artisan groups, the Municipality of Tunis was able to identify youth with innovative CE ideas, who succeeded to launch fruitful collaborations with artisans.

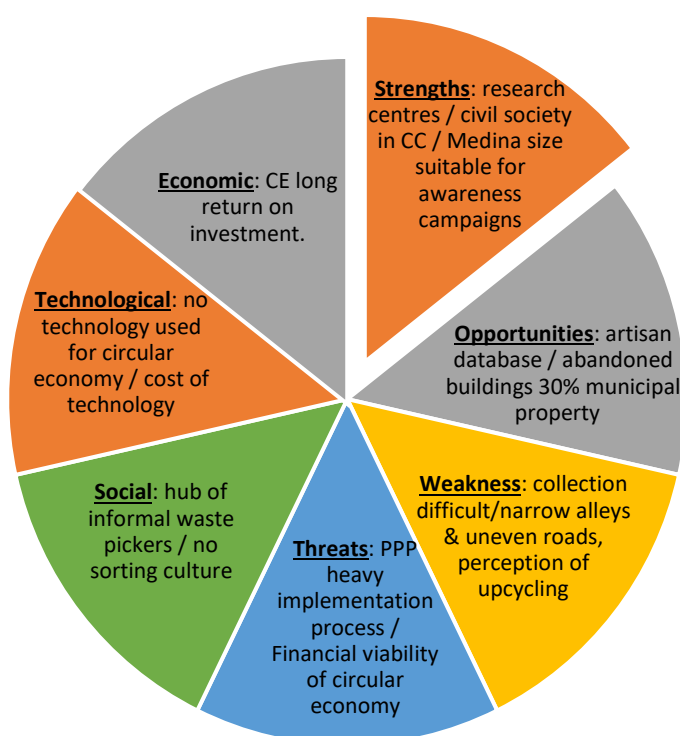


FEMMEDINA mapping of the Medina of Tunis from women's perspective.

Through surveys and workshops conducted as part of Innomed Up, the team assessed the presence of artisans and the informal recycling sector within the Medina. This process highlighted the importance of integrating waste pickers into formal clusters, ensuring dignified working conditions



The implementation of Innomed Up has allowed the Municipality of Tunis to actively promote the local circular economy, strengthening relationships with SMEs, civil society, artisans, and citizens. Fifteen beneficiaries received sub-grants for implementing innovative upcycling projects involving various materials.



The major implementation challenge faced, is adapting project's proposed smart tools, to Medina's urban circumstances, for a more sustainable and usable solution.

Procurement process faced also difficulties, the Municipality successfully resolved them, ensuring acquisition of smart bins and smart bicycles and their effective use within the cluster.

The Circular Economy market at Saint Croix Church in the Medina of Tunis was an inspiring event held from 4 to 13 May 2023 to promote circular economy. This event brought together local businesses, local and national institutions, experts, and the sub grantees to explore innovative approaches to sustainability, waste reduction, and resource efficiency.



Main Characteristics of the city:

- Nablus is a Palestinian city in the northern region of the West Bank, approximately 60 kilometres north of Jerusalem.
- Located in a strategic position between Mount Ebal and Mount Gerizim, Nablus is considered the largest commercial and cultural center in Palestine.
- Nablus' rich history lies in its Old City with its distinct stone facades, beautiful architecture, narrow streets and old urban spaces.
- Hebron is a beautiful, ancient city twisted and torn by decades of unrest and conflict. It is the largest city in the West Bank with about 215,000 Palestinians. Its Old City of stone roofs, archways and never-ending alleyways is the perfect playground for the sensory delight of the markets and bazaars. Hebron is a hub of trade, primarily with the sale of marble from nearby quarries. The area is also renowned for grapes, figs, limestone, pottery workshops and glassblowing factories.
- The city of Hebron is one of the oldest inhabited cities in the world, and its history dates back more than 4,000 years. The ancient architecture of the old city, which dates back to the Mamluk and Ottoman periods, has witnessed the development and sophistication of the city of Hebron.

The spatial distribution has had a clear impact on creating a gap between SMEs and the surrounding suppliers, clients, supportive organizations and cooperation at the artisans. This led to the conclusion that value chains need to be strengthened and supported in order to create connection networks and promote visibility and accessibility.

Most SMEs apply principles of circular economy and recycling at different stages of production, in different levels depending on the nature of work, availability of waste raw materials and technical skills. However, there is a clear gap between value of recycling practices perceived by customers and manufacturers.

Strategy Motto for both cities: sustaining history for sustainable future

Involvement of local communities in the Cluster:

Stakeholders proposed support in each city:

1.Nablus City

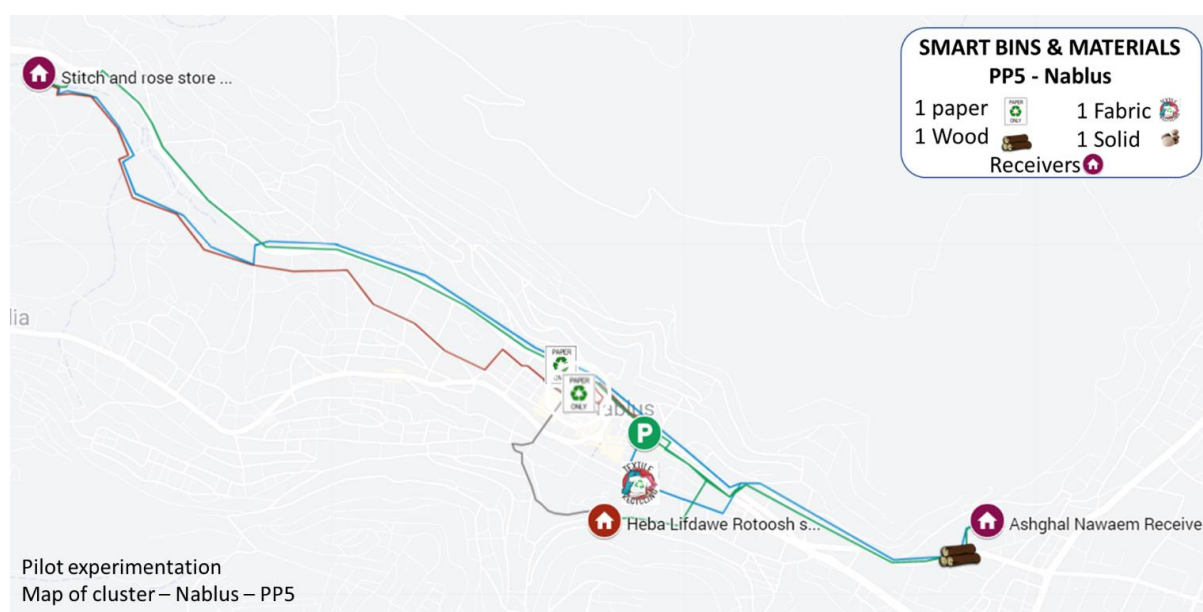
- Nablus Municipality
- Nablus Chamber of Commerce and Industry
- Engineers Syndicate
- Ministry of Culture
- *Committee of Nablus Governorate*

2. Hebron City

- HMinistry of Tourism and Antiquities
- The Civil
- ebron Chamber of Commerce and Industry
- Hebron Reconstruction Committee
- Hebron Municipality
- Hebron Governorate
- Ministry of National Economy
-

Final established Clusters/ Subgrantees:

- 1- Nablus: 1 cluster of 6 members
- 2- Hebron: 3 clusters of 5-6 members each

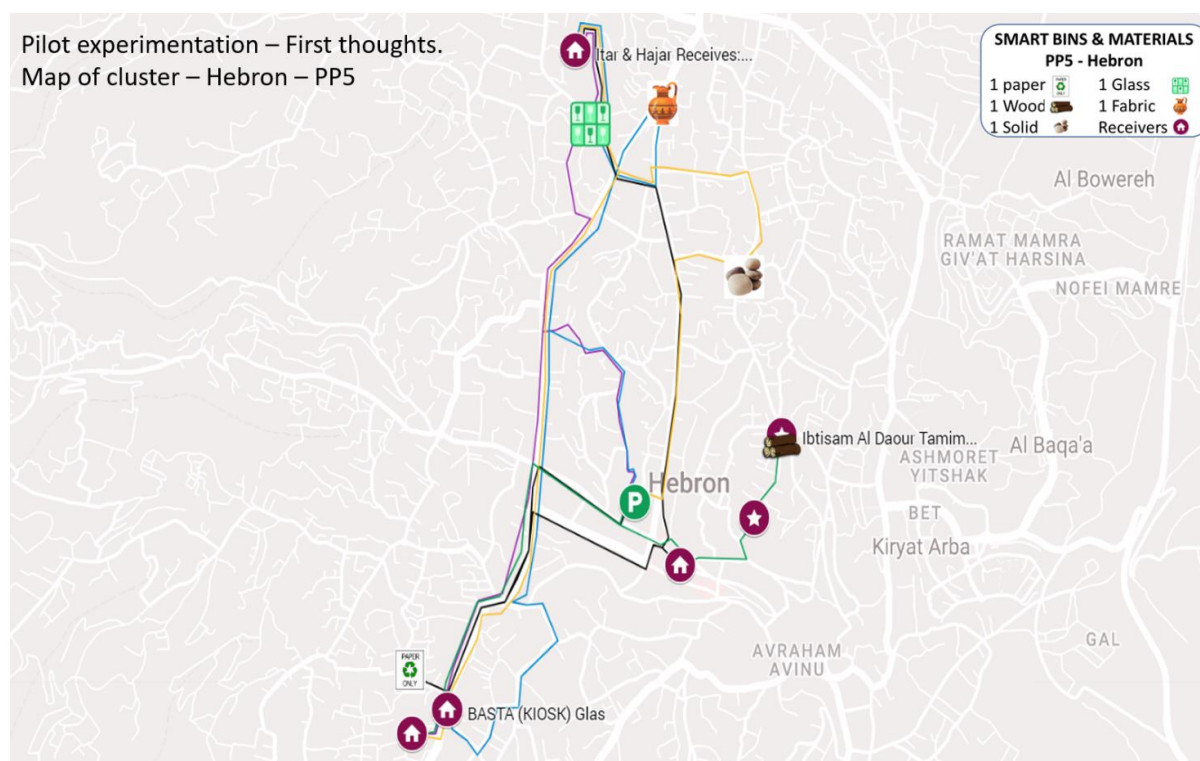


Bin #	Country	City	Description	Material	Route Colour	SME Receiver	SME Receiver 2	SME Receiver 3	SME Receiver 4
21	Palestine	Nablus	Karawan Printing	Paper	Black	Heba Lifdawe			
20	Palestine	Nablus	Al Ithad Printing	Paper	Red	Iman Zaid			
19	Palestine	Nablus	Salma carpentry	Wood	Green	Iman Zaid	Rania Saymeh	Heba Lifdawe	
18	Palestine	Nablus	Kahf Gallery of Curtains	Fabric	Blue	Iman Zaid	Rania Saymeh		

Results and Key challenges / Nablus City

- Initially, SMEs faced difficulties in collaborating and cooperating, particularly due to intellectual property (IP) concerns. However, they eventually gained valuable experience in working within the cluster framework.

- Initially, SMEs believed that they had an adequate amount of waste and did not see the need for smart bins.
- Cluster members showed a strong interest in the concept of bicycles and requested one bicycle for each member to facilitate waste collection.
- Some waste suppliers were located far away from the receivers.



Bin #	Country	City	Description	Material	Route Colour	SME Receiver	SME Receiver 2	SME Receiver 3	SME Receiver 4
17	Palestine	Hebron	Jou'beh store	Paper	Black	Fedaa Ghaith	Nagah Zahdeh	Khetam Shaheen	Jehan Al Qawasmeh
16	Palestine	Hebron	Daour wood	Wood	Green	Khetam Shaheen	Suaad Shaheen	Fedaa Ghaith	
15	Palestine	Hebron	Itar & Hajar	Solid	Orange	Khetam Shaheen	Suaad Shaheen	Fedaa Ghaith	
14	Palestine	Hebron	Bounga Glass	Glass	Purple	Khetam Shaheen	Suaad Shaheen	Fedaa Ghaith	
13	Palestine	Hebron	Tamimi Fabric	Fabric	Blue	Fedaa Ghaith	Suaad Shaheen		

Results and Key challenges / Hebron City

- Waste utilization was not extensively incorporated into their work.
- Initially, they were not enthusiastic about the concept of co-working.
- Local organizations lacked awareness about CCI SMEs, but after establishing clusters, they formed a semi-official entity.
- Clusters provided a platform for SMEs to convene, engage in discussions, and exchange ideas.

- Women expressed a desire to handle waste without
- resorting to dumpsites or industrial parks, and smart
- tools played a significant role in addressing this issue.
- SMEs had limited familiarity with one another.



Heba Ghassan Mohammed Zawawi
Coordinator – Pilot Cluster



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Coordinator – Pilot Cluster



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Coordinator – Pilot Cluster



Heba Ghassan Mohammed Zawawi
Coordinator – Pilot Cluster



Fida' Mohammad Ghazi Abd Ja'bari
Coordinator – Pilot Cluster



Fida' Mohammad Ghazi Abd Ja'bari
Coordinator – Pilot Cluster



Ala' Abd Aziz Ratib Abu Haikal
Innovation Vouchers

Irbid, Jordan_ FUTURE PIONEERS (PP6)

By Obyda Hummash

Executive Director of Future Pioneers

Irbid Governorate is located in the northern part of Jordan. The Governorate enjoys a number of natural resources, such as valleys, springs, fertile plains and a diverse climate. These natural characteristics make Irbid Governorate one of the most important agricultural areas in Jordan in terms of the amount of cultivated land, constituting 11% of the total cultivated land in the country.

Irbid is characterized by being the second largest governorate in Jordan in terms of population. Furthermore, in terms of the number of economic enterprises in operation, Irbid is the second governorate after Amman, with a contribution rate of up to 71% of the total economic enterprises in operation in the north, and a rate of about 16.7% Kingdom-wide. On the other hand, it has the second largest industrial city in the Kingdom in terms of the volume of investment.

Irbid enterprises are distributed in diversified sectors, mainly commercial and industrial. Commercial activities include: retail and sale processes in food, drink and tobacco, followed by shops selling clothing, shoes and leather products, then computer and furniture shops. Wholesale and retail commerce; vehicle and motorcycle repairs also constituted a good percentage. Irbid industrial activities include: food industries, metal industries, non-metal industries besides furniture, clothing and wood industries.





Local Strategy Design:

Motto of Jordan: "Repair-Reuse for as long as possible"

Vision statement of Jordan: To reach to Zero waste through supporting CCI SMEs to adopt CE in Jordan.

General and specific goals of Jordan:

General Goal: Enhance livelihood among SMEs in Jordan while protecting the environment.

Specific Goal

1. Strengthen the production and performance of the CCI SMEs in Jordan to adopt the CE principles.
2. Advocacy and lobbying among relevant authorities to amend the legalizations to provide legal and financial support to the CCI SMEs.
3. Provide opportunities for exchanging experience and market linkages at national and international levels.

Measurable targets of Jordan:

1. (100) SMEs have been supported through technical training.
2. (40) SMEs have been supported in terms of finance.
3. Create jobs for 100 unemployed youth and women.
4. Contribute to reducing waste by 25% among targeted SMEs, private and industrial sectors.
5. 30% of targeted SMEs tuned from linear to circular economy.



