Smart City
Gran Concepción

INTRODUCING SUSTAINABLE OPEN INNOVATION IN GOVERNMENT

APPLIED METHODOLOGY FOR CITIES

WORLD BANK GROUP

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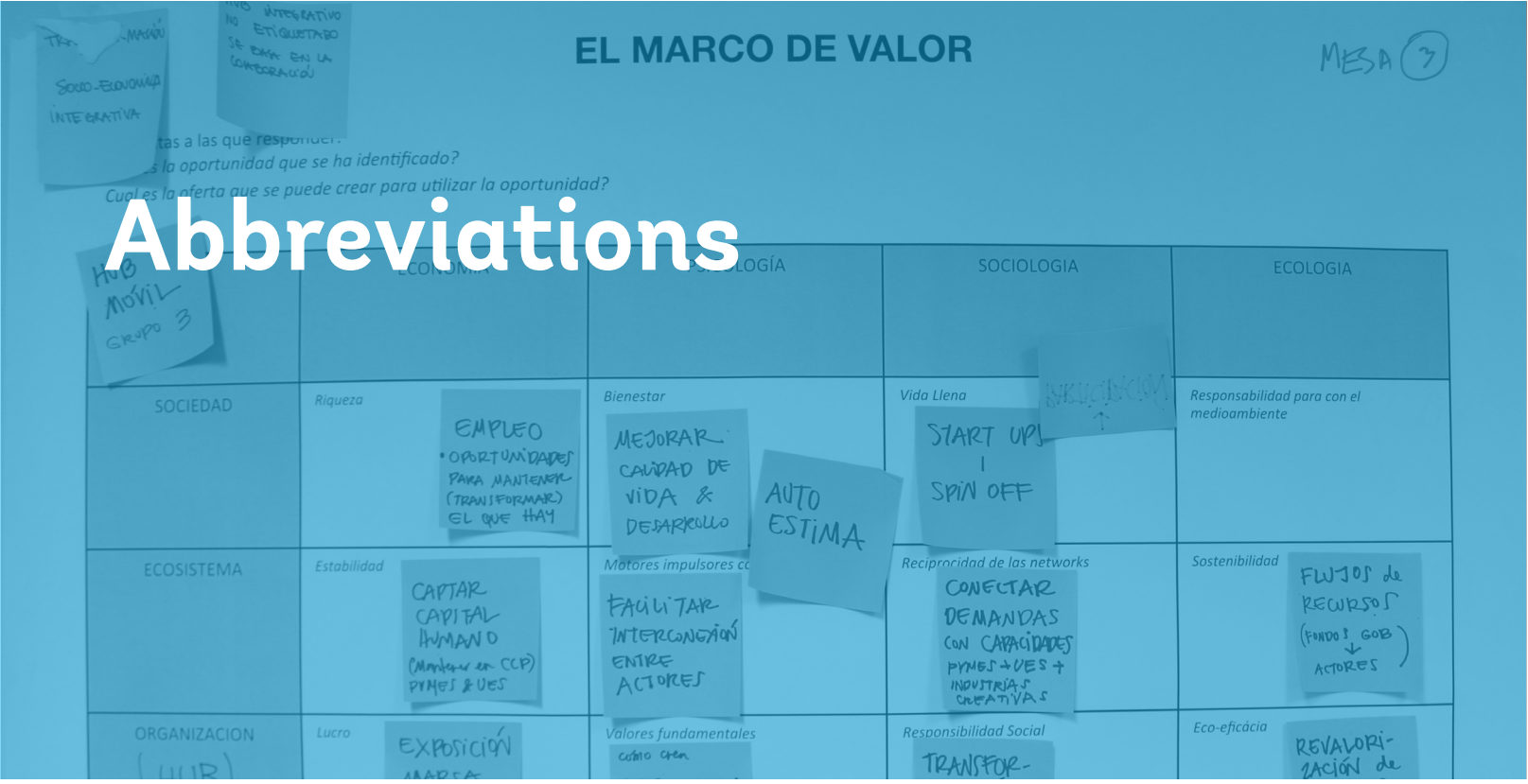


Abbreviations

4YFN	Four Years From Now conference
CCTV	Closed-circuit television
CONICYT	National Commission for Science and Technology Research
CORFO	Corporación de Fomento de la Producción de Chile
DUOC UC	Departamento Universitario Obrero Campesino – Professional Institute part of Pontificia Universidad Católica de Chile
FESUB	Regional railway service
GovLab	Government Laboratory
ICT	Information and communications technology
INACAP	Instituto Nacional de Capacitación - Professional Institute
Innova Biobio	Regional government agency supporting innovation and entrepreneurship
LLI	Leadership, Learning and Innovation unit of the World Bank
MIEP	Mobile Internet Ecosystem Project
MiHub	Mobile Innovation Hub
MINVU	Housing ministry and urban planning
MOP	Road planning unit
MTT	Ministry of Transport and Telecommunications
ONEMI	Disaster risk management unit
PPP	Public-private partnership
PPPP	Private Public and People Partnership
SAMU	Emergency services
SECTRA	MTT's Planning Secretary
SEREMITT	Regional Secretary, Ministry of Transport
SFLAC	Spanish Fund for Latin America and the Caribbean
UOCT	Traffic control center

Executive Summary

Smart City Gran Concepción is a World Bank Technical Assistance activity to support more efficient municipal and local public services in Chile that leverage technology (information and communications technology, ICT) and social entrepreneurship (that is, a bottom-up smart city model). The activity was requested by the Ministry of Transport and Telecommunications (MTT) and was funded by the Spanish Fund for Latin America and the Caribbean (SFLAC). It was conducted in Gran Concepción, the second largest urban area in Chile, between November 2013 and October 2014.

New methodology for the design and delivery of municipal and local services

Smart City Gran Concepción implemented a new methodology for design and delivery of municipal services in Chile using open innovation methodologies that were first designed and implemented by the World Bank in 2012-13 in Colombia (that is, in Barranquilla, Cali, and Manizales). Although these methodologies can be applied to any municipal or local sector, the Government of Chile requested a focus on the transport sector. The activity followed the initial methodology designed in Colombia with enhancements based on the lessons learnt from that first experience. Smart City Gran Concepción followed four components:

1. A codesign workshop on technology solutions for local and municipal challenges in the transport sector.
2. Diagnosis, vision and a roadmap to support open innovation and technology solutions for local and municipal services.
3. A competition for cocreation of technology solutions for transport challenges.
4. A cocreation workshop for a strategic plan for the development of a local innovation hub.

These components involved interactive workshops, and diagnosis and cocreation exercises. The components were structured in a sequential order to allow each one to build upon the results and the community of partners developed by the previous component. The first component began with a small group of local and municipal government officials and aimed to develop champions among these officials to serve as anchors for the following components. The second component

introduced city stakeholders, such as the private sector, universities, and civil society, enlarging the audience and partners in the activity. The third component added entrepreneurs and citizens. The fourth built on the whole coalition of partners engaged throughout the activity to cocreate a model to provide sustainability for the open innovation process in Gran Concepción.

Impact

The activity had a threefold impact: 1) it achieved its objectives in Gran Concepción and proved the methodology to be effective; 2) it catalyzed the adoption of the bottom-up smart city model following this new methodology throughout Chile; and 3) it expanded the implementation and mainstreaming of the methodologies developed and tested through this activity in other Bank projects.

1) Objectives in Gran Concepción

The activity introduced open innovation methodologies to Gran Concepción's municipal and local transport services and trained local and municipal officials as well as the Smart City Unit of the Ministry of Transport to replicate and mainstream these methodologies within Gran Concepción's municipal and local services and throughout the country.

The "training by doing" of local and municipal officials in Gran Concepción and their empowerment within local government throughout the activity created a network of champions to help continue the implementation of the open innovation methodologies and to mainstream them throughout other municipal and local sectors beyond transport. Gran Concepción has a local Smart City Unit from MTT embedded in the local government and has implemented open innovation processes for codevelopment of services (including a follow-up competition on technology solutions for local and municipal challenges). Two of Gran Concepción's municipalities have a Smart City plan and one of them is developing an urban lab with the city ecosystem, including the private sector, universities, and civil society), based on the ideas and design of the cocreation workshop for the innovation hub (component 4 of the activity).

2) Catalyzing and mainstreaming the smart city model throughout Chile

Smart City Gran Concepción also had a broader impact in Chile. The Government of Chile, through MTT, the Corporación de Fomento de la Producción de Chile (CORFO), and the Regional Metropolitan Government of Santiago, implemented the open innovation methodology throughout Chile. The Smart City Unit team, who implemented the activity in partnership with the Bank team, was instrumental in this expansion. The government activities that resulted from, or were inspired by, Smart City Gran Concepción are summarized below:

- MTT developed a nationwide Smart City Strategy embracing the bottom-up approach of Smart City Gran Concepción, having implemented open innovation competitions for transport services in six regions throughout the country (Temuco, Puerto Montt, Concepción, Antofagasta, Coquimbo and Valparaiso).

- The Smart City Unit of MTT expanded its work program to include: i) catalyzing public-private partnerships (PPPs) and government funds to develop open innovation processes for public goals; and ii) inspiring the entrepreneurship ecosystem through universities, promoting the development of open innovation competitions and supporting their implementation.

- CORFO developed the Regional Strategic Smart City Program for the metropolitan government of this region following smart city principles. Following this plan, the regional metropolitan government created a Fund for Competitiveness together with MTT to support the development of the smart city model in Santiago.

- MTT worked together with Chile's Government Laboratory (GovLab) and other government organizations to mainstream the open innovation approaches for government services beyond the transport sector.

3) Scaling up of methodology implementation throughout Bank projects and activities

The methodology implemented and tested in this activity for cocreation of innovation hubs was replicated in two other activities of the World Bank in Lebanon (Mobile Internet Ecosystem Project) and Egypt (Innovation Ecosystem Development Strategy), and is being codified for replication by the World Bank and interested third parties in collaboration with the Leadership, Learning and Innovation (LLI) unit of the Bank. This toolkit will be available to the public and will allow other projects to implement the methodology across sectors and geographies.

Background

Smart City Gran Concepción is a World Bank Technical Assistance activity funded by the Spanish Fund for Latin America and the Caribbean (SFLAC) to support more efficient municipal and local public services through technology and open innovation methodologies, that is, using a bottom-up smart city approach (see Box 1) and development of local innovation ecosystems. The sector selected for the activity was transport and the main counterpart was the Ministry of Transport and Telecommunications (MTT). The activity was implemented in Gran Concepción, the second largest urban area of Chile (after Santiago) between November 2013 and October 2014. This activity was designed as a pilot test for these methodologies, which could then be scaled up at national level to other cities nationwide and other sectors (beyond transport).

The objectives of Smart City Gran Concepción were:

- to introduce open innovation and use of information and communication technology (ICT) tools to improve delivery and planning of municipal and local services; and
- to foster the development of local sustainable innovation ecosystems that can create synergies between the public and private sectors, universities, and civil society at a local or regional level.

The activity had the following four components:

1. A codesign workshop on technology solutions for local and municipal challenges in the transport sector.
2. Diagnosis, vision and a roadmap to support open innovation and technology solutions for local and municipal services.
3. A competition for cocreation of technology solutions for transport challenges.
4. A cocreation workshop for a strategic plan for the development of a local innovation hub.

These components involved interactive workshops, and diagnosis and cocreation exercises. The components were structured in a sequential order to allow each one to build upon the results and the community of partners developed by the previous component. The first component was limited to local and municipal government officials and aimed to develop champions

BOX 1: OPEN INNOVATION AND THE SMART CITY APPROACH

Open innovation is a methodology to design and implement solutions or services collaboratively by integrating all stakeholders in a city (including public institutions, companies, academia, entrepreneurs, and citizens) in the service design process and its implementation. The result of these methodologies is a more targeted service solution (since the beneficiaries participate in the design process) and more active participations from citizens and other city stakeholders in service delivery and implementation (for example, citizens may become active service providers as opposed as passive receivers of city services). Introducing and implementing open innovation for city services combined with technology solutions is part of the bottom-up, smart city approach (as opposed to a top-down approach where technology solutions and service design and planning are imposed by the city government with little or no involvement of citizens).

among these officials to serve as anchors for the following components. These champions would also be the seed for the open innovation community within the city government to expand open innovation to other sectors beyond transport. The second component introduced city stakeholders, such as the private sector, universities, and civil society. The third component added entrepreneurs and citizens. The fourth component built on the whole coalition of partners developed during the activity to cocreate a model to provide sustainability to the open innovation process in Gran Concepción.

The activity's methodology and sequence was first designed and tested for the 2012 Colombia Open Innovation Platform activity, where it was implemented in three cities (Barranquilla, Cali and Manizales). The Smart City Gran Concepción activity applied the lessons learnt in the first iteration of the methodology and expanded its impact by developing a strategic plan for local innovation hubs with the ecosystem stakeholders. The approach and methodology applied is being codified for replication and implementation by the World Bank or third parties and will be publicly available.[1]

Upon completion of the activity's components, a workshop was conducted in Santiago de Chile where the results were presented and the scalability of the model was discussed with MTT officials as well as with the representatives of the regional government of Santiago de Chile. The activity resulted in the MTT's Smart City Strategy, announced in September 2014 by the Transport Viceminister, which embraces the open innovation and bottom-up methodology of the smart city model for transport in the country, as well as in many other government initiatives to support the Smart City Gran Concepción model.

Counterparts and Partners

The leading counterpart of the project was the Ministry of Transport and Telecommunications (MTT), and within it the Smart Cities Unit under the Transport Viceministry. The head of the Smart Cities team was directly involved in the activity with another member working full time and with a new liaison position being created in Concepción. Other members participated part time. In addition, the municipalities of Gran Concepción (primarily Chiguayante, Concepción, Talcahuano and San Pedro de la Paz, which represent over 60 percent of the population) and the regional government (through the transport sector area, SEREMITT, Regional Secretary of MTT) acted as government counterparts. Finally, the Ministry of Economy, through CORFO and Innova BioBio (the branch of Innova Chile in the Concepción region), and the Ministry of the Presidency, through the Digital Government Unit, also participated and collaborated actively in this activity, providing in-kind support through their teams in one or more components and through participating in the activities.

The activity was designed to build capacity in the Smart Cities Unit team, who worked side-by-side with the World Bank team. They played an active role throughout the process (being part of all team meetings and decisions, including the design of the activities). As the activity progressed and the Smart Cities Team learnt more about open innovation methodologies, its members took a more active a prominent role, with the Bank team taking a more supportive role. As part of the capacity building, the project partnered with the Barcelona Urban Technology and Innovation Hub to provide training in Barcelona to the head of the Smart City Unit on open innovation (within the City as a Laboratory training). This consisted of a one-week practical course on open innovation, and included participation in the Smart City Expo World Congress. This training course was also codified and made available for replication by third parties and the World Bank and forms part of the World Bank's Open Innovation in Cities activity.[2]

Owing to the special nature of cities in Chile, where city governments are limited to municipalities and authority is limited to basic municipal functions and shared with the regional and central government,[3] the project was designed to build consensus among public stakeholders and bring the different public institutions together before opening up to broader consensus with the city

stakeholders (for example, universities, private sector, entrepreneurs, and so on). This included a preliminary phase to map all stakeholders and present the activity to the local and regional stakeholders to achieve buy-in, direct involvement, and collaboration from each one of them. The components of the activity followed this dynamic, creating a coalition of partners through the activity, where partners committed to collaborate with direct or in-kind contributions (for example, most of the workshops were conducted in the regional government's premises).

TABLE 1: MAJOR COUNTERPARTS AND PARTNERS

* Details of individual organizations within these categories are specified in each component.

GOVERNMENT COUNTERPARTS AND PARTNERS	NON-GOVERNMENT PARTNERS
Ministry of Transport and Telecommunications (**MTT**) - Main Counterpart	**País Digital Foundation** - Main Non-Government Partner
CORFO (Government agency supporting innovation and entrepreneurship)	Local and national universities*
Ministry of Presidency, **Modernization and Digital Government Unit**	Local and national civil society organizations*
Ministry of Economy, Digital Strategy Unit	Private sector*
Ministry of Education, **CONYCIT** (National Commision for Science and Technology Research)	International partners (Private sector and universities) *
BioBio Regional Government	
Santiago Regional Metropolitan Government	
Innova BioBio (Regional government agency supporting innovation and entrepreneurship)	
Municipalities of **Chiguayante**, **Concepción**, **San Pedro de la Paz** and **Talcahuano**	

Project Components

1

DEMONSTRATION AND CHAMPIONS

Codesign workshop on technology solutions for local and municipal challenges in the transport sector

2

VISION AND PARTNERS

Diagnosis, vision, and roadmap to support open innovation and technology solutions for local and municipal services

3

PRACTICAL OPEN INNOVATION

Cocreation event and competition aimed at municipal services

4

SUSTAINABILITY MECHANISM

Strategic planning workshop for the development of a local innovation hub

Project Components:

1. Demonstration and Champions

A video summary of this component may be accessed at: **http://bit.ly/1VffqKq**

Codesign workshop on technology solutions for local and municipal challenges in the transport sector

The objective of this component was to introduce open innovation methodologies to local and municipal government officials. To do this, a workshop was conducted with these officials to cocreate concepts of rapid prototypes to solve specific challenges faced in their work. Ultimately, the component served to identify supporters among local and municipal officials who were willing to embrace the open innovation methodology that: i) would support the implementation of the activity as active collaborators in the rest of components and interactions with the city stakeholders (for example, universities, entrepreneurs, private sector, civil society, and so on); ii) would champion the introduction of these methodologies in local and municipal services beyond the immediate project; and iii) would serve as role models for other local and municipal officials in Chile beyond Gran Concepción and the transport sector.

The component was developed in January 2014 and followed a design-thinking methodology with three sequential phases:

1. Context analysis
2. Codesign workshop
3. Implementation and testing of concepts

In the context analysis, interviews were conducted with more than 20 public officials representing local and municipal services with authority on transport matters and other services that impact transport directly or indirectly (see Table 2). These interviews were not intended to diagnose issues with the transport sector. Rather, the focus was to identify the challenges that public officials face in their day-to-day work and which would form the basis for the second phase. The challenges identified were both concrete issues that could be addressed rapidly with existing technology solutions as well as more abstract ones that would require a more structured process to develop potential solutions. The challenges adopted in this component were the former, whereas the later ones were addressed

TABLE 2: INSTITUTIONS PARTICIPATING IN COMPONENT 1

INSTITUTION	DESCRIPTION
SEREMITT	Regional Secretary Ministry of Transport
UOCT	Traffic Control Center
MINVU	Housing Ministry and Urban Planning
MOP	Road Planning Unit
SECTRA	MTT's Planning Secretary
SAMU	Emergency Services
ONEMI	Disaster Risk Management Unit
Crime Prevention Unit and Regional Police	Traffic Police Department
Municipalities of Concepción, Talcahuano and San Pedro de la Paz	Traffic Units

in component 3 (see below).

In the workshop, public officials worked together to create concepts of technology solutions to solve the identified challenges. Examples of rapid technology solutions were presented as inspiration for the public officials, working in teams, to design their own concepts. The workshop resulted in four concepts (see Table 3), from which one (iTransConcepción) was selected for testing and implementation by the Modernization and E-Government Unit.

Although it was not selected for implementation, the Bank team developed a rapid prototype of the "Ciudadano Te Informa" concept, showing in practice how citizens could report traffic incidents in real time to a traffic control center. This demonstration and real testing by the traffic control center's officials was persuasive and resulted in a tipping point for the officials to embrace these kind of solutions beyond normal operations in their daily jobs. A simple app that could be developed in one day at low cost (using open source software over Android) resolved one of the problems that these officials faced because of the limited information that feeds the traffic control center (see Box 2).

The final phase of this component was the implementation and testing with citizens of the technology solution based on the selected concept, iTransConcepción. This was offered by the Modernization and E-Government Unit under the Ministry of Presidency, which acted as a partner in the activity.

The results of this component were the following:

- Identification of public officials willing to introduce the open innovation methodology

TABLE 3: CONCEPTS OF TECHNOLOGY SOLUTIONS TO ADDRESS CHALLENGES

CONCEPT	DESCRIPTION
iTransconcepción	Online and mobile accessibility system for citizens to access public transportation and traffic information (e.g., congestion, accidents, etc.)
Cuida tu Luz (Take Care of your Public Light)	Mobile app to engage citizens in adopting public lights and owe their preservation (following the "adopt my hydrant" model)
Cuido mi Barrio (Take Care of your Neighborhood)	Mobile app to incentivize citizen participation in public services for neighborhoods through rewards systems
Ciudadano te Informa (Citizen Reports)	Real-time citizen reporting system of traffic incidents, providing a direct real-time feed to traffic control centers

in their work and the building of a coalition of supporters;

- Development of four concepts of technology solutions in response to concrete challenges and a plan for implementation of a technology solution to address one of the challenges; and
- Identification of abstract challenges for component 3.

BOX 2

CHALLENGES AND REAL-TIME DEMONSTRATION AS CATALYZERS FOR BEHAVIORAL CHANGE

The following example shows the power for behavioral change of the identification of real challenges and provision of rapid solutions that can be tested by the challenge providers.

The public officials of the traffic control center of Gran Concepción faced the constant challenge of having to react to traffic incidents and flows of traffic in the city with limited information for their decision-making. The city has a network of sensors and CCTVs. However, it is insufficient to cover the Gran Concepción area. CCTVs were particularly limited for an urban area of the size and population of Gran Concepción and did not cover much of the traffic infrastructure. Sensors were even more limited. As a result, the public officials from the traffic control center could not realize oft traffic congestions or incidences through their monitoring systems. Instead, and as reported by these officials, citizens suffering the traffic incidence would call the local radio broadcaster news service (Radio BioBio) to complain, which would, in turn, call the local politician responsible for traffic management in the area and demand responsibilities through live broadcasting. Understandably, this caused tension through the command chain, with an urgent call for fixing the incidence. This was reported to be a very stressful situation by the traffic control officials, who had to physically displace to where the incidence was happening to understand how to respond while pressed for urgent solutions.

The concept of technology solution developed to address this challenge was a Citizen Reporting App (mobile application) whereby citizens could report directly traffic incidences through their phones with automatic geolocation. This reporting would feed the traffic control center's dashboard in real time. This concept was co-developed by the traffic officials and the Bank and MTT team. In order to demonstrate how this app would work and what kind of information the dashboard would show in practice, the team developed a rapid prototyping using an Android phone and open software for geolocation and reporting. The prototype was then demonstrated in real-time to these officials, which could use it and see how it would work in practice to address their problem. After this demonstration, the public officials that participated in this workshop from the traffic control team became champions of the activity throughout the process and beyond (through the Ministry of Transport strategy – see above).

Project Components:

2. Vision and Partners

A video summary of this component may be accessed at: **http://bit.ly/1Wnd2UA**

Diagnosis, vision, and roadmap to support open innovation and technology solutions for local and municipal services

The objective of this component was to build consensus among government and city stakeholders and develop a common vision to introduce open innovation methodologies in municipal governments. The component was developed in March 2014 through two parallel activities: i) a diagnosis of the use of technology in local and municipal transport services; and ii) a foresight exercise to develop a common vision and roadmap to implement local and municipal services to support sustainable transportation in Gran Concepción.

In the diagnosis exercise, government and city stakeholders were interviewed (see Table 4) to identify the current use of technology solutions to support local and municipal transportation services as well as available databases currently in use to support these services. As a result, an inventory was created of databases and data sets available for potential use by developers in creating technology solutions to support transport local and municipal services. This information was applied to the

TABLE 4: GOVERNMENT AND NON-GOVERNMENT STAKEHOLDERS INTERVIEWED

INSTITUTION	DESCRIPTION
SEREMITT (Regional Secretary of MTT)	Taxi and Bus Regional Business Association
UOCT (Traffic Control Center)	University of Concepción - Center for Integral Management and Transport Services in Concepción
FESUB (Regional Railroad Service)	Pordondevalmicro (NGO)
SECTRA (Regional Secretary of Transport Planning)	Concebus (NGO)
MINVU (Regional Secretary of Housing and Urban Planning)	

competition conducted in component 3 (see below).

The foresight exercise followed a methodology that combined design thinking, consensus building, and foresight methodologies, and was structured in two phases:

1. Analysis and diagnosis
2. Vision and road map

The analysis and diagnosis conducted a SWOT analysis of the transport in Gran Concepción through workshops with the different municipal and local government officials identified in the previous component. This SWOT analysis was then validated in a common workshop with all the local and municipal officials interviewed and participating nongovernment stakeholders (see above) as well as additional ones that participated in component 1 (including the municipalities).

The validation was followed by a vision and roadmap workshop in which all stakeholders participated. The vision and roadmap exercise mixed representatives from different stakeholders in four groups, each of which adopted the role of a user of transport services in Gran Concepción (that is, the driver of public bus, a family, a student, and a visitor/tourist). Each group developed a vision for a sustainable transport service in Gran Concepción by 2025. The exercised continued with the development of a road map to achieve this vision, which included intermediary objectives (2015, 2019, and 2025) and resources needed to achieve the objectives.

During each of the phases of the workshop, teams had

TABLE 5: JOINT AGREED ROADMAP SUSTAINABLE TRANSPORTATION GRAN CONCEPCIÓN

INITIATIVE	2015	2019	2025
Change Management and Development for Innovation			
Identification of change agents			
Policy Planning - open data			
Creating open government policy			
GovLab creation: innovation lab for Public Administration			
Continuation of co-creation competitions			
GovLab integration with the Innovation Hub			
Creating the Government Innovation Award			
Pilot projects for innovative urban policies			
Implementation of ideas of public policy GobLab			
Innovation in the infra-structure, means of urban public transportation and services			
Creating regulations for the procurement of innovative products			
Wireless university projects for promoting entrepreneurship in to support urban public transportation			
Pilot projects for innovation in payment of public transport			
Integrated Platform for Transport of the Grand Design			
Platform Design			
Agreements between local organizations on governance model			
Agreements between local organizations for data sharing			
Development of the first version of the Platform			
Pilot projects – sensing technologies			
Second version of the platform with sensing data			
Creating API to interface with external applications			
Innovation pilot projects - payment service			
Incoming data integration organizations			
Competitions for innovation in services			

to present to each other and discuss the findings of each group. The final outcome was a joint and agreed road map for sustainable transportation in Gran Concepción supported by technology solutions (see Table 5). The main goals of the roadmap are: i) to align investments in technology solutions for the period 2020-25 in an integrated policy of the various existing administrative levels in Gran Concepción, and ii) to build consensus with city stakeholders of the vision and roadmap for their active participation through open innovation.

The workshop concluded with the identification of change agents among local and municipal government officials to support the project. These change agents will be the supporters of the activity, being trained in open innovation methodologies along with the activity components. The goal of these change agents is to provide sustainability to the activity and extend the knowledge gained in open innovation to other municipal and local services, as well as other government entities beyond Gran Concepción.

The results of this component were the following:

- Diagnosis and inventory of technology solutions, databases and datasets supporting transport services in Gran Concepción;
- Joint government and city stakeholders vision and roadmap exercise for sustainable transportation in Gran Concepción, supported by open innovation and technology solutions; and
- Identification of change agents for the sustainability and mainstreaming of open innovation methodologies.

Project Components:

3. Practical Open Innovation

A video summary of this component may be accessed at: http://bit.ly/1FzDohA & http://bit.ly/1VfbKOh

Cocreation event and competition aimed at municipal services

The objective of this component was to: i) develop a practical exercise of open innovation for public service challenges, and ii) create a community of local social entrepreneurs. To achieve this goal, the component conducted a competition for entrepreneurs to address transport challenges through technology solutions. The competition served as hands-on training for local and municipal governments to engage with entrepreneurs, the private sector and civil society and work jointly to solve local and municipal challenges, while catalyzing the development of a local entrepreneurship community. Ultimately, the competition provided practical examples of open innovation processes and results, with the development of models of technology solutions to address local and municipal challenges.

The component was developed between May and October 2014 and had three phases:

1. Engagement (May 2004)
2. Competition (June 2014)
3. Acceleration (July-October 2014)

The engagement phase comprised two preparatory workshops ("preparatory clinics") where local and municipal officials presented the challenges to the local community of entrepreneurs and city stakeholders, including the private sector, civil society, and so on). The goal of these workshops was to: i) introduce and explain the challenges (see Box 3), and ii) kickstart the interaction between local and municipal officials and entrepreneurs. This phase of social interaction was crucial to the preparation of the competition where these two groups, which had not worked together before, would have to interact constantly in the development of technology solutions.

The competition, branded MueveTT lasted two days and followed a hackathon methodology, with elements of design thinking and application of a business canvas. The competition was a joint effort with the private sector, academia, and civil society, who collaborated actively via

BOX 3: TRANSPORT CHALLENGES FOR COMPETITION MUEVETT

How to reduce vandalism in bus stops, buses and traffic signals?

How to incentivize drivers to abide traffic rules?

How to collect traffic information to make the city more sustainable?

How to improve public transportation travel experience?

How to reduce mortality in traffic accidents in rural areas?

How to foster alternative modes of transportation to make the city more sustainable?

sponsorship, in-kind contribution (for example, materials) and mentorship (see Table 6).

The competition had 50 participants in 14 teams. Each team was required to have design, business and technology skills and they had to present a concept of a technology solution that addressed one of the challenges presented. Teams could choose any technology (for example, software, hardware, and so on) for their solution. The presentation was in the form of a three-minute pitch.

More than 10 mentors, with expertise in design, business, technical and entrepreneurship skills, supported the teams. During the process, relevant local and municipal officials worked with the teams to make the technology solutions applicable to the specific challenge. A jury of technical and entrepreneurial professionals together with selected public officials chose five concepts for the following phase. Two additional concepts were selected because of social impact considerations (see Table 7).

The teams that were selected entered the final three-month phase, where they had to develop a minimum viable prototype of the solution, a basic business plan, and a pitch presentation for the final selection. This phase was a rapid acceleration conducted by specialized mentors supporting the teams. Only four teams finished this phase and presented pitches for the competition. The jury was composed of the head of the accelerator Wayra in Chile, the Viceminister of Transport, and a member of the World Bank team. The two winners of the competition were Despierta and Refugio Inteligente. Despierta evolved its initial concept to provide access to public transportation in Gran Concepción for blind people (see Box 4). Refugio Inteligente kept its initial concept for a vandal-proof bus stop.

The prize for the winners of the competition consisted of a study tour to Madrid and Barcelona, Spain, where the teams met selected entrepreneurs, mentors, and potential investors to support the commercial development of the project. The study tour was conducted in February 2015 and included participation

TABLE 6: SAMPLE OF NON-GOVERNMENT PARTNERS CONTRIBUTING AND ACTIVELY INVOLVED IN MUEVETT COMPETITION

* Incubator of University also participates

PRIVATE SECTOR	ACADEMIA/UNIVERSITY INCUBATORS	CIVIL SOCIETY
Movistar	Universidad BioBio*	País Digital (Foundation)
Wayra	DUOC UC	Red Plus (NGO)
Microsoft	INACAP	Observatorio Metropolitan (NGO)
Indra	Universidad de Desarrollo*	No más abusos (NGO)
CVX-R	Universidad de Concepción*	CIDERE (Chamber of Commerce)
MCI Electronics		CORBIOBIO (Regional Development PPP Assocation)

TABLE 7: TECH SOLUTIONS CONCEPTS SELECTED FOR ACCELERATION

* Selected because of their social impact potential

CONCEPT	CATEGORY	DESCRIPTION
911-R	Mobile App	Geo-reference system tagging housing in rural roads to identify geo-location of emergency in rural areas targeting the lack of uniform addresses in rural areas.
Despierta [*Wake Up*]	Mobile App	Alarm that is programmed based on geo-location of destination to warn public transportation user of proximity of desired stop. These solution address the lack of formal stops in public transportation.
Refugio Inteligente [*Smart Bus Stop*]	Smart Materials	Model of bus stop with modular pieces and smart materials resistant to vandalism. The design include additional services, such as WiFi or USB chargers aiming at reducing vandalism in bus stops.
i-BiciPark [*i-BikePark*]	Sensors	Bicycle rack with IP camera and weight sensors that detect if the bicycle is being stolen and sends an alarm to a cellphone or the security desk of building (e.g., office building). This app addresses bicycle thief, one of the main reasons reported for not using such mode of transportation.
Ya Voy [*On My Way*]	Mobile App	Travel planner for Gran Concepción public transportation. This app address the lack of information for public transportation routes available in the street.
Alerta Drone* [*Drone Alert*]	Robotics	Drones designed to provide CCTV feed for traffic control addressing the lack of CCTV feeding available in the city. These drones could be used for incidences, reducing the need for physical inspection of temporal incidences.
Tu Colectivo* [*Your Shared Taxi*]	Mobile App	Mobile app coordinating demand and supply of collective taxis. This app addresses the traffic congestion created by collective taxis that wait in their initial stop until being filled with passengers.

in the conference Four Years From Now (4YFN), one of the major startup conferences in Europe, where startups can pitch and introduce themselves to potential investors. The teams had access to mentorship and pitching sessions during the conference, as well as participation in a global startup competition, Kairos Hackathon, organized by Kairos Society. One of the teams, Despierta, was selected as finalist within a social impact competition. A specific track was designed for Refugio Inteligente to get access to digital fabrication and smart materials expertise present in Barcelona (including meetings with FabLab and other digital fabrication labs). The study tour was conducted in collaboration with Wayra with visits to the accelerators of Wayra Barcelona and Madrid and meetups with resident cohorts of entrepreneurs. A specific training workshop for pitching was provided by Cink Emprende in Madrid, who also partnered with the Bank, in preparation of the pitch opportunities in the 4YFN conference.

The results of this component were the following:

- Hands-on training of local and municipal government officials and practical exercise of an open innovation process through competition to develop technology solutions for public challenges;
- Practical collaboration among public, private, academia and civil society partners and strengthening of a coalition of city stakeholder partners for the local and municipal government to implement open innovation in Gran Concepción for a local innovation hub (see component 4);
- Kickstarting of a local entrepreneurship community for social innovation and public services challenges; and
- Development of two practical concepts of technology solutions: Despierta and Refugio Inteligente, which can serve as role models to the nascent community.

BOX 4

DESPIERTA: HOW AN OPEN INNOVATION PROCESS CAN SOLVE PUBLIC SERVICES CHALLENGES WITH UNEXPECTED INGENUITY

Despierta is one of the two concepts of technology solutions that won the MueveTT competition. It was developed by a team of students from the local universities with the aim of improving the travel experience in Gran Concepción public transportation.

In Gran Concepción, the main mean of public transportation is the micro-bus, a fleet small busses that follow routes around the conurbation. This micro-buses are managed by private companies, which have a concession for a specific routes. Although the micro-buses follow a route, there are no formal stops, and the bus can be hail in any point through its route. To request the bus to stop, passengers request verbally the driver to stop where needed.

The initial concept of Despierta, as conceived by the team at the ideation part of the competition, was a mobile app whereby the user could set the geolocation of the destination through a user-friendly map interface (e.g., google maps) for the mobile phone to alert the user via an alarm 200 meters before arriving destination. The thought behind it related to the personal experience of the team's members using Gran Concepción micro-buses. As a university town, students are one of the main users of the micro-buses in the conurbation. When going to classes in the morning, it is often the case that students get slept on route, missing their stop and needing to wait for the micro-bus to finish the route and come back to arrive to the missed destination. The app aimed to solve this issue.

The Bank team, together with the local and municipal government officials serving as mentors in the competition, worked closely with the competition teams to help them in developing their concepts and maximize social impact to support the public goals behind the competition challenges (see Box 2). This support has the form of suggestions and ideas within the ideation and brainstorming process of the competition teams. Within this process, the Bank team suggested to the Despierta team to consider the disabled blind population as a target for this mobile app concept. The team responded positively, and expanded their initial concept for the mobile app to include specific features for the disabled blind population. The final concept of the app that was presented to the final and that won the competition was designed for the disabled blind population. The mobile app would allow a blind person to ask the phone via verbal instructions to alert her when the micro-bus is arriving to hail it, and then program the phone to alert via a sound alarm of the proximity (200 meters) of the destination to request the micro-bus to stop.

With this design, Despierta become an ingenious solution to address a public service gap in the public transportation infrastructure in Gran Concepción, which could not be access by the disabled blind ation. Instead of the traditional solutions applied to make the public infrastructure applied to ed blind population (e.g., braille signaling, physical signaling in pavement and bus stops, etc.) a of students-entrepreneurs provided a quick solution that can be scaled up rapidly through the public transportation infrastructure of the conurbation with no cost to the local and municipal government. Furthermore, as a startup, this solution would also create entrepreneurship and be a source of employment.

Project Components:

4. Sustainability Mechanism

A video summary of this component may be accessed at: **http://bit.ly/1KDBDz8**
Workshop methodology and materials may be accessed at: **http://Concepción.innovationubs.org**

Strategic planning workshop for the development of a local innovation hub

The objective of this component was to cocreate with city stakeholders a strategic plan for a local innovation hub, which would serve to strengthen, develop, and provide sustainability to the local entrepreneurship ecosystem and the open innovation process for local and municipal governments. A local innovation hub is an institutional arrangement where city stakeholders interested in the development and growth of the local entrepreneurship ecosystem can coordinate and plan actions jointly (see Box 5). It provides a neutral ground and serves as a connector between local and municipal government and city stakeholders on an equal footing. The active participation and ownership of city stakeholders in an innovation hub is crucial for the sustainability and growth of the ecosystem, supporting the catalyzing effect of policy action (in this case, the policies developed through the Smart City Concepción Activity by MTT and other government partners with support of the World Bank). The cocreation exercise facilitated consensus building among stakeholders, buy-in of the final concept, and a pragmatic design of actions appropriate to the reality on the ground.

This component was conducted in October 2014 and had three phases:

1. Preparation
2. Cocreation workshop
3. Presentation of results and consensus

The component followed a methodology commissioned by the World Bank team and designed ad hoc for cocreation of innovation hubs based on design-thinking methodologies. This component served as the first iteration of this methodology, which was designed in partnership with the World Bank's activity, Community of Practice on Open Innovation in Cities. The second iteration was applied in January 2015 in Beirut, Lebanon, under the Mobile Internet Ecosystem Project (MIEP). The finalized methodology, which incorporates the lessons learnt in this iteration process, has been compiled in

TABLE 8: INNOVATION HUBS PARTICIPATING IN COMPONENT 4

INNOVATION HUB / LOCATION	DESCRIPTION
CitiLab HOSPITALET DE LLOBREGAT, SPAIN	Innovation hub that serves as connector of city government and entrepreneurship stakeholders. Citilab provides entrepreneurship and technical skills trainings for children, elderly and public in general, organizes competitions, provides co-working and incubation space and serves as platform for the entrepreneurship ecosystem.
Forum Virium HELSINKI, FINLAND	PPP initiative participated by the city ecosystem stakeholders and the municipality of Helsinky that serves as forum of the ecosystem players to coordinate actions to support its growth and sustainability. Forum Virium coordinates and implements initiatives, serving as hub of the ecosystem and facilitating open innovation processes for the local government.
Waag Society AMSTERDAM, NETHERLANDS	Foundation that serves as nexus of the City of Amsterdan and the creative and entrepreneurial community of the city. Waag Society serves as catalyzer of experimental initiatives to foster open innovation to solve social challenges and involve actively the stakeholders of the ecosystem and the creative and entrepreneurial communities.
Urban Lab BARCELONA, SPAIN	An initiative from the City of Barcelona that serves as a platform for private sector to test and implement technology and innovative solutions to address city challenges in the city services or infrastructure. The Lab is connected to a challenge and competition initiative that fosters entrepreneurship and innovation to address public challenges and to the entrepreneurship-support infrastructure of the city.

a toolkit guide (Front End Open Innovation Toolkit) and will be available for Bank projects, policy makers, practitioners, and the interested public for replication and learning purposes.[4]

Experts from four selected models of innovation hubs supported the component (see Table 8). These experts provided the background of how innovation hubs work in practice (providing different models from different contexts), serving as inspiration for the participants of the cocreation exercise and facilitating the cocreation sessions. The design of the workshop and its facilitation was conducted by Aalto University (Finland).

The preparation phase consisted on a half-day workshop where the experts presented the four different models of innovation hubs and the lessons learnt in the support of their local entrepreneurship ecosystems and open innovation processes with local and municipal governments. Subsequently, the experts took a study

TABLE 9: SAMPLE OF PARTICIPANTS IN CO-CREATION WORKSHOP OF LOCAL INNOVATION HUB

* International or multinational partner

GOVERNMENT	PRIVATE SECTOR	ACADEMIA	CIVIL SOCIETY
Seremitt (Regional Government)	Wayra*	Universidad BioBio	País Digital (Foundation)
Municipalities (San Pedro de la Paz, Chiguayante, Talcahuano)	Indra*	DUOC UC	Red Plus (NGO)
UOCT (Regional Traffic Control Center)	Mozilla*	INACAP	SociaLab*
CORFO (National Government)	Kapsch	Universidad de Concepción	FabLab Concepción
BioTren (Regional Railway Operator)	Elun	Universidad Católica Santisima	D+ Diseño e Innovación
	Austral Solutions	Carnegie Mellon University*	

BOX 5: LOCAL INNOVATION HUB

Although there is no common definition of an innovation hub, this concept can be applied to define the evolution of collaboration spaces into community managers that coordinate or integrate many of the other functions of collaboration spaces such as coworking spaces, maker spaces, fablabs, accelerators, living labs, and urban labs (see **source** below for description of these spaces). Innovation hubs' main function is to coordinate all actors of the ecosystem and help manage the community of tech-innovators and entrepreneurs to grow sustainably. Many of these innovation hubs enjoy the participation of the most relevant actors of the technology innovation ecosystem, including entrepreneurs, universities, private sector, collaboration spaces, accelerators, incubators, other providers of seed capital, community managers, and government — particularly city government. Some of these innovation hubs have collaboration spaces in their facilities, such as co-working and maker spaces, while others coordinate their functions with those spaces. Typically, these hubs will phase out their other functions when there are enough offerings for the community provided by third parties. Examples vary from **Ruta N**, Medellin (which is part of the city government), to **NUMA** in Paris (which is a grass-root hub built with the community of local entrepreneurs), with **Forum Virium**, Helsinki, as a middle point (a PPP model owned 50 percent by the city and 50 percent by the ecosystem's stakeholders). **Citilab**, Hospitalet de Llobregat, **Waag Society**, Amsterdam, and **Urban Lab**, Barcelona, are other examples of innovation hubs. The World Bank designed and implemented the innovation hub model in the Lebanon: Mobile Internet Ecosystem Project (**MIEP**). This is the model applied to this activity. (For more details of such model see the **Project Document**).

tour to the nascent entrepreneurship ecosystem of Gran Concepción to familiarize themselves with the background and participants of the cocreation exercise. This provided inputs for their guidance and facilitation during the workshop.

The cocreation workshop developed the strategic plan for Gran Concepción through a consensual bottom-up approach, whereby the stakeholders of the local ecosystem worked together. Over 20 institutions participated in the workshop, including local and national partners of the innovation hub (see Table 9). These institutions formed the core coalition of partners for the local and municipal government to support and grow the local entrepreneurship ecosystem. In addition, the MTT, InnovaBioBio from the regional government and the Unit of Modernization and Digital Government (through the GovLab initiative) offered support for the hub. This resulted in an applied PPPP (Private Public and People Partnership) model.

The workshop was structured in four phases: i) identification of the role of the hub in the local ecosystem; ii) definition of the hub's value proposition; iii) business and sustainability plan, and iv) activities to support growth and sustainability of the local ecosystem. Each of these phases was preceded by brief presentations on how the models of innovation hubs from the international examples supporting the workshop addressed each of these topics. The participants were randomly assigned to four groups that had at least one representative from each category of institutions participating (for example, government, the private sector, academia. and civil society). Each group was supported by an international expert and a Bank-MTT team member that provided guidance to the cocreation process.

The outcome of the workshop was four lines of action, with a business plan and a program of activities, for the Gran Concepción innovation hub (see Table 10). The participants interested in being part of the hub nominated the activities to which they would contribute (for example, universities offered skills training, multinationals offered testing of solutions with local entrepreneurs, and so on) for each of the lines of action.

The component concluded with the public presentation of results to the local, regional, and national authorities, particularly the Viceminister of MTT, Directors of

TABLE 10: ACTION LINES FOR GRAN CONCEPCIÓN HUB AS DEFINED BY CO-CREATION WORKSHOP

HUB ACTION LINE	DESCRIPTION
Hub + Ocio (Hub and Leisure)	Promotion of creative industries in Gran Concepción developing a community of creative artists and entrepreneurs through community and skills building events and activities, and supporting the scaling up of creative and entrepreneurial projects.
Inn Port	Promote innovation and entrepreneurship with the local commercial harbour industry to expand import/export industries in Gran Concepción and support exporting potential of local industry.
Smart Plan	Support urban planning process in Gran Concepción through citizen engagement and active participation.
Mobile Hub	Support knowledge economy innovation and entrepreneurship through competitions and challenges and support infrastructure, including an accelerator/incubator, with a direct link with local universities and their existing entrepreneurial support infrastructure (e.g., incubators).

InnovaBioBio, and the regional branch of CORFO. The results were presented by the participants in the cocreation workshop, which designated a spokesperson for each group to present the hub's lines of action. Additionally, a plan of action for implementation of the hub was presented by the four spokespersons. InnovaBioBio and regional CORFO are the government institutions with authority to support the implementation of the local innovation hub.

The results of this component were the following:

- A strategic plan for a local innovation hub, including governance arrangement, business plan, program of activities, and plan of actions for implementation, to support entrepreneurship and open innovation in Gran Concepción;
- Establishment of a coalition of the local ecosystem's stakeholders and international partners for the innovation hub, including commitments to support the hub's activities; and
- Establishment of a coalition of active supporters of the local ecosystem for open innovation processes for local and municipal government.

Project Components:

Presentation of results

A video summary of this the presentation of results may be accessed at: **http://bit.ly/1FsWdTT**

Presentation of results

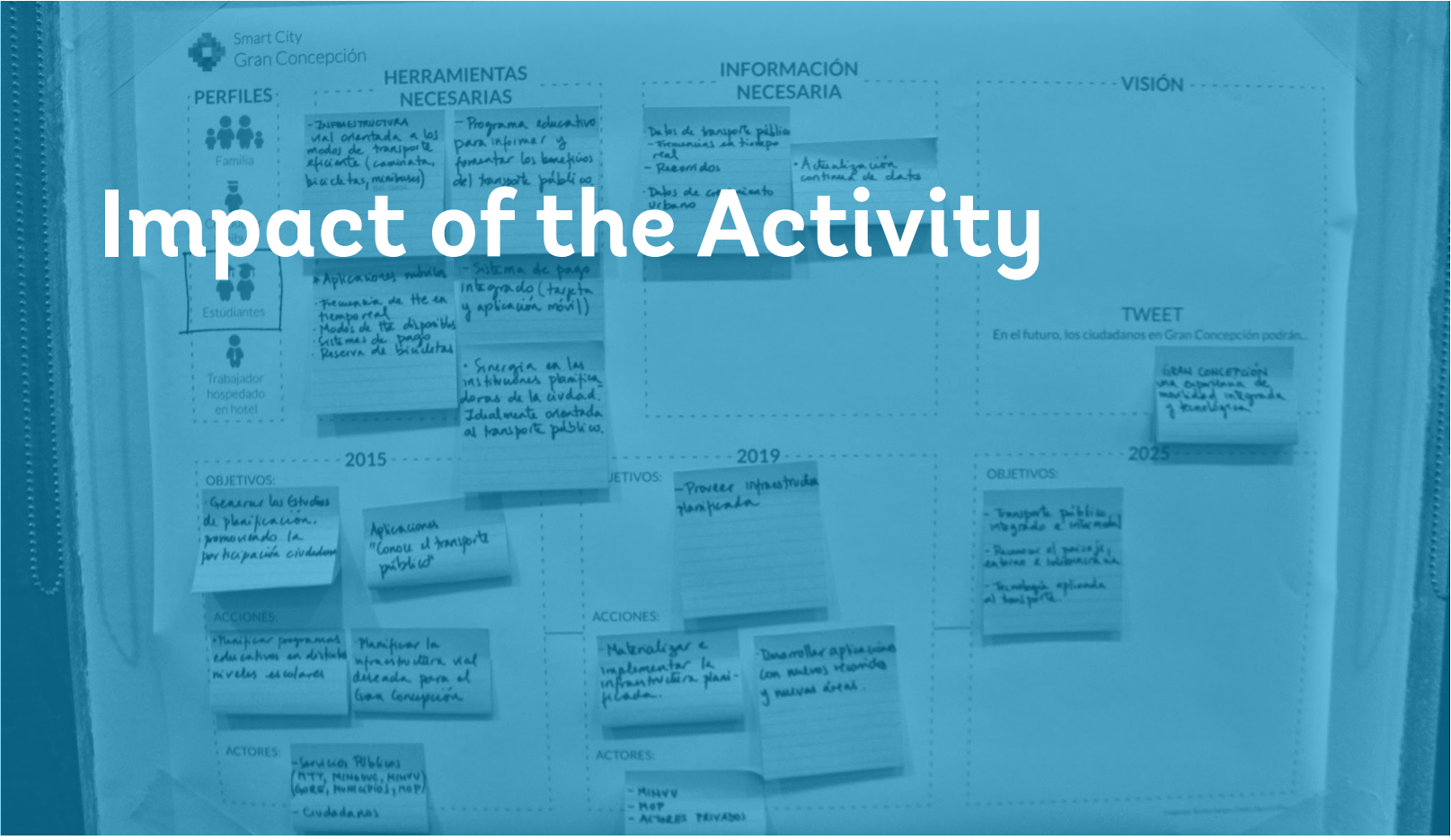
The activity concluded with two workshops, conducted in Santiago de Chile in October 2014 and Barcelona (within the Smart City Expo World Congress) in November 2014.

The workshop in Santiago de Chile was hosted by CORFO and presented the results of the activity, the relevance of fostering entrepreneurship ecosystems for economic growth, the global context and the international examples from Spain, Finland, and the Netherlands. The results were presented to the Executive Vice-president of CORFO, the Viceminister of MTT, and the Governor of the Regional Metropolitan Government of Santiago de Chile. Public officials from these institutions attended the workshop, as well as other national government ministries and authorities, including the Ministry of Economy and the Ministry of the Presidency. The results were then presented to MTT, CORFO, and the Regional Metropolitan Government in Santiago in more detail through individual meetings with the World Bank team.

In November 2014, the head of the Smart Cities Unit of MTT, Mr. Pedro Vidal, presented the results of the

Smart City Gran Concepción activity in the Smart Cities Expo World Congress in Barcelona to a global audience through his participation in the panel "Smart Society & Collaborative City."

Impact of the Activity



A video of the panel "Digital ecosystems: challenges for a new country strategy" may be accessed at: **http://bit.ly/1LI4dBC**

Impact in Gran Concepción

Smart City Gran Concepción proved the methodology effective, introducing open innovation methodologies in Gran Concepción's transport municipal and local services. It trained local and municipal officials as well as the Smart City Unit of the Ministry of Transport to replicate and mainstream the methodologies within Gran Concepción municipal and local services and throughout the country.

The training by-doing of local and municipal officials in Gran Concepción and their empowerment within the local government throughout the activity created a network of champions to continue the implementation of the open innovation methodologies and to mainstream them throughout other municipal and local sectors beyond transport. In addition, the cocreation of the innovation hub model together with all the city stakeholders (that is, universities, entrepreneurs, the private sector, civil society, and government) provided an institutional framework for further implementation and sustainability. Gran Concepción has a local Smart City Unit from MTT embedded in the local government and has implemented open innovation processes for codevelopment of services (including a follow-up competition of technology solutions for local and municipal challenges). Two of the municipalities of Gran Concepción have a Smart City plan and are developing an Urban Lab together with civil society based on the ideas and design of the workshop for the innovation hub (component 4).

Impact in Chile: Scaling up of the model throughout the country and other sectors

The activity also resulted in the Government of Chile (through the MTT, CORFO, and the Regional Metropolitan Government of Santiago) scaling up the smart city model developed in Smart City Gran Concepción through multiple Government activities (see Box 6).

The activity actively helped catalyze the momentum for public support of smart cities and programs for open innovation and entrepreneurship in Chile, which

BOX 6

GOVERNMENT ACTIVITIES RESULTING FROM AND/OR INSPIRED BY SMART CITY GRAN CONCEPCIÓN ACTIVITY

MTT approved the **Smart City Strategy** embracing the smart city bottom-up approach implemented in Smart City Gran Concepción and calling for its implementing this model at national level.

Following the strategy, the Smart City Unit has been implementing open innovation competitions in **six regions** (Temuco, Puerto Montt, Concepción, Antofagasta, Coquimbo and Valparaiso) under the **MueveTT** brand and open innovation methodology developed under Smart City Gran Concepción.

CORFO developed the **Regional Strategic Smart City** program with the Metropolitan Region of Santiago de Chile to implement the bottom-up smart city model to Santiago de Chile. This program follows the **MoU MTT-Regional Metropolitan Government** to support the development of the bottom-up smart city model in Santiago that was signed in the Results Workshop of Smart City Gran Concepción.

The **Regional Metropolitan Government of Santiago** created the Innovation Fund for Competitiveness together with the MTT to develop open innovation methodologies with the universities of Santiago to develop regional technological platforms and support the Smart City model.

CONYCIT developed an initiative to link university research and private sector companies to develop technology solutions to support the smart city model following open innovation and collaboration models in part inspired by Smart City Concepción activity.

Chile's GovLab, in collaboration with the Smart City Unit of MTT, is working on three government challenges in the area of transport (out of a total of 10 government challenges) following open innovation and co-creation methodologies. These challenges are related to Smart City Gran Concepción activity.

As a results of the skills and knowledge gained through the Smart City Gran Concepción activity (see below) the Smart City Unit of MTT work program include: i) catalyzing PPPs and government funds to develop open innovation processes for public goals, and ii) catalyze the entrepreneurship ecosystem through universities, promoting the development of open innovation competition and supporting their implementation.

Finally, the work accomplished for the MTT through the Smart City Unit has been highlighted as a reference case by other public organizations in Chile and Latin America.

were not part of the public debate before the activity was developed. The Bank team, together with MTT, and with the active support of País Digital Foundation, participated in national conferences presenting the advances of Smart City Gran Concepción (see Box 7).

Impact in World Bank projects and activities: replicating the methodology

Finally, the methodology implemented and tested in this activity for cocreation of innovation hubs was replicated in two other activities of the World Bank in Lebanon and Egypt and is being codified for replication by the World Bank and interested third parties through the Front End Open Innovation Toolkit developed by LLI. This toolkit will be available to the public and will allow other projects to implement the methodology across sectors and geographies. The results and experiences of the methodology applied in component 4 and the knowledge transfer to other projects of the World Bank were presented in the Citisense 2015 conference.[5]

BOX 7: MAIN FORUMS AND CONFERENCES IN CHILE WHERE THE BANK TEAM PRESENTED THE CONCEPT AND ADVANCES OF SMART CITY GRAN CONCEPCIÓN ACTIVITY

Smart Cities Summit 2014, the leading Smart Cities event in Chile, organized by Pais Digital Foundation (September 2014); **Digital ecosystems: Challenges for a new country strategy**, participating with Vice Minister of Economy and CEO of Telefonica Chile

National Forum on Smart Cities organized by Fundación País Digital (June 2014)

Smart Cities ALCUE-Net workshop, organized by CONYCIT and VTT Finland within the EU-Latino American regional cooperation program for research and technology for smart cities (March 2014)

Appendix A:
Activities of the World Bank Related to this Activity

The Smart City Gran Concepción activity served to validate the methodologies and approaches to: (i) introduce open innovation in municipal government and, (ii) catalyze entrepreneurship first designed and implemented in Colombia and Lebanon. The activity also created and tested a new methodology for cocreation of innovation hubs with local ecosystem stakeholders, which provides a framework for stakeholder engagement and sustainability for World Bank (and other actors) activities and operations in this field. The methodology was implemented and iterated subsequently in Lebanon and Egypt.

The process of iteration and testing of this methodology was supported by the Community of Practice of Open Innovation in Cities, which is codifying the validated methodological approach for replication and implementation by other World Bank activities or interested parties. This process has been conducted in close partnership with the LLI Unit of the World Bank. Finally, the activity worked closely with the Transport practice of the World Bank, embedding a member of this practice in the activity's team, for coordination, capacity building and knowledge sharing purposes.

The following are the activities of the World Bank that supported or were supported by this activity:

Colombia: Open innovation for municipal governments

The objectives of this activity are to promote local government transparency, efficiency and e-services delivery to improve public service delivery and ultimately the quality of life of the population. To achieve this goal, the activity introduced open innovation in three cities in Colombia: Barranquilla, Cali, and Manizales.

The activity worked in the sectors that each city selected and followed a sequential approach comprising the following components:

1. Cocreation of e-services (for example, mobile apps) with city officials and rapid prototyping.
2. Cocreation of a roadmap for technology support to city services and eliminating departmental silos.
3. Challenge competition of city challenges as a mechanism for open innovation for municipal governments and development of local

entrepreneurship.

4. Development of strategic plans with local ecosystem stakeholders (for example, government, academia, private sector, civil society, technology hubs, citizens) to support government's open innovation and development of local entrepreneurship.

This activity was funded by the Information Communications Technologies (ICT) Korean Trust Fund.

Lebanon: Mobile Internet Ecosystem Project (MIEP) and supporting activities

MIEP's objective is to strengthen technology-led innovation ecosystems and foster entrepreneurship and employability in Lebanon. The project focus is to grow and sustain the ecosystem community, expand technical and entrepreneurial skills and to expand the technology ecosystem throughout the economy in Lebanon.

The project is a four-year program with a budget of US$12.8 million with four main activities:

1. Skills training for youth and entrepreneurs. The activity will develop a series of crowdsourcing competitions, which will include intense hand-on training (for example, bootcamp style) with a light acceleration phase. The result of this competition will be a series of startup projects (that is, minimum viable prototype beta tested, a business plan and a pitch). The competitions will also include an international mentorship program and exchange to connect the Lebanese ecosystem to others. In addition, this activity will create a university-industry platform for industry project training and a series of technology skills activities for schools. The university-industry platform will enable final-year students to team up with industry to solve real challenges from companies through a startup or product projects in a six-month timeframe.

2. Growth and sustainability of the tech-innovation community. The activity will develop a network of mentors, links among entrepreneurs, and networking events (for example, meetups) to support the existing community. The activity will also complement existing collaboration spaces and provide technology tools (for example, maker space), labs (for example, living labs), and a space for community networking. This space will be managed by an innovation hub (the Mobile Innovation Hub, MiHub), which will serve to coordinate the community and the community-building activities. The MiHub will also take the role of promoting the community and its members.

3. Innovation for legacy industry and other sector of the economy. The activity will develop a series of hands-on workshops and activities between technology startups and entrepreneurs, and legacy industries that have not widely integrated technology in their production processes. This activity will also develop exchange activities with experts from other innovation ecosystems globally. This project is supported by a Trust Fund of the Korean-World Bank partnership.[6]

Egypt: Innovation ecosystem development strategy

The objective of this activity is to develop a strategy for the development of the innovation ecosystem in Egypt. Within this activity, Smart City Gran Concepción supported the design process for a technology and innovation hub in Cairo to support the technology and startup ecosystem of the city. The activity developed consisted of an in-depth analysis of the city ecosystem and policy recommendations to address the existing gaps through a technology and innovation hub. This process included a cocreation workshop with Cairo's innovation ecosystem stakeholders (for example, universities, startups, investors, civil society and government) to design the structure and role of the hub and the participation and partnership for its activities.

Global: Community of practice of open innovation in cities

The objective of this activity is to create an informal community of practitioners of open innovation in cities with two goals: a) introducing open innovation in city government services, and b) fostering the development of social and technology entrepreneurship in cities. This activity provides collaboration platforms and working groups for city innovation practitioners to connect

and work together. Among the working groups, the following activities are been carried out: a) development of framework to map and diagnose technology startup ecosystems in cities, b) development of a catalogue of open innovation practices applied in municipal governments, and c) crowdsourcing of city challenges among community members to globally crowdsource solutions.

The activity organizes an annual practical training, the City as a Laboratory, where city practitioners learn how to develop and implement open innovation in municipal services, and conducts a series of webinars to disseminate best practice in city innovation. This activity is supported by the Finish Government Trust Fund.

Global: Barcelona urban technology and innovation hub

The objectives of this activity are the cocreation of new knowledge and the dissemination of good practice in urban technology and innovation that the city of Barcelona and its partners have developed over recent years. The main areas of focus relates to bottom-up innovation and how city governments can engage with the city ecosystem to develop innovation and entrepreneurship to address urban challenges. The activity organizes Citisense (an annual event on bottom-up approaches to urban innovation) together with Smart City Expo World Congress and develops common research on urban innovation and entrepreneurship. This activity is supported by the City of Barcelona.

Notes

[1] This process was conducted in partnership with the Leadership, Learning and Innovation (LLI) Unit of the World Bank.

[2] This process was conducted in partnership with the LLI Unit of the World Bank.

[3] There is no municipality of Concepción or Santiago de Chile. These "cities" (also called "conurbations") are formed by an amalgamation of municipalities (that is, over 10 in Concepción and over 30 in Santiago de Chile). The Regional Government (which is considered part of the central government) has overarching authority and the role of coordinator among municipalities.

[4] This component was conducted in partnership with the LLI Unit of the Bank, which is codifying the methodology for replication purposes by the World Bank and interested third parties.

[5] This process is being conducted in partnership with the LLI Unit of the World Bank.

[6] For more information about this project, see: **www.mie-p.org**.