

The European Commission's
**INTELLIGENT CITIES
CHALLENGE**

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Jyväskylä: Intelligent City Transformation Overview

ICC Final Deliverable



Mayor Foreword

Transforming industry, green economy, and clean production are the spearhead's of Jyväskylä's export business and expertise. Together with the local companies, universities, and other stakeholders, we want to accelerate the green and digital transition and succeed in making our city greener. Intelligent Cities Challenge has provided us with both an overview of ongoing actions and roadmap to what needs to be done. We have gained a shared understanding and motivation around green energy, which will enhance our cooperation with the local stakeholders. Working together has always been our strength in Jyväskylä and is the only way to respond to the challenges posed to our societies.

Jyväskylä's renewed city strategy includes a strong focus on resource wisdom. During the 4-year strategy period (2022-2025), we will further the circular economy in the city, by boosting innovations and RDI cooperation in the field. Participating in Intelligent Cities Challenge provided us structure and tools to continue the implementations of our vision also in the upcoming years.

Mayor Timo Koivisto
City of Jyväskylä

Executive summary

Jyväskylä has strong traditions as the place for manufacturing industry. The biggest exports in the city come from the manufacturing, forestry, energy, paper, wood product and technology industries. Renewing industry is one of the region's most important economic development areas, at the core of which are resource-wise and carbon-neutral production and manufacturing technologies, new material and circular economy solutions. The climate change and biodiversity loss needs quick solutions, and greener industrial solutions can contribute to tackling the change. Reacting to the challenge is also essential for the companies to survive in global markets as well as for the city's future.

The challenge that was vocalised in the needs analysis is SMEs' lack of awareness, understanding and know-how related to green economy. This can be traced back to lack of cooperation between universities and companies, especially SMEs since there is a vast amount of expertise related to green economy in the two local universities. The city, especially its business unit, can and aims to act as a mediator or translator bringing the academia and businesses to the same table.

The vision statement, formed together with relevant stakeholders, has a strong focus of mainstreaming green economy. **In carbon-neutral Jyväskylä in 2030, as a result of top research and cooperation between actors internationally known innovations in the bio and circular economy and successful business based on them have been built. In addition, responsibility crosses all companies and organizations, regardless of their field of activity.** There is a strong agenda for climate neutrality deriving from the city's ambitions, but also a clear desire from the academia to increase their societal impact for the benefit of the local economy.

The priority was to create a shared understanding of green economy, and then find ways for the academia to support the RDI-activities of the local companies. The idea of the RDI center (physical or virtual) was launched, and the already existing network for business responsibility (YMPYRÄKS) was boosted. Funding for both became critical, and the city pressed strongly for joint ERDF projects with the academia and committed to the own resources needed for EU-funding. The city negotiated an agreement with Finnish Ministry of Economic Affairs and Employment that boosts the RDI related transforming industry with secured funding up to 2027.

Even though the ICC is coming to its end, the work is not done. Several ERDF projects related to the RDI center are launching this autumn, and development for YMPYRÄKS and WISDOM networks is in full speed. The City of Jyväskylä and local universities have identified the need to place even more focus on an international outreach, promoting and disseminating locally developed circular economy solutions, for example, in (and beyond) Europe.

During the upcoming years, the plan is to continue the work with businesses to function in a resource-wise and responsible manner and increase the RDI actions of our private sector to accelerate green and digital transition starting from the needs of the companies. For the next years, the energy crisis will pose a major threat especially to local industrial companies, and it is crucial to assist them (together with the academia), in finding fast, green solutions to their production.

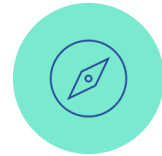
Jyväskylä pursued an EU-supported transformation over four main stages, and this document details that journey by these sections

Overview to the city's journey and structure of this document



1 Preparation & assessment

5 months:
September 2020 – January 2021



2 Ambition & roadmap

3 months:
February 2021 – April 2021



3 Implementation

15 months
May 2021 – July 2022



4 Review & way forward

2 months
August 2022 – September 2022

*Reported as
one section*

Summary

Find out **where a city is, where it should go** and who in the ecosystem is going to **mobilise make things happen**

Develop a **concrete plan** to achieve **measured improvements**, collaborating with the community; push action with immediate benefits

Get “big moves” **done** and **see results**; take **action in partnership** with others

Measure success, and commit to **keep connections and improvements going**

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Section

1

Jyväskylä: Preparation and assessment

ICC transformation

September 2020 to January 2021



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The Intelligent Cities Challenge is funded by COSME,
the EU programme for Competitiveness of Enterprises and SMEs



Introduction 1/2

The city of Jyväskylä is a city of 143 000 inhabitants, the 7th largest city in Finland, located in Central Finland. Our city organisation consists of almost 8 000 employees, as the city oversees e.g., basic education and culture services, health care and social services, public administration and urban planning.

The Jyväskylä City Council approved the updated Jyväskylä City Strategy for the years 2022–2025 in February 2022. The vision is "Jyväskylä is a growing and international city of education and culture". The mission is "We promote the well-being, participation and social relations of our citizens". Values are humanity, courage, openness, responsibility and safety.

Our four strategic spearheads include: City of education and culture, City of vitality and growth, Capital of sport in Finland and City of resource wisdom. To implement the strategy's spearheads, 18 themes have been identified, the implementation of which is crucial to the city's success. The strategic priorities and themes set the agenda for the coming years.

City of Jyväskylä aims to be carbon neutral by 2030 and waste free by 2040.