Community and Stakeholder Involvement:

The involvement of the community and stakeholders was a fundamental factor in the success of the pilot in Irbid city. The main relevant stakeholders who were fundamental part of the pilot and the selection of CCI.

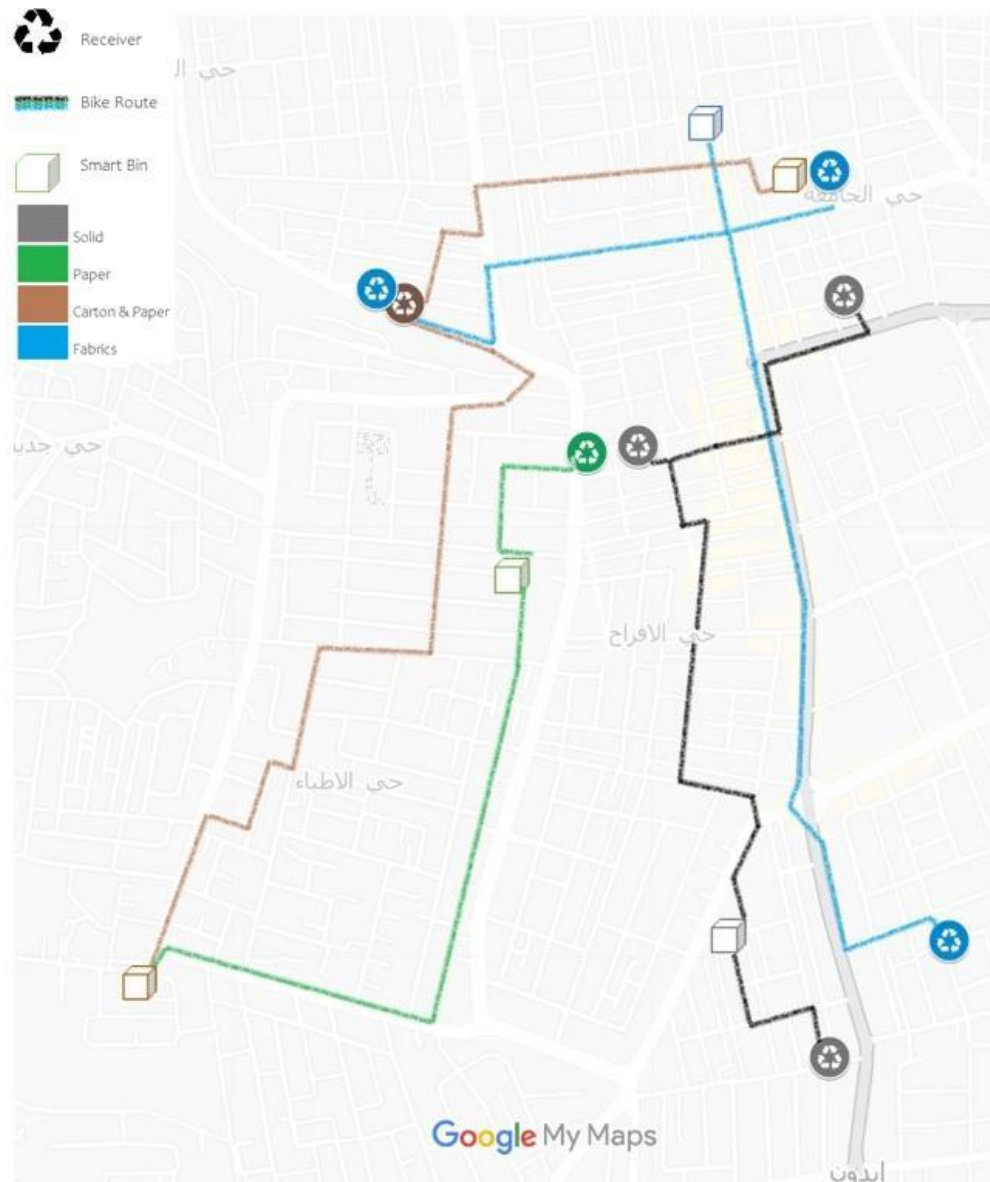
SMEs are Ministry of Local Administration (MOLA), Ministry of Environment (MoEnv.), Greater Irbid Municipality, Chamber of Commerce of Irbid, Chamber of Trade of Irbid, Local communities representative and Handicrafts and Cultural & Heritage CSOs /NGO.



The local community was mobilized through the awareness workshops, which facilitated the involvement of the community in establishing and operating the two clusters in Irbid. Ten people hosted ten smart bins and ensured collecting the recyclables from their neighbors and cooperating with the bicycle's driver who were collecting these recyclables and send them to the SMEs that are interested in these materials for their production.

Furthermore, special attention was devoted to women who were enabled to enhance their home businesses and improve their livelihood conditions.

Pilot Cluster:



Description of the materials chosen, use of smart tools and SMEs involved:

Future Pioneers conducted two awareness workshops for the local community of the trained SMEs in order to educate them about the project activities, objectives, the importance of adopting circular economy by SMEs and how to support this concept through the establishment of the clusters based on the materials that are most needed by these SMEs.

At the same time, FPEC managed to construct the (10) smart bins and the smart (2) bicycles. Accordingly, the most active ten people from the participants' were selected in order to host the constructed smart bins and be responsible for collecting the materials from its

neighborhood in these bins. We have signed MOUs with these people to ensure full responsibility and cooperation.



On the other hand, we have signed an MOU with the local authorities in Irbid mainly Municipality of Irbid, Chamber of Commerce of Irbid and Chamber of Trade of Irbid to support our efforts to encourage the SMEs to adopt the circular economy practices and to encourage the waste management practices in general such as sorting, reuse and others.

We managed to activate the clusters once the sub-grants were awarded which took much longer time than anticipated. Accordingly, the clustering pilot is active since August , 2022 only, and the process was under our close mentorship for three months. Based on the results of the follow-up , the location of the smart bins were changed and divided into two clusters to be more active and efficient and can be reached out by the bicycles.

The smart bins were allocated on the digital platform and the bicycle driver was provided with a username and a password for the application installed on his mobile to receive the alerts of the full bins and send reports. The main collected materials are plastic, paper and carton, clothes and fabric, wood and others.

Results:

38 sub-grants were awarded to CCI SMEs in Irbid, distributed as 20 sub-grants for pilot innovative products, 10 sub-grants for equipment and 8 sub-grants for cross border mentorship in cooperation with various universities.

The results in general were very positive and the sub-grant contributed to improving the production and increasing the income for these people





The challenges, lessons learnt and the expected impact at urban level

The project's results are in general positive, and the provided technical and financial support to the SMEs have improved the quality and quantity of their production in the field of circular economy. The experience was good, but there were some challenges that can be used as lessons learned for future activities. These are mainly:

1. Majority of the SMEs are not registered officially and are operating from home especially for women to reduce the registration fees and taxes. INNOMED-UP project provided a valuable opportunity for these producers as it did not require the official registration.
2. The provided technical support and trainings proved that the SMEs are in real need for such support and it will be very beneficial to have several Info-Points in different locations to provide such support.
3. The received applications from SMEs for the sub-grants showed clear weakness in terms of preparing a detailed market plan and estimated market size of upcoming years operations. This should be one of the capacity building topics to be addressee for SMEs.
4. The sub-grant's application in general was considered a little bit challenging for the applicants and this made some of them hesitant to apply.
5. There is lack of interest in the Cross-border mentorship grant, as the value of 5,000 euro is considered modest for research academies. Although we reached out to several universities and organizations, we received only two applications.
6. The SMEs need more support in terms of marketing, branding, packaging and improve the quality of designs. INNOMED-UP granted Future Pioneers the opportunity to provide such support to the SMEs through opening an exhibition for their products and improve their packaging quality.

