



# IRIS

Integrated and Replicable Solutions  
for Co-Creation in Sustainable Cities

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## Deliverable 10.12

### Communication highlights, insights and lessons learnt from IRIS

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# Executive Summary

The objective of this report is to provide an overview of the key highlights of the IRIS project in a communication friendly format so that the legacy of the project can be shared with a broader audience. The main body of work to be evaluated and reviewed for this deliverable is the “Inside Smart City Solutions” IRIS Magazine. In this sense, this document primarily acts as a means to support the formal submission of this body of work which involved contributions and efforts from a broad range of entities withing the partnership. Moreover, the document presents an innovative approach, which can used in events that want to delve deeper into the notion of replicability and extract replicable success factors from the successful implementations. Using personas described as champions, knights and boundary spanners, we explore the role of these personas in making trans-disciplinary collaboration between quadruple helix partners productive and innovative. These insights might prove helpful when starting new project initiatives in looking at team composition and partner alliances.

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# 1 Introduction

## 1.1 Scope, objectives and expected impact

The original scope of this Deliverable D10.12 within Work Package 10 'Communication and dissemination', was related to Task 10.1 'Best practices for communicating in and around smart city initiatives in Europe. A practical set of key takeaways for long-term engagement and uptake.' However, as much of the communication reporting was already covered extensively in other WP10 deliverables such as D10.5, D10.7, D10.8 and D.10.9, in agreement with the coordinator, the new WP10 leader changed the scope of this deliverable in order to achieve a broader purpose and impact by leveraging the best practices of the project as a whole. The new scope of this deliverable is now more closely related to Tasks 10.2 and 10.5.

As Task 10.2 focuses on communicating complex information effectively and in an eye-catching format, the best practices and results of the IRIS project, D 10.12 aims to actively embody this goal by converting the deliverable itself into a publication designed for widespread dissemination through the development of the IRIS Smart Cities Magazine: "Inside Smart City Solutions". The magazine chronicles project highlights with descriptions and testimonials of the experiences from the people who participated in the project: from snapshots of the key technologies developed such as vehicle-to-grid charging, second life batteries, building retrofitting and innovative mobility services, to examples of young citizens taking the lead in making their neighbourhoods safer and cleaner, to a look at how European collaboration takes place, the challenges it can present, and what lessons can be learned from this experience so that managing city innovation in future can become a bit easier for everyone. In this formal deliverable we will provide some short insights to the process of creating the magazine, however the main output to evaluate 10.12 should be the magazine itself.

Task 10.5 on the other hand focuses national and international events. Here D10.12 aims to give some insights and outcomes on the design methodologies adopted in relation to the large SCC community event organised by IRIS: "Moving from solutions to system change" which was dedicated to the theme of replicable success factors in innovation projects

In this sense, the D10.12 serves to communicate the project and disseminate of project's results, in support of knowledge transfer and replication through the Magazine as well as present an innovative approach to event organisation that can help capture the lessons learned from participants involved in smart city projects. To this end, the key target of group of the IRIS magazine and SCC community event are/were generally professionals working in the smart city space.

## 1.2 Contributions of partners

Contributions to this Deliverable have been provided by all key IRIS partners, with a particular emphasis on an editorial team composed of representatives from ESCI, UTR, HKU, UU and USI.

## 1.3 Relation to other activities

Deliverable D10.12 is related to the following other IRIS Tasks / Deliverables:

- T10.1 Communication and Dissemination Plan and Secretariat / D10.10 and D10.11: First and Second update of Communication and Dissemination Plan, as this deliverable reflects the continuous updating of the C & D strategy to best support the needs of the project.
- T10.2 Compelling IRIS content for distribution to high volume digital and mass media
- T10.5 National and international events

## 1.4 Structure of the deliverable

In the first part, this paper acts as a formal tool for submission of the deliverable that takes the form of the IRIS Magazine. The contents of the IRIS magazine include 11 chapters or sections:

Chapter 1 focuses on the key highlights from the Utrecht demo sites, chapter 2 on the key highlights from the Gothenburg demo sites, chapter 3 from the Nice demo sites and chapter 4 gives insights and recommendations from the Fellow cities. After this point we have a series of chapters dedicated to highlights from the several cross cutting and transversal activities done in the frame of IRIS: chapter 5 and 6 talk about the challenges and fun of European collaboration, chapter 7 is dedicated to citizen engagement activities, chapter 8 to monitoring and evaluation, chapter 9 to city innovation management, chapter 10 to the IRIS / scalable cities community event and chapter 11 to some concluding remarks from the project coordinators.

In this document we will only briefly touch upon the methodological / operative steps that helped to bring this IRIS magazine project to life. The full Magazine is available in the Annex B.

In the second part, this paper provides insights to the “lenses design” methodology used during the Moving from solutions to systems change. It includes descriptions of the 6 lenses used. The full paper “Replicable success factors in innovation projects” is available in the Annex A.

## 2 Presenting the key highlights of the IRIS project

### 2.1 Building the Editorial team

The IRIS magazine embodies the collaborative spirit fostered through the project. An editorial team was set-up between ESCI, the Municipality of Utrecht, HKU, the University of Utrecht and affiliated Utrecht Sustainability Institute.

From September 2022 onward, led by ESCI, the editorial team would meet on a regular basis to discuss the basic framework for the IRIS magazine which was to not capture all the project but the most remarkable examples, lessons learned, unique spillovers and deliver it in an honest and informal tone.

Once a basic concept was agreed upon, the team took advantage of the IRIS project meeting in Nice on 28<sup>th</sup> September 2022 to propose it to the rest of the consortium and brainstorm and collect ideas for content ideas.