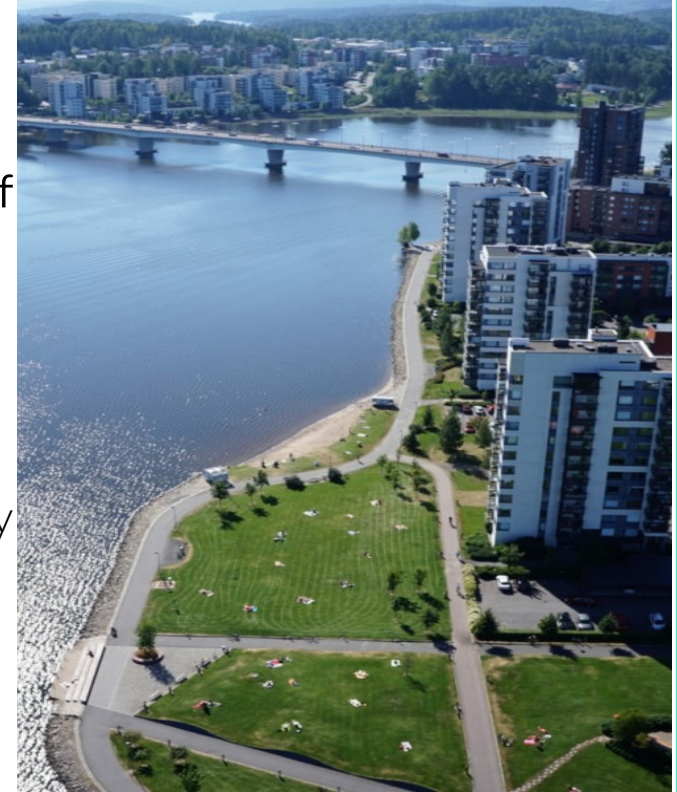


Introduction 2/2

Jyväskylä's strong economic sectors include traditional industry and digital technologies. The region's leading industrial companies (from the forest, energy, paper, wood product and technology industries) bring in a significant part of the export income. **Renewing industry** is one of the region's most important economic development areas, at the core of which are resource-wise and carbon-neutral production and manufacturing technologies, new material and circular economy solutions, utilization of cyber-safe digital solutions, modern product design and development, as well as robotics and automation.

Thus, transforming industry towards green economy supports city's strategy and its implementation as industrial green renewal is included to the strategic spreadheads 2 (City of vitality and growth) and 4 (City of resource wisdom).

The strong ICT, circular economy and resource wisdom expertise in city's two universities form a strong base for Industry 5.0 (or twin transition) which complements the existing "Industry 4.0" approach by specifically putting research and innovation at the service of the transition to a sustainable, human-centric and resilient industry. One concrete step towards Industry 5.0 is Eteläportti area which forms an advanced digital service hub for the manufacturing industry and promotes sustainable development and smart solutions by creating networks that help companies succeed.



City needs: State of the city overview

The state of Jyväskylä today Green Economy

The key elements for bringing Industry 5.0 forward in Jyväskylä are in place. City strategy is supporting the twin transition of Industry (city strategy's spreadheads 2 and 4), the two universities have needed expertise in key areas related to green economy, city has been quite successful in obtaining funding for enhancing the industrial renewal and big companies are already quite advanced in both digital and green transition.

The more challenging areas include SMEs' lack of awareness, understanding and know-how related to green economy together with lack of cooperation between universities and companies, especially SMEs.

Key insights from city performance analysis

Higher performance observed

- 1 Strong research and competence base (e.g., School of Resource Wisdom at the University of Jyväskylä (JY), material technology at Jyväskylä University of Applied Sciences (JAMK))
- 2 Strategic city commitment (vitality, growth and resource wisdom)
- 3 Jyväskylä has succeeded in advancing resource efficiency through many practical initiatives and projects among companies. For example, Resource sharing network supports the shared use of various devices
- 4 High degree of digitalization together with inputs in utilization and development of green solutions in big companies in machine building and forest industries
- 5 Ympyräks Central Finland business network for environmental responsibility is a SME network with aim of increasing the SMEs' awareness ja understand of green economy

Lower performance observed

- 1 Implementing a twin transition is difficult because of varying levels of understanding and skill in the companies.
- 2 Cooperation active between education institutes, research institutes and city, but private sector actors not that active, especially SMEs
- 3 Resource efficiency regarding development projects: communication on ongoing and planned projects and their results needed to guarantee their success
- 4 Still need for increasing the RDI investments both in public and private sectors with the emphasis in green economy
- 5 Strategic contacts to other city ecosystems internationally regarding Industry 5.0 and Green economy

City Ecosystem – Knowledge base

Companies

The spearhead sectors of Jyväskylä include sport and wellbeing, machine building industry, ICT and cybersecurity and education expertise. Eteläportti is an example city facilitated platform for companies. Eteläportti is a modern service cluster of manufacturing industry, and it will be built south of the city by 2030. Among the companies in the area, and also among SMEs, the theme of responsible business is getting increasingly important. The big companies in machine building, forest industry and ICT are actively involved in developing new solutions for twin transition either by themselves or in cooperation with universities, research organisations and other companies. SMEs, and the companies in cybersecurity, education, sport and wellbeing are mainly those which utilise the developed solutions for digitalisation and green economy, and thus they need awareness, understanding and know-how about the phenomena themselves but also suitable solutions and needed expertise.

Universities

With two universities in the city the knowledge base related to the many key expertise areas needed in green economy (e.g. circular economy, renewable energy, waste management) is strong. Universities collaborate with each other and with many Finnish and European universities. The existence of VTT, Technical Research Centre of Finland, in the city complements the knowledge base.

In Jyväskylä, like in Finland in general, the universities and VTT collaborate actively with companies and public sector organisations. The big industrial companies in the area (e.g. Valmet, Valtra, Moventas Gears) have resources and tools to both collaborate with research organisations and acquire the needed expertise in order to transform to green economy. The SMEs however lack both the resources and tools, and often also the need for transforming their operations towards green economy.