8.Round Table 1: Digital fabrication procedures towards the INNOMED-UP Clustering Smart tools

Description:

During the INNOMED-UP project, aimed at fostering innovation and technology implementation through upcycling, a series of smart tools were developed and fabricated across all the cities that are members of the INNOMED-UP partnership. The developed smart tools include the Smart Bin, the Smart Bike Android and iOS application, the use of a Central Information System, the Digital Platform, and the proposition of a vehicle. Therefore, the purpose of this roundtable discussion is to explore the process resulting from the engagement of different design and fabrication tools, programming, digital fabrication, and assemblage, with a focus on open-source procedures towards upcycling. Additionally, the potential future implementation and use of such systems will be discussed.

Participants:

- **Mattheos Papavasiliou**, Associate Professor, School of Architecture, National Technical University of Athens (moderator)
- **Dimitrios Soudris**, Professor, School of Electrical and Computer Engineering, National Technical University of Athens
- **Stefanos Komninos**, Athens Chamber of Small and Medium Industries, Senior Consultant, Market Analyst, and Business Mentor;
- **Imad Tartir and Haitham Elkhaili**, Birzeit University (online);
- **Marco Vella**, Centre for Social and Economic Research in Southern Italy;
- **Shadi Ahmad Hammash**, Future Pioneers

Questions:

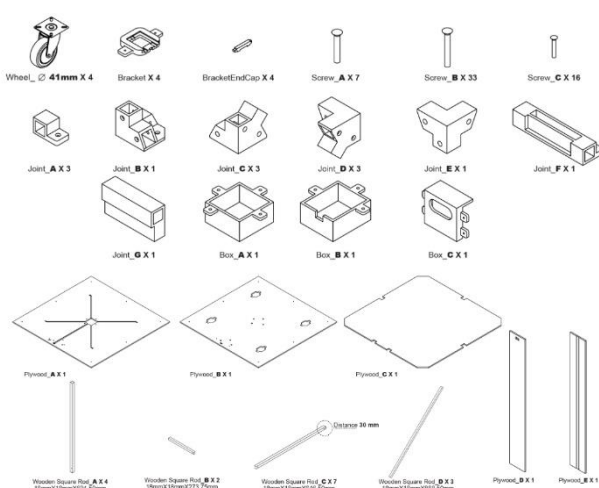
- How have open-source tools been used, and what is their relation to the fabricated smart tools?
- Designing the process: How does innovation emerge through DIY product development?
- Smart Tools reproduction: From the instructions to the constructed product, what were the difficulties encountered?
- Clustering the Smart Tools: How were the smart tools engaged considering the different characteristics of the clusters developed as part of INNOMED-UP?
- Future use and/or implementation: How do you envision further development of the smart tools, and in which cases could they potentially assist?"

*Associate Professor School of Architecture, National Technical University of Athens
(moderator)*

INNOMED-UP Smart TOOLS

The proposed intervention in CCIs is expected to shift local urban economies towards a circular production/consumption paradigm including optimal use of material resources, innovation enhancement for SME level, knowledge transfer among Med cities, social inclusion, and citizens' engagement. The involvement of partners in construction presaged the adoption of the do-it-yourself model, a model that since the beginning of human history highlighted the importance of human skill and ingenuity. It is the movement that, as a form of self-expression and rebellion against the dominant consumer culture, led to the consolidation of the need for sustainability and recycling. The emergence of digital manufacturing technologies at the end of the 20th century marked an important milestone for DIY, as it offered new possibilities for product design and manufacture. By democratizing access to manufacturing tools, digital manufacturing has allowed individuals to create objects to order without relying on large-scale industrial production.

The design of the *Smart-Bin* is based on the adoption of the current DIY culture. The designed container is proposed of materials that a) are trivial to find in all areas of Southern Europe and the Mediterranean. (E.g., Wood Square Dowel Rods which exist in many variations of quality and are often recycled sections of larger wooden cross section.) b) no specialized manufacturing machinery is needed. As the accessibility of digital fabrication tools has improved, with 3D printers and other low-cost machines becoming more widely available, we focused on a design that could practically be built with very low-cost digital fabrication equipment. c) Integrated electronics can be purchased “off-the self” from many online stores, and careful hardware construction instructions and software installation instructions allow non-specialists to assemble the container.



The container is assembled with 16 plastic parts printed on a 3D printer with common PLA filament, 16 square wooden rods cut with a simple saw, 5 plywood pieces and approx. 6 m2 of old upcycled fabric with which the material collection bag and the outer casing of the container are sewn. The openness of the process should be emphasized. The complete assembly process and the online point where one can obtain the cutting files and 3d printing

files is on the Innomed-up platform. Both the design that delivers all the necessary files to be able to print or cut as well as detailed assembly instructions which can be found together with the downloads at the address: (<http://innomed-up.eu/OSREP/>).



The design of the bike from the beginning was based on assembling a tricycle with parts obtained from retired old bikes. Ultimately, building a street-certified bike was not feasible in the European Union countries due to strict certification legislation. In Greece, since the European directive for the certification of bicycles had not yet been ratified at the time the construction took place, we managed to implement a tricycle with a place to load the removable container of the smart bin, made from recycled bicycle parts. From January 2024, however, it will not be able to circulate on the roads without certification.

The intelligence of bin connectivity has long since been decided that it should be a smartphone application to incorporate as many advantages as possible of smart bin connectivity to the internet database. The application is available both on the iPhone and on the Android phones and allows each user to connect to the INNOMED-UP program platform to enter into synergy by collecting or accepting upcycling material, to be notified when there is enough material to pick it up and finally to receive the best route that will need to be followed to the location of receiving the materials of the Smart-bin. We are confident that the INNOMED-UP network will continue to grow, cultivating a Pan-European community of makers, inventors and entrepreneurs who push the boundaries of creativity and innovation.

Dimitrios Soudris,

Professor, School of Electrical and Computer Engineer, National Technical University of Athens

NTUA, as an Academic Institute, supports open-source policies in both hardware and software. The smart tools adopted open-software and open-hardware policies. An example of the open-hardware policy is the design of the electronic system of the bin, while open-source software includes the development of databases and the Android mobile phone app.

The adopted DIY (Do-it-Yourself) product development strategy has key features that support the innovative design of new products. DIY product development represents a bottom-up approach to innovation, empowering individuals and small-scale innovators to bring their ideas to life and contribute to the innovation ecosystem. This decentralized and democratized approach often leads to a diversity of perspectives and ideas, fostering a broader range of innovations.

These innovative features are related to INNOMED-UP actions as follows: (i) Customization and Tailoring: DIY product development allows individuals to customize and tailor products to their specific needs and preferences. By creating their own solutions, people can address unique challenges and requirements that may not be met by off-the-shelf products. This customization often leads to innovative solutions and novel designs that cater to specific niche markets or user segments. (ii) Iterative Development: DIY product development typically involves an iterative process where individuals continuously refine and improve their creations based on their experiences and feedback. This iterative approach allows for incremental innovation, with each iteration building upon previous knowledge and insights. The ability to experiment, learn from mistakes, and make iterative improvements fosters innovation. (iii) Cost and Resource Efficiency: DIY product development can be cost-effective and resource-efficient compared to traditional product development approaches. By leveraging existing tools, materials, and open-source resources, individuals can create innovative solutions without large investments. (iv) Innovation Gap Filling: DIY product development allows individuals to identify and fill gaps in the market or existing products. When individuals encounter unmet needs or inefficiencies, they have the opportunity to create innovative solutions to address those gaps. DIY innovators often identify niche markets or underserved user segments, leading to the development of unique products that cater to specific needs.

The design procedures of various modules of the smart tools include some technical challenges and difficulties. In particular, the software design includes the exploration of suitable software packages for the development of the database or repository, while the hardware design involves the selection of the appropriate open-hardware platform, considering tradeoffs such as cost, availability of sensors and modules, platform community size, core features, and current and future needs. The key difficulties include silicon and module availability, software configurations, testing, and validation, as well as multiple scenarios for network availability.