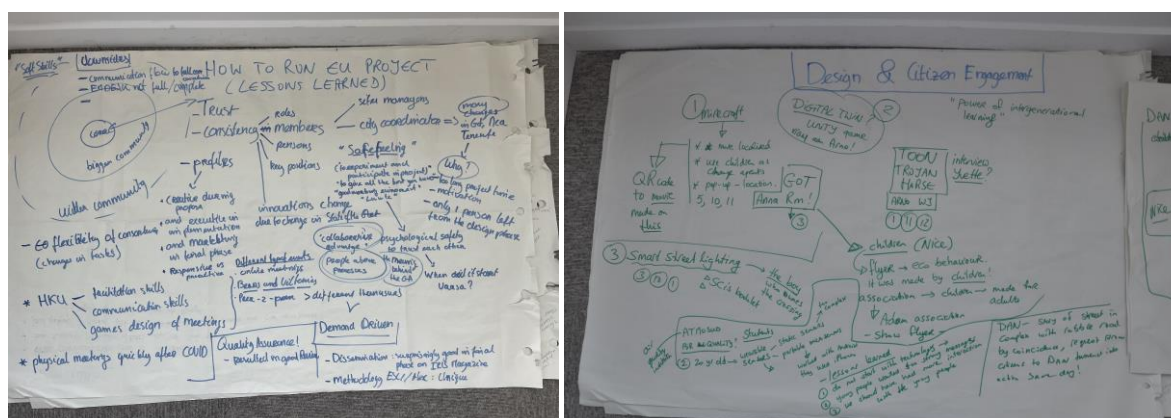


Figure 1 Samples of initial outcomes of IRIS Magazine brainstorm exercise



Figure 2 Group work for IRIS Magazine brainstorm

After the initial brainstorming exercises were performed the editorial team evaluated the feedback and refined the magazine concept and form through an iterative process, defining more clearly the chapters and kind of content to include. Once a suitable first mock-up was designed, we asked for a second wave of inputs to the rest of the partnership, which included drafts of short articles, photos, diagrams, and activity times lines. Once all the material was gathered, the editorial team proceeded to edit all the content and put it together in a cohesive and concise manner.



## 2.2 IRIS Magazine – INSIDE SMART CITY SOLUTIONS

The resulting output from this collaborative effort was a 64-page booklet including many of the key highlights from the project written in an accessible style and powered by several hyperlinks and QR codes for readers of both print and digital versions to follow up on. A preview version of the booklet was shared during the IRIS Final conference with the definitive edition being released in the last week of the project.

See Annex B for the PDF. A separate PDF is also available through the following link:

<https://irissmartcities.eu/the-iris-magazine-project-highlights-from-the-past-five-years/>



Figure 3 IRIS Magazine - Cover



## Introduction

Over five years ago, in 2017, a large group of people from all over Europe embarked upon an innovation journey to make their cities more sustainable and improve the quality of life of their fellow citizens. They wanted to provide solutions to significantly increase their cities' overall energy and resource efficiency through actions addressing the building stock, energy systems, mobility, and air quality as well as informing and engaging with their inhabitants on their proposed solutions. Through the EU funded IRIS Smart Cities project, three cities – Utrecht, Gothenburg and Nice – also known as "lighthouse cities", would work together to realise these goals. Another four cities – Vaasa, Alexandroupolis, Santa Cruz de Tenerife and Focșani – also known as "Follower cities" would take close notes on what the Lighthouse cities were doing, figuring out how their proposed innovations could be also implemented in their local contexts as well as share some sustainability tips of their own.

The IRIS Smart Cities Magazine chronicles some of the highlights of this journey: inside you will find descriptions and testimonials of the experiences from the people who participated in this project: from snapshots of the key technologies developed such as vehicle-to-grid charging, second life batteries, building retrofitting and innovative mobility services, to examples of young citizens taking the lead in making their neighborhoods safer and cleaner, to a look at how European collaboration takes place, the challenges it can present, and what lessons can be learned from this experience so that managing city innovation in future can become a bit easier for everyone.

We first tour the lighthouse cities, finding out how Utrecht, Gothenburg, and the Nice Côte d'Azur region are using innovative solutions to redistribute energy to where it's needed, reduce emissions, and transform apartments into nearly zero-energy buildings. We then see how these solutions are being replicated in the follower cities of Alexandroupolis, Santa Cruz de Tenerife, and Focșani. Following this we look at how our project flourished at the continental scale in the European Collaboration section, and at the local scale with Citizen Engagement. There are key lessons for the future in City Innovation Management and we discuss the fun (yes, fun!) of European Collaboration projects. Finally we finish with how the project changed how we investigate smart cities and how the IRIS project will live on.

We hope you will enjoy this read, follow up on the numerous hyperlinks within, and take inspiration from our experiences, technologies and ideas presented.



Figure 4 IRIS Magazine - Introduction

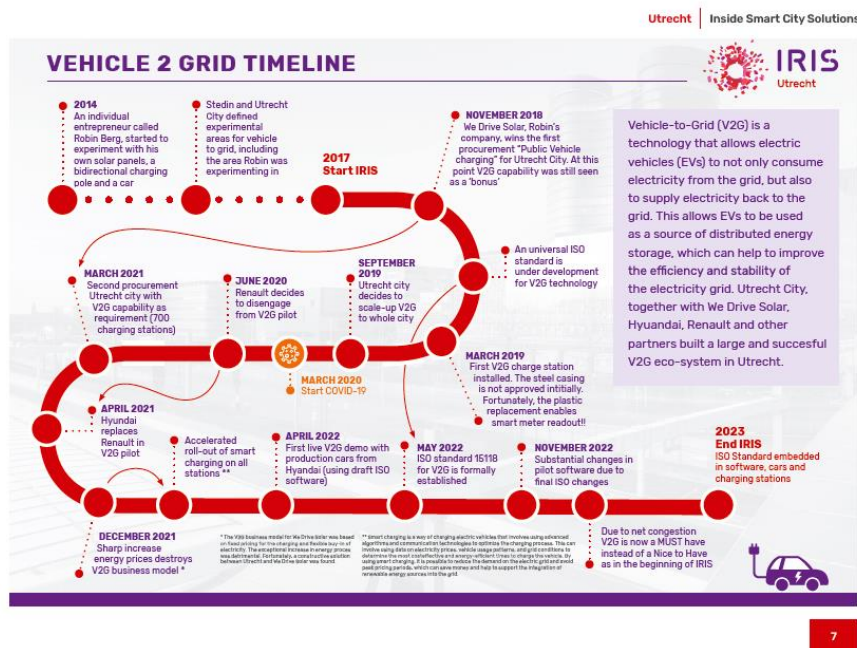


Figure 5 IRIS Magazine – Timeline example



Inside Smart City Solutions | Gothenburg

## Giving buildings energy storage through second-life batteries

Volvo Group wanted to explore if used bus batteries could be used as energy storage in residential buildings. Johanneberg Science Park connected two collaborative flagship projects – ElectrifyCity, running an electric bus line through Gothenburg and Positive Footprint Housing. A demonstration project was created and accepted as part of the IRIS project.