City of Jyväskylä

City is committed to reach the ambitious goals related to carbon neutrality and waste-free city. The goals are not just the goals of a city organization but cover the entire city with its various activities and actors. In order to reach the goals, city needs the commitment and actions of companies, NGOs and citizens. The city is building cooperation with companies through urban development platforms and value networks, which offer potential to take forward strategic goals in cooperation. **City has recognized its role as being facilitator of platforms and ecosystems related to green economy.**

City Ecosystem – Support organisations

Business Jyväskylä

Business Jyväskylä is the unit of the city of Jyväskylä, whose task is to strengthen the networks of the business sector and promote business activities. Business Jyväskylä's task is also to increase the investments of domestic and international companies and develop the invest-in operating model, as well as create an attractive ecosystem, especially on urban development platforms.

Eteläportti is an example city facilitated platform for companies. Eteläportti is a modern service cluster of manufacturing industry, and it will be built south of the city by 2030.

Startup Factory

The Startup Factory is an incubator where the best initial-stage business ideas are grown into successful companies in cooperation with educational institutes. The Startup Factory is a meeting place for entrepreneurs with the joint facilities for disposal to anyone interested in entrepreneurship. Startup factory is building the startup community and creating the spirit of entrepreneurship around us. Startup Factory has an important role for introducing and showcasing green economy themes for young entrepreneurs and those interested in entrepreneurship.

EduFutura

EduFutura gathers together the universities and Jyväskylä Educational Consortium Gradia to jointly develop further education and research. EduFutura can have a role in developing the green economy related capabilities.

City Ecosystem – Collaboration culture

All the key players in the ecosystem, research, business and the city work together to some extent, but it is difficult to get all the actors to discuss the goals of the cooperation and common measures. This has also shown in ICC process as it was really challenging to get other than city players committed to the strategy process.

In practical level cooperation exists, but it happens as if in silos. Big companies collaborate with researchers, SMEs to some extent with city (Business Jyväskylä) and universities with city. Thus the triple helix type of collaboration between research institutions, companies and public sector takes mainly place in duals, and there is lack of wider, systematic co-operation between different actors.

Big companies have their established, international collaboration networks and their interest towards local development activities in Jyväskylä is limited. Many big companies which have their manufacturing and/or R&D units in Jyväskylä have their headquarters somewhere else which can be one of the reasons behind why they are not so willing to take part in strategy level discussions with the city. The collaboration between big companies and universities happen mainly on a project basis and framework agreements or partnerships rarely exist. Their role is, however, important as example for the smaller companies and through requirements that they set for example related to digitalisation or circular economy for their partner companies.

SMEs tend to be involved in actions which they perceive as beneficial for them. They also value the experiences of other companies, and they often perceive the cooperation with research as too academic and time-consuming. Collaboration forms in which SMEs can get insights from other companies and are related to topic close to their needs have proven to be the most successful ones in Jyväskylä.

Universities in Jyväskylä are used collaborate with the big companies, but lack the resources and tools to collaborate with SMEs. The University of Applied Sciences has more closer linkages with SMEs and the University of Jyväskylä. All in all, there is a lot to be done in enhancing the collaboration culture at the universities.

The ecosystem agreement between Ministry of Economic Affairs and city of Jyväskylä for the years 2021-2027 sets a development framework for the joint agreed actions that enhance innovation activities in several fields among which one is industrial renewal. Although the agreement is made between city and national government, universities have been actively involved in the planning process. Agreement includes allocation of ERDF funding targeted to key fields mentioned in the agreement.

ICC strategy: Vision and ambition statements

Our vision:

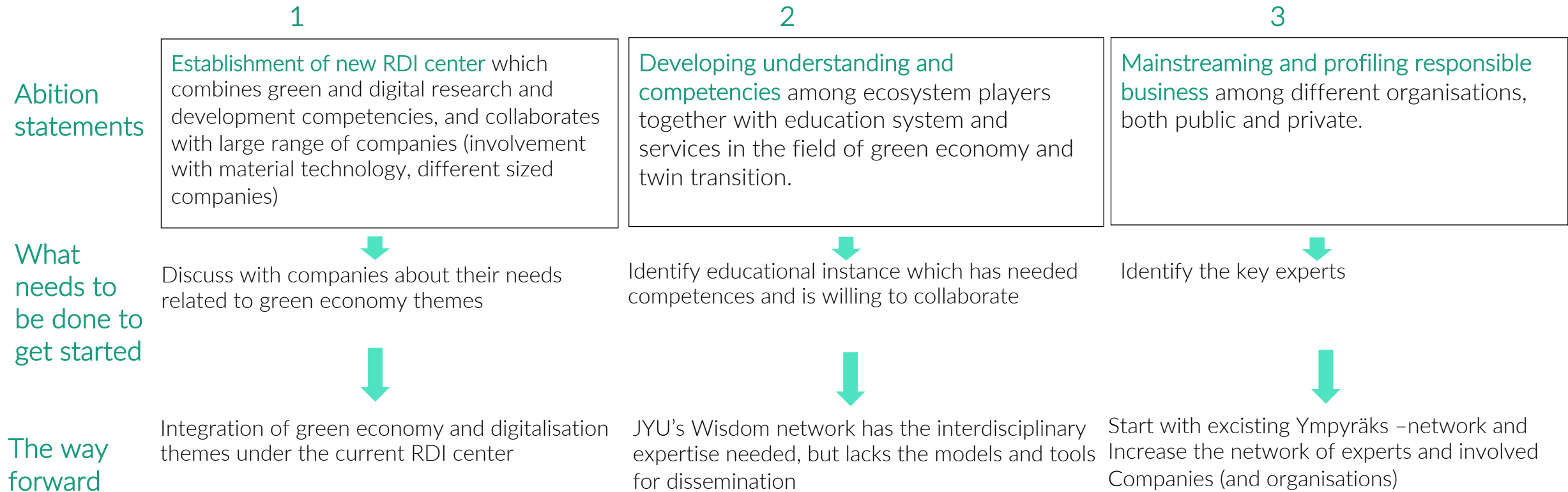
In **carbon-neutral Jyväskylä in 2030**, as a result of top research and cooperation between actors internationally known innovations in the bio and circular economy and successful business based on them have been built. In addition, responsibility crosses all companies and organizations, regardless of their field of activity.