The smart tools developed can be extended in several directions. One highlight is the support of a massive Internet-of-Things (IoT) network, considering heterogeneous computing infrastructures and services. Specifically, the extended smart tools should incorporate

scalability features to accommodate growing user bases and increasing data volumes. Additionally, containerization support (e.g., Docker) or deployment automation (e.g., Kubernetes) can facilitate easier deployment and management of the smart tools. Furthermore, collaborative features for smart tools can enable users to work together, share insights, and collaborate on projects. This could involve implementing features like real-time collaboration, sharing and versioning of analysis workflows, and facilitating communication and knowledge sharing within the tool itself. With these features, the extended tools can support other application domains of the circular economy, including agriculture, smart cities, and healthcare.

Stefanos Komninos,

Athens Chamber of Small Medium Industries, Senior Consultant, Market Analyst and Business Mentor

Clustering in Athens Greece

Basic Theory on Clusters

According to Michael Porter, "clusters" are defined as "critical masses in one place of linked industries and institutions—from suppliers to universities to government agencies—that enjoy unusual competitive success in a particular field, related by knowledge, skills, inputs, demand, and other linkages."

Clusters can operate competitively within the same industry (horizontally) or complement different sectors in the same supply chain (vertically). Fostering a culture that promotes the coexistence of competition and cooperation can facilitate the development of such linkages. However, there should first be consensus on key elements, such as awareness of the need to cooperate, a shared belief in mutual benefits, and constant personal communication.

Cluster development in Greece and Athena.

The idea of business networking In Greece, has not been significantly advanced thus far. Both the conditions of competition and the structure of business potential, as well as the way businesses develop, have not favored the creation of business networking structures and cooperative schemes in the form of clusters. This can be attributed to the following factors:

- The small size of Greek businesses
- Their family-oriented and introverted character, as well as the prevailing mentality
- The lack of competent executives and the inability of small entrepreneurs to perceive the public utility.

The Future of INNOMED Clusters

To be successful, they shall:

1. Offer clear business and economic benefits
2. Promote the industrial modernisation
3. Be well coordinated in resources and networks, including financial and human
4. Become part of the increasingly strict environmental regulatory framework.

Q#1: Regarding open-source tools:

The IT policy at Birzeit University promotes the use of open-source applications. The design, fabrication, programming, and management of smart tools were mainly done using open-source applications. Open-source frameworks were used to develop the Android mobile application. The Digital Platform was built using open-source packages for the backend framework, including MySQL, PHP, and other packages.

Q#2: Designing the process:

The innovative goals of the project promote economic growth and the reuse and recycling of materials, in addition to environmentally friendly processes and services. SMEs and material providers have developed product lines based on specific needs aligned with the project goals. SMEs developed their products using the available resources and materials provided in their areas, taking into consideration environmental constraints. This is an ongoing process, with new raw materials leading to new clusters and new products.

Q#3: Smart-Tools Difficulties:

- Specialized knowledge and/or skills were needed.
- The design process depended on the specific needs of the targeted cities.
- The construction of the smart tools required multiple trials to achieve the desired result.
- Inaccuracies were found in the prototype model design and operating instructions.
- Compatibility issues between hardware and software configurations
- Designing durable smart bins with inexpensive replaceable parts
- Weak cellular coverage and "blind areas" with poor data rates for 3G service

Q#4: Clustering the Smart Tools:

Smart-Tools provided solutions to the specific needs and goals of each cluster. For example, smart bikes were redesigned and developed to provide affordable and sustainable means of transportation, promoting healthy lifestyles. The digital platform improves communication and collaboration between SMEs and provides real-time information about the status and location of smart bins. Smart-Tools were designed and manufactured to meet the unique requirements and transport materials of each cluster.

Q#5: Future use and/or implementation:

Further development of smart tools could include the integration of new technologies or features such as:

1. Supply-chain and store management
2. Multi-cell smart-bins to accommodate different types of materials.
3. Use of powerful electric tricycles.

The Palermo pilot cluster is located in the city-centre. It also has a “satellite” division in Castelbuono, a small town within the Metropolitan City. Nowadays, the expression “city-centre” commonly identifies two areas in Palermo, both interesting in the framework of the project:

- The ancient city-centre of Palermo (the walled-city). The area is extremely rich in terms of cultural heritage, with highly gentrified neighborhoods next to traditional inhabitants (such as families working in traditional markets), as well as university students and many migrant families. Here creative craft SMEs have been spreading in the last decade, mainly because they focus on tourists as a target, creating hybrid production and sale spaces.
- A wider historical area (developed between the 1860s and the 1920s), the art nouveau centre. It includes a former early-1900s industrial area, nowadays dedicated to cultural activities (Cantieri Culturali alla Zisa). Here the Municipality of Palermo entrusted CRESM – PP3 with the management of a 1.200 sqm pavilion that today hosts NOZ – Nuove Officine Zisa, an innovative handicraft workshop for the development of innovative CE practices, as well as the Info-point for consultation of SMEs. Cantieri Culturali alla Zisa hosts several other CCI SMEs. In the surroundings it is still possible to find some of the last traditional craft workshops.

The INNOMED-UP cluster, in particular through the Innomed-up info-point, is experimenting with models of cooperation in order to develop sustainable business models and the use of secondary raw materials. It focuses on sharing equipment, knowledge and skills, in order to support innovative product design and production chains. SMEs exchange mainly wood, carton and fabric. The choice of materials was made focusing on the availability and the potential for upcycling processes, thanks to the creativity of SMEs.

One of the challenges that faced us was adapting the smart bins to suite the SMEs and their collected materials based on their weight and nature. We have adopted the clustering structure proposed by the project as our clusters in Palermo are more dynamic especially that many of the SMEs are informal and not registered. Additionally, sometimes they use their own remains, or domestic waste but not the recyclables collected from the others. The debate about the exchange of materials will put pressure on the involvement of policy-makers and local authorities in the development of new regulations more adapted to the circular transition.

SMEs need to be trained about the waste management and how to better utilize available recyclable waste and how to comply with the legislations as they don't have enough resources to pay lawyers to understand and comply with the legislations especially that the European and Italian legislations are wide.

Scalability can be secured through ensuring that the digital platform can absorb and accept more SMEs in the future especially the ones who produce recyclable waste and offer the benefit of these materials.

*Shadi Ahmad Hammash,
Technical Advisor at Future Pioneers*

The open-source tools have been the main reference to develop the fabrication drawings and instructions to implement the smart tools and bring them out of the images to the reality. Nevertheless, we had to search for extra sources to get extra information about 3D printing, Arduino programming language and smart technology

Innovation is for the success of INNOMED-UP project; in every step of the fabrication of the smart tools we had to find some innovative solutions to deal with the different challenges we faced. For example, in regard to the algorithm of detecting when the bin it is full, we found that we should firstly check the maximum allowed weight to avoid the damage of the bin, then we should check the maximum volume using ultrasonic sensors

As Future Pioneers was the first partner who started **constructing the smart bins** following the instructions on the NTUA open source, we have faced several difficulties as the open-source was still in its early stages and its content still in the schematic stage. The first issue we have faced was the inconsistency between the different drawings and the instructions, in addition to some missing information such as the LCD case

Other difficulties were related to the selection of the appropriate types of materials, for example the first trial of using plywood was unsuccessful because of the wood plates deflections due to the nature of this type of wood, so we did more than one trial till we found the most suitable type is hard foam synthetic wood.

After completing and distributing the smart bins to the SMES, we had to reprogram the controllers for all of them to be able to communicate with the new constructed digital platform that was not ready at the time of constructing the smart bins.

Later on, and in order to establish the clustering of the smart tools, we organized an awareness campaign to mobilize the community and encourage the participants to be active actors in the circular economy and operate the smart tools. We have currently two fully operational clusters.