In the summer of 2018, 14 batteries from the Volvo-produced buses were installed in a specially designed room in Viva. When the batteries no longer have power to serve the buses, it still has about 80 percent of its capacity left. While too limited to efficiently propel a bus, it is more than sufficient for the static use of energy storage of solar energy in an apartment building, for example.

After the pilot in Viva, Volvo Group has taken several steps towards commercialisation of the second-life concept. At the end of 2019, the company started a cooperation with Stena Recycling subsidiary, Batteryloop, where the bus batteries become part of a business cycle. Because of an expected global increase of used bus batteries, along with the potential of second-life batteries, the Volvo Group launched the new business area Volvo Energy in early 2021.

"The research project in Viva was the basis for us taking the next step with Stena and Batteryloop. The third step into a new business area really shows that there are high expectations for the commercial potential of second-life batteries," says Stefan Widlund, City Mobility Director at Volvo Buses.

"A lot of knowledge has been gained in Viva," said Ylva Gjöfsson System Design Engineer at Volvo GTT, Powertrain Engineering. "For example, the batteries in the storage are ageing slower than expected which is positive. But safety issues make it expensive to build the storage within the building itself. Later installations put the storage in a separate building. We also learnt a lot about the contracts and agreements that were needed when many stakeholders are involved" she said.

"This is an example of how the demonstration phase is important to gain knowledge and experience, but it doesn't stop there – it is only when scaled up that these innovations can benefit society by both creating economic growth and using natural resources more efficiently. We have also contributed to building new networks and connections and who knows what new synergies can come out of that" said Eva Pavic, project manager for IRIS Gothenburg at Johanneberg Science Park.



The batteries are installed in a specially designed room in the building



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Figure 6 IRIS Magazine – Solution presentation example



Figure 7 IRIS Magazine – Lighthouse City Cover



## Building a transdisciplinary innovation team

Further research exploring the lenses has led to new insights in the three lenses dealing with specific roles and capacities. Three characteristics sets were identified as critical parts of successful transdisciplinary innovation teams. Being labeled for this research project as the "Knight", the "Champion" and the "Boundary Spanner" role. A role can be taken up by more than one person.

The three roles share a number of critical values and skills though they differ in position.

1. "Champion" characteristics in a team point to being a visionary leader with storytelling qualities. Access to financial resources and room in regulations to explore innovative solutions characterise the enabling capacity. These qualities rely on co-dependency with "Knight" characteristics.
2. Knights will be found in a governmental support role for innovation. This role is characterised by the capacity and willingness to change or influence regulations, regulations and other governmental instruments to foster innovation with a 'can do' mentality. Both "Champions" and "Knights" rely on a third set of qualities in the "Boundary spanner".
3. The Boundary Spanner combines connecting capabilities to build and unlock informal and formal networks. They are able to help champions and knights to navigate through complex problem spaces making use of timing, ideas, creativity, intuition, and cultural sensitivity.

When Knights, Champions and Boundary Spanners characteristics are embedded in a team, their mutual complementarity, trust and collaboration can be a strong impetus for success in innovation projects.



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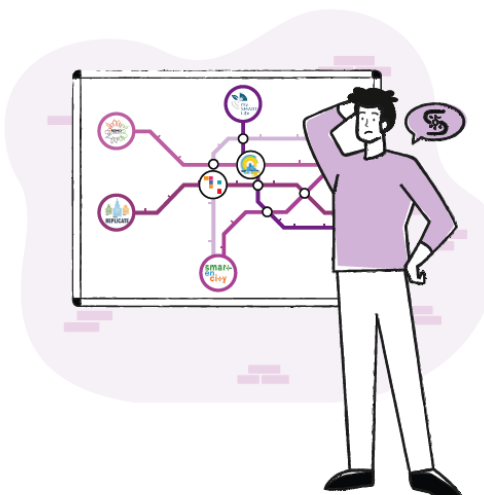
Figure 8 IRIS Magazine – Horizontal topic example 1

## Understanding the EU collaboration network

When we conceived the IRIS project in 2016–2017 there were nine Lighthouse projects, with the European Innovation Platform on Smart Cities and Communities (EIP-SCC) as the dedicated platform for collaboration. By the end of IRIS in 2023, the Lighthouse projects had doubled to eighteen and the Smart City Market Place (SCMP) and the Smart City Information System (SCIS) consortia had been established as second and third collaboration platforms. After this, EIP-SCC and SCIS were incorporated in the SCMP consortium, while the Scalable Cities consortium was established in support of the Board of Coordinators (BoC) of the 19 Lighthouse projects. The 19 Lighthouse projects and the 19 SCMP projects were selected under the Horizon Europe Mission on Smart and Climate-Neutral Cities to also support selected cities in scale-up and replication of smart solutions for climate neutrality.

This evolution in collaboration towards a 'network of networks' while presenting many new great collaboration opportunities, also made it more challenging for IRIS partners to keep informed on the latest details and openings. The sheer number and the interconnectedness of the possibilities seemed to lead some IRIS partners to shy away from what they called "a collaboration congestion".

We needed to jump forward and be at the heart of the "collaboration congestion" if we wanted to keep track, contribute, and make the most of the opportunities. In 2018 the IRIS Task Group on Replication met with the EU in Brussels to discuss barriers and drivers for scale-up and replication. Inspired by this meeting, IRIS chose to become chair of the Task Group Replication in 2019.



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Figure 9 IRIS Magazine – Horizontal topic example 2

## 3 Moving from Solutions to Systems Change

In June 2022 the IRIS project, together with the Smart Scalable Cities community, organized an event in Utrecht to delve deeper into this -often problematic- notion of replicability, called “Moving from solutions to systems change”. Six successful implementations of integrated solutions from across Europe in all Lighthouse projects were curated as keynote stories on stage in the morning. In the afternoon, in breakout sessions each story was ‘forensically’ queried by all participants using six so called lenses. These lenses were based on careful analysis of the deployment of integrated solutions within the IRIS innovation ecosystem, to be stress-tested at the event itself, involving 140 Lighthouse and Follower cities representatives from across Europe (involving 120 cities in 18 Lighthouse projects).