Establishment of new RDI center which combines green and digital research and development competencies, and collaborates with large range of companies (involvement with material technology, different sized companies)

Developing understanding and competencies among ecosystem players together with education system and services in the field of green economy and twin transition.

Mainstreaming and profiling responsible business among different organisations, both public and private.

ICC strategy: Justification



ICC strategy: justification

The ICC strategy in Jyväskylä is all about putting forward the understanding, knowledge, competences and innovations related to Industry 5.0 or twin transition. As it aims at enhancing the development and deployment of green economy and digital solutions among companies, it has been built so that it takes into account the identified main challenges i.e. the varying levels of competences and resources among companies and shortages related to the collaboration culture.

One of the key principle for building the strategy has been the utilisation of the existing structures, resources and networks as there already exists numerous players and adding new ones only leads to the increased confusion among companies. Relying on the existing structures also enhances the sustainability of the solutions.

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Section

2

Jyväskylä: : Ambition and roadmap

ICC Transformation

February 2021 to May 2021

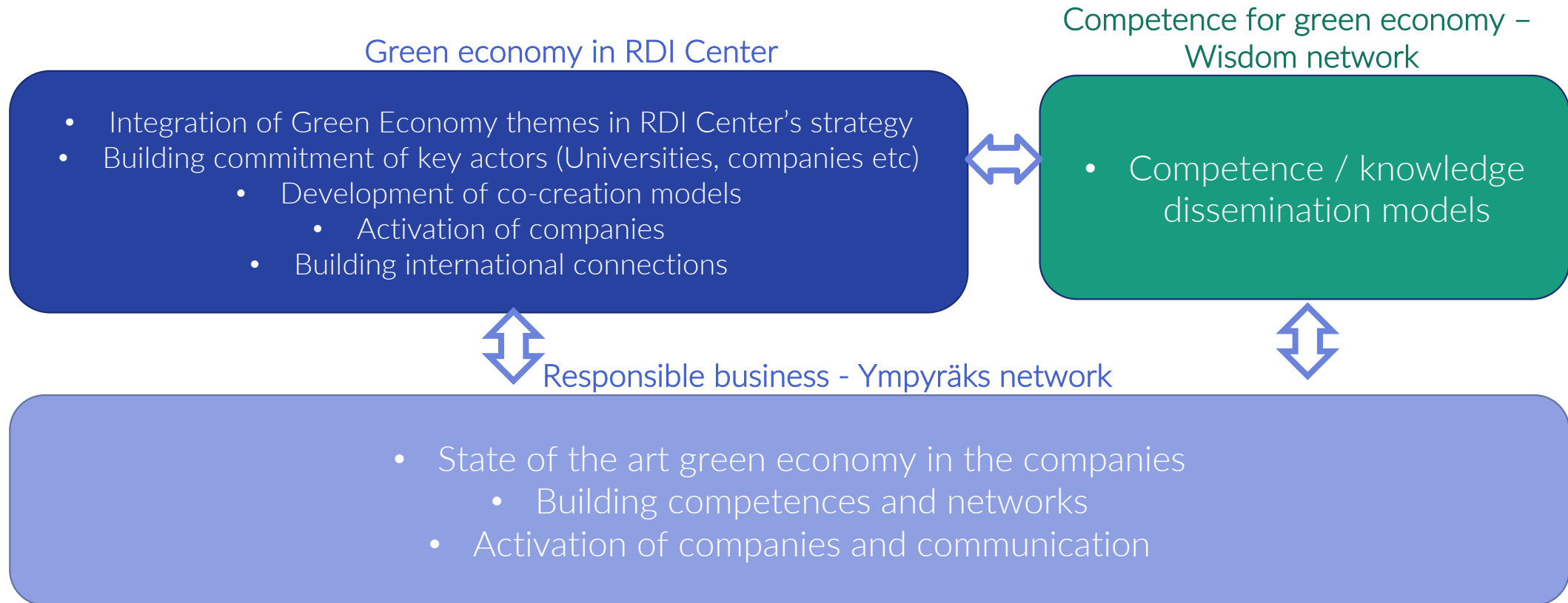


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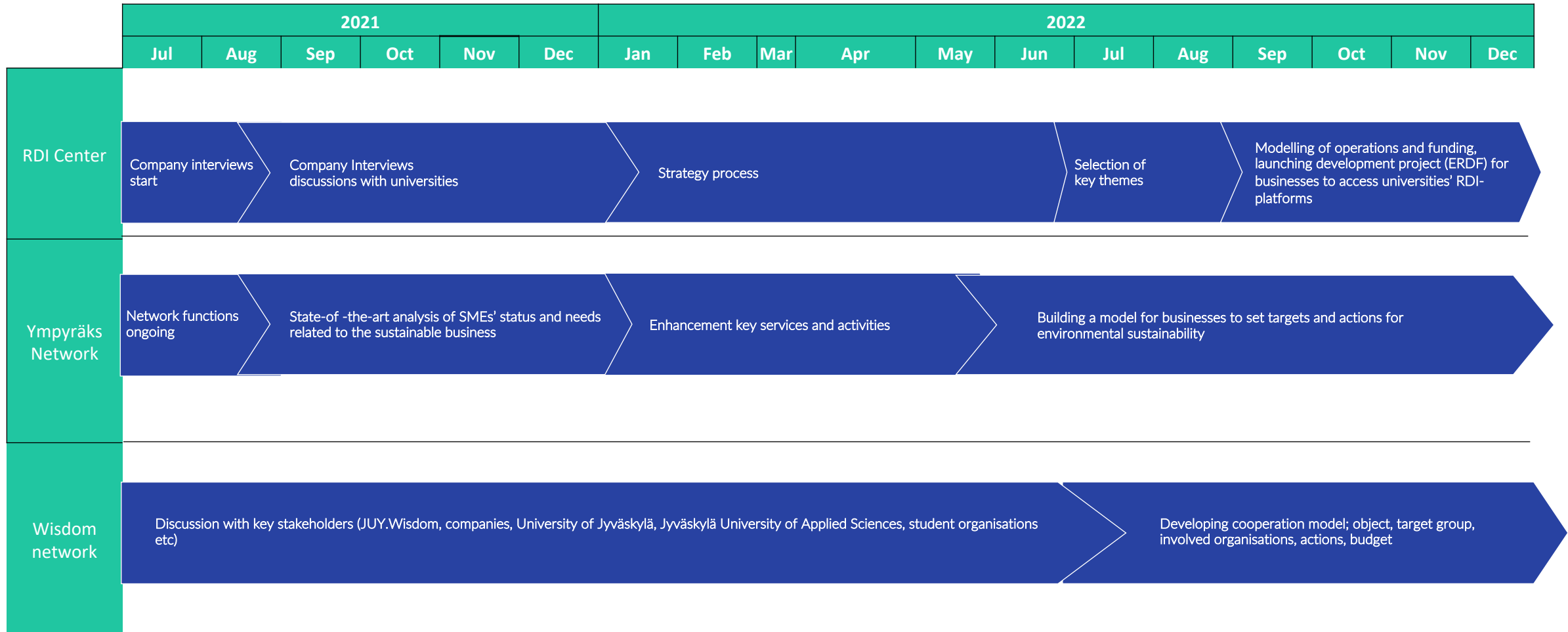
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Roadmap summary



High level implementation roadmap (“10000m plan” – updated version)



Rationale to road map

The green economy and responsible business themes were getting increased attention during the roadmap planning phase. Increased attention led to number of new initiatives in local and national level. This in on the other hand opened up new opportunities for funding, but on the other hand meant a need to take into account these initiatives and projects in the roadmap design.

The roadmap was planned during the time when the new city strategy was drawn up. This created some uncertainty during the design process.

The rationale in selecting the initiatives was to have initiatives that have already secured funding (Ympyräks network) or accepted as concept (RDI center) and to combine those with a new, and thus more risky one, Wisdom network.

Initiative charter: Green Economy in RDI-center

Strategy

Description An RDI-center with the aim of enhancing collaboration between higher education (HE) and business. Integration of green economy themes into RDI-center's strategy is important for ensuring the development of new green economy innovations.