Based on the feedback we received from the field; we found that some modifications should be taken into consideration in the future. For example, the sustainability of the established clusters after the project completion should be secured. One of the recommendations is to allocate these smart bins in shopping malls, gyms and public places to be accessible for all the SMES and local community

Also, we suggest to develop an outdoor smart bin that is made of weather proof materials and to be supervised by the local municipality to be accessed at any time by the SMES and ensures the sustainability of the smart tools. The same for the smart bike which should be developed to work in all weather conditions, especially in hot, sunny and rainy days

9.Round Table 2 How are creatives adopting circular practices? Problems and opportunities

Prof. Eirini Klampatsea,

Dean of the School of Architecture, National Technical University of Athens (moderator)

Description:

Mediterranean cities are dealing with overwhelming waste production and management. The circular economy is becoming one of the most valuable sustainable goals for future cities.

It is well known that the CCIs SMEs create strong networks and clusters in the centres of the cities and collaborate as non-typical value chain production. This characteristic could become the canvas towards redistribution and re-use of the secondary materials that CCIs use. Through this process, a new productive paradigm could arise, enhancing the sustainability of the SMEs and the cities while deepening local productive clusters.

The benefits could be multiple for the traditional productive networks, the preservation of cities' cultural identity and the environmental goals.

Participants:

- **Prof. Eirini Klampatsea**, Dean of the School of Architecture, National Technical University of Athens (moderator)
- **Paolo Guarnieri**, Municipality of Prato (on open market)
- **Samia Saad**, Municipality of Tunis (on open market)
- **Anna Barba**, ARANCE AMARE Enterprise, Centre for Social and Economic Research in Southern Italy (on line)
- **Spyridon Kizis**, LOCUL Subgrantee Athens

Questions:

- What is your experience regarding the link between CCIs SMEs and circular practices?
- In your point of view, what would be the benefits and perspectives of such interconnection?
- Through your experience which policies/ initiatives are needed to strengthen creative and circular clusters
- Which are the obstacles you tackled so far and in which way could be gone beyond

Paolo Guarnieri,
Municipality of Prato

Description :

Mediterranean cities are dealing with overwhelming waste production and management. The circular economy is becoming one of the most valuable sustainable goals for future cities.

It is well known that the CCI's SMEs create strong networks and clusters in the centers of the cities and collaborate in non-typical value chain production. This characteristic could become the canvas for the redistribution and re-use of the secondary materials that CCIs use. Through this process, a new productive paradigm could arise, enhancing the sustainability of SMEs and cities while deepening local productive clusters.

The benefits could be multiple for the traditional productive networks, including the preservation of cities' cultural identity and environmental goals.

Participants:

- Eirini Klampatsea, Dean of the School of Architecture, National Technical University of Athens (moderator)
- Paolo Guarnieri, Municipality of Prato (on the open market)
- Samia Saad, Municipality of Tunis (on the open market)
- Anna Barba, ARANCE AMARE Enterprise, Centre for Social and Economic Research in Southern Italy (on line)
- Spyridon Kizis, LOCUL Subgrantee, Athens

What is your experience regarding the link between CCIs, SMEs, and circular practices?

- Our focus is on textiles, the 4th most impacting industry worldwide. Creativity is embedded in T&C, but just to redesign the garments, not to really re-think (re-engineer) them.
- Cultural and creative industries are major drivers of growth and social development and have shown great energy in pushing the transition to the circular economy. They also have the ability to promote the development of circular practices.
- CCI SMEs are more open to adopting circular practices because of their non-utilitarian approach. They can shift the focus from linear to circular, from profit to meaning, from selection to inclusiveness, from efficiency to effectiveness.
- CCI SMEs can alter the economic equation by introducing quality in place of quantity—experience instead of consumption—and therefore more valuable, durable, enjoyable, and also re-usable, repairable, and regenerable products (e.g., mass production and fast fashion vs. hand-made and crafted products).
- CCI SMEs can help prevent contamination among different sectors and therefore favor industrial (and social) simbyosis.
- Creativity also means more meaningful intelligence: upcycling rather than downcycling, e.g., making bricks from shredded clothes is a waste; this should be the

last resort to dispose of clothes, which should be used again and again before turning them into new items like bricks. Again, here is efficiency vs. effectiveness, the problem being that we produce too many clothes anyway.

In your opinion, what would be the benefits and perspectives of such interconnection?

- Cultural heritage and the cultural and creative industries can play a significant role in the transition to the circular economy by promoting sustainability, fostering innovation, and enhancing cultural identity.
- CCIs provide the necessary contamination to overturn the business perspective.
- CCIs see opportunities where common SMEs see limitations.
- CCI tends to mobilize differences, different actors, and several dimensions (beauty, relevance, durability, and meaningfulness). In the case of the open market, students were involved in developing the smat bins and were enthusiastic to take part in the clusters that gave birth to collection, upcycling, and showcasing of the items at the open market organized on April 1, 2023. The students were most contacted and engaged in the market together with the CARITAS NGO.
- CCIs have a special focus on creation and design; they can foster ecodesign at a stage of product development where 80% of the future impact of products is decided. Eco-design needs all-round training in design, materials, Life Cycle assessment, etc.

*Samia Saad,
Municipality of Tunis*

Description:

Mediterranean cities are dealing with overwhelming waste production and management. The circular economy is becoming one of the most valuable sustainable goals for the future cities.

It is well known that the CCI's SMEs create strong networks and clusters in the centers of the cities and collaborate on non-typical value chain production. This characteristic could become the canvas for the redistribution and re-use of the secondary materials that CCIs use.

Through this process, a new productive paradigm could arise, enhancing the sustainability of SMEs and cities while deepening local productive clusters.

The benefits could be multiple for the traditional productive networks, including the preservation of cities' cultural identity and environmental goals.

Samia Saad, Municipality of Tunis (on the open market)

Questions:

- 1-What is your experience regarding the link between CCIs SMEs and circular practices?-
- 2- In your point of view, what would be the benefits and perspectives of such interconnection?

The importance of CC in the medina as a case

The concept of the circular economy remains relatively unpopular in our country. In the face of widespread pollution, nations around the world are actively seeking solutions to ensure our safety and protect nature. However, the idea of turning waste into a profitable business does not attract much interest from customers. The key lies in implementing a waste recovery project that focuses on creating items specifically tailored to an informed target audience that values creativity, recycling, upcycling, and responsible consumption. As a member of the Medina community, I aim to foster collaboration within the existing creative clusters, strengthening the establishment of a value chain that facilitates mutual and sustainable benefits. This innovative project will actively engage craftsmen and designers in recycling initiatives, inspiring them to adopt similar approaches towards waste valorization. Moreover, it aims to raise awareness about sustainable development, acknowledging the growing consumer demand for products manufactured by environmentally conscious suppliers who prioritize recycling and the use of natural materials. Ultimately, this project represents a fundamental societal and environmental shift, contributing to the creation of a green economy.

The sub-grant in question will add value on three fundamental levels:

Environment: An integral part of this project focuses on promoting environmental awareness. We will achieve this through various initiatives, including the installation and utilization of smart collection machines, which serve as innovative solutions and technologies. Additionally, we will establish a "Door to Door" program, actively engaging with households and grocery stores and employing waste pickers as environmental ambassadors. This approach will not only raise awareness but also create a direct connection with the community. Furthermore, by collaborating with the Municipality of Tunis and leveraging their studies, we will facilitate scrap collection within the Medina. This collaboration will greatly assist us in identifying additional sources of scrap beyond our current knowledge, thereby providing valuable insights and enhancing the overall effectiveness of our project.