*Figure 10 Moving from solutions to systems change conference*

### 3.1 Six lenses to identify underlying success factors

The inquiry into factors underpinning successful implementations lead to the formulation of six initial lenses to query these stories. Three lenses focused on process related factors and three lenses focused on specific individual profiles in the context of quadruple helix innovation eco- systems. Initially three process lenses were defined for use in the event.

### **3.1.1 Informal networks and events lens**

This lens focusses on the role and importance of informal networks and meetings to propel innovation processes forward. We proposed that not all critical decisions are solemnly taken in large formal meetings. Many interventions are prepared in smaller, bilateral often informal get-togethers to prepare for decision making, to shape proposals, or to find solutions for roadblocks in the progression of the innovation project.

### **3.1.2 The importance of meaning and culture**

This lens focusses on the importance of (local) culture and (cross-cultural) meaning of terms which lead to misunderstandings or instead reinforce success of a project. Cultural misunderstandings or sensitivity can make a substantial difference in the effectiveness of sharing insights or formulating solutions, especially in a project covering many European countries, cultures and histories that shape local circumstances. But cultures also include organizational cultures, or differences between a city council perspective, a company perspective, or a knowledge institution perspective. These differences cover aspects like speed of decision making, complexity of organizational structures, values, work ethics etc.

### **3.1.3 The importance of (sense of) timing and chance**

Many key events in IRIS project related to issues of timing and often chance. The ability to find the right timing for interventions appeared to be a key aspect of success in some cases. Sometimes this meant to intentionally delay an intervention for the circumstances to turn in favor of a particular intervention. In other instances, a chance event was recognized in time to speed up a process.

The second set of lenses made in inquiry in the role of individual characteristics of key individuals within the innovation ecosystem. These characteristics were shaped into three personae, based on analysis of key events in the project and their connected key players. We decided to use metaphorical depictions for each profile based on association with their characteristics. Although the terms champion and knight suggest a male prevalence, this is by no means intended.

### **3.1.4 The champion lens**

A champion is a pivotal figure head in a project taking frontal stage representing that project. The champion is a figure head in a particular innovation project, being visionary on a particular idea. A champion is a good storyteller, using their public profile to bring the innovation narrative to the stage. A key trait of a champion is perseverance since their ideas often pre-empt a wider mainstream recognition. They often need time for their ideas to be recognized and accepted as a valid scenario for future developments.

### **3.1.5 The knight lens**

The knight is a pivotal player, often a policy maker or decision maker in a governmental role. Their role is to use their position related to policy making, regulations, subsidies, and other governmental instruments to make innovations possible whenever current legislation or (legal) practices provide roadblocks for innovative actions.

### 3.1.6 The boundary spanner lens

The third lens we identified is the role of the boundary spanner. This is a pivotal -yet not always visible- role in contributing to key aspects of the success in an innovation ecosystem. Within the system their role is to link an organization's internal networks with external sources of information. They act as connectors, while at the same time providing ideas and concepts to solve complex issues and provide momentum for innovation in support of both knights and champions.

## 3.2 Follow-up Research

The outcomes of the various workshops provided many insights in the occurrence of these lenses in the six curated narratives in the event. These insights and responses from the participants supported the idea to build on these initial lenses and follow this trail of inquiry in the remainder of the project as a sub strand of research activities.

Between June 2022 and March 2023 40 interviews were conducted with key players in the wider IRIS consortium to expand and verify the assumptions on the initial formulation of the persona. Because of the limited time frame and the outcomes of the SCC event it was decided to focus primarily on the role of the persona lenses. This was also based on feedback of participants stating that the process lenses, in their discussions at the event, were often traits or qualities personified by the persona lenses.

The interviews were conducted by two anthropologists using associative trigger cards. In the later stage of inquiry, these were substituted by cards representing recurring qualities identified in the first round of interviews to validate the persona descriptions.

The results of this research exploration additional to the original project description resulted in a summary paper that is presented in the Annex A.



Figure 11 Lens exercise impressions 1



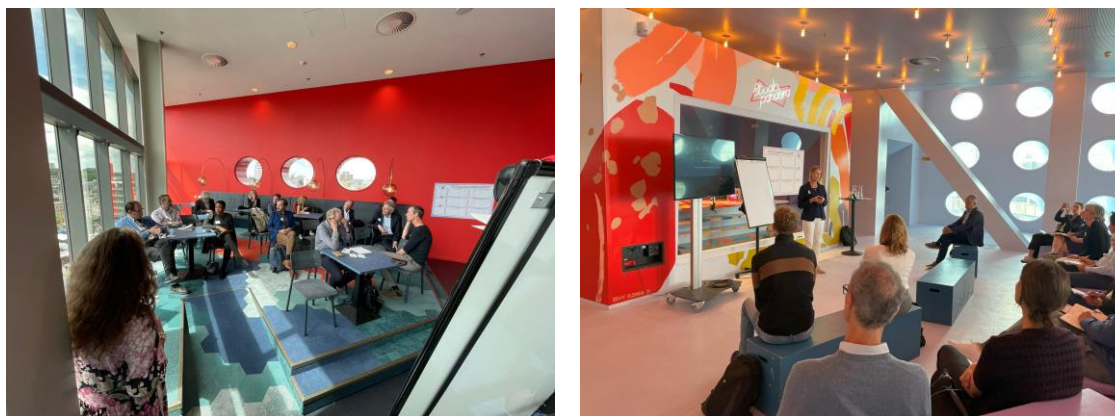


Figure 12 Lens exercise impressions 2

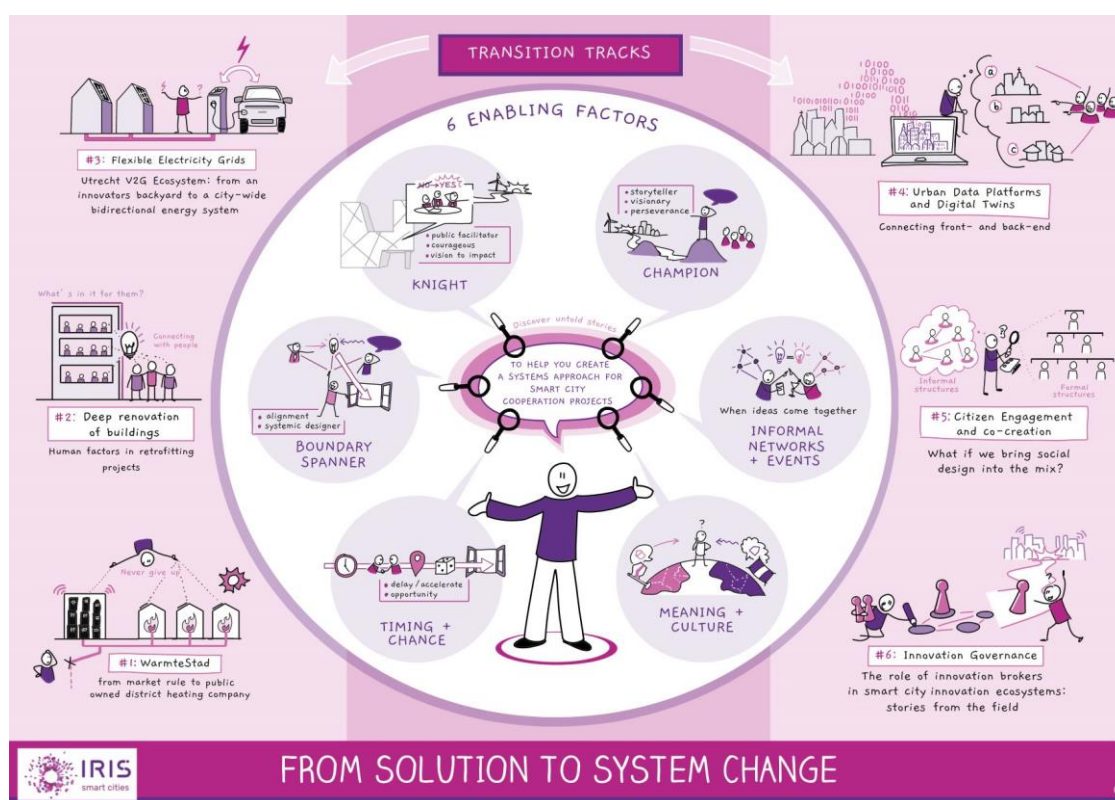


Figure 13 Lens exercise summary infographic



## 4 Conclusions

This Deliverable D10.12, through the form of the IRIS Magazine, summarizes the activities and results of IRIS in an effort to capture lessons learned and distil recommendations for future city innovation projects. It also presents an innovative approach to event organisation, which can be used in events that want to delve deeper into the notion of replicability and extract replicable success factors from the successful implementations.

The IRIS Smart Cities Magazine includes many descriptions and testimonials of the experiences from the people who participated in this project: from snapshots of the key technologies developed such as vehicle-to-grid charging, second life batteries, building retrofitting and innovative mobility services, to examples of young citizens taking the lead in making their neighborhoods safer and cleaner, to a look at how European collaboration takes place, the challenges it can present, and what lessons can be learned from this experience so that managing city innovation in future can become a bit easier for everyone.

The magazine starts with a tour of the lighthouse cities, finding out how Utrecht, Gothenburg, and the Nice Côte d'Azur region are using innovative solutions to redistribute energy to where it's needed, reduce emissions, and transform apartments into nearly zero-energy buildings. It then takes a look at how these solutions are being replicated in the follower cities of Alexandroupolis, Santa Cruz de Tenerife, and Focșani. It then provides insights on how the project flourished at the continental scale in the European Collaboration section, and at the local scale with Citizen Engagement. There are key lessons for the future in City Innovation Management and also reminders of the fun that can be had in European collaboration projects.

In sum, the IRIS Magazine is a great tool to support the legacy of the project by allowing easy access to these key takeaways and let them live on within the partnership and professionals operating within the Smart City space, including within the European Commission led umbrella organizations like Scalable Cities and Smart City Market place, acting as a source of inspiration to all readers.

The innovative approach to event design as the one used during the Moving from solutions to systems change used personas described as champions, knights and boundary spanners to explore the role these personas have in making trans-disciplinary collaboration between quadruple helix partners productive and innovative. These insights might prove helpful when starting new project initiatives in looking at team composition and partner alliances.

# Annex A

## Replicable success factors in innovation projects

### From solutions to systems change

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**Abstract**—This paper explores the role of key individual persona as pivotal roles in successful quadruple helix innovation projects. Using persona described as champions, knights and boundary spanners, we explore the role of these persona in making trans-disciplinary collaboration between quadruple helix partners productive and innovative. These insights might prove helpful when starting new project initiatives in looking at team composition and partner alliances.

**Keywords:** *citizen engagement - design driven innovation- smart scalable cities - H2020 - replicable solutions*

### **An introduction to the IRIS project**

From the 1st of October 2017 until the 31st of March 2023 we participated in the IRIS project (Integrated and Replicable Solutions for Co-Creation in Sustainable Cities). The IRIS project supported the Lighthouse cities of Utrecht (NL), Göteborg (SE) and Nice Côte d’Azur (FR) and their Fellow cities Vaasa (FI), Alexandroupolis (GR), Santa Cruz de Tenerife (ES), and Focsani (RO) to address their urgent need to deliver energy and mobility services in their cities that are cheaper, better accessible, reliable, and that contribute to a better and more sustainable urban quality of life.

By demonstrating smart solutions that integrate energy, mobility, and ICT, rooted in a City Innovation Platform, IRIS quantified their value, and connected interests of many different stakeholders in innovative business models, in order to allow for upscale and replication of integrated solutions for sustainable cities across Europe and world-wide.

To achieve this, IRIS worked along five Transition Tracks based on common challenges, encompassing 16 integrated solutions that cities can mix and match according to their characteristics and district specific needs. Track 1 (Smart renewables and closed-loop energy positive districts), 2 (Smart energy management and storage for flexibility) and 3 (Smart e-mobility) to enhance energy efficiency and utilize grid flexibility by balancing supply and demand dynamically and by using 2nd life battery and V2G storage, to allow increase of renewable energy

production and roll-out Smart Energy Management and Storage for Grid Flexibility of e-cars and e-buses. Track 4 (City Information Platform) supports this by data sharing, a common architecture, use of standards, and governance practices accelerating innovation, standardization and implementation of affordable smart applications. Track 5 (Co-creation and citizen engagement) integrates interdisciplinary citizen engagement and co-creation in Tracks 1 to 4, connecting the needs of end-users with those of other stakeholders, in further support of innovative business models.

### **The notion of replication**

The IRIS project is part of a program for Smart Cities called Lighthouse projects. As stated on the Cordis website of the EU, “... the Smart Cities and Communities lighthouse projects are funded by the European Commission through the Horizon 2020 research and innovation program, with the aim of bringing together cities, industry and citizens to demonstrate solutions and business models that can be scaled up and replicated, and that lead to measurable benefits in energy and resource efficiency, new markets and new jobs”.

In this statement, the notion of replication is introduced. With replicable solutions, the European Commission is looking for integrated solutions for sustainable development, pioneered by cities called ‘Lighthouse cities’, which can subsequently be adopted by “Follower cities”, as part of Lighthouse project consortia, including industry and citizens (and knowledge institutions) hinting at quadruple helix consortia.

In the execution of the project, we encountered many challenges in the replication of integrated solutions with our fellow cities. Many of the integrated solutions appeared to be too costly, too complex, or not yet relevant for the state of the development in these partner cities. When switching to a more demand driven approach, all fellow cities wanted to know more about the conditions of change that enabled the Lighthouse cities to be able to implement these integrated solutions in the first place.



## Moving from solutions to system change

In June 2022 the IRIS project, together with the Smart Scalable Cities community, organized an event in Utrecht to delve deeper into this -often problematic- notion of replicability, called “Moving from solutions to systems change”. Six successful implementations of integrated solutions were curated as keynote stories on stage in the morning. In the afternoon, in breakout sessions each story was ‘forensically’ queried by all participants using six so called lenses. These lenses were based on careful analysis of the deployment of integrated solutions within the IRIS innovation ecosystem, to be stress-tested at the event itself, involving 140 Lighthouse and Follower cities representatives from across Europe (involving 120 cities in 18 Lighthouse projects).

### Six lenses to identify underlying success factors.

The inquiry into factors underpinning successful implementations lead to the formulation of six initial lenses to query these stories. Three lenses focused on process related factors and three lenses focused on specific individual profiles in the context of quadruple helix innovation eco-systems. Initially three process lenses were defined for use in the event.

### Informal networks and events lens

This lens focusses on the role and importance of informal networks and meetings to propel innovation processes forward. We proposed that not all critical decisions are solemnly taken in large formal meetings. Many interventions are prepared in smaller, bilateral often informal get-togethers to prepare for decision making, to shape proposals, or to find solutions for roadblocks in the progression of the innovation project.

### The importance of meaning and culture

This lens focusses on the importance of (local) culture and (cross-cultural) meaning of terms which lead to misunderstandings or instead reinforce success of a project. Cultural misunderstandings or sensitivity can make a substantial difference in the effectiveness of

sharing insights or formulating solutions, especially in a project covering many European countries, cultures and histories that shape local circumstances. But cultures also include organizational cultures, or differences between a city council perspective, a company perspective, or a knowledge institution perspective. These differences cover aspects like speed of decision making, complexity of organizational structures, values, work ethics etc.

### The importance of (sense of) timing and chance

Many key events in IRIS project related to issues of timing and often chance. The ability to find the right timing for interventions appeared to be a key aspect of success in some cases. Sometimes this meant to intentionally delay an intervention for the circumstances to turn in favor of a particular intervention. In other instances, a chance event was recognized in time to speed up a process.

The second set of lenses made in inquiry in the role of individual characteristics of key individuals within the innovation ecosystem. These characteristics were shaped into three personae, based on analysis of key events in the project and their connected key players. We decided to use metaphorical depictions for each profile based on association with their characteristics. Although the terms champion and knight suggest a male prevalence, this is by no means intended.

### The champion lens.

A champion is a pivotal figure head in a project taking frontal stage representing that project. The champion is a figure head in a particular innovation project, being visionary on a particular idea. A champion is a good storyteller, using their public profile to bring the innovation narrative to the stage. A key trait of a champion is perseverance since their ideas often pre-empt a wider mainstream recognition. They often need time for their ideas to be recognized and accepted as a valid scenario for future developments.

### The knight lens.



The knight is a pivotal player, often a policy maker or decision maker in a governmental role. Their role is to use their position related to policy making, regulations, subsidies, and other governmental instruments to make innovations possible whenever current legislation or (legal) practices provide roadblocks for innovative actions.

### **The boundary spanner lens.**

The third lens we identified is the role of the boundary spanner. This is a pivotal -yet not always visible- role in contributing to key aspects of the success in an innovation ecosystem. Within the system their role is to link an organization's internal networks with external sources of information. They act as connectors, while at the same time providing ideas and concepts to solve complex issues and provide momentum for innovation in support of both knights and champions.

### **Follow-up research**

The outcomes of the various workshops provided many insights in the occurrence of these lenses in the six curated narratives in the event. These insights and responses from the participants supported the idea to build on these initial lenses and follow this trail of inquiry in the remainder of the project as a sub strand of research activities.

Between June 2022 and March 2023 40 interviews were conducted with key players in the wider IRIS consortium to expand and verify the assumptions on the initial formulation of the persona. Because of the limited time frame and the outcomes of the SCC event it was decided to focus primarily on the role of the persona lenses. This was also based on feedback of participants stating that the process lenses, in their discussions at the event, were often traits or qualities personified by the persona lenses.

The interviews were conducted by two anthropologists using associative trigger cards. In the later stage of inquiry, these were substituted by cards representing recurring qualities identified in the first round of interviews to validate the persona descriptions.

### **Refined persona descriptions**

Based on the interviews, we identified patterns that helped to refine the persona descriptions in more detail. Topics of inquiry were characteristics (like underlying values of work), enabling factors, interdependencies between the three persona and definitions of excellence as well as looking for shared values and skills they would have in common.

### **The champion revisited.**

A champion is a professional you can find in various sectors and types of organization. They are visionaries, storytellers, and professionals who come up with new ideas and they kickstart innovations. These professionals are often creative, have a great imagination, and work strongly on intuition. A champion is often a figurehead in a project who paves the way and embodies the project. They predominantly operate in the commercial sector with profit as a goal, but the champion is also found in non-profit organizations with a social impact goal. They have entrepreneurial skills. What characterizes champions is that they are often charismatic and know how to inspire and mobilize people for their dream and vision. It is often an extroverted person who does not shy away from the stage. More than one champion in the same position within a project can lead to conflict. Champions are good in the initial phase of ideas, projects, and bringing people together. For the translation and implementation of their ideas, they often need others who work more methodically and systematically. They sometimes forget to give credit to others for their contribution.

### **The knight revisited.**

A knight is a professional who often works within a government organization. They have some form of formal mandate to be able to make changes based on their professional remit. He or she knows the organization inside and out and understands how things work, both formally and informally. This professional can identify opportunities, align different professionals or parts of the organization involved in making changes, and work in a task- and goal-oriented manner. A knight adheres to a



government code, thinks within the system of the organization, but is also willing to go beyond the conventional approaches. He or she understands the ethical flexibility of the organization. A knight deals with laws, regulations, subsidies, and tenders and can time interventions right to get them done in the right time frame.

Knights are often intrinsically motivated by a social issue, which they devote their full 100% effort towards. They are characterized by their ability to see opportunities, take risks and cross boundaries, both internally and externally. At the same time, the knight has limited maneuverability. This professional often thinks in structures, is not always good at imagining things, and is an indispensable force in successfully operationalizing visions and ideas.

### **The boundary spanner revisited.**

A boundary spanner is a professional who connects different individuals, fields, or sectors on both a content and process level. The boundary spanner has a larger goal in mind and operates from a specific set of values, with an eye for the environment. These professional plays a less visible but crucial role and has a good sense of timing, spotting opportunities and possibilities and being able to move them forward. The boundary spanner actively and passively utilizes the networks in which he or she operates and is an autonomous person who prefers not to be affiliated with the interests of a specific organization, but rather operates at the intersection of organizations or individuals who generate new knowledge and solution directions. In performing the role, the boundary spanner adapts to the environment.

Boundary spanners are characterized by their natural tendency to connect. They have an empathic antenna and are sensitive to the cultural context in which they operate. They can handle the unpredictable, have courage and endurance, and can assess risks well. Boundary spanners often have an analytical mind, work organically, and are not afraid to experiment. When approaching issues, they often use a systemic perspective and can step back to concretize and create progress. Boundary spanners are self-willed without being dominant, know what is going on

within and between organizations, and often gain the trust of those involved due to their approach and values. They do not always receive credit for what they do and can become impatient if things move too slowly to their liking.

They use creativity and problem-solving skills to navigate complex problem spaces and come up with unusual and creative solutions whenever a roadblock challenges the progression of the project.

### **Shared values and skills**

Whenever these three personae find each other as indispensable partners in crime and form a team, they enable each other's qualities and rely on the qualities of the others. As the core of wider team, they become instrumental in moving things forward. What binds them together are several shared values and skills:

- They tend to think in possibilities and opportunities and follow a can-do mentality. They follow a pragmatic path, following the catch phrase "safe enough to try, good enough for now!"
- They share a strong drive to contribute to a better world and recognize a value driven approach in each other work ethics.
- They like to work in complex and rapidly changing environments and share an ability to navigate complex problem spaces.
- They share an ability to switch quickly in context and process to accommodate for changes in circumstances.

They operate with foresight and vigor and share a persistence in achieving their goals in the face of adversity.

### **Interdependencies.**

The champion relies on the knight and the boundary spanner to turn ideas into concrete actions; to enable connections, come up with ideas, concepts, or concrete follow-up on ideas to bring them into fruition. Champions are often better in the 'bigger picture' than in the nitty gritty of details of production



or execution. They often rely on others to complement those traits.

The knight relies on champions and boundary spanners to come up with daring concepts, innovative ideas and solutions and uses his or her position and mandate to create an enabling space for these concepts to materialize.

The boundary spanner relies on both knights and champions because of their mandate and positions to make things happen from a position of power of influence. Boundary spanners are often in a position without formal mandate, so they need to team up to make their ideas happen.

### **Key enabling factors.**

Interviewees that could relate to a particular persona also identified key enabling factors which they needed to be able to be effective in their respective role.

Champions indicate that they need 'room-to-manoevre' to be successful in pioneering new solutions. They often refer to necessary space in terms of regulations or permissions since their ideas often lead them from the beaten path. Another enabling factor is their ability to find funding or the ability to allocate resources themselves to propel innovation forward.

Knights often flourish in task- and goal-oriented environments and positions. At the same time, they need or acquire a reputation that enables them to propose and realize changes based on formal or informal position and reputation. They are often granted a level of autonomy based on prior successes.

Boundary spanners need a high level of autonomy to be able to navigate within or between organizations. They are ill suited to fixed job descriptions with restricted room for maneuvering. They use this freedom of maneuverability to spot and connect opportunities, stakeholders and ideas often navigating in-between spaces beyond formal organizational structures and procedures.

### **Key characteristics of the persona**

A champion is more than just a winner. They possess a unique set of skills and characteristics that allow them to succeed in their endeavors. They are visionary and idea generators, always thinking outside the box and finding new ways to approach challenges. Their entrepreneurial spirit drives them to take risks and seek out opportunities. Champions are willing and capable of using the spotlights and publicity to their advantage, and they have a powerful imaginal ability that allows them to see possibilities where others see only obstacles. They are unconventional, always willing to try new things and take a different path. Their mobilization power through storytelling inspires and motivates others to join their cause. They work intuitively, trusting their instincts to guide them. At the same time, they are steadfast in their beliefs, but know when to listen and change their views to adapt to new situations. All these characteristics make champions stand out from the rest and lead them to success.

The knight persona embodies a set of characteristics that make them a valuable asset in any organization. They are task-oriented, always focused on achieving their goals and delivering results. They possess a deep understanding of both formal and informal ways within the organization, allowing them to navigate complex hierarchies and build relationships across all levels. Their service is in pursuit of a bigger issue, and they are not afraid to take risks and push the boundaries to achieve their objectives. With a strong knowledge base, they can identify and remove barriers that impede progress and create space for innovation. They are persistent in their pursuit of excellence, never giving up until they achieve their goals. These qualities make the knight persona an invaluable asset to any team or organization.

The boundary spanner persona is characterized by a unique set of qualities that make them adept at navigating complex environments. They possess autonomous power and are often self-taught (autodidact), enabling them to work independently and take ownership of their work. They are often trained as generalist, not a specialist although they develop specialistic traits throughout their careers. They have a natural talent for connecting people, and their socially strong nature allows them to build relationships quickly and effectively. They are sensitive to cultural context, aware of the nuances of





different cultures and able to adapt their approach accordingly. The boundary spanner is a value-driven idealist, with a strong sense of empathy and a headstrong approach. They are analytical and creative, combining their intuition with their skills to achieve their goals. Their flexibility and adaptability allow them to respond to changing circumstances quickly, making them an essential asset for any organization. Above all, they are trustworthy and can be relied on to deliver results.

## Levels of excellence

Excellence in the persona of a champion is characterized by a relentless pursuit of a guiding concept or idea that is just beyond reach. This vision provides the framework for their decision-making and actions, enabling them to steer towards the 'what' they want to achieve, while leaving the 'how' to others. They possess the ability to take tough decisions when needed, without losing sight of their vision. They are self-guiding, with a strong sense of purpose and direction, which motivates them to overcome obstacles and achieve their goals. The champion is not satisfied with mediocrity, and they continually strive to improve their performance and exceed their own expectations. This unwavering commitment to their vision and guiding concept sets the champion apart and allows them to achieve excellence in everything they do.

Excellence for the knight persona requires the ability to share a vision with a champion or create a vision on their own from a governance point of view. It also demands the ability to bend and redefine rules without ever breaking them, while maintaining a strong ethical compass. A knight persona must also be a systems thinker who can translate innovative ideas into rules, regulations, or instruments of governance. Flexibility in thinking is necessary, but rigorous application is equally important. To excel as a knight persona, one must embody all these qualities and strive for excellence in everything they do.

Excellence for a boundary spanner persona requires the ability to apply creativity to find novel solutions in wicked problem spaces. They must have the ability to design solutions based on their ideas while also demonstrating pragmatism mixed with strong

analytical skills. Communication skills are essential to get solution ideas across to other stakeholders, and a high level of sensitivity is necessary to understand the needs of all parties involved. A boundary spanner persona must also possess the ability to know what to do when, and when to postpone or accelerate. To achieve excellence, one must embody all these qualities and be able to navigate complex and challenging problem spaces with innovative, practical solutions. The ability to span boundaries and bring people together is crucial for success as a boundary spanner persona.

## Strengths equals weaknesses.

Each persona also has weaknesses they might encounter in their respective roles. These shadow sides are often acknowledged by the other personae and solved in complementarity of their profiles respectfully.

Champions tend to have a strong sense of ego. In their strong pursuit of their goals and their ability to synthesize information from various sources and inputs they have a tendency to forget to give credits where credits are due, both consciously and unconsciously. Boundary spanners working with champions sometimes suffer from this, especially when they have a behind-the-screens role interpretation. It also often the task of the boundary spanner to repair 'damages' done by actions of a champion due to their single focus and strong headedness in pursuing their ambitions.

Champions also tend to underestimate work needed in a practical sense to follow up ideas in terms of production of realization given their tendency to focus on the bigger picture, leaving details to others.

Knights tend to get locked down in the nitty gritty of regulations or over-focus on details. Spending most of their time in a rule-based organization, this might impair their flexibility of thinking or the use of imagination to foreshadow a novelty idea bringing it alive before their minds eye. It might take some time for a champion or boundary spanner, with their vivid imagination, to explain a complex idea or concept in such a way a knight can go along in the 'vision' of the novelty concept given their rigorous mindset.





Boundary spanners tend to suffer from invisibility. Their role and function is often not formalized in organizational charts or function descriptions which can hamper their effectiveness. This also applies to the level of autonomy they are allowed in their organization. Boundary spanners also rarely have a strong mandate, making them dependent on champions and knights. Their main strategic tools are their power of seduction and conviction to influence decisions makers. Boundary spanners that like to work in the limelight often suffer from a lack of recognition from their -often vital- contribution in navigating a complex problem space or providing a decisive idea or intervention that saves the day. Finally, boundary spanners have a strong work ethic and may develop a ‘savior complex’ putting them in a position to carry more weight of a problem than they are able to carry.

### ***Reflections on the connection between a quadruple helix innovation ecosystem and the personae.***

The definition and inquiry into these personae originate in an EU project based on a quadruple helix model of trans-disciplinary collaboration within and between cities and other partners. In such an innovation ecosystem, we found a strong correlation with a champion in an entrepreneurial role, a knight in a governmental role, and a boundary spanner operating from a more neutral position like a knowledge institution, or a self-employed position.

In a preliminary expansion of our inquiries beyond this particular context, we identify varieties of these linkages between personae and institutional base in other project environments. We have already seen many examples of knights in other organizations than governmental bodies (including enterprises) while still matching the knight profile. The same applies to champions within non-profit organizations like NGO’s or knowledge institutions for example.

More research is needed to explore the validity of the persona in other than quadruple helix constellations of projects though.

Another recently emerging pattern is the notion that the personae do not always operate in a triangle model of collaboration, but in duos instead. A

champion and a knight, a champion and a dedicated boundary spanner, a boundary spanner and a knight... We tend to call these power tandems. But once the three personae decide to team up, they form powerful triangles which optimize their ability to circumvent their mutual dependencies while benefitting from their mutual strengths.

### ***Reflections on the overlap between persona traits.***

Although we started out to define the persona as isolated characters, in interviews we noticed that many professionals showed some overlap in characteristics between the various personae. Some knights show champion characteristics in their ability for story telling or using public profiling to enhance their impact. Some knights show some overlap with boundary spanner characteristics, etc. Despite these mix-and mingle crossovers, most interviewees identified more strongly with one particular persona type.

### ***Implications for new project arrangements.***

The insights we harnessed through the IRIS project and our explorations into a wider network of Lighthouse projects and other professional practices have led us to believe that it is useful, at the start of project, to identify these personas in a new consortium. The mere fact that a consortium is composed of quadruple helix partners is not a guarantee for success. Identifying these persona types and position them in a place of influence, whether they are individuals or a small group of people covering these characteristics as a group can be a strong enabler for success irrespective of the remit of a project. In our observations, the boundary spanners are most difficult to identify and recruit since they are not yet fully recognized in formal job descriptions or organizational function descriptions and many of them, in our interviews, fully identified themselves with the descriptions without ever being aware they were not alone and part of an unidentified group of facilitating individuals.

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# IRIS

Integrated and Replicable Solutions  
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## Annex B

[1] INSIDE SMART CITY SOLUTIONS: Stories from the IRIS Smart Cities project – Available to download at <https://irissmartcities.eu/the-iris-magazine-project-highlights-from-the-past-five-years/>