Activities: integration of Green Economy in the RDI-center's strategy and building commitment of key actors; Development of co-creation models and activation of companies; making international connections

Link to vision



Supports creation of green economy (GE) innovations which are developed in cooperation between research and business. Supports creation of internationally known GE innovations developed in cooperation between HE and business.

Link to ambition statement Accelerating R&D cooperation in industry, in particular through the new R&D center



Expected impact and timing Potential for major green economy innovations in the immediate future. New relationships between companies and universities, increased collaboration between SMEs and universities. More international collaboration and visibility.



Support to Jyväskylä's aim to be carbon neutral by 2030.

Stakeholders involved

Solution lead: Business Jyväskylä



Solution working team: Business Jyväskylä (Timo Harju and Tanja Oksa)



Contributors: University of Jyväskylä, Jyväskylä University of Applied Sciences, Startup factory



Risks and mitigation



Not getting large companies and key researchers committed, other goals overriding green economy theme, not having companies' views taken into account during development, not getting key researchers involved

It is likely support will be needed from big companies, key researchers, HE institutions and other businesses

Facilitating regular dialogue between key stakeholders. Maintaining relationships with key actors. Identifying areas where compromise is possible in case of conflict.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost



Project with ERDF funding of 459000 € secured in August 2022. Project is used to support RDI activities between businesses and academia. The project will put focus on green transition and establishment of a local RDI center.

Solution maturity outputs



A new collaborative model is being developed to foster greater cooperation between HE and research institutions as well as the business sector (REACT-EU ERDF funded). Green economy priorities and company commitments have been defined. Industrial renewal ecosystem's green strategy has also been completed. Several starting projects supporting the initiative have received green light for funding. Key themes have been selected and discussions with several companies held. Discussions on strategy with universities are continuing.












City performance outcomes and impacts



The city is creating a common environment for RDI-activities fostering collaboration between HE and the business sector. This may entail the development of data platforms for knowledge-management, common arrangements to foster sustainable business operations and digital twins to enable effective transition to carbon neutrality in key areas. This will further be measured by number of new innovations (a KPI of the project mentioned), new co-creation projects, good practice examples, and fields for new international cooperation.