Social: Informal waste pickers often face marginalization and a lack of support. Unfortunately, not much attention has been given to developing viable solutions for them. However, our "7 Pillars" project aims to address this gap by providing them with respect, improved working conditions, healthier practices, and increased income. By prioritizing these pillars, we aim to uplift and empower informal waste pickers, recognize their valuable contributions to waste management, and create a more inclusive and equitable society.

Technological: Our country currently lacks smart machines for waste collection. As part of our project, we will introduce these innovative technologies to revolutionize waste management practices. By implementing smart machines, we aim to streamline and optimize the collection process, making it more efficient and effective. This technological advancement will not only enhance waste management practices but also contribute to a more sustainable and technologically advanced society.

3- Through your experience, which policies or initiatives are needed to strengthen creative and circular clusters?

In order to strengthen creative and circular clusters, several policies and initiatives can be implemented:

First, promoting collaborations and partnerships should be a priority. Encourage collaboration among stakeholders in the creative and circular economy, including businesses, entrepreneurs, researchers, and policymakers. By fostering partnerships, we can realize and improve innovation as well as ensure a more integrated approach.

Financial incentives, such as grants offered by our project Innomed-Up, can play a crucial role in supporting the development and growth of creative and circular businesses. These incentives can be used to facilitate the adoption of circular practices and encourage businesses to implement sustainable models.

Investing in education and skills development programs is another essential aspect. By equipping individuals with the necessary knowledge and skills, we can cultivate a workforce that is well-prepared to thrive in the creative and circular economy. This investment will lead to increased competitiveness and innovation.

Promoting awareness and consumer education campaigns is vital. It is crucial to highlight the value and benefits of creative and circular (CC) products and services to the public. These

campaigns can help change consumer behavior by encouraging them to make sustainable choices and support businesses that prioritize circularity.

In conclusion, an inclusive approach to strengthening creative and circular clusters includes promoting collaborations, providing financial incentives, investing in education and skills development, and launching awareness and consumer education campaigns. By implementing these initiatives, we can foster a successful ecosystem that promotes sustainability and innovation.

4- Which are the obstacles you tackled so far and in which way could be gone beyond?

- One major obstacle hindering the development of creative and circular clusters is the lack of awareness and understanding among stakeholders regarding the benefits and opportunities offered by the circular economy. Addressing this issue should be a priority.
- Regulatory barriers cause challenges as well. Existing regulations and policies may not align with the needs and objectives of creative and circular clusters. It is important to review and update these regulations in order to create a suitable environment for such clusters to succeed.
- Resistance to change and the persistence of traditional mindsets can also impede the adoption of new practices in the circular economy. Efforts should be made to promote a change in attitudes and encourage openness to innovative approaches.
- Inadequate infrastructure is another obstacle. To promote the growth of creative and circular clusters, investments in infrastructure development, such as recycling facilities and waste management systems, are necessary.
- Finally, a transition to the circular economy requires the possession of skills and knowledge. Training programs, educational courses, and workshops should be implemented to equip individuals and organizations with the necessary expertise to embrace circular practices effectively.

To overcome these obstacles, it is necessary to adopt a multi-stakeholder approach involving collaboration between government, businesses, academia, and civil society. By working together, these stakeholders can collectively address the challenges, drive awareness, shape supportive policies, and build the necessary infrastructure and knowledge base for the successful development of creative and circular clusters.

Aurelio Ciaperoni,

Fuori Catalogo Enterprise, Centre for Social and Economic Research in Southern Italy

Fuori Catalogo Enterprise is one of the sub-grantees who benefited from the announced vouchers for the SMEs working in the field of Circular economy. We got extensive training in the premises of the Centre for Social and Economic Research and this was followed by the vouchers that supported us to boost our circular production and marketing.

SMEs members, thus, meet often in NOZ (where they also work and experiment for the development of innovative products and services) and deliver materials by their own means of transportation. NOZ, thus, has the role of “intersection point” for the exchange.

The use of smart tools has been tested in the pilot clusters and will be possibly scaled up to new clusters to be constituted by other SMEs involved thanks to the Info-point.

The impact of the INNOMED-UP cluster is not only connected to raising awareness about Circular Economy and its advantages for CCI SMEs.

Our experience is mainly with theaters and museum exhibitions. We use different materials such as wood, fabric and plastic. Even before our involvement in Innomed UP project, we used to have our own network to exchange materials, but being currently involved in the project clusters encouraged us to optimize this process, introduce and engage more SMEs

*Spyridon Kizis, Designer,
Co-Founder LOCUL Subgrantee Athens*

The link between CCIs, SMEs, and circular practices is significant. CCI SMEs often utilize secondary materials or waste as inputs, allowing them to repurpose and upcycle resources. By incorporating circular practices, they contribute to reducing waste generation, conserving resources, and minimizing environmental impact. This interconnection aligns with the principles of the circular economy, promoting a more sustainable and efficient use of materials.

The benefits and perspectives of such an interconnection are manifold. Firstly, it fosters environmental sustainability by reducing the extraction of raw materials and minimizing waste sent to landfills. Secondly, it creates economic opportunities by developing markets for recycled or upcycled products, stimulating job creation and economic growth. Thirdly, it contributes to the preservation of cities' cultural identity by incorporating traditional craftsmanship and repurposing materials, thus enhancing the cultural value of products. Lastly, it encourages collaboration and networking among different sectors, promoting innovation and the exchange of knowledge within local productive clusters.

To strengthen creative and circular clusters, supportive policies and initiatives are needed. These may include establishing a regulatory framework that incentivizes circular practices through tax incentives or grants. Additionally, providing funding and financial support specifically tailored to CCI SMEs engaged in circular practices can help overcome financial barriers. Promoting cross-sector collaboration through networking events, workshops, and innovation hubs can facilitate knowledge sharing and foster partnerships. Furthermore, educational programs and training initiatives can enhance skills and awareness regarding circular economy principles, supporting the adoption of circular practices. Finally, public-private partnerships and stakeholder engagement can facilitate the development and implementation of policies and initiatives to strengthen creative and circular clusters.

10.INNOMED-UP Model

By Leonardo Borsacchi,

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According to many definitions, upcycling, within the framework of circular economy practices, is the way to reuse waste materials by creating something new that is more valuable than the original materials. It is configured as a cost- and energy-saving production method that involves the creative reuse of waste products or materials to obtain new and more valuable items. Upcycling is preferable to recycling, and it could be defined as a process to convert and remake waste into new products of better quality or higher environmental value through craftsmanship and design. Upcycling is becoming a trend, showing a growing increase in popularity. It involves, among others, the re-use of old homewares by means of small *do-it-yourself projects*, and thus, it is likely to be adopted within the production processes of Cultural and Creative Industries (CCIs).

This toolkit may be useful to lay the foundation for an overall strategy that looks for a new model of production, especially at the urban level, that respects local traditions as well as territories. The CCIs sector is increasingly growing, bringing opportunities for new jobs, a collaborative economy, social innovation, start-ups, and urban regeneration. It is often sponsored as a booster for sustainable development since it relies more on human input than on material ones, thus easing the pressure on the environment. Thus, this work targets local authorities and industries as its main users.

With a wide review and analysis of good practices offered by the manual, cities and industries may learn about the different solutions that can be adopted, considering their specific urban and economic features, such as the socio-economic fabric, the availability of raw materials and technologies, or their position along the global supply chain. The paper may provide suggestions to CCIs on how to achieve the SDGs' goals. Upcycling within CCIs, which is the main topic of the manual, covers primarily SDG 11 (Sustainable cities and communities) and SDG 12 (Responsible consumption and production), but it also contributes to implementing SDGs 8 and 9 (decent work and economic growth, Industry, Innovation, and Infrastructure, respectively).