Initiative charter: Responsible business – YmpyräKS network

Strategy	Stakeholders involved	Inputs, outputs, outcomes and impacts
<p>Description</p>  <p>YmpyräKS network is a network for SMEs, and it is built around the theme responsible business. The goal is to form an overall picture of the state-of-the-art of the responsible business among SMEs, and to get companies interested in responsible business. Network also helps SMEs in recognising and tapping into opportunities of sustainability, and in developing sustainable business practices,.</p>	<p>Solution lead: Business Jyväskylä</p>  <hr/> <p>Solution working team: Business Jyväskylä (Tanja Oksa)</p> 	<p>Source of funding and estimated cost</p> <p>50 000 €, funding 2021-2022 (Ministry of the Environment)</p> 
<p>Link to vision</p>  <p>YmpyräKS network targets SMEs and thus it relates to sustainability and corporate responsibility cross all companies and organizations, regardless of their sector.</p>	<p>Contributors: Regional Council of Central Finland, Chamber of Commerce, local association for entrepreneurs, University of Applied Sciences</p> 	<p>Solution maturity outputs</p> <p>First round of data gathering is taking place. The project will yield data sets relevant to the project's goals of mainstreaming sustainability and corporate responsibility among businesses. This is measured by the number of participants and number of active companies.</p> 
<p>Link to ambition statement</p> <p>Mainstreaming sustainability and corporate responsibility</p> 	<p>Risks and mitigation</p>  <p>Not getting enough companies involved.</p> <p>Not getting Chamber of Commerce and local association for entrepreneurs on board to support the network.</p>	<p>City performance outcomes and impacts</p>  <p>A business questionnaire has been conducted by the Regional Council of Central Finland in collaboration with a few other projects. Analysis of the results is available in Finnish.</p>
<p>Expected impact and timing</p>  <p>Builds basis for SMEs' responsible business actions and responsible behaviour. Expected to have an impact in the immediate future (results will be realized in 2023).</p>		

Initiative charter: Competence for green economy – Wisdom Network

Strategy

Description



The objective of the Wisdom network is to increase awareness of recent research in the field of green economy and build competence / knowledge dissemination models from universities to companies. Additionally, helping companies to develop responsible business further by concrete advice from students. Network is linked to JYU.Wisdom – School for Resource Wisdom which is an open and transdisciplinary community which contemplates solutions for circular economy, responsibility, and sustainability in the use of natural resources.

Link to vision



Increasing competences related to sustainability and corporate responsibility across all companies and organizations, regardless of their sector.

Link to ambition statement



Developing understanding and competencies among ecosystem players in areas of green economy and twin transition together with education system and service providers.

Expected impact and timing



Increased awareness of the recent developments in green economy research. Concrete actions in the responsible business development among companies. This is an ongoing effort but results should begin to materialize in the immediate future.

Stakeholders involved

Solution lead: Business Jyväskylä



Solution working team: Business Jyväskylä (Tanja Oksa, Timo Harju and Iiris Asunmaa)



Contributors: University of Jyväskylä, Jyväskylä University of Applied Sciences, Jyväskylä Educational Consortium Grädia



Risks and mitigation



Failing to communicate in a way which attracts companies', universities' and students interest.

Challenges will include gaining support needed from the universities.

Inputs, outputs, outcomes and impacts

Source of funding and estimated cost



Budgetary funding via JYU, potential sources for development funding are being studied

Solution maturity outputs



This is measured by the number of companies involved, number of communicated research results, number of students involved. This process is still ongoing.

City performance outcomes and impacts



A business questionnaire has been conducted by the Regional Council of Central Finland in collaboration with a few other projects. Analysis of the results is available in Finnish.

Key Performance indicators

Solution	Activities – Inputs and actions	Solution Maturity - outputs	Overall performance – outcomes and impacts	Link to SDGs
RDI center	Establishing the RDI center Fixing resources (€ and personnel) from unis and companies Selecting 1-3 fields for international cooperation	Number of new collaborations Number of new co-creation projects Number of new good practice examples	Enhanced capabilities – survey data Revenue through new solutions (green and digital) Number of mentions in international media Number of new international collaborations Number of new innovations	8, 9, 11, 12, 13
Ympyräks network	Marketing the network to new SMEs Cocreating activities and services for the network (seminars, workshops, company clinics)	Number of participating SMEs Number of active SMEs	Decrease in the climate emissions caused by companies Enhanced performance and market position – survey data	7, 8, 11, 12, 13, 16, 17
Wisdom network	Organising of platforms and forums for exchange of ideas and networking	Number of companies involved Number of disseminated research results Number of students involved Number of new collaborations	Enhanced competence and credibility – survey data	2, 4, 6, 7, 11, 12, 13, 14, 15, 17

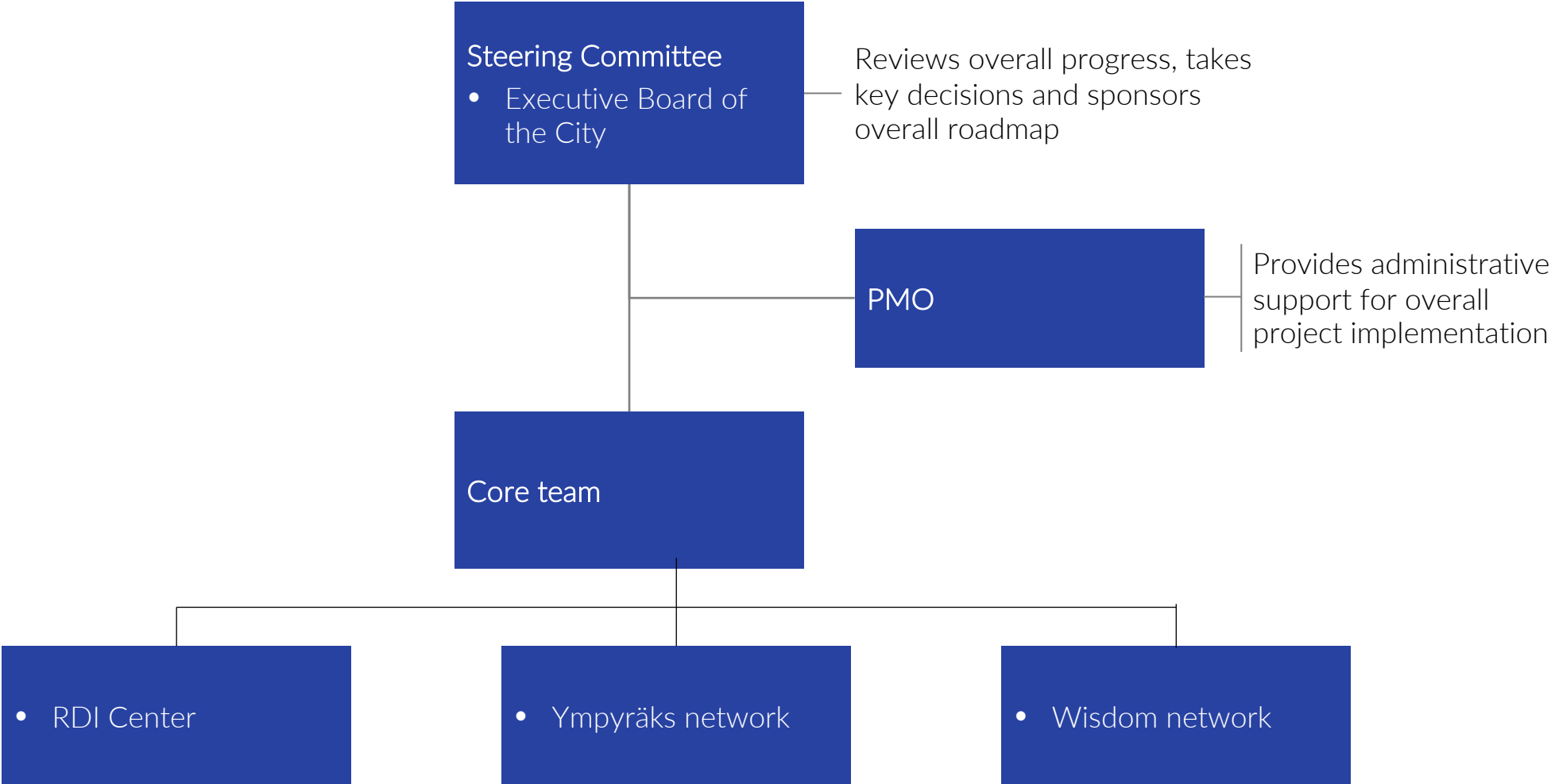
Rationale to KPI approach

As the solutions are still on the early phase, the data gathering procedures are not yet in place. Data for KPIs steam from numerous data sources, and most of them demand separate data collection procedures (e.g. survey).

As in case of new solutions, in many cases performance indicators cannot be measured until the end of solution implementation.

In some cases, when we use “general“ indicators it is not simple to distinguish solution impact on performance form other variables that can influence it.

Governance structure for roadmap implementation



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Section

3+4

February 2021 to May 2021



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Jyväskylä: Impact

ICC Transformation



Impact executive summary

The ICC process has enabled the City of Jyväskylä to consider green transition goals with an outward outlook. Instead of considering only "internal" challenges and options wide consideration has been given to the role of industry and business in taking steps towards carbon-neutrality. The current and potential role of academia has also been well identified. Creating a shared vision and understanding of green economy and twin transition was the key success of our ICC process, as it has generated various new projects and forms of collaboration.

Jyväskylä is deeply engaged in discussion with local industry and manufacturing industry on the concept of a regional "RDI center". However, the ICC process has given the discussion focus and depth in terms of green transition and how that relates to the resilience and continuity of industry that is under pressure to adapt to new situations and global requirements. The issues faced are not the kind that can be solved or addressed by any single party alone, but wide co-operation is required. The ICC has enabled interfacing with different parties in a meaningful manner.

The ICC shed light on the culture and ways we do development around the green economy in Jyväskylä. On one hand, it showed how much advanced solutions we are already creating in the city ecosystem, as they were put under a shared concept. On the other hand, the ICC showed that we still tend to do development in silos, and the resources (both time and money) are scarce. This posed a challenge to our ICC process: How do we get experts involved, when they are short on time? What makes the ICC to be THE project to focus on, when there is so much other projects to consider?

Building on to the ICC, we will continue to enable citizens, businesses and organizations to function in a resource-wise and responsible manner, simultaneously taking care of our green and pleasant environment and exceptionally diverse nature. Our aim for the upcoming years is to organize services in a sensible manner, using natural resources and green energy in a resource-wise fashion, reducing emissions effectively, and furthering the circular economy in diverse ways. We are committed to being climate neutral by 2030.

Assessment of solution maturity - discussion

During the ICC process, local stakeholders have joined forces to formulate a shared vision for a regional RDI Center. The primacy of green transition themes has been acknowledged. The actual "building" of the RDI center concept requires much more work, but the first project for moving forward the concept is about to be launched in October 2022. This so called "RDI Docking" project will lower the barrier between business and the academia, helping companies develop and implement green transition solutions. We have succeeded in commercialisation of research results, as companies are established based on VTT's bio- and wood-based fiber research.

The *Innovation Network and Logistics* project (ERDF-funded) has made inroads into commercialization of research-based innovations. The project is still ongoing, but the project team has already identified the need to provide support to innovations that support the green transition, but do not yet have commercial viability. This means that the city has recognized one more avenue for promoting green transition on grass-roots level.

YMPYRÄKS-network of business responsibility has gained foothold and stabilised its position during the ICC. YMPYRÄKS has become a key platform also for the business advocates and public organisations to come together and share about green economy.

Collaboration with JYU's WISDOM networks requires still effort and networking. As the cooperation is evolving with the core team, the focus of the collaboration should shift to involving more and more experts within the city organisation. We need to be able to connect the researchers and their top knowledge with the civil servants developing and delivering the green services to our citizens and local businesses.

When considering the KPIs, it needs to be acknowledged that in all City of Jyväskylä is still taking baby steps in data management and knowledge based leadership. We have recognised the KPIs but still lack the data sources. Fortunately, there are several on-going projects around developing this angle in the organisation, so maybe in the upcoming years we will see significant advancements in data management.

The City of Jyväskylä and local universities have identified the need to place even more focus on an international outreach, promoting and disseminating locally developed circular economy solutions, for example, in (and beyond) Europe.

Assessment of city performance - discussion

The city has been successful in helping the local University of Applied Sciences Jamk launch several projects under the ADDVA concept. The ADDVA projects (in which the city itself participates) aim to create **added value** for industry and have an intrinsic focus on green transition through material development and study as well as manufacturing efficiency (for example).

The ICC has coincided with other processes and development efforts that have helped the city start formulating a more concentrated approach towards international co-operation and EU-level funding. This understanding is shared especially with local academia. Supported by ICC, the city has also been able to benchmark and engage with other Finnish cities in order to raise the level of both understanding and ambition.

During ICC, in early 2021, City of Jyväskylä succeeded in negotiations with Finnish Ministry of Economic Affairs and Employment, and secured an ecosystem agreement for 2021-2027. The aim is to boost private RDI investments up to 4% of GDP, and locally support also the spearhead of renewing industry and bio and circular economy. This secures around 1 m€ ERDF funding for the area yearly (2021-2027). The agreement also requires and enables closer cooperation between universities and the city in green economy.

The ICC process has increased the know how skills needed to execute EU projects related to green transition. Actually, being part of the ICC has encouraged us to submit an application in the *Circular Cities and Regions Initiative*. Jyväskylä has been awarded a *Fellow* status in the program.

The ICC has been one accelerator of change in the ecosystem. The change towards circular and green economy is such and enormous challenge that the actions and measures need to be focused and targeted. In retrospective, our initial approach was far-reaching and comprehensive, but was soon fitted to smaller and more concrete actions. In the beginning and partly throughout the whole process, it has been challenging to vocalise for the over-booked experts the goals of the EU initiative and the added value the process brings. This has also lowered the pool of experts committed to the ICC – they are committed to the actions but do not see the larger initiative and agenda behind the daily work.

As to the city organisation, the ICC was not acknowledged as the main tool for city development in Jyväskylä, as it maybe were in some other cities. We have several projects and strategies overlapping the subject and, therefore, the ICC was considered as one project among the others. Also, in most Finnish cities, the political direction does not reach to everyday actions - such as, the ICC - that a directed by civil servants. The core project team had the authority to act quite independently, which on one hand made the work agile, but on the other hand, decreased the political importance of the ICC in the city organisation.

5 key lessons

Lesson	Reflections
1	Funding is essential to any development. Even the best of ambitions and plans require sufficient resources.
2	We need to be better prepared to vocalise the benefits of such initiatives as ICC to get stakeholders involved. As there are several overlapping projects and actions, the coordination of goals and ambitions is key.
3	Cooperation, network management and collaboration requires committed experts that have a spark and time resources for development.
4	Bridging research results and knowhow for the benefit of all stakeholders in the society – especially for businesses creating green and digital transformation
5	Communicating what we do and WHY is important to get the needed resources and actors involved. Consistency and repetition of the shared messages by all involved organisations strengthens the message.

Reflections on city collaborations

1. Actions for green transition are usually not rocket science, but everyday solutions for a greener future.
2. Even though the challenge caused by climate emergency is shared, the realities and urgent matters in different parts of Europe are not similar. Maturity of infrastructure and solutions vary greatly among cities. Every city has their own goals and ambitions that fit to their current situation.
3. When comparing to other cities, our internal coordination around the ICC was lighter. A key learning was that you get what you give – the ICC was not acknowledged as the main tool for city development in Jyväskylä, as it maybe were in some other cities.
4. We regret that the networking among other ICC cities was not at the focus of the program, since that was one of the main reasons the ICC caught our attention. The function of the peer review sessions during city labs remained a bit unclear, and could have been communicated better. We also worked a lot with the same 3 to 4 cities. However, the full online execution due to COVID-19 brought its own challenge to networking.

Commitments

Commitments to on-going resources

- Project manager working on Green Economy and transforming industry
- A dedicated team towards carbon neutral Jyväskylä 2030
- Intention to recruit one person dedicated to energy efficiency and green energy investments in co-operation with the regional energy company Alva Plc.
- An Interreg application has been submitted, *Green Industrial Areas*, with an intention to recruit a project manager focusing on evaluation, piloting and implementation of green solutions in industrial areas.

Commitments to on-going collaboration

- ERDF project for businesses to access universities' RDI-platforms (2022-2025)
- Securing the funding for continuation of YMPYRÄKS -network
- Ecosystem agreement between the Government of Finland and City of Jyväskylä until 2027
- Jyväskylä nominated as a fellow city in Circular Cities and Regions Initiative
- Updating Resource Wise Jyväskylä – program during 2022

Commitments to on-going KPIs

- Redefining common key KPIs with key stakeholders
- Strengthening knowledge management and data collection

3 Year plan - ambitions

Building on the ICC, what would the city aim to achieve in 3 years time?

1. We will continue the work with businesses to function in a resource-wise and responsible manner.
2. We want to increase the RDI actions of our private sector to accelerate green and digital transition starting from the needs of the companies.
3. For the next years, the energy crisis will pose a major threat especially to our industrial companies, and we need to help them (together with the academia), to find fast, green solutions to their production.

What steps will you take over the next 3 years to achieve these goals?

1. We will further develop the services provided by the YMPYRÄKS network to reach even more companies. We will develop a way for the companies to more formally commit to green economy and set their own goals and KPIs. We will study the opportunities to turn top research into action.
2. We will build bridges between the businesses and academia to accelerate new innovations. We will strengthen the dialogue between universities and SMEs to generate needs-based solutions for the economic life.
3. We are faced with a new challenge that we do not yet know how to process. We need to bring the industry, energy sector, academia and politicians together to find sustainable, green and affordable solutions to the new situation. We need to be greener in our energy consumption, and thus support and enable any new innovation in the field.