The INNOMED-UP toolkit aims to stimulate strategic planning at the urban level, inspire new production models among industries, and provide suggestions to CCIs to achieve the SDGs' goals. Among the preconditions for an effective implementation of an upcycling system at the urban level are: Awareness and knowledge of materials; a deep understanding of the local context and supply chain; community awareness; and a system of incentives. The model is organized as follows: Urban Metabolism analysis; Elaboration of local CCIs' need map; Planning of a short waste supply chain; Setting up administration tools to foster upcycling supply and demand; System evaluation and monitoring through management system or set of performance indicators.

The first step consists of investigating the *metabolism* of the area in which the circular upcycling system is implemented. So far, investigating urban metabolism means being able to quantify, or at least estimate, those flows and stocks as well as their environmental impact. For this purpose, it is necessary to have a clear understanding of local demand and supply as

well as their interconnection with the global market. Starting from the economic outlook of the local area, services and goods traded are accounted for in the form of energy and material embedded in or required for their extraction, transformation, and transfer processes.

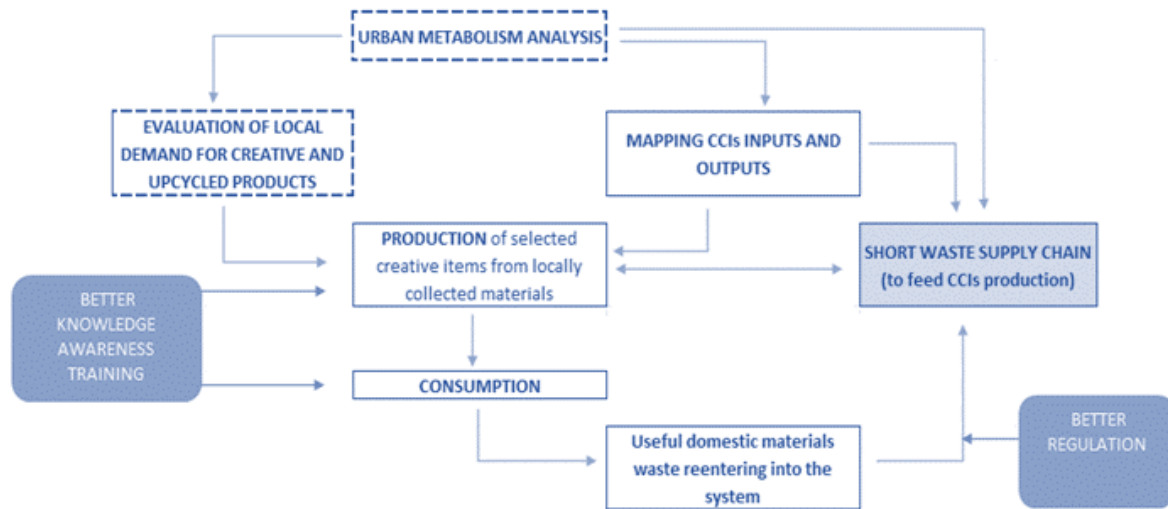
Investigating urban metabolism is crucial to pointing out critical materials and processes, understanding the environmental impact of human socio-economic activities, and bringing out potential synergies among sectors or processes. The key to the upcycling management model is, indeed, the recognition of all potential by-products and secondary materials that may be reused in other transformation processes, reducing the demand for virgin raw materials. The EEA Urban Metabolism Framework proposes a set of indices enabling the analysis and management of urban metabolism. Once a clear image of which materials are moved within the socio-ecosystem is obtained, the next step consists of mapping CCIs' input needs. This means understanding what kind of materials they need and how those materials could be procured. To detect new by-product or waste material applications and to evaluate the local availability of the input needed by CCIs are the main purposes of this second step.

To assure that the resulting potential interconnections become effective, it is necessary to plan and design a short waste supply chain. The design of the short supply chain should start with the results of the CCIs' needs map and, from that data, develop a specific collection system based on local demand and offers of those materials. The system may be parallel or integrated with the traditional collecting system, which also involves domestic waste. Industrial waste is usually homogeneous, and often it constitutes (at least potentially) by-products or secondary materials. The system may focus just on specific materials (those more required by the local CCIs) with regards to domestic waste collection. Local authorities should play an important role in managing the overall cooperation and coordination among CCIs, traditional businesses, and final consumers. Local authorities must promote the adoption of upcycling practices among industries and the conversion of their production systems. So far, both supply and demand for upcycled products must be ensured.

As regards companies, a set of tax reliefs or economic incentives may be set up. Finally, once the management system is set up, it must be monitored, corrected, and adapted to new emerging trends. For this purpose, it is necessary to establish either a set of performance indicators or an overall management system capable of showing system achievements and failures. In order to enable CCIs to produce upcycled products, policymakers have to support, plan, and manage not just creativity per se but also the material input flows required. So far, the following points constitute the preconditions for the effective implementation of an upcycling system: Awareness and knowledge of the material, a deep understanding of the supply chain and local context, community awareness with respect to upcycled products, a system of incentives, and communication

The INNOMED-UP toolkit aims to stimulate strategic planning at the urban level, inspire new production models among industries, and provide suggestions to CCIs to achieve the SDGs' goals. Among the preconditions for an effective implementation of an upcycling system at the urban level are: Awareness and knowledge of materials; a deep understanding of the local context and supply chain; community awareness; and a system of incentives. The model is organized as follows: Urban Metabolism analysis; Elaboration of local CCIs' need maps; Planning a short waste supply chain; Setting up administration tools to foster upcycling supply

and demand; System evaluation and monitoring through a management system or set of performance indicators



11. INNOMED-UP Guide for access to financial tools for CCI SMEs who want to innovate in the CE

*By Afnan Quttieneh and Baher Dikeidek,
Birzeit University*

INTRODUCTION:

The Guide for access to financial tools for CCI SMEs who want to innovate in the CE, has been finalized in English and Arabic and will be published digitally and in a printed version size A4. The purpose of the document:

- 1- To guide CCI SMEs who innovate in the Circular Economy
- 2- To offer guidance to business organizations or chambers who want to offer mentorship programs for SMEs to access finance.

Long term objective:

The guide ensures the sustainability of the project's results after the project ends. Expert has collected information about all the available financing tools that CCI SMEs could access (National/Mediterranean/European/International funding opportunities).

Main scheme:

- The final template included briefs & definitions of main terminologies related to CCI & CE. Eg. CCI/SME, CE, Innovation, domains and sectors, Supporting organization etc...
- Support and financing opportunities/programs for CCI/SMEs in each participating city

The journey:

- Development & distribution of data collection tools to partner cities (7 partners)
- Following up with partners on data collection and quality assurance of inputs
- Receiving collected data & developing final guide covering all partner cities
- Literature review of related terminology and concepts
- Overview of how stakeholders can support CCI/SMEs
- Translation of the full guide to Arabic

Highlights about the journey:

- Some adjustments were needed through the development process to cope with differences between partners
- A redesigned template was proposed in accordance with recommended modifications of partners after data collection
- Final adopted template was implemented to match every partner
- local sequence
- High quality Arabic translation was proposed

The final structure of the guide presented:

- Introductory note.
- About INNOMED-UP.
- About this guide.
- Who can benefit from the guideline?
- What is CCI/SME?
- Domains and Sectors
- What is CE?
- What is Innovation?
- How to use the guideline?
- Definitions of stakeholder/ supporting organization etc...
- **The Guide (For each participant city according to its sequence including info points).**
- **How stakeholder and supporting organizations can help CCI SMEs?**
- List of partners contact information.

Challenges:

- While preparing the final guide and aligning it with the designed tools (questionnaire and guide template), two questions were considered:
- Does this template align with the intended objective and is it suitable for our specific context?
- Are these tools effectively designed to generate this guide?
- Certain sections of the guide underwent redesigning after approving the proposed template to suit different contexts for each country.



Innomed-up Final Conference Proceedings

عنوانه:

First Edition

الطبعة:

E-Book

نوع الغلاف:

Future Pioneers for Empowering Communities Members in the Environmental and Education Fields (Jordan)

إعداد:

