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Executive Summary

The purpose of this deliverable is to create exploitation plans for the exploitable foreground Intellectual Property (IP) of the STORM CLOUDS (SC) project. Exploitation plans elaboration process starts with identifying the project's exploitable assets and working out business models for exploitable assets.

Nevertheless, the main purposes of the whole document are the following:

- To identify and evaluate the project's exploitable assets.
- To present the methodology and process for devising the business models.
- To present the elaborated business models for the identified exploitable assets.
- To show the methodology for the elaboration of exploitation plans.
- To present the elaborated exploitation plans for the exploitable assets.
- To present a 5 years business plan for the main exploitable asset.
- To present the methodology and results for exploitation risk management.
- To summarize the networking activities related with exploitation.

The main idea of creating the SC business models is to gain the SC concept scalability and sustainability. The STORM CLOUDS Smart City Platform (SCP) will be introduced into the market with the aim of dissemination and commercialization of the developed or verified service catalogues and other project foreground such as know-how, verified methods and practices. It is a part of a long-term vision of "Cities in Clouds". The concept of commercialization relays on exploitation of open-source applications and other assets belonging to SC's Partners.

Due to the nature of the project most of the outputs are released with an open-source license. But to make the results sustainable, there is a need to design a value stream that will bring back enough revenues to maintain, further develop and promote these results. On top of that, most exploitable assets are public services that a municipality is offering to their citizens and from which no direct incomes can be generated. However, emphasis has been placed on identifying and leveraging the benefits and indirect incomes these services bring to the municipalities.

Achieving the aim of generating revenues from freely available knowledge, resources, applications and public services is a challenging activity. Therefore, the document will help the consortium's partners to follow an established scheme for the exploitation of the results generated by the project, having designed the steps to be taken for this and identified the time and resources needed to succeed. In the particular case of the main project result, the exploitation plan includes also a 5 years business plan. The elaboration of this plan has been of vital importance for the decision makers of the exploitation partner's company to understand the additional value this offering brings to the company and the incomes that will be generated by its exploitation. This has cleared out any possible reticence for investing the necessary time and resources on its exploitation. Same effect has been seen in the municipalities owning project's exploitable assets. The results of the work presented in this document have unveiled the direct and indirect benefits each particular service bring to the municipality government and citizens and are an excellent negotiation tool for city government to invest personnel and public budget for keeping them alive. Additionally, these results will be used as marketing tools during negotiation with other municipalities, potential adopters of SC smart city services.

While developing the methodology for D6.3 we were inspired and followed the lines of the Common Exploitation Booster mechanism, in order to take into account the most recent guidelines and best practices promoted by the Commission in terms of research results exploitation.

The document is organized in the following chapters:

- **Chapter 1: Introduction** - The introduction presents the background of the SC project and the document objectives. The section "Document objectives" includes: (i) a purpose of the document, (ii) a description of the audience and (iii) a brief note regarding the established methodologies. The third section explains briefly how the consortium has achieved the final result, which is the entire exploitation plan for the SC Platform and assets at the partner level.
- **Chapter 2: SC exploitable assets** - The section presents the methodology of identifying and selecting the exploitable assets. The "exploitable asset inventory" presents the assets identified by partners that have been selected for elaborating the exploitation plans. The process of selection of these particular assets is described in this section. Finally, it gives a short description of each of the assets.
- **Chapter 3: The methodology of business model development** - The section presents the purpose of the established methodologies and describes in detail its key elements: (i) the business model development workshop, with its objectives and methodological aspects, (ii) the schedule of business model generation workshop to be held during the project, (iii) procedures and activities for updating the business model, (iv) the methodology for the lean canvas tutorial. Furthermore, a set of tools is provided which will be used along the way to facilitate business model development, revision and feedback gathering in a remote collaboration setting.
- **Chapter 4: The methodology for Exploitation and Sustainability plans creation –** This section has the purpose of presenting the methodologies chosen for working with project partners in the development of exploitation and sustainability plans, being based in Opportunity Assessment planning. Includes: (i) description of the methodology, (ii) strategy for the elaboration of sustainability and exploitation plans (knowledge sharing and mentoring sessions).
- **Chapter 5: Exploitation risk management methodology** – This chapter presents the methodology used for the identification and management of risks that could be encountered during the exploitation of the main result of the project. It includes: (i) Methodology and description of the tools used during a workshop on risk identification, exploitation and assessment. (ii) Methodology and description of the tools used during risk management planning workshop.
- **Chapter 6**: **STORM CLOUDS scalability and exploitation plans –** This section contains all the results obtained from applying the previously described methodologies.

  Scalability and exploitation plans have been generated and presented at two levels: (i) the STORM CLOUDS Smart City Platform level and (ii) assets at the partner level. The starting point for generating scalability and exploitation plans is the elaboration of business models. The business models have been created on the basis of the Lean Canvas constructed during the "Business model development" workshop. Lean Canvas are created for the platform as a whole and per each identified asset. Each element of the Lean Canvas is explained in detail together with justification.

  Exploitation and sustainability plans are fully constructed plans based on previously created business models. Exploitation plans have been created during a series of mentoring meetings that took place during the last year of the project's lifetime. The exploitation and sustainability plans are based on Opportunity Assessment planning. Detailed description and justification of each element of this plan are described for each exploitable asset. Plans emphasis on the steps to be undertaken and the identification and necessary calculations of time and money to be mobilized for plan success. Furthermore, this section contains the 5-years business plan elaborated for the

main project asset, as well as the results of the work undertaken for identification, assessment and management of exploitation risks for this asset.

- **Chapter 7: Networking activities for scalability at PAN-European level –** briefly describes the activities undertaken for networking and dissemination of the project results, and that have been thoroughly presented in other deliverables.

Table of Contents

List of Figures

List of Tables

Abbreviations

Acronym	Description
D	Deliverable
DoW	Description of Work
HPE	Hewlett Packard Enterprise
IP	Intellectual Property
SC	STORM CLOUDS
SCP	STORM CLOUDS Smart City Platform
WP	Work Package

1 Introduction

1.1 Background

Project STORM CLOUDS aims at deeply changing the Cloud paradigm for Public Authorities. Even though Cloud Computing has been rising/developing over the last decade, the same cannot be claimed regarding Cloud Computing in Public Authorities. In fact several challenges must still be tackled before full adoption by these entities, factors such as privacy, security, ethical issues as well as innovative and sustainable business models that will shape and promote Cloud Computing and/or its exploitable assets within the sector and industry. This latter challenge will be explored in depth throughout this document.

1.2 Document Target Audience

This document is targeted mostly at the consortium partners. They are business partners and Pilot Cities. All of them are stakeholders of the project. Those private companies, municipalities and public institutions are consolidated into one consortium and realize the common goal of taking advantage from the idea of "Cities in Clouds".

The document is important for the audience since the project concerns both economic and strategic aspects of business and social activities of the partners. The document aims is to present the business models and exploitation plans under which the SC project results will be exploited and sustained after the project completion. The audience is not only interested in material advantages, but also in the future results of the project. Partners desire and expect that the project helps to develop innovative society and realize the long-term vision of "Cities in Clouds".

The document may also gain interest of other users while they decide to implement the solutions disseminated thanks to the SC project. The users could be inspired by the business models presented in the document and they could try to adapt them for their own purposes. The other representative of the audience is European Commission. European Commission may be interested in the document, because the SC project is partially funded by the European Commission within the 7th Framework Program.

1.3 Note on the methodologies

REWORKED: This section integrates new elements compared to D6.3.1, such as the updated methodology description on exploitation plan development

The methodology of business model development and exploitation strategy consists of a few stages.

The first milestone reached was the development of business models for the exploitable assets of the project. All the stages that leaded to reach this milestone have been described in deep in the document corresponding to D6.3.1. The process started with the identification, evaluation and selection of exploitable assets. This was done starting with a self-evaluation "Exploitable asset questionnaire" filled-in by partners. The conclusions are made on the ground of gathered data. The level of the exploitation has been determined at that moment. Then an objective evaluation and selection of the assets has taken place with the use of earlier defined criteria. The aim of this stage was to select the exploitable assets that have enough exploitation potential and are well structured enough to provide a solid basis for a viable and sustainable business model. The selection of relevant exploitable assets was a starting point for defining the STORM CLOUDS business models.

It was decided to organize "Business model development" workshop, which involved application of the Lean Canvas[1] model and workshop canvas development methodology and tools to provide relevant aid for brainstorming, discussing and refining the business models at the project level and at the partner level.

The second milestone reached has been the fully constructed exploitation and dissemination plans for the exploitable assets on the basis of business models. The creation of exploitation plans was a challenging work for project stakeholders who, being mostly civil servants of public administrations in small cities, lacked of business experience and background knowledge. For this reason, knowledge sharing and mentoring sessions were organized for particular partners, guiding them step-by-step on the sustainability and exploitation planning elaboration process. For elaboration of the exploitation plans it has been chosen the Hisrich methodology[2] for assessing innovative ideas and opportunity needs by creating an opportunity assessment plan. Opportunity assessment plans have been filled in for each exploitable asset during iterative one-to-one online meetings with exploitable assets owners.

Finally, a complete risk analysis for the exploitation plan of the joint asset has been done. Risk analysis was done in a common effort of all the project partners in two stages. The first one consisted on a workshop for risk identification, assessment and classification. The second was an online meeting for risk management.

This document presents the exploitation and sustainability plans for the exploitable assets including the risk analysis planning for the joint asset. It follows the work presented in D6.3.1.

[1] Detailed description in the paragraph 3.3.1.

[2] Identifying Opportunities and the Opportunity Assessment Plan. Dr. Robert D. Hisrich. 2014. Kent State University

2 STORM CLOUDS exploitable assets

REWORKED: This section has been refocused compared to D6.3.1. Current version consists on a summary of section 2 of D6.3.2. briefly explaining the process of exploitable asset identification and selection, giving emphasis on the final asset inventory but obviating the details of the intermediate stages that lead to this selection.

The process of identification of the exploitable assets and establishing the levels of exploitation was described in detail in D6.3.1. For this reason, despite the fact that this process has set up the basis of this document, this description was not included here with full details.

Summarizing this process, the identification of exploitable assets was as described below.

First, a questionnaire was filled in by all of the project partners in order to gather information on each asset that could possibly be exploited. Basing on the answers of these questionnaires, 9 assets were identified. The second stage was the evaluation and selection of exploitable assets for which there will be developed fully constructed business models. To do so, during cyclical online meetings, partners evaluated all the identified assets against a list of specific criteria, some of which mandatory. As a result of this evaluation process 5 assets were selected to generate business models and exploitation plans. However, as the project was evolving its key outputs were updated, including the advanced maturity of the city services and the SC framework, leading to a necessary minor update of the list of exploitable assets. For this reason during the Business Models Generation Workshop celebrated in Madrid at the end of 2016 the list was revisited, new items added, status updated and the assets were re-evaluated.

On top of that, the project consortium experimented changes in its composition, and a new partner Miskolc Holding, came to the project. Miskolc Holding adapted and cloudified two applications that will be offered as services to their citizens. One of them is Events Open Data application, which was still in development at the time this document was created. The second one is called TiMi. TiMi is a service for reporting public, security or damage issues found in the city, and will be offered to Miskloc citizens starting on March 2017.

Both of them met the necessary criteria to be considered exploitable assets but, for its degree of technology advance and adaptability it has been decided to only include the TiMi application into the list of exploitable assets and thus, including it on the exploitation and sustainability planning process in Storm Clouds.

The selected exploitable assets and levels of exploitation are the following:

Table 1: The updated STORM CLOUDS exploitable asset inventory

Asset	Exploit-ation Level	Development Stage	Innovation Type	Ownership	Exploitation Entity	Exploitation Type
STORM Clouds Smart City Platform,	Project level	Advanced Prototype	Product and organizational innovation	Joint – all Partners	European Dynamics	Commercial

Virtual City Market application	Partner level	Advanced Prototype	Product Innovation	Clear	Aristotle University of Thessaloniki, Greece	Public use with indirect income
Cloud Funding application	Partner level	Early Prototype	Product Innovation	Clear	Aristotle University of Thessaloniki, Greece	Public use with indirect income
Live the City application	Partner level	Advanced Prototype	Product Innovation	Clear	Municipality of Valladolid, Spain	Public use with indirect income
Have Your Say application	Project level	Complete prototype or commercialized version	Product Innovation	Clear	Câmara Municipal de Águeda, Portugal	Public use with indirect income
City Branding application	Partner level	Advanced Prototype	Product Innovation	Clear	Aristotle University of Thessaloniki, Greece	Public use with indirect income
TiMi application	Partner level	Advanced prototype	Product Innovation	Clear	Miskolc Holding, Hungary	Commercial & Public use with indirect income

All exploitable assets, included in the above Table 1, are described in detail in a document D3.3 “Cloud-based public services portfolio”. Some of them are called differently than deliverables of the WP1 / WP2 or the “Exploitable asset questionnaire”, but they are the same assets at the further development stage.

STORM Clouds Smart City Platform is an exploitable asset identified by partner HPE. STORM CLOUDS Smart City Platform is the most important exploitable asset for the whole STORM CLOUDS project. This asset is composed by the SC platform, the catalogue of reusable smart-city services and the roadmap to cloudification that was elaborated thanks to the know-how gained in this project. The main users are, in one hand, municipalities, city districts and other legal entities migrating their services and activities to the cloud. On the other hand, software developers specialized in creating applications for smart cities and wanting to sell their products through the SC platform.

HPE has implemented the platform in its labs and is going to reuse parts of the solution for further commercial projects. The SC Platform is the cloud infrastructure that was designed to host the applications selected by the SC consortium for conducting the migration of digital services to a cloud-computing paradigm. The exploitable asset is described in detail in “Storm Clouds Platform Architectural Design” (D2.2.2 of WP2).

Virtual City Market application[3] is the exploitable asset identified by Aristotle University of Thessaloniki. The author of the application is URENIO - a research institution of the University.

The application is a common platform, which presents all shops around the city. It enables local entrepreneurs to introduce their businesses on the market and promote local brands online. Various levels of products and offers presentation are available. The application enables in some cases to manage the shop online.

The rapporteur has identified cities and city districts, professional associations, chamber of commerce as main users. The current vision for commercialization projects exploitation activities such as: helping in implementation, customisation and training, hosting the application and offering it as a service (monthly/yearly fee for hosting, back up, support etc.).

Cloudfunding application[4] is the exploitable asset identified by Aristotle University of Thessaloniki (Greece). The author of the application is URENIO - a research institution of the University.

The application supports Thessaloniki's local communities to collect money for social and charitable purposes. The application could be easily adapted by other cities. The application supports three types of projects: those for the environmental improvement of the city (e.g. creation of parks and playgrounds, expansion of bike lines); those for social entrepreneurship (e.g. non-profit enterprises promoting objectives that improve the city life or strengthen its social capital); those for knowledge-intensive and technology based youth entrepreneurship.

The rapporteur has identified cities and city districts, organisations managing districts (e.g. university campus, residential areas) as main users. The current vision for commercialization projects exploitation activities such as: helping in implementation, customisation and training, hosting the application and offering it as a service.

Have your say application[5] is the exploitable asset identified by Municipality of Águeda (Portugal).

The rapporteur has identified citizens and local communities as main users. The application is a tool for the municipality to gather opinions from the citizens in consultation processes that are mandatory when urban changes have to be made in the city with the municipality's budget.

The development of the asset was already supported by the Municipality of Águeda. The asset is free and open software. Therefore, there is no commercial exploitation based on license fees. The current vision for commercialization projects exploitation activities helping in implementation of the application. New customers may need help with deploying the asset, and the business model behind the commercial exploitation of this asset is based only on services provided to adapt, enhance and deploy the asset for new customers.

The "Live the City" application is the exploitable asset identified by the Municipality of Valladolid (Spain). Main users are citizens and organizers of events. The application works as a local network allowing events organizers to share with the citizens information on the events they are organizing in the city. At the same time, the application is a service to citizens for being informed on the events happening in the city, share, rate and opine on them.

The asset is free and open software. Therefore, there is no commercial exploitation based on license fees.

[3] Described in WP1 (D1.2) as URENIO's application "Virtual City Marketplace".

[4] Described in WP1 (D1.2) as URENIO's application "Crowdtilt".

[5] Described in WP1 (D1.2) as Municipality of Águeda's application "Lime Survey".

TiMi application is the exploitable asset identified by Miskolc Holding. It is a service for the citizens on Miskolc to report to the municipality government damages and failures found in the city and require to be repaired.

Miskolc Holding has developed this application in their labs and it is going to be reused for commercial purposes. The application is open source. Therefore, there is no commercial exploitation based on license fees. However, it has been envisage to get revenues from contracts for customization, setting up and maintenance of the application in other municipalities wanting to implement it.

3 The methodology of business model development

3.1 Purpose of the established methodology

Business models provide the foundation for achieving the final aim of Task 6.2, which is to come up with a viable business plan for exploitable foreground IP of the STORM CLOUDS project. Therefore, this chapter includes the description of the steps we have planned for to come up with business models for a purpose of the SC project.

This chapter serves as an internal guideline for consortium members to carry out multidimensional analysis of their exploitable assets. It explains how to create a valuable business model step by step and sets up the plan which puts the models into practice. Importantly an effective business model is a living entity that should be updated. The methodology proposed under this project can also be reused by Project partners for other purposes.

3.2 The methodology description

REWORKED: This section has changed slightly compared to D6.3.1. Current version presents modifications on the business model for the joint asset.

Under Storm Clouds we have decided to rely on the business model development methodology based on Lean Canvas model and a collaborative way of canvas development during a moderated workshop. The models are developed in a process composed of a few stages. After identification and selection of the exploitable assets, a business model development workshop takes place with participation of Partners involved in exploitation of the identified exploitable assets. During the workshop participants go through a couple iterative rounds of brainstorming and discussions to define all critical elements of the value proposition and flow behind the given exploitable asset.

Business Model Lean Canvas is a business modelling framework authored by Ash Maurya[6] and is a variation of the classic Business Model Canvas designed by Alex Osterwalder[7]. We went for the lean variation of the framework for its simplicity and its relevance to our objectives. We plan for an

[6] Maurya, Ash. Running lean: Iterate from plan A to a plan that works. " O'Reilly Media, Inc.", 2012.

, and http://leanstack.com/lean-canvas/

[7] Osterwalder, Alexander, and Yves Pigneur. Business model generation: a handbook for visionaries, game changers, and challengers. John Wiley & Sons, 2013.

introduction of novel technological and organisational concepts onto the market, so in this respect SC partners are similar to lean start-ups on their way to the market.

The collaborative canvas development workshop typically follows this pattern:

i. the methodology (the Lean Canvas template) is explained to the team members involved,
ii. workshop participants are split into teams if the group is going to work on more than one business model at a time,
iii. then the fields of the canvas are filled in and discussed in short brainstorming sprints.

This is how the first versions of business models both at the project level and at the partner level where created in Storm Clouds. The process of business model generation does not stop there. In the next steps business models are reviewed and updated by their owners periodically, and in Storm Clouds this has happened at least once more during the last year of the project. The developed models have also been consulted internally and externally by all the Partners, to gain acceptance and take-up at the decision-making level of each organisation. After this review, none of the business models of the services delivered by the municipalities have changed. This is not the case of the business model generated for the joint asset, formed by the STORM CLOUDS Smart City Platform the catalogue of services and the know-how to cloudification. This business model has been further discussed both internally in ED's organization (as main exploitation partner) as well as inside of the SC consortium. This document presents both, the preliminary and the final version of the business models.

3.3 Detailed presentation of the methodology

3.3.1 Business model development workshop

3.3.1.1 Objectives

The main aim of the business model development workshop was to propose, discuss and specify the strategy for the SC project results exploitation in a joined, collaborative effort of all the partners. The involvement of all the partners in the development of the business models was necessary to build the common understanding, consensus and commitment in setting the strategic directions for the exploitation of the key project results. On top of that the value of know-how spread over nine legal entities must have been mobilised to ensure good quality of final outputs.

The methodology enables Partners to take a look at their assets from different perspectives, which gives them the opportunity to discover new functions and benefits that the assets can provide, and thus suggest clues on how to exploit them in an innovative way. Therefore the main aim of the workshop was to figure out, which values are most important, how to introduce them on the market and exploit commercially or make economically sustainable otherwise by identifying an alternative, indirect source of revenue that will turn the model complete and economically sound in the long run.

The workshop has been organised to ensure that every consortium partner fully understands the methodology, that the common goals are properly defined and shared by all the stakeholders from within the consortium. The workshop was a critical milestone for creation of the business model and the starting point for defining the exploitation strategy for SC results.

The overall goal of the workshop was to come up with a business model for each exploitable asset, in particular for STORM CLOUDS Smart City Platform as well as selected Storm Clouds Services that presented enough value to provide a solid basis for a sustainable business model.

a. The workshop plan

As we have considered assets that could be exploited at the project level and the partner level separately the workshop had to provide space for development one complete business model for each pre-selected exploitable asset, therefore it had to be structured into the following sessions:

- Introductory session on the methodology (first morning session)
- Business model development session for the project level exploitable asset, namely the Storm Cloud platform (second morning session),
- Two afternoon sessions dedicated to assets meant to be exploited by partners individually, namely the Storm Clouds Services (this involved: five teams, each one working out a business model for one Service; during the first session participant brainstorm and prepare initial draft of the model and during the second one they present, discuss, adapt and finalise the model).

b. The workshop programme

Note: The initial workshop schedule proposed in the D6.3.1 had to be slightly modified due to the constraints related to partners travelling time and availability. This has not affected however the expected outcome of the workshop. Below we present the final version of the schedule.

Table 2: Workshop First Session Schedule

First Session	
9:00-9:30	*INTRODUCTION* (30 minutes): Highlights of the Business model development workshop and explanation of the main aims of the meeting, theoretical presentation of Lean Canvas methodology (questions & answers);
9:30-10:50	*PRESENTATION* (80 minutes): exploitable assets at a **project level**; each field of Lean Canvas explained in 5 minutes by workshop coordinator, then 5 minutes of individual work followed by group discussion aimed at filling-in the given field (10 minutes); in the first session 4 out of 9 fields will be covered;
10:50-11:00	Coffee break;
11:00-12:40	*PRESENTATION* (100 minutes): exploitable assets at a **project level**; each field of Lean Canvas explained in 5 minutes by workshop coordinator (a reminder), then 5 minutes of individual work followed by group discussion aimed at filling-in the given field (10 minutes); in the second session other 5 out of 9 fields will be covered;
12:40-13:30	Lunch (50 minutes);

Table 3: Workshop Second Session Schedule final version

Second Session	
13:30-14:30	*BRAIN WRITING* (60 minutes): exploitable assets at a **partner level**; during this round each group generates business model for one exploitable asset (maximum 5

	exploitable assets) and therefore all groups receive a plain Lean Canvas and post-it cards, then the participants have 50 minutes (~5 minutes per each field) to discuss their ideas and to write them down on Lean Canvas, giving a very brief explanation and justification regarding presented ideas and place their notes on the canvas;
14:30-14:40	Coffee break (10 minutes);
14:40-15:15	*Final PRESENTATION* (50 minutes) during this round each group has time to present the results of their teamwork; there are 5 groups and each of them has 10 minutes to present their ideas with explanation; the discussion was moderated by the workshop coordinator.
15:15	Final Coffee break

c. Updating the business model

To facilitate remote collaboration on the business model development between the partners and potential stakeholders, we plan to use the online tool *canvanizer.com,* which enables users to brainstorm, write down the results of discussion, structure concepts on 'canvas' and share the results with other team members. The tool proves to be practical while working with remote teams collaborating from different countries.

Moreover, the *canvanizer.com* may also be used as a communication tool with future users of SC results. The Pilot Cities and partner companies are going to offer services based on SC results, and the canvas can help them keep the focus and communicate effectively the key benefits of these services. Furthermore, since all applications created by the project are open-source, they can be reused by other municipalities or companies independently from SC partners. The business model canvas updated and shared via *canvanizer.com* can help also others to understand and spread further the information on the benefits of implementing the applications.

There is also an option of organising a workshop series with end-users conducted by the Consortium if there will be an interest in implementing solutions developed by STORM CLOUDS project. The workshop would be especially helpful for those entrepreneurs/organizations, who are sure to implement the product, but they do not know how to adjust the concept to their own business. The workshop gives them an opportunity to fully understand their capacity to adopt the product and realise strong and weak points of their value chains e.g. from a revenue perspective.

3.3.1.2 Lean Canvas tutorial

The workshop started with explanation of the Lean Canvas tool and the workshop plan. The Lean Canvas template is illustrated in the Figure 1. The numbers on each field specify the order of filling in the Lean Canvas. Each element of the Lean Canvas represents the key component of a complete business model. All the fields of the canvas, i.e. all basic elements of the business model that must have been where explained in detail by the workshop moderator. During the explanation part there was room for questions and answers so that all participants understand the tool, the objectives and are well prepared for next steps.

When all doubts are cleared up the central part of the workshop starts, when participants start brainstorming on the elements of the business model to be filled in. Partners receive sticky notes and Lean Canvas templates to jot down their initial ideas on how to fill in all nine fields of the canvas. This is

done field by field so that there are nine steps to go through and each of them participants brain write and then share and discuss within teams their ideas. In the course of these discussions initial business model descriptions take shape.

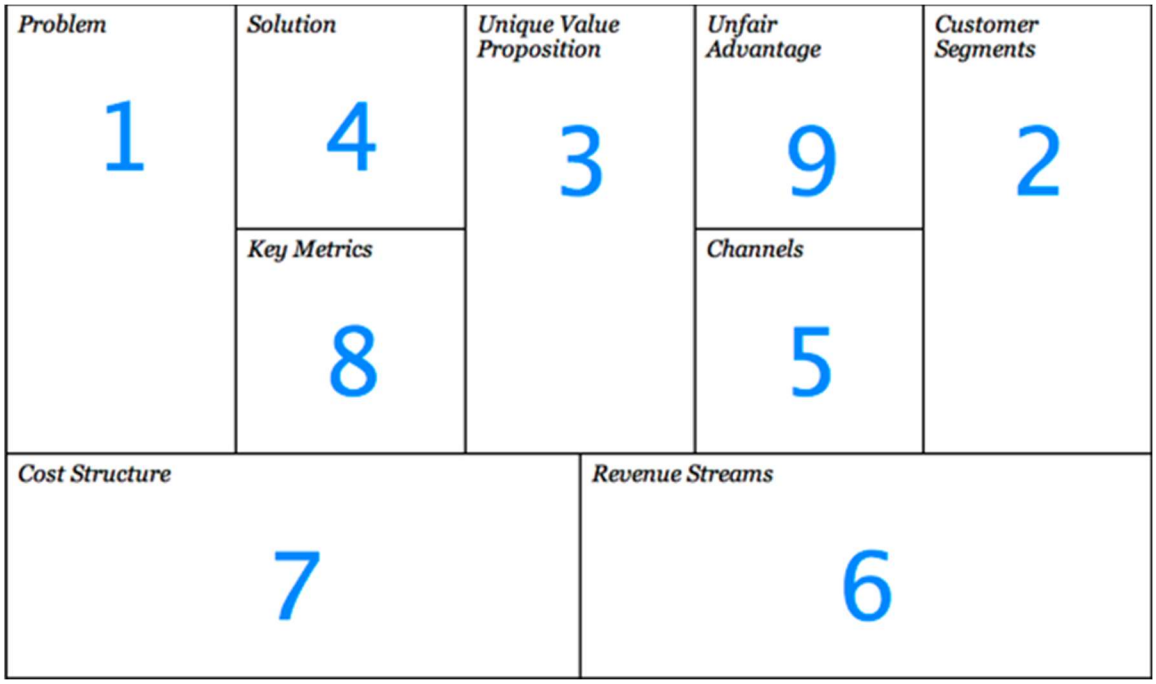


Figure 1: The Lean Canvas pattern

a. Elements of the business model – 9 fields of the Lean Canvas

#1 Problem. The first step of preparing the analysis for business model is to find out an existing problem on the market or in the society. It is an important action, because the service provider cannot make a mistake of creating a misplaced offering. The demand for the product or solution is a vital factor. If the company does not want to waste its effort, money or time, it has to understand the circumstances occurring on the market: Is there any market niche that their assets could fill in? Are there any social or cultural trends that the assets can refer to? Do we know any testimonials from potential end-users that justify the need for what we want to provide?

#2 Customer Segments. The next step involves defining target customers groups, both direct users and potential beneficiaries or third partners that benefit. It is important to consider the canvas from the perspective of each defined target group. Linking identified needs to relevant target groups is the key phase of the business model generation process. Defining the relevant customers segments can be done by answering questions such as: Who are we creating value for? Who are our key customers? Who are we creating value for? In identifying and distinguishing relevant target groups thinking of how do we get new customers, help as customer access channels facilitate right segmentation.

#3 Unique Value Proposition. UVP is about what we provide better than anyone else. What's made our offering unique? Why future customers would reach out to our solution instead of to anything else available on market. What is the most important value that we deliver to the customer? How well this satisfies the identified needs?

#4 Solution. This covers the detail description of the solution provided by the business owner. It is good to focus on no more than three features of fundamental importance. This will help define the so-called MVP (Minimum Viable product), which is in particular important for a starting business. The emphasis should be placed in particular on: How do we resolve the existing problem? What technologies we need to apply? How much innovation is critical to us? What is the life expectancy of our solution and underlying technologies?

#5 Channels. Channels are the ways of getting access to the client. They may vary and the biggest challenge is to find the most efficient path. The business owner has to find an effective communication channel and form a comprehensible message for potential clients. While considering this field of the Canvas the following questions must be answered: What are key channels (reaching customers and contacts, logistics, communication)? What are key activities (e.g. Marketing and sales, service)? What are key resources (people, know-how, infrastructure, capital)? Who are our key partners? Why are they important? What are the associated risks? How will we build and sustain the long-lasting relationship with our target customer group?

#6 Revenue Streams. A very important aspect of the business process modelling is to identify the sources of revenues. In order to find out and evaluate the streams of the revenue one can consider: What/how much the customers are prepared to pay? What your customers are used to pay for? How much are they paying currently? What kinds of budgets are available? Which strategic partner is willing to pay? (if indirect revenue streams are available). It is important to estimate when first revenues can come and when the break-even point is expected. The business is in a better position if it has other resources of revenue that can cover up for the initial investment and these or other sources of initial capital (equity, loan, etc.) must be identified.

#7 Cost Structure. The field "Cost Structure" has a big importance as it is connected with every field of Lean Canvas. The main cost positions are gathered and divided into fixed and variable costs. That element of analysis refers to all sorts of costs that the business may generate, including but not limited to the distribution, hosting, service, people and overhead costs. It is very important to think over and decide, which costs are absolutely necessary in the first days of the project life cycle and which have a lower relevance. The entrepreneur has to estimate how much money the venture needs from the first days until it generates its first income.

#8 Key Metrics. There is always a need to evaluate the progress of the project. Therefore, every business model based on Lean Canvas requires key metrics, which are indicators of the performance effectiveness or the risk of failure. 'Key Metrics' give the opportunity to examine, which decisions were correct and when the entrepreneur/partner should be certain that his performance was successful. "Key Metrics" enable to notice the need of changes in the company.

#9 Unfair Advantage. This is the last element of the Lean Canvas relevant in particular for start-ups as it relates to our competitive advantage at the starting point and entry barriers for clones. Unfair advantage can be an asset critical for the market success of the proposed solution but is hard to get for the competitors. It can be a patent, exclusivity agreements with a key partner or access to rare resources.

3.3.1.3 Workshop organization

a. Workshop running

The workshop took place during the second day of Agueda General Meeting on 3rd of December 2015. Jan Kaczmarek from RTDI acted as the meeting moderator and the person introducing participants to the Lean Canvas as well as the overall methodology of SC business model development, including the objectives

and plan. The event went on schedule and was supported by pre-prepared narration and explanation slides.

The following people participated in the workshop: Agustín González-Quel (Ariadna); Marco Consonni, Claudio Caimi (Hewlett-Packard Enterprise); Alkiviadis Giannakoulias (European Dynamics); Jan Kaczmarek, Weronika Wietrzynska (RDTI); Panagiotis Tsarchopoulos (Aristotle University of Thessaloniki); Maria Martins (Alfamicro); Julián Arroyo (Valladolid); Dimitris Simitopoulos (Dimos Thessaloniki); Miguel Tavares, Jorge Rocha, Marlene Marqués (Cámara de Águeda).

Figure 2: Partners during the business model development workshop in Agueda.

b. Updating the list of exploitable assets

Before the proper part of the workshop took place the Partners once again have discussed the list of exploitable assets. The final decisions on the selection of exploitable assets have been already described on section 2 of this document and reflected in table 1.

c. Workshop conclusions

The main aim of the workshop was to find the most efficient way to commercialise the identified exploitable assets. Business models have to provide for the interest of each Consortium's Partner and give the positive impact on achieving the expected Project's results.

Partners agreed on generating business models for six exploitable assets. The chosen assets were i.e. STORM Clouds Smart City Platform and the catalogue of services, which consists of Virtual City Market, Cloud Funding, Live the City, Have Your Say and City Branding applications.

The main business model for Storm Clouds Smart City Platform was profoundly discussed and settled during the workshop. Partners presented and discussed different ideas and options for joint exploitation approach, but eventually a consensus was reached and one option prevailed and was described in detail.

All the remaining templates filled in for the selected city applications (Virtual City Market, Cloud Funding, Live the City, Have Your Say, City Branding) were drafted to maintain the most relevant elements of the structure and were supplied with the core content during the workshop. The business models were finalized and approved via e-mail after the meeting.

In order to satisfy the requirement set in the DoW (T6.2) on the assessment and validation of the business models with relevant stakeholders, the partners took a commitment to gather feedback on the proposed business model internally within their organizations (including key sponsors, key beneficiaries or end-users).

The results of the conducted "Business model development" workshop are presented in Chapter 4. The chapter wraps-up the output of the collaborative effort undertaken by all the Partners to define business models for the STORM CLOUDS Smart City Platform and the city services.

3.3.2 Miskolc Holding and TiMi application situation

NEW: This section has been introduced to describe the particular case of the assets generated by Miskolc Holding.

Miskolc Holding joined the SC consortium on month 22nd, that is, after the celebration of the "Business model development" workshop. For this reason, the evaluation of the assets delivered by this partner to estimate their exploitability, as well as the elaboration of the business model to the selected exploitable asset owned by Miskolc was done remotely through a series of email exchanging and online meetings between Miskolc Holding and RDTI representatives.

Lean canvas was filled in course of several online meetings. First meeting had the objective to share with Miskolc lean canvas tutorial slides and explaining the objectives and instructions on how to fill it in, as well as clearing all possible doubts regarding this tool and business modelling itself. Then, offline brainstorming work was done within Miskolc representatives on each of the elements of the lean canvas tool. Finally, the lean canvas was filled in and verified during two online meetings between Miskolc and RTDI.

4 The methodology for Exploitation and Sustainability plans creation

NEW: This section has been introduced to describe the methodology for the creation of Exploitation and Sustainability plans.

Exploitation and sustainability plans have been elaborated following the creation of business models. The aim of these plans is to delineate a common strategy towards the exploitation of Storm Clouds tangible and intangible results. Also, these plans will be used to show sustainability of the results after the project's lifetime, and how the money invested in this project will bring economical, societal, scientific or political benefits long after the funding finishes.

Exploitation and sustainability plans have been drafted for the main seven exploitable assets: Storm Clouds Smart City Platform and the catalogue of services, Virtual City Market, Cloud Funding, Live the City, Have Your Say, City Branding and TiMi applications.

The previous deliverable (D6.3.1) showed a suggestion of the final structure of this document when it comes to the exploitation and sustainability plans. However, after the submission of that deliverable it has been decided to establish a more complex methodology for a cooperative work between mentors from RTDI and each of the partners. This methodology allowed for an efficient remote cooperation and a more structured presentation of the developed plans.

It is expected that this document will serve in the future as a guideline for the project Partners when designing the exploitation plans of other assets developed during or after this project lifetime.

4.1 Opportunity Assessment Plan

For elaborating the exploitation plans we have chosen the Hisrich methodology for assessing innovative ideas and opportunity needs by creating an Opportunity Assessment Plan. An opportunity assessment plan is focused on the idea and the market for the idea. In the industry, this plan is developed to be used as a basis for the decision to either act on a market opportunity or wait until another, better opportunity comes along. However, in SC project it was not used as an enter/not enter decision tool. Here, some of the exploitable assets had to be necessarily delivered to market or offered to users for project's objectives verification. Additionally, ensuring the sustainability and exploitation of the main exploitable joint asset is a requirement for EU funded projects. Opportunity assessment plan was used in Storm Clouds for the verification of the sustainability of the services offered, by identifying the benefits they bring to the asset owners and defining the steps to be taken in order to keep them live once the project has finished.

An Opportunity Assessment plan typically focuses on four main points:

- A description of the idea, analysis of the competitive products and companies and identification of the unique selling propositions.
- A market study, including size, trends and characteristics.
- An entrepreneur and team assessment, focusing on their skills and experience.
- A description of the next steps needed to be taken to translate the opportunity into a viable venture

To address all these parts for each exploitation asset RTDI have come up with a questionnaire that was circulated among exploitation assets owners. One separate questionnaire for each exploitable asset was filled in which allowed us to collected relevant information required to complete the exploitation assessment plan.

4.2 Opportunity Assessment Plan Questionnaire

The questionnaire shared with exploitable assets owners was the following:

Table 4: Opportunity Assessment Plan Questionnaire

OPPORTUNITY ASSESSMENT PLAN QUESTIONNAIRE
Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:
a) Describe the service Short description of the service
b) What is the market need for the service? Short description of the needs that have been identified in the market and that lead to the decision of delivering this service.

c) What are the specific aspects of the service? Describe shortly the main characteristics and features of the service provided. This can include look and feel, how is it used, functionalities etc.
d) What are the competitive products or services available filling this need, and their features? Identify the existence of services that are similar or provide similar possibilities to the user at local, national or European level.
e) What are the competitive companies in this product or service market space? Describe their competitive behavior, their strengths and weaknesses. Name the companies that provide the previously identified products or services. For each, shortly describe how they can compete with the service you are providing. Point out their strengths and weaknesses. In this point it is possible to answer in bullets or table.
f) What are the unique service propositions of your service? Point out what characteristics of your service make it different and unique in front of the competence. What are the features that can't be found in the competing products or services? What are the characteristics that will make users/clients see that you are different? What will make users choose you over the competitors?
Part II: Assessment of the opportunity:
a) What market need does this service fill? Define the need in the market that is filled by this service. Briefly comment if any other product or service does already fill this need, and how.
b) What social condition underlines the market need? Describe briefly the profile of your typical customer/users. What is his behavior? What did they do before the service existed? How did they solved the problem that is addressed by this service?
c) Provide any market research data available to describe the market need
d) What is the size, trends, and characteristics of the domestic and/or international markets? Describe the market this service is being delivered to. Find data to estimate its size and growth. Find out what could be done in order to monetize or obtain benefits from the service you are offering.
e) What is the growth rate of this market?
Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.
a) Why does this opportunity interests you?
b) What experience, education and background does do you and your team have?
c) What business skills do you have?
d) How does the product/service idea fit into your and your team's background and experience?
e) What experience and business skills are needed to successfully implement the business plan?
f) Do you know someone who has these skills?
Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

Parts a) to e) of this section can be answered together or independently.
a) Identify each step to be taken to translate this opportunity into a viable business. Name the steps to be taken for making a viable business out of the offering of this service. These steps should include technical activities needed for delivering the service, marketing activities to reach out to users, reaching out to potential sponsors or other stakeholders, etc.
b) Determine the sequence of activities and put these critical steps into some sequential order Order the previously identified steps sequentially.
c) Identify what will be needed in each step This may include workforce, infrastructures, legal conditions to be met, etc.
d) How much time and how much money will each step require?
e) How much time and how much money will be needed in total?
f) Where would you get the needed capital? Identify the source of money needed to launch the service. Identify the incomes or benefits the service will bring once it is launched.

4.3 Exploitation strategy mentoring sessions

Succeeding in the elaboration of exploitation and sustainability strategies for exploitable assets depends to a great extent on the degree of understanding of the goals and engagement of the exploitable assets owners. To ensure that exploitable assets owners understand the objectives and the work they are expected to deliver, and to totally engage them in the process, one-to-one online mentoring meetings have been organised between RTDI mentors and exploitable assets owners. Holding several one-to-one sessions, instead of only one joint webinar, is more time-consuming. However this time dedicated yields on better communication between the parties with full engagement of the implicated partners, allows ad-hoc identification of uncertainties and constraints and creates an efficient working atmosphere.

A minimum of three online mentoring sessions were celebrated for each exploitation plan elaboration. Those were divided into an introductory session followed by iterative working sessions. Email communications and offline follow up was done between sessions.

The objectives of the introductory mentoring sessions were:

- To share basic concepts about what exploitation is and the importance of elaborating exploitation plans.
- To ensure that it is engaged the right people responsible for the exploitation of each of the assets (exploitable assets owners).
- To ensure the exploitable assets owners understand the nature of the asset, the framework in which it will be exploited and other aspects implicated.
- To explain the strategy and methodology we will be using for the elaboration of exploitation plans for the relevant exploitable assets.
- To share the Opportunity Assessment plan questionnaire and explain in which context it should be filled in.
- To go through the questions on the Opportunity Assessment plan and summarize the information that must be reflected for each of the exploitable assets.
- To stablish a time schedule, milestones and deadlines for each of the steps.

After the introductory mentoring session, exploitable asset owners were asked to work offline brainstorming on the questionnaire during a minimum of 4 days and making notes directly in the shared document. Notes were regularly checked and commented by the mentor before the next working session took place. During working sessions, eventual doubts that raised during the offline brainstorming period were resolved and the questionnaire was filled in remotely in a joint work between asset owner and the mentor. Most frequently filling in each questionnaire required at least two iterations on the offline brainstorming/online mentoring session process. Finally, when all data were collected, final tune and edition on the questionnaire was done by the mentor.

5 Exploitation risk management methodology

NEW: This section has been created to present the methodology for the management of exploitation risks.

All projects assume some element of risk, and it's through risk management where tools and techniques are applied to monitor and track those events that have the potential to impact the outcome of a project. Here, we consider the exploitation of SC's results, as a small project with its own objectives inside of the Storm Clouds project. Given the limited resources on one hand and the need to maximise the final impact of the Storm Cloud project on the other, the analysis of exploitation risks was conducted only for the exploitation plan of the main project's result, which is the joint asset formed by the SC platform together with the catalogue of services and underpinned with the gained know-how and experience on cloudification of public services. The elaborated methodology can be however reused by asset owners to conduct similar analysis for individual services if needed after the completion of the project.

Risk management is an ongoing process that includes processes for risk management planning, identification, analysis, monitoring and control. Its objective is to decrease the probability and impact of the elements adverse to the realization of the defined exploitation plans. This plan documents the processes, tools and procedures that will be used to identify, assess and manage those events that may have a negative impact in the exploitation and sustainability of Storm Clouds main result.

A risk is "the effect of uncertainty on objectives" (ISO 31000 definition).

In this definition, uncertainties include events (which may or may not happen) and uncertainties caused by ambiguity or a lack of information. It also includes both negative and positive impacts on objectives. However, in SC we focus on negative impacts on objectives.

Other definitions identify risks as potential issues that would endanger the fulfilment of the project's objectives. A risk materialized turns into an issue that actually threatens the achievement of project's objectives.

The risk management strategy for Storm Cloud project had the following steps:

1. Workshop on risk identification, classification and assessment
2. Online workshop on risk management planning

5.1 Workshop on risk identification, classification and assessment

5.1.1 Note on the workshop methodology

A risk identification strategy is a first step to support project partners in the identification and definition of the risks that can be encountered during the exploitation process. To help in his process we will use tools and methodologies that have the objective of unlocking the creativity of the partners implicated in the process. The output of this process is a raw list of exploitation risks.

To ensure the engagement of all of the participants in the workshop it has been decided to split them in four working groups formed by 3 people with heterogeneous characteristics. When it was possible, each group contained one technological partner representative and two persons from two different participating municipalities. Each group had one computer with internet access.

Risk identification

As a support for risk identification it was used the **Commercialization Risk Identification Checklist**, as it is described in the Luoma and Paasi methodology[8]. A Commercialization Risk Identification Checklist is a checklist of likely sources of project risks, covering a range of categories. It is used as a supporting tool during the creation of a risk list. Elaborating an exploitation risk list is a challenging activity that requires considering every single aspect of the roadmap to the exploitation of project's results. Risk identification checklist are used in this process to be sure that we haven't missed anything. They serve as a thinking tool or discussion prompt to ensure the team has looked at the project and its environment from all angles when they sign off on the risk list. Thorough consideration helps to avoid getting blindsided by foreseeable risks. The Luoma and Paasi Commercialization Risk Identification Checklist we used during the workshop is the following:

Table 5: Exploitation Risk Identification Checklist

Market need
Methods for identification of market need
Not objective customer need
Rapid changes in customer need
Customer resistance for change that new concept bring
Decision making mechanism
Different needs in customer organizations
Timing

[8] Tuija Luoma, Jaakko Paasi (2014). Managing Commercialisation Risks in Innovation Development: Linking Front End and Commercialisation. International Journal of Innovation Management

Market environment Market development Changes in market situation Changes in competing or complementary products or services Marketing strategy Market segmentation First idea of reference customers First idea of launching process Timing
Technology Current technological capabilities of the company Rapid changes in technology development Methods for monitoring changes in technology development Technical feasibility (technology maturity, reliability and usability) Possible technology teething problems Time for adoption of new technology Life cycle of technology IPR Timing
Idea/Value proposition Visible excellence and superiority of concept Novelty value to customer and end-user Strategic alignment Attractiveness to stakeholders Fit to competence Acceptability in markets Rough business case First idea of product life cycle First idea of design First idea of IPR and branding Timing
Business Environment Acceptability of the concept Identified limiting factors for commercialization - Regulation and legislation - Taxation - Economic and political situation - Social development - Ecological development Monitoring of changes in business environment Timing

Management
Ability to set measurable objectives
Capabilities for resource allocation and funding
Lack of marketing and financial experience
Methods for searching information
Comprehensiveness of the information
Network and network relationship management
Collaboration network
Form of network needed for the development (partnering, joint venture, outsourcing, etc.)
Commitment in the network
IP and IPR
External or internal funding
Availability of skilled experts

For the workshop, the checklist was transferred to a shared spreadsheet split in such a way that every two sections of the checklist where located in a different sheet. To each working group it was assigned one of those shared sheets and were asked to use the two sections of the checklist as a brainstorm tool for identifying risks and writing them directly in the shared spreadsheet. Identification of a minimum of 3 risks for each section was required for each working group.

Risk assessment

For risk assessment it was chosen a variation on the Cooke and Williams method. The objective of this method is to assign priority to the risks and classify them on the basis of the impact they will have on the project and the probability of their occurrence. The risks generated in the previous step were annotated directly in the first column of a table containing a second and third columns corresponding to probability and severity. Then, for each risk it was evaluated the probability of happening and the severity of the consequences if it happens. Both, severity and probability are rated on a scale from 1 to 5.

Severity
1 – Insignificant – easily handled within the normal course of the plan for exploitation with no additional costs or personnel engagement.
2 – Minor – some disruption within the normal plan. Manageable risk with minimum estimated cost or personnel engagement.
3 – Moderate – immediate time, resource and/or personnel reallocation will be necessary with a moderate estimated costs.
4 – Major – the plan for exploitation is severely disrupted and significant risk of failure to part of it is possible.
5 – Catastrophic – significant feasibility concern exists with the plan for exploitation and the risk is classified as critical.

Probability
1 – Rare – highly unlikely to occur.
2 – Unlikely – conceivable, but not likely to occur under normal circumstances.
3 – Possible – not generally expected to occur, but may occur under specific circumstances.
4 – Likely – will probably occur at some stage based on evidence or experience.

5 - Almost certain – expected to occur most times during normal operations.

Then, risks were classified by calculating the risk level, which is the result of multiplying severity x probability for each of the risks on the list. Risk level classification is as follows

Extreme risk: risk level from 23 to 25.

High risk: risk level from 14 to 22.

Medium risk: risk level from 6 to 14.

Low risk: risk level from 1 to 6.

5.1.2 Workshop plan:

Workshop consisted on the following sections:

1. Introduction
2. Joint asset business model and exploitation plan presentation and discussion
3. Risk definition and tips to identify risks
4. Comercialization Risks Identification Checklist
5. Risk assessment
6. Group brainstorming on commercialization risks identification and assessment
7. Explanation of identified risks and discussion
8. Conclusions

1. **Introduction.**
   - Summarizing of the work undertaken for exploitation planning inside the project.
   - Explaining of the workshop objectives and expected result.
   - What is exploitation and why do we want to work on it in SC?
   - Workshop methodology explanation
   - Splitting up participants in four groups
   - Make sure all participants know what is expected from them during the workshop.
2. **Joint asset business model and exploitation plan presentation and discussion.**
   - Presentation of the elaborated business model and exploitation plan drafted for the joint asset. The business model for the joint asset was drafted during the Business Model Generation Workshop celebrated in Agueda, as explained in section 3 of this document. From that date, the business model has been discussed between European Dynamics representative and RTDI mentor and consequently adapted. Additionally, the exploitation plan for the joint asset was already drafted and close to its finalization by the moment this workshop was celebrated. To ensure every workshop participant is familiar with both, a representative of ED gave a detailed description during this workshop.
   - Each workshop participant is asked for giving positive comments on the business model and exploitation plan of the joint asset during 3 minutes.
   - Discussion on the business model and exploitation plan
3. **Risk definition and tips on how to identify the risks**. The aim is to set up joint objectives for the risk identification process, introducing the tools and methodologies that will be used and giving particular instructions on how to use them for reaching project's objectives. As follows:

- Risk definitions
- Tips to identify risks:
    - Have the objectives and processes in mind: we are identifying inherent risks to exploitation
    - At this stage, don't consider whether we are controlling the risk
    - Don't judge the risk at this stage, just put it on the list
    - View the exploitation plan as if you see it for the first time.
    - Go through the Commercialization Risks Checklist and write down all the risks you can think of. Minimum, think of at least 3 risks related to each section

4. **Commercialization Risks Identification Checklist.**
    - What it is and how to use it
5. **Risk assessment**
    - How to evaluate the severity of the identified risks
    - How to evaluate the probability of the identified risks
6. **Group brainstorming on commercialization risk identification and assessment**
    - 15 minutes of joint work in the groups
    - Questions and uncertainties were solved ad hoc
7. **Explanation of the identified risks and discussion**
    - One by one, each group named the risks they have identified and gave an explanation enough for the rest of participants to understand it.
    - Severity and probability are evaluated and jointly discussed.
8. **Conclusions**
    - Calculation of the risk level
    - Explanation of further work on risks.

5.1.3 Workshop running and conclusions

The workshop took place during the afternoon session of the Madrid general project meeting, on December 2016. Raquel Linaje from RTDI acted as the workshop moderator and the person introducing participants to the overall methodology of commercialization risk identification and assessment, including the workshop objectives and plan. The event was supported by pre-prepared narration and explanation slides. 13 people participated: Alkiviadis Giannakoulias (European Dynamics), Marco Consonni (HPE), Christos Lampros, Dimitris Simitopoulos, Stylianos Zachariou (Municipality of Thessaloniki), Agustin Gonzalez Quel, Raquel Linaje (RTDI), Panagiotis Tsarchopoulos (URENIO), Julian Arroyo (Municipality of Valladolid), Miguel Tavares (Municipality of Agueda), Laszlo Ember, Gergely Jeviczky, Istvan Nagy (Miskolc Holding).

a. Business model actualization for the joint asset

During the first part of the workshop, the Partners discussed jointly the business model and exploitation plan draft presented by Alkiviadis Giannakoulias and final modifications were made. The final form of this model is presented in section 6 of this document.

b. Workshop conclusions

The main aim of the workshop was to jointly discuss on the exploitation plan of the main exploitable asset and identify and evaluate the risks inherent to it. Although the business model for the joint asset was

already agreed and set during the previous project general meeting one year before, necessary changes were made in order to adapt it to the current characteristics of the asset and the interests of the exploitation partner.

Partners were very implicated and participative in the workshop, which yield a list of 23 identified and evaluated risks. Those set the bases for a second workshop to be celebrated online and which have the objective of jointly define mitigation or contingency actions for the identified risks.

5.2 Risk management planning workshop

Classification of risks according to their risk level is a first step for deciding what further actions will be taken.

- Extreme Risk – All risks that got a risk level over 23 are of utmost importance. Prevention and mitigation strategies for all these risks must be framed in advance so as to prevent their occurrence or to fight them back as soon as they surface up.
- High Risk – They got a risk level from 14 to 22. These are the risks that again must be optimally addressed, however they do not enjoy top priority like the risks in red cells. These are also significant risks and it's advisable to have them included in the risk management strategies.
- Medium Risk – These are risks which can be left out during the formulation of risk management strategies, as these are low priority risks and can be handled as and when they arise. However, that does not mean these risks can be ignored altogether.
- Low Risk – Those risks are nearly harmless and in most cases these can be safely ignored. Most risks in this category don't require any mediation at all.

Extreme and high risks will be subjected to a risk management plan. Risk management plan starts with selecting an action plan, important to be able to manage the risk effectively.
During the risk management planning workshop partners suggested mitigation and/or contingency plans for risks that have been classified as extreme and high.
A contingency plan is a series of activities that should take place either prior to or when the event occurs. Those plans are not mutually exclusive: very severe risks may have contingency plans to be executed both before and after the risk has occurred.

- Implemented before the risk has occurred, contingency plans are of preventive nature and have the objective of removing the risk entirely or reducing its impact (they reduce the probability of the risk to occur). They are most adequate to be designed for risks that have been planned to avoid.
- Implemented after a risk occurs, can only lessen the impact.

a. Workshop description

Workshop on risk management took place remotely using online meeting tools. Following the previous workshop, Raquel Linaje from RTDI conducted the workshop and acted as moderator. In the workshop participated 9 people : Alkiviadis Giannakoulias (European Dynamics), Marco Consonni (HPE), Christos Lampros, (Municipality of Thessaloniki), Agustin Gonzalez Quel, Raquel Linaje (RTDI), Panagiotis Tsarchopoulos (URENIO), Julian Arroyo (Municipality of Valladolid), Miguel Tavares (Municipality of Agueda) and Istvan Nagy (Miskolc Holding).

The objectives of this session were:

- To review the risks identified in the previous workshop
- To collect other possible risks that may have been identified since the last meeting took place, using the Commercialization Risks Identification checklist as a thinking tool.
- To draft mitigation or contingency actions to manage those risks.

The moderator summarized the results of the previous workshop and explained the characteristics of contingency and mitigation actions. A shared presentation was used as supporting materials. During the meeting, participants worked simultaneously on a shared spreadsheet where notes were taken and risks, evaluation and contingency/mitigation actions annotated.

b. Workshop plan

1. Introduction and objectives of the workshop
2. Business model and exploitation plan for the joint asset summary. To ensure all project participants have a fresh idea of the characteristics of the business model and exploitation plan for the joint asset, a short summary of them was given, including all the necessary information.
3. Exploitation risk identification: new exploitation risks were identified and explained.
4. Classification of risks and selection of those with extreme and high severity.
5. Risk management. Description, importance, uses. How to identify activities for managing risks.
6. Brainstorm on identification of risk management activities.
7. Presentation, participant by participant, the risk management activities identified for each of the risks.

6 STORM CLOUDS scalability and exploitation plans

6.1 Scalability and exploitation plan for Storm Clouds Smart City Platform

6.1.1 Storm Clouds Smart City Platform business model

6.1.1.1 Overall approach and identification of constraints

The main problem with generating business models for STORM CLOUDS Project is the fact that exploitable assets owners are both private companies and public institutions like cities and municipalities. The European law does not allow public institutions to gain direct income from services offered as a public good. From the perspective of municipalities, some of the exploitable assets of the SC Project are public goods. Cloudified services are the outcome of the engagement of Pilot Cities and they are targeted at the municipalities. Those Pilot Cities are owners of the applications and as they are public entities what they own is a public good and cannot in principle be commercialised. Nevertheless, due to the technical work provided by the industrial and academic partners the services have gained added value. The services were cloudified and universalised so that they could be reused in other interested cities, in particular those chosen under the Call4Cities. The main result of the SC Project: the SC Platform with a catalogue of

cloudified applications (the Catalogue) accompanied with a reusable set of practices and know-how gained on the way can be successfully exploited by technology partners that stand behind the development of the framework and pilot deployment of the services.

The key outcome of the project is a cloud-based platform and the catalogue of re-useable city services. This output must be exploited jointly by the technology partners contributing to its development in particular HPE and European Dynamics as well as Urenio and Ariadna. The services deployed in pilot cities constitute independent exploitable assets that can be further maintained and offered to the citizens beyond the project lifetime, for which a business model at the partner level needs to be also defined. Meanwhile there are no formal constraints on the exploitation of the Platform as a whole, because all the source code of the platform and the services in the catalogue are released under an open source licence, the commercial exploitation of the services that are already deployed in the cities is not possible. Due to the legal constraints described above, the municipalities cannot charge citizens and generate other revenues but taxes and legally enforced fees. Therefore the assets owned by the municipalities can only be exploited under a model that involves generating value that pays back indirectly in the form of increased revenues from tax collection (VAT, city tax, income tax or corporate tax). Moreover, particular focus was placed on other than monetary intangible benefits including: quality of life, investment attractiveness of the city, citizen and visitor satisfaction that indirectly increase domestic product, employment and taxable incomes.

Taking into account all the legal aspects described above, a discussion was raised regarding the final version of the business model on the project level. The business models on individual partner level, despite insufficient financial impact on the partners, will result in growth of the revenue source on the platform level.

6.1.1.2 The SC Platform business model

REWORKED: This section has been reworked from D6.3.1. so it reflects the final version of the business model for the main exploitable asset including the modifications that have been introduced during the last year of the project.

During both workshops different options for the ultimate SC Platform exploitation approach and business model where discussed. The full report on the discussions held falls beyond the scope of this deliverable so let us straight away present the model which came out as the final consensus of all the participants.

The key assumptions and conclusions agreed upon during the workshops:

1. European Dynamics (ED) acts as the key exploitation partner responsible for the platform maintenance and offering after the project completion.
2. HPE as technology contributor will make an agreement with European Dynamics on a fair revenue share whenever the restricted background or foreground IP of HPE must be involved at any state of the exploitation.
3. ED will provide the commercial package including the Storm Cloud Platform, the catalogue of services and the necessary documentation such as manuals and instruction materials on how to make use of the Platform.
4. ED will maintain the Platform and the Catalogue and will prepare and present a commercial offer to one of its target users: the Brokers, i.e. software companies or other kind of multipliers (e.g.

consultants) that want to contract cloud-based city service deployment directly with municipalities worldwide.

5. The Brokers earn money by offering municipalities (B2G market) the cloudification services or deployment of new services from the catalogue of services utilising framework resources provided and constantly updated by ED. This deployment will most frequently include customization and adaptation of the applications to the municipalities' needs.
6. Brokers can update and create new services and add them to the Catalogue maintained by the ED. Prior to this, ED certifies the services in terms of security, ethics, data protection, multilingualism and interoperability and controls the quality of the applications placed in the Catalogue. Under this model the Catalogue works like an app marketplace under the quality supervision and control of ED.
7. In return the Brokers host deployed services at ED. ED hosts the STORM CLOUDS Smart City Platform deployments in cooperation with selected IaaS providers and becomes a value-added reseller of their cloud infrastructures offering it to Brokers with the SC Platform package. The reseller margin pays the maintenance cost and further investments in the SC Platform development.
8. First Brokers are ED themselves and SC Partners taking the role of integrators, namely URENIO and Ariadna. As project partners they have a privileged position in offering their services to municipalities in Europe and beyond due to the experience gained during the project and the reference use case portfolio built under the project.
9. Additionally, ED will offer the SC Platform as well as the Catalogue to all B2G software providers and consultants and will make effort to promote the platform and the marketplace as widely as possible trying reach out to Brokers that will maintain the entire Storm Clouds Ecosystem.
10. On top of that, ED gives project management services to the municipalities. ED will gather technical requirements from municipalities, participate as intermediaries between the municipality and the developer and negotiate with the cloud service provider. Also handling paperwork with the cloud service provider, and for solving all the issues that may appear with the cloud service provider that the municipality may not be able to handle such as looking out for SLA.
11. The way how the deployment is paid by the municipalities is up to the Brokers and their sales and contracting models and negotiation approaches. It is foreseen that each Broker can have its own strategies for pricing and maintaining the deployed services. This does not affect the sustainability of the Platform and the Catalogue as revenues are guaranteed under the IaaS value-added reselling model of ED.
12. To interest municipalities, applications will be offered on trial mode for free during a certain period of time for a certain number of users. This gets around the problem of municipalities having reticence in adopting a cloud service because the purchasing process is so bureaucratically complicated that it doesn't allow them for an easy way back or rectification if the service is not what their expected.
13. Municipalities can also offer to the platform applications that have already installed, or it has been developed by their IT department. When a municipality offers an application (of enough quality) to the platform, then they get other one at no cost.
14. Some code is available under an open source licence and the toolkits provided by ED are freely available. However, some applications included in the catalogue may be subjected to license fees.

a. STORM Clouds Smart City Platform Lean Canvas

During the workshop the full Lean Canvas was defined for the Storm Clouds Smart City Platform asset, which includes SCP Platform together with the Catalogue of services, as presented in the previous section.

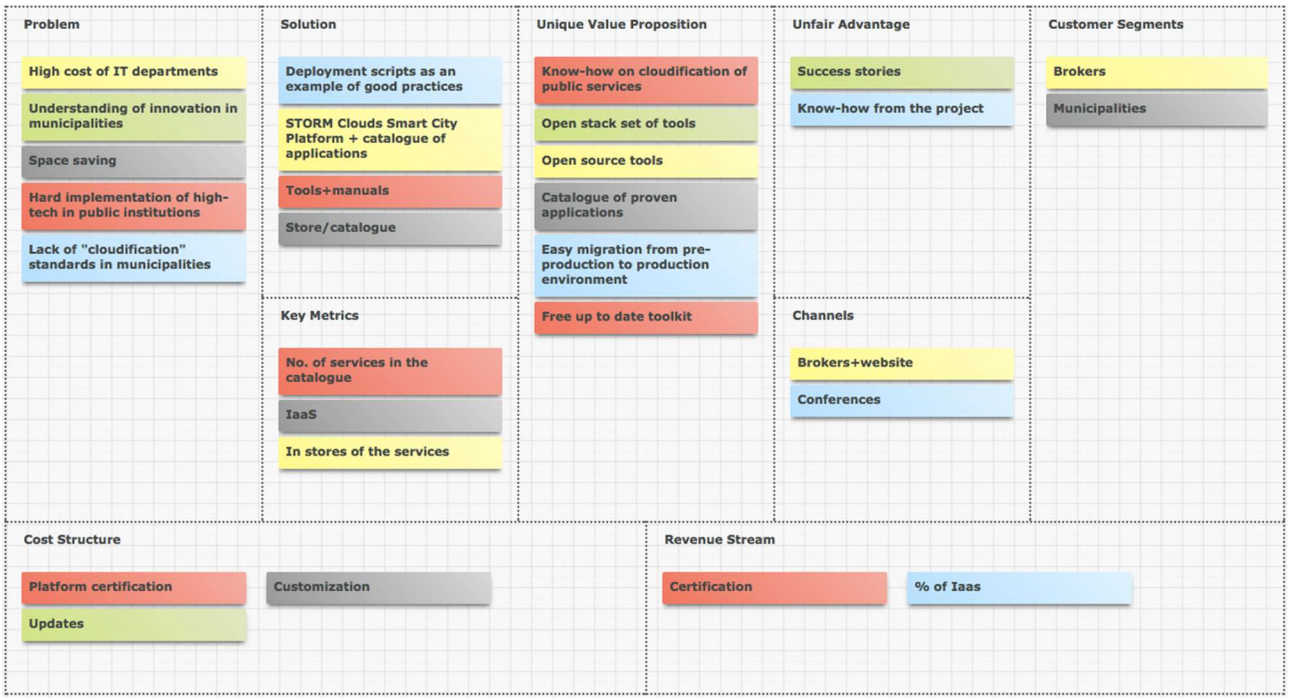


Figure 3: Lean Canvas for STORM Clouds Smart City Platform

b. Problem addressed by SC Smart City platform

STORM Clouds Smart City Platform is an IT solution, which addresses the problem of lack of high-tech and innovative IT solutions in municipalities. The main obstacles are high costs of IT departments, difficult implementation of novelties in public institutions, lack of “cloudification” standards for public sector, vendor lock-in strategies exercised by IT providers. The citizens expect implementation of innovative solutions as an indicator of continuous municipality development and increasing the efficiency of public services.

Innovative cities also face the problem of space deficiency, both real and virtual. They do not manage to maintain their own physical servers in a city hall and there is no virtual space to host all applications needed by the citizens.

c. Customer segments

The STORM Clouds Smart City Platform and the catalogue of the services/applications is a solution targeted primarily at the Brokers who act as the end providers and consultants for the municipalities. Municipalities due to lack of relevant technical know-how and capacities in house will typically rely on external providers/consultants (the Brokers) for customising and deploying the applications. Due to the Platform these customisations and deployments can be done cheaper and in shorter time.

d. Solution

The solution is composed of: the Platform code (package), the catalogue of ready to deploy services, tools and manuals targeted at the Brokers, incl. deployment scripts, and easy integration with IaaS offered by commercial cloud providers or compatible private clouds of the municipalities.

e. Unique value proposition

The unique value proposition of the solution sits on: the know-how on "cloudification" of public services, openstack set of tools customised to the needs and requirements of cloudifying applications in municipalities, other unique deployment tools developed under the project, the catalogue of proven applications that can serve as a set of reference success stories, easy migration from pre-production to production environment, free up to date toolkit.

f. Channels

The channels of dissemination will depend on the target user group. The Brokers will be accessed via events and conferences, PR and publicity activities focused on professional press, developer's fora and outbound marketing campaigns. We also assume direct communication campaigns targeted at IT heads of municipalities and eAdministration and public procurement officers and specialists to raise awareness about the Platform and the benefits it can bring to public administration at local and central level. It must be noted again that municipalities with enough know-how in house can freely access and reuse SC source codes and toolkits and exploit them on their own. Public procurement officers can be inspired and direct the public procurement process in a way that would facilitate reuse of SC results with mutual benefits to both the cities and the providers.

g. Revenue streams

The revenue stream comes mainly form the commission on the IaaS resold by European Dynamics as well as the certification fees charged to the Brokers who want to add their services to the platform and thus promote their services within the community. The revenues will cover the maintenance and operational expenses, incl. maintenance, updates, quality control, support.

h. Cost structure

Main costs are associated with platform certification, customization and updating.

i. Unfair advantage

Our unfair advantage consist in being the first on this niche B2G market, the experience gained along the project, and the ability to demonstrate a set of success stories (deployments in pilot cities).

6.1.2 Storm Clouds Smart City Platform exploitation plan

NEW: This section has been introduced. It presents the Storm Clouds Smart City Platform exploitation plan, including the calculations of needed time and money for exploitation.

OPPORTUNITY ASSESSMENT PLAN FOR STORM CLOUDS SMART CITY PLATFORM

Part I: Product or service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Product or service description

This joint asset is the package formed by the following products and services, which are interrelated:

1. A cloud-based platform (SCP - STORM CLOUDS Smart City Platform).
2. A catalogue of reusable smart-city services.
3. Cloudification consulting services and roadmap to cloudification (based on the know-how gained in this project).

1. Cloud-based platform

The SCP is a secure foundation of solutions that facilitate the deployment of civic applications in a cloud environment. It allows public authorities, citizens and developers to engage and interact. This is a cloud computing platform for hosting application services. SCP supplies computational resources that are allocated or de-allocated on-demand, following an "as-a-Service" cloud computing paradigm.

2. Catalogue of reusable smart-city services

The services contained in the catalogue are currently open source applications that have been developed by software developers and hosted in the SCP after a process of verification and certification to ensure they comply with SCP quality and security standards. In this catalogue are also included the tools and procedures created during the cloudification process.

At the current moment, the catalogue contains generic versions of smart city services. Those are applications particularly targeted to institutions, government and municipalities, and they have been implemented and verified in several cities during the SC project lifetime. Hosted applications are so far of free use and of general access. However, it is foreseen that in the future will be included in the catalogue also proprietary services subjected to a license fee or to other models of paid software, depending on the degree of development.

The final goal is to expand the catalogue with more reusable smart-city services, following the analogy of other online stores such as Android, Windows and Apple Store. The final objective is to be the first choice platform for B2G software developers to host their applications and select framework resources from the catalogue, and to be the first choice service innovation and delivery platform for medium sized cities (50.000 - 500.000 inhabitants) across Europe.

3. Cloudification consulting services and roadmap to cloudification

The roadmap to cloudification, visualizes the guidelines to be used by Public Authorities to help them selecting services for their city, implement and migrate them into the cloud. This guidelines include instructions for planning, determining effort and budget, analysing the equipment and infrastructure requirements, selecting the appropriate services, making the required internal organizational changes and finally execute the migration of the service into the cloud.

Guidelines will be accessible for municipalities both in form of public access documents or as a consulting service offered by ED and other certified brokers.

b) Market need

Today's cities, all over the world, face unprecedented socio-economic and environmental pressures. According to the UN more than 50% of the global population is living in cities, a percentage that is expected to rise to 66% by 2050. Increased urbanization trends force local and regional governments to shoulder the burden of coping with significant problems such as traffic congestion and environmental pollution, overburdened public services, high unemployment as well as social tensions and crime. Cities have to turn towards digital technologies, empower their citizens through collaborative platforms and harness citizens' creativity, foster new learning processes, utilise open proven solutions and/or outsource services in order to deal efficiently with their problems and achieve their strategic priorities.

Over the last years, cities around the globe are becoming increasingly aware of the concepts 'intelligent city' and 'smart city' and they undertake initiatives for implementing smart city solutions. However, planning smart cities and deploying applications dealing with the complex problems of the urban environment is a very challenging task difficult to be undertaken by the cities alone. Moreover, cities are also accustomed to doing more with less. The uptake of smart city strategies is facilitated, first, through cloud computing, which disengages city authorities from any resource constraints, technical or financial, and allows a higher impact and wider effect at the city level, and, second, through a methodology for the migration of existing smart city applications to the cloud. The combination of these two solutions allows city governments and municipalities to select and deploy a large number of applications dedicated to different city functions, which collectively could create a multiplier effect with a greater impact on the urban environment.

c) Specific aspects of the product or service

1. The STORM CLOUDS Smart City Platform implements functions that significantly facilitate the deployment of applications in a cloud environment. It has a multilayer structure formed by:
    - Infrastructure as a Service (IaaS) layer, that is implemented by OpenStack and provides basic IT capabilities like computational, storage and networking services.
    - Platform as a Service (PaaS) layer is implemented by Cloud Foundry, and facilitates the application developers to rapidly deploy their smart city applications to the platform.
    - Over the cloud services:
        - Database Layer service, implementing database engines in high-availability configuration. It supports MySQL and PostgreSQL database engines for developers to deploy their applications without additional maintenance processes.
        - Management Layer service, implementing functions for managing and maintaining the services hosted in the cloud platform using state of the art open source tools.
        - Automation service, for automatic backup and monitoring.

    The applications are deployed “on-top” of the IaaS Layer, that provides the computational resources (e.g. VMs, virtual volumes, virtual network objects, etc.) for running the software selected for the implementation and are collectively called as **over-cloud services,** emphasizing the fact that they are implemented and run using “objects” made available by the IaaS Layer.

    The creation of infrastructural objects on OpenStack has been automated using Heat. The automation practice, which has been applied for the creation of the “Cloud Application Catalogue”, results in the production of software scripts that are considered as **tools** being used for activating SCP services in the IaaS platform.

    Applications need to get a quality and security certification from the platform administrator (ED) prior to their deployment “on-top” of the IaaS layer. To do so, ED will have to re-architect the candidate application to ensure that it fits the platform model in a process that includes:
    1. Technical analysis of the services to be cloudified.
    2. Customization, testing and validation of selected services, as new instances, into the project development-testing cloud infrastructure.
        a. Testing includes vulnerability analysis using OWASP suggested tools and methodologies.
        b. Validation is done in collaboration with the application/service owner.

3. Deployment (replication) and integration of selected services into a production SCP public cloud infrastructure.

The approach ED will follow to achieve the above includes:

1. Setting up the private cloud environment.
2. Performing all the necessary modifications to the selected services in order to be transferred into the private cloud infrastructure.
3. Functional and security validation of the services.
4. Deployment of the final services into the public cloud infrastructure.

2. Catalogue of services:

The online catalogue contains generic versions of the Smart City services which meet the following requirements:

- Have been successfully cloudified and deployed in a STORM CLOUDS pilot city
- There is a consortium partner that could support the deployment of the service in another city.

The catalogue currently contains the following services:

1. Virtual City Market
2. Cloud Funding
3. City Branding
4. Improve My City
5. Live the City
6. Have Your Say
7. Colabora
8. OPENDATA
9. TiMi
10. Location Plans

The services are categorised in the following categories:

- City Governance
- Innovation Economy and
- Quality of Life

Additionally, the catalogue also contains all the necessary documents, descriptions, characteristics and guidelines, so Public Authorities are able to evaluate the different services when considering a cloud-based service deployment.

3. Roadmap to cloudification

Is a visualization of the guidelines, broken into a small number of practical steps, towards cloud service provisioning. The roadmap helps Public Authorities to address the technical and business challenges in the adoption of cloud computing. It also offers links to extra information and online tools.

4. Services of customization and support to cloud migration.

Based on the know-how and experience gained during the SC project, ED and other technological partners, who are de facto the first software developers for the SCP, will provide the following

cloudification consulting services to the municipalities and institutions interested in deploying one of the applications of the catalogue:

- Requirements analysis: analysis of the needs and requirements of the public institution and support on the selection of an adequate application from the platform, study of the technological requirements necessary to deploy the chosen service, analysis of the institution' needs and suggestion of a roadmap for adoption of the chosen application.
- Application customization: adaptation of the application to the particular requirements of each municipality of public institution. The degree of customization can range from very simple adaptations, such as including the institution's logotype and adaptation of the local language, to large adaptation projects that may include additional features and plugins.
- Creation of a mobile version of the selected application.
- Data protection (backup).
- Performance monitoring and consultation (including problem solving).
- Application security/vulnerability analysis. This service brings indirect benefits to ED as the responsible for the platform maintenance. It identifies vulnerabilities and provides suggestion on the countermeasures to be taken, thus increasing the security posture of applications. This redounds on an improved company renown and higher quality of the provided services.
- Negotiation with cloud service providers and brokers

5. Security definition service. Professional IT security services and security audits for customers concerned on the security and privacy of the data.

d) Competitive products or services available filling this need

e) Competitive companies in this market space.

D6.2, submitted in 2014, gives an overview of other IaaS, PaaS and SaaS solutions present in the market. However, no solutions similar to SCP, designed and dedicated to hold and facilitate the deployment of civic applications in a cloud environment, have been identified.

Practices that compete with the SCP objectives are:

- Software developers specialized in software solutions for government that would offer their products directly to their target clients bypassing the SCP offering.
- Big cloud providers and companies, which offer services and products for smart cities have started to provide solutions that combine cloud computing with smart city applications. The most notable cases are:
  - Cisco's Smart+Connected Digital Platform is a unifying, cloud-based set of tools that, together, creates a centralized layer for addressing the infrastructural need to connect cameras, water meters, traffic meters, and so on in a reliable, secure, robust and seamless manner. Cisco is working with systems integrators, application developers, technology vendors, and urban services management providers. Cisco's real value in this space is not in developing and selling city solutions, it is in deploying a powerful network platform that will enable other specific domain and process experts to continue to develop and deploy their city solutions. Cisco is testing early versions of the Smart+Connected Digital Platform.
  - Amazon's City on a Cloud initiative aims to support city governments to simplify their IT workloads from common IT platforms such as Geographical Information Systems, Content Management Systems, Open Data portals, etc., by moving the applications into the

Amazon Web Services (AWS) cloud infrastructure. Amazon offers incentives to cities through City on a Cloud Innovation Challenge. Winners receive AWS promotional credits to start or continue their projects.

- Microsoft's Azure Government cloud computing aims to support government to be responsive, accountable, and agile, while providing the additional security, privacy, and compliance government requires. The company targets cities through its CityNext initiative, which is empowering cities to digitally transform and unlock their potential by delivering innovative digital services that can help them lead safer and healthier lives, enriched by high-quality education. Microsoft collaborates with applications' providers to offer their apps for cities through Azure Government.

f) What are the unique value propositions of your product or service?

A unique characteristic of this joint asset, which makes it outrival similar offerings, is that it is a combination of different elements that together constitute an exclusive offering.

- STORM CLOUDS Smart City Platform, it is the foundation of solutions that facilitate the deployment of civic applications in a cloud environment. As a Platform as a Service (PaaS) it goes one step further than IaaS and focuses on managing applications instead of infrastructure. This is extremely useful for application developer, who can deploy an application to the PaaS and expects it to just work, delegating all infrastructure management tasks to the PaaS and focusing on development work instead. As a consequence, the main resources involved in deploying an application to a PaaS are not virtual machines, virtual storage and virtual network objects, but application services, configuration and artefacts.
- Thanks to the validation and certification done by ED to each application before being hosted by the platform all the services present in the catalogue:
  - Are multilingual.
  - Comply with the SC standards for quality, security, data protection and interoperability.
- The model and services have been validated by thousands of citizens.
- Services comply with EU regulations when it comes to data flow and residency.
- Unlike most of the competence services, in SC services data are stored entirely in European Data Centres

Part II: Assessment of the opportunity:

a) Market need filled by the product or service

The characteristics of the market to which this asset will be delivered have been described in detail in D6.2. As a summary, the target groups and their needs identified are the following:

- Small and medium municipalities and government, willing to adopt smart city services but not counting with the knowledge and skills necessary and having limited technological and financial resources to do so.
- Municipalities and government willing to change their services to the cloud paradigm.
- Software developers specialized on smart city services development, needing a way to gain the trust of their potential customers. SC quality, security and data protection certification brings an additional value to that services and helps overcoming clients reticence on adopting/purchasing such services

b) Social condition that underlines the market need

Although final users of the deployed and cloudified applications are the citizens, we have identified the Public Authorities as our target users. Citizens benefit directly from the application delivered by public authorities as a service, but they are not decisive in the process of selection certain applications and services by the municipality. Public Authorities, and in particular Authorities governing cities, are however in charge of deciding on, managing and making available these services to the citizens.
Implementation and actualization of an online service for citizens and government is not an easy work for the city authorities and civil servants. It requires joint efforts from the departments interested in delivering the needed service and the IT department. IT departments, in the case of small cities, use to be very small units with personnel lacking of experience in the subject and overwhelmed with technical problems of other nature. Ideas of adopting online services on these cities frequently died already at the conception phase due to the lack of skilled workforce, difficult relationships between departments, low budgets and bureaucratic difficulties.

The relationship between SCP and software providers is symbiotic. Applications included in the catalogue of SCP services gain in visibility, and reach out directly to the final users. On the other hand, SCP value increases with the number of applications that are offered through it.

c) Market research data

Extensive market research analysis has been done as part of the SC project activities and is reflected on one of the deliverables, D6.2. which is available to the consortium and E.C. D6.2. was elaborated as a starter point for the SC project exploitation plan with the objective of identifying opportunities, challenges and scenarios to explore. For this reason, no market research data will be reflected in this questionnaire.

d) Size, trends and characteristics of the domestic and/or international markets
e) Growth rate of the market

Market size, trends, characteristics and growth rate have been extensively studied before and are reflected in a document, D6.2. that constitutes itself a deliverable of the SC project.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

With the offering of the SCP and the cloudification consulting services, European Dynamics expect to gain relevant experience that will be valuable for further projects and services offerings in the future. Thanks to the Storm Clouds project and the exploitation of its results in the way described in this document, ED will:

- Gain experience in OpenStack cloud architecture, deployment, configuration, scripting, etc.
- Gain experience in providing services as docker containers. This will greatly enhance the service provisioning model as services won't have to be offered in OpenStack IaaS service offerings, but any commercial cloud stack service provider.
- Obtain a variety of services to be offered to municipalities in a new and interesting model for them.
- Expand the current ED's projects with the municipalities that are at the moment ED's clients, by adding to them the possibility of including the city services and cloudification consulting services from SC.

- Expand company's offering by including consulting services.

b) Experience, education and background of the team

European Dynamics http://www.eurodyn.com/ is a leading Information Technologies service provider and software developer in the field of e-government, operating internationally. We design, develop, support and operate complex IT systems and commercialise a wide range of software products in the field of e-government, using state-of-the-art technologies. We are well-known as a supplier of software products and IT services to European Union Institutions and Agencies, international organisations, national government administrations and big accounts around the world.
The personnel in ED involved in the exploitation of this asset are IT experts, public sector consultants, project managers, marketing experts and experts on the preparation of proposals for public tenders.

c) Business skills of the team
We have proven experience of transferring research results to products, long time successful deployment of products in public sector organisations worldwide, which proves our business strategic thinking and good organisation of teams. Current ED has projects for public and private sector in more than 27 countries around the world.

d) Adequateness of this service idea to the team's background and experience
The exploitation of the SCP, the catalogue of applications and the cloudification services totally fits in the range of activities of ED. To such extent that most of the steps taken for the exploitation of this asset will naturally merge with the current company offerings and benefit from the marketing and dissemination activities ED is undertaken.

e) Needed experience and business skills to successfully implement the business plan
Experience in:

- Working with the public sector.
- Long-time deployment of IT products in public organizations.
- Working with foreign partners at European level.
- Transferring research results to products.
- Marketing and promotion strategies.
- Experience in contacting and promoting services in local consultancies and public sector administrators.

f) Identified stakeholders with the required skills
European Dynamics counts with sufficient in-house personnel with the skills necessary for this exploitation work. Additionally, we are partnering with different institutions and enterprises that would bring in necessary skills if required.

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan approach.
When designing this plan for exploitation and sustainability, we have identified two parallel strategies to exploitation:

1. The exploitation of the platform and the catalogue of services as an appstore dedicated to B2G applications. – Main exploitation partner: ED.

Brokers are the target users for the SC platform and the catalogue of services. Brokers are software developers, consultancies or other kind of companies that want to contract cloud-based city service deployment directly with municipalities worldwide.
Software developers are simultaneously providers and users to the SCP:

- As providers, they create new services, which are applications offered through the SC platform. Applications can be both open source and proprietary software.
- As users, they take open source applications from the platform to offer them, directly or after modifications, to municipalities.

Applications hosted in the SCP benefit from the added value brought by the platform in form of certification of their quality, security, privacy, interoperability and multilingualism, building up the user's trust.
ED obtains revenues from:

- The hosting of the applications: software developers pay ED each time they want to upload an application for checking and certification of their quality, security, privacy, interoperability and multilingualism. However, it has been planned that during a still indeterminate initial period this certification will be done for free in order to attract the most number of applications to the SCP, gain renown and become a de facto standard for smart city services applications marketplace.
- The launching of the application at the user's premises
- The work as intermediaries for cloud-as-a-service providers
- Offering project management services to municipalities on all of the necessary aspects of adoption of cloudified services.

2. The exploitation of the applications – Main exploitation partner: brokers.
Applications are offered to their final users, who are institutions, government and municipalities, by the brokers.

Software developers benefit from:

- Revenues from customization of the applications at municipalities' request.
- Selling their non-open source applications after a free trial period.
- Obtaining the seals of security, data protection, etc. and SCP certification.
- Regular updating and technical support of applications purchased by municipalities. These services will be contracted to software developers by ED on the applications that have been installed in a municipality.

Municipalities can also offer to the SCP catalogue applications they own and want them to be cloudified, providing that they meet the required quality standards. As an indirect payment for this offering, the municipality will have the right of choosing and deploying another application from the catalogue at no cost.

A. **General steps to be taken for exploitation**:
   1. To employ or designate one person in ED dedicated to exploitation activities. One person (Alkiviadis Giannakoulias) will be dedicated at partial time for the coordination of the exploitation plan activities and for contacting potential clients.
   2. Upgrading and maintenance of the STORM CLOUDS Smart City Platform dedicated web site. This web site is already up and working http://stormclouds.urenio.org/ On it, the following work is planned:

- To include a five star amazon-like rating system for the applications existing in the catalogue.
- To modify the main page so it includes success stories.
- To create a discussion forum feature. The forum will be a good meeting point between brokers and the municipalities. The objective of having this forum will be to collect comments from municipalities, which will be used for ED as an information source for needed improvements, and for the brokers to develop new applications based in the needs expressed by the final client. The forum will be reviewed and answered on a week basis.
- User-centred improvements on the existing applications, on the catalogue of services and on the additional services for cloudification provided by ED, basing on the feedback of the municipalities and existence of new user's needs. Feedback is collected through the discussion forum and on direct communications with brokers and municipalities.
- Regular uploading new applications in the catalogue of services.
- Regular updating of the content and introducing news.

3. Elaboration of legal terms and conditions of use. This will include the creation of Service Legal Agreements (SLA) templates, which contemplate data protection, permanency and portability, compiling with the EU laws and regulations, long term costs. SLAs for the SCP and the applications should be coordinated with the SLAs for the cloud service providers used. The pool of aspects that should be considered when drafting the SLAs for the SCP and the catalogue of services has been described in WP4 and the deliverables elaborated within it. This activity will require in-house or external legal consulting services.

4. Maintenance and enhancement of the SCP with new features available on new versions of OpenStack and supported by the selected Cloud Service Provider. ED will contact Cloud Service Providers after a new version of OpenStack is released (estimated frequency of once every 18 months). Based on it, a new version of the SCP will be developed and updated.

B. Steps for reaching out to brokers and software developers (responsible: ED):

1. Marketing promotion campaigns for attracting application developers to the SCP. Marketing and promotion campaigns will consist on the publication of news and information of promotional character in different social media, communities, technical associations etc. on a regular basis. At least one publication monthly is being planned. For effort optimization, the content of such publications will be elaborated once a month and reused and adapted to the characteristics of each fora, social media or community. The detailed promotion plan consists on the following:
    - Direct email distribution and advertising campaigns done by all the Storm Clouds project technological partners, using their network of contacts.
    - Direct email campaigns to the participants of the Storm Clouds international conference celebrated in Madrid on December 2016.
    - Promotion on branch international conferences and fairs. Ex. www.smartcityexpo.com/en/
    - Register and partner with related initiatives at European level, such as http://www.smart-cities.eu/
    - Advertising campaigns on social media:
        - Two publications monthly on LinkedIn on the project's and ED's LinkedIn accounts, and on selected LinkedIn groups

    - Twitter and Facebook publications
- Promotion on Cloud28+ community, of which we are already members. http://www.cloud28plus.eu/. This is done through blog entries that reach all the members of the platforms, including both, software developers and municipalities.
- Applying for membership and partnering with other pan-European cloud communities, such as EuroCloud, Hola Cloud Portal, Cloud Foundry and others, yet to be identified. Introduce promotional information in the fora and blogs within those communities.
- Promotion campaigns on Github, linkedIn professional for developers, Betabeers (platform for developers), Meetup, discussion forums and job offers
- Contacting Hackathon winners with an offering for developing applications for the SC catalogue.
- Identification and reaching to technical and software engineering associations in European countries, starting with the Greek Technical chamber of Greece, the Hellenic Association of Computer Engineers. http://portal.tee.gr/portal/page/portal/TEE/TCG, http://www.computer-engineers.gr/english. Those Greek associations host all the Greek communities of software developers and are an excellent target to reach all the community. ED has already contacts with them have collaborated in previous projects.
  Similar associations at European level will be identified and approached for promotional activities.
- Reaching out to the Github open source software developers in Greece through ELLAK (https://opensource.ellak.gr/github_contributor/?sort=contributions_number&topothesia=null_option).

2. Storm Clouds hackathon hosting. Every second year ED will host a medium sized (5 teams, around 25 people) hackathon to attract developers. For the organization of the hackathon ED will search partnership with any municipality for renting at no cost the municipality's premises for the venue. Also, ED will partner with technological companies and cloud service providers in order to recruit tutors for this event.

   The organization of the event will include promotional and advertisement campaigns in radio, TV, AdWords campaigns, and the previously mentioned social media, organizations and associations.

3. Preparation of framework contracts and legal terms for application providers, and signing. The legal framework should be related with the one for the platform. For this in-house or external legal advice will be needed. This document will be reviewed and modified for every platform version update.

4. Security testing, data protection, multilingualism, internationalization and certification of applications prior to their upload to the platform. This checking and certification needs to be done for every new application and new application version that is to be uploaded to the platform. It requires an iterative process in which ED performs the first check, then it reports the issues to the application provider, who fixes them.

C. Steps for reaching out to municipalities. (Responsible: brokers) (Including ED)

1. Prepare a technical and financial offer template including a price list of the different services offered. Due to the nature of the services, whose deployment in the municipalities requires certain grade of customization, selling offers should be prepared individually per municipality on request. Preparation of the selling offer requires the involvement of the ED's sales department

and some negotiation with the municipality. However, framework templates will be prepared to expedite and systematize the preparation of selling offers, that include the following services:

- Customization of the application
- Creation of a mobile version
- Backup implementation and support
- Performance monitoring and problem solving
- Negotiation with cloud service providers and brokers
- Project management services
- Connection with existing/legacy CRM systems (in any).

2. Preparation of instructions and promotional materials for each application. Software developers that would want to have their applications hosted on the SCP will be asked to prepare the instructions manual for the application developed as well as basic materials that could be used for promotional activities, such as small information films and presentations.

3. Trial periods and promotions.
    - Municipalities that have shown interest in purchasing one of the applications of the catalogue will have the opportunity to use it for free during a limited period of time. Applications used in trial mode will only have the most basic functionalities, enough for the municipality to see its performance, and will support a limited number of users and a limited storage capacity. Adding additional features or customization for the applications in the trial period will be charged. To do so, ED will hire the necessary equipment in which several applications can run in trial versions, and will leverage trial or free accounts from various cloud services providers as they become available.
    - Municipalities that have already purchased and implemented one application will also have the possibility of testing other applications with no additional cost. These applications in testing mode will be run by the same equipment that supports the purchased applications.

4. Activities directed to reaching out to target clients in the public sector: municipalities, local public institutions, policy makers.
    - Direct contacts with the current ED's clients. The customer portfolio of ED currently includes a great number of municipalities in different countries. These will be reached again for building business opportunities, giving information on the SCP and the catalogue of services and organizing demonstrations both at their sites or online. Video demos will be created as a supporting tool for this.
    - Elaboration of a landing page for each application hosted in the platform. To do this, it will be needed to have a virtual machine that hosts all the applications at the same time as demo instances. The effort related with the preparation of the landing page is included in the preparation of the application to be hosted in the catalogue.
    - Introduction of the catalogue of services in the marketing and sales strategies currently followed by ED. No additional effort or resources will be allocated for this activities, because they are already being followed in ED for other products and services. Including the offering of services in the SC framework will not increase the effort gone in current marketing and sales. For this, ED will take advantage of its working experience with the public sector organizations and municipalities, and will use their current strategy for tenders, consisting on the following:

1. Involving the management, plus relevant technical departments of ED in the sales and dissemination of SC catalogue of services. The "International Bidding Department (IBD)" will include the SC services in their offering, and the management has been involved to define the pricing policy.
2. The IBD will monitor all the European and other tenders from municipalities and when a relevant one has been identified, a team will be set up to build the proposal/response to the tender call.
3. Creating new marketing campaigns directed to the current network of partners and municipalities. Those will include:
    1. Direct email campaigns offering the organization of demos at their site. The emails will contain information on the new applications that are present in the platform, or new IT services related with the applications that are already deployed (ex. New customization options, new plugins that improve the usability of the service, etc.). The number of these campaigns will range from 4 to 12 a year, depending on the frequency in which new applications appear.
    2. Social media campaigns and updates in the company's Linkedin's account and website, where all the company's products are listed. Municipalities will be invited to contact the company for further details.
    3. Partner with the municipalities that are currently participating in the SC project (Valladolid, Thessaloniki, Agueda, Miskolc), for:
        a) Using their contact networks for reaching out to partner cities, such as adjoining cities, cities or regions that share interests or policies with them. - The effort required here comes from SC municipalities
        b) Using their experiences for motivating other municipalities on the adoption of our services.
        c) Using their feedback for improvements.

b) Necessary elements, for each action, c) Time and money needed for each action & d) Time and money needed for the whole action plan..

It was estimated that, for the first year of exploitation of this asset will be needed:

- Workforce: 14.9 Person Months (PM)
- Money (first year): 77754€

Time and money calculations are as follows:

Table 6: Time and Money Calculation for the exploitation of the joint asset

						First exploitation year		
DESCRIPTION	**Needed**	**time (PM/ year)**	**frequency**	**Cost**	**Costs types**	**time PM/year**	**personnel cost (€/year)**	**other costs (€/year)**
A - general steps for exploitation								
One person dedicated to organization and coordination of exploitation activities	personnel	1	Annual	5000	Personnel cost	1	5000	0
Reviewing web page forum and answering to questions and user-centred improvement of the platform and applications	personnel	0.5	Annual	2500	Personnel cost	0.5	2500	0
Elaboration of legal terms and conditions of use	legal advice	3	1 time cost	15000	Personnel cost	3	15000	0
Updating SCP after new deliveries of OpenStack	personnel	0.2	once every 1,5 years	1000	Personnel cost	0.2	1000	0
B - steps for reaching out to brokers								
marketing and publications in different social media, platforms and organizations	personnel	0.5	Annual	2500	Personnel cost	0.5	2500	0

Hackathon organization	personnel, hiring of equipment, hiring premises, catering	4	once every 2 years	28000	Personnel Equipment Other expenses Promotion	4	20000	8000
Preparation and signing of framework contracts for application providers - first year	legal advice	2	1 time cost	10000	Personnel cost	2	1000	0
Preparation and signing of framework contracts for application providers - on each SCP update (on each version update of OpenStack)	legal advice	0.5	1 time cost	2500	Personnel cost	0.5	2500	0
testing verification and certification of applications before their upload to the platform - for each new application	personnel	0.008	1 time per applicatio n	500	Personnel cost	0.76	3788	0
C - Steps for reaching out to municipalities								
selling offer template and price list elaboration	personnel	0.25	1 time cost	1250	Personnel cost	0.25	1250	0
First contacts and exchange of emails with clients	personnel	0.002	Depends on the number of interested municipali ties	100	Personnel cost	1.5	7576	0
Landing pages for each new application	virtual machine		every 10 applicatio ns	1000	Equipment	0	0	2000

Email campaigns and demos for new clients	personnel	0.5	Annual	2500	Personnel cost	0.5	2500	0
Setting up 3-month trial period of an application by a municipality – using trial or free accounts from various cloud services providers as they become available.	Free accounts			1070	Equipment that can host up to 5 applications	0.2	1000	2140
						TIME PM	**Personnel costs**	**Other costs**
Totals						14.9	65614	12140
			TOTAL costs for the first year (EUR)				77754	

e) Source of money needed to launch the service

This opportunity interests ED on a great extent. According to the business plan calculations for the first 5 years, which are presented in this document, exploitation of this asset it will bring profit to ED already before the end of the first year of its exploitation.

ED is a consolidated enterprise with years of experience and managing big budgets. The investment required for the exploitation of this asset will come from the general budget of ED.

g) Key performance indicators, incomes and benefits

Key performance indicators for exploitation

1. Estimation of the number of brokers and software developers to be contacted:
    - Cloud28+ is the most relevant cloud community in Europe. Formed by cloud stakeholders such as Cloud Services Providers, Cloud resellers, ISVs, System Integrators and government entities dedicated to accelerating enterprise and government cloud adoption. The community holds more than 330 partners that are directly potential application providers or application adopters for the SCP. Articles posted to the Cloud28+ community arrive to the members' mailboxes.
    - Publications on the EuroCloud Europe fora would reach to around 800 members, who are European Cloud services providers, Research centres, Universities and individual members.
    - Cloud Foundry is considered an industry standard platform for cloud applications. It is a community of more than 60 members worldwide, all of which are software development companies, including Cisco, EMC, Hewlett Packard Enterprise, IBM, Pivotal, SAP, VMware and SUSE.
    - Github is considered to be the largest open source community in the world, with more than 19 million members who are software creators.
    - Betabeers is a hub of communities of developers located mainly in Spain, UK, Portugal and South American countries. Entries published in the fora will reach to more than 450 communities.
    - Technical and software engineering associations -
    - The information sent to software developers is expected to be read by 2.5 million of them in one year in Europe. Of them we expect that a 1% send some kind of feedback. The estimated number of new applications that will be delivered to SCP by software developers on the first year is 100. This amount is expected to raise at a 30% rate yearly.

2. Estimation of the number or municipalities to be contacted:
    - Currently, 10 municipalities have are already been engaged during the project's lifetime.
    - In one year we expect to contact around 3200 municipalities and government institutions of which a 25% will give some kind of feedback. We expect to prepare 800 requirements analysis for the deployment of any of the SCP applications on a municipality on the first year.
    - On the first year, around 100 cities will use the platform and SC services to deploy any of the offered applications.

Elaboration of a price list - a preliminary price list has been already elaborate and presented below. However, this list will be regularly update as the SC platform evolves, the catalogue of services grows in number of services of different nature and the cloudification consulting services offered by ED become more complex.

Notes to the price list:

- Entrance certification should be obtained in order to guarantee its security, compatibility, data protection, multilingualism, etc. for a new application to be hosted at the SCP. ED is the responsible for this verification and, although it will be done for free at the early stages of the platform exploitations, it is expected that it will be charged to the software developers once the platform becomes more popular.
- Application modification and customization prior to their deployment in a municipality. Applications offered through the SCP are open source and, at the degree of development they have at the moment they are published, can be deployed by the municipalities' IT department at no cost. Some particular enhancements of the applications would require additional work from the software developers and thus the participation of ED as intermediaries. Additionally, analysis of the technical requirements, deployment, customization and maintenance of the services in the municipality require some extra work that is offered as a list of IT services to municipalities by ED based on the experience and know-how acquired during the SC project. The cost of these IT services is difficult to evaluate. Most of them depend greatly on the degree of development or complexity required by the municipality, and working times need to be estimated individually. Additionally, some of those IT services may be offered for free as a bonus during contract negotiations.

Typical IT services for the deployment of the applications are:

- Requirements analysis
- Customization of the application - the price depends enormously on the municipality's requirements. Simple, basic customization, such as including the city's logotype and creating the local's language version of the application are frequently free of charge. For more extended customizations the prices are calculated basing on the necessary working hours at 70 €/h
- Creation of the mobile versions
- Automatic backup includes two options:
    i. The backup is done at the municipality's own hard disks, this service includes just the implementation of tools and mechanisms for backup support
    ii. The backup is done in the cloud, this service includes the implementation of tools and mechanisms for backup support, plus selection and negotiation with cloud space providers, plus some monthly fee for storing in the cloud.
- Performance monitoring depends on the extend that is contracted to ED:
    - Basic performance monitoring and solving basic failures
    - Addressing bigger problems and solving is being discussed individually depending on the nature of the problem, and price will depend on the working hours dedicated to this problem solving.
- Security testing/analysis.
- Negotiation with cloud service providers and brokers is priced on percentage level and agreed individually with each broker.

Price list for application hosting in the platform, application deployment at the municipalities and cloudification services:

Table 7: Cloudification Services Price List

Service	price EUR	Notes
Requirement analysis	100	EUR/h - time variable depending on the requirements to be analysed
Customization of the application	70	EUR/h - time variable depending on the requirements - logo, name of the municipality, fonts etc.
Functionality extension	500	Extensions should not change the application scope. If they do then this is a new application and not an extension, meaning that we will negotiate on a municipality level
Custom theme	400	look and feel of the application customized for the application
Integration into existing environment and systems (integration into the legacy system the customer has)	500	In case municipality in-house legacy IT system is too complex to integrate or uses out-dated technologies this service will not be offered
Interactive statistics	800	setting up a new machine that allows the municipalities to have access, print and share usage statistics - can be used for promotion
Creation of a mobile version	1000	Development of a mobile version of the application for the final users
Customizable mobile application theme	400	
Setting up automatic backup mechanisms	300	For any backup option
Automatic backup in the cloud	120	Yearly fee
Automatic backup in the cloud - selection and negotiation	300	selection and negotiation with cloud service providers
Complex performance monitoring setup	70	EUR/h - monitor the network activity and generate alarms and relevant emails
Negotiation with cloud service providers		15% negotiable on each contract
Launching of one application at the municipality's premises	800	Launching of smart city services using the equipment present at the municipality
Upgraded versions (1 per year)	600	moving functionalities and data migration when a new version of the application appears, what happens once a year
Technical support (via E-mail)	600	Yearly fee
Technical Support (Telephone & E-mail)	20000	Fee per year/per person on the helpdesk / Negotiable on each contract - requires the generation of a help desk

Remote staff training	600	Online training of the client's personnel for in-house management of the service.
Profit from hosting one application in the platform	140	Yearly fee when the application is hosted in a small virtual machine
Profit from hosting one application in the platform	200	Yearly fee when the application is hosted in a medium virtual machine
Profit for proxy version 2	120	Small virtual machine 1 vCPU, 1GB RAM, 40GB Disk
High Availability Architecture (Database and file system)	4000	this is for municipalities that want to have this high availability architecture - price per year - per municipality and not per application
Catalogue of applications	50	Prefabricated images for 8 applications - with the application ready to use - hosted in the cloud -

6.1.3 5 Years Business Plan for the joint asset

NEW: This section has been introduced to present the Business Plan elaborated for the first 5 years of exploitation

Considering the described activities for exploitation it has been estimated that in the first year of exploitation a total of 100 applications will be uploaded to the SCP and deployed for clients. This number is expected to raise at a 30% rate yearly. The estimated number of applications hosted on trial mode is 75 for the first year, expecting a 30% raise yearly.
Additionally, the awareness actions planned are expected to reach to a broad community of software developers, municipalities and government, yielding to a total of 800 potential clients inquiring for information on the first year. This number is expected to raise at a 30% rate yearly.

Exploitation expenses calculation for the first 5 years:

Table 8: Exploitation Expenses calculations for the first 5 years

	year 1			year 2			year 3			year 4			year 5		
DESCRIPTION	time PM/year	personnel cost - €	other costs - €	time PM/year	personnel cost - €	other costs -€	time PM/year	personnel cost - €	other costs - €	time PM/year	personnel cost - €	other costs -€	time PM/year	personnel cost - €	other costs (€/year)
A - general steps for exploitation															
One person dedicated to organization and coordination of exploitation activities	1	5000	0	1	5000	0	1	5000	0	1	5000	0	1	5000	0
Reviewing web page forum and answering to questions and user-centred improvement of the platform and applications	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0
Elaboration of legal terms and conditions of use	3	15000	0	0	0	0	0	0	0	0	0	0	0	0	0
Updating SCP after new deliveries of OpenStack	0.2	1000	0	0.2	1000	0	0	0	0	0.2	1000	0	0.2	1000	0
B - steps for reaching out to brokers															
Marketing and publications in different social media, platforms and organizations	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0
Hackathon organization	4	20000	8000	0	0	0	4	20000	8000	0	0	0	4	20000	8000
Preparation and signing of framework contracts for application providers - first year	2	1000	0	0	0	0	0	0	0	0	0	0	0	0	0
Preparation and signing of framework contracts for	0.5	2500	0	0	0	0	0	0	0	0	0	0	0	0	0

application providers - on each SCP update (on each version update of OpenStack)															
Testing verification and certification of applications before their upload to the platform - for each new application	0.8	3788	0	1	500	0	1.3	500	0	1.7	500	0	2	500	0
C - Steps for reaching out to municipalities															
selling offer template and price list elaboration	0.25	1250	0	0	0	0	0	0	0	0	0	0	0	0	0
First contacts and exchange of emails with clients	1.5	7575	0	2	9848	0	2.6	12803	0	3.3	166434	0	4.3	21637	0
Landing pages for each new application	0	0	2000	0	0	4000	0	0	6000	0	0	8000	0	0	10000
Email campaigns and demos for new clients	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0	0.5	2500	0
Setting up 3-month trial period of an application by a municipality	0.2	1000	2140	0.4	2000	4280	0.8	4000	6420	1.6	8000	8560	3.2	16000	10700
TOTAL	14.9	65614	12140	6.1	25848	8280	11.1	49803	20420	9.3	38644	16560	16.4	71637	28700
TOTAL expenses	**77754**			**34128**			**70223**			**55204**			**100337**		

Incomes calculation for the first 5 years:

Table 9: Calculation of Incomes from the commercialization of the joint asset: first 5 years

Service	Price EUR	Hours estim.	% of clients	year 1	year 2	year 3	year 4	year 5
Requirement analysis	100	5	10	5000	6500	8450	10985	14280.5
Customization of the application	70	3	100	21000	27300	35490	46137	59978.1
Functionality extension	500		10	5000	6500	8450	10985	14280.5
Custom theme	400		10	4000	5200	6760	8788	11424.4
Integration into existing environment and systems (integration into the legacy system the customer has)	500		10	5000	6500	8450	10985	14280.5
Interactive statistics	800		10	8000	10400	13520	17576	22848.8
Creation of a mobile version	1000		10	10000	13000	16900	21970	28561
Customizable mobile application theme	400		10	4000	5200	6760	8788	11424.4
Setting up automatic backup mechanisms	300		100	30000	39000	50700	65910	85683
Automatic backup in the cloud	120		100	12000	15600	20280	26364	34273.2
	300		100	30000	39000	50700	65910	85683
Complex performance monitoring setup	70	4	10	2800	3640	4732	6151.6	7997.08
Negotiation with cloud service providers			100	0	0	0	0	0
Launching of one application at the municipality's premises	800		10	8000	10400	13520	17576	22848.8
Upgraded versions (1 per year)	600		100	60000	78000	101400	131820	171366
Technical support (via E-mail)	600		100	60000	78000	101400	131820	171366
Technical Support (Telephone & E-mail)	20000		1	20000	26000	33800	43940	57122

Remote staff training	600		100	60000	78000	101400	131820	171366
profit from hosting one application in the platform - version 2 - 840 EUR/year for a Small VM	140		80	11200	14560	18928	24606.4	31988.32
Profit from hosting one application in the platform - version 3 - 1200 EUR/year for a medium VM	200		20	4000	5200	6760	8788	11424.4
profit for Proxy version 2 - 720 EUR/year for a small VM	120		10	1200	1560	2028	2636.4	3427.32
High Availability Architecture (Database and file system)	4000		0.05	20000	22000	24200	26620	29282
INCOMES				**381200**	**491560**	**634628**	**820176.4**	**1060905.32**

Table 10: 5 Years Business Plan for the joint asset

	year 1	year 2	year 3	year 4	year 5
personnel costs	65 614	25 848	49 803	38 644	71 637
equipment and other costs	12 140	8 280	20 420	16 560	28 700
TOTAL COSTS	77 754	34 128	70 223	55 204	100 337
number of new applications uploaded	100	130	169	220	285
number of new application deployments in municipalities	100	130	169	220	285
number of new clients inquiring for information	800	1 040	1 352	1 757	2 284
number of new applications in free trial mode	75	97	127	165	214
TOTAL INCOMES	381 200	491 560	634 628	820 176	1 060 905
TOTAL BENEFITS	303 446	457 432	564 405	764 972	960 568

6.1.4 Exploitation risks management

NEW: This section has been introduced to present the results from the exploitation risk management.

The following table shows the risks identified during both workshops on risk identification and management, including the evaluation of their severity and probability and the calculation of the risk level.

Table 11: Identified Exploitation Risks

Risk #	Risk name	Risk description	severity	probability	Risk level
Risks in Market environment					
R1	Changes in market situation	The situation in the market can change the respecting to what we have planned. Ex. new applications we still don't know about may appear.	4	4	16
R2	Timing	In a fast changing market, if we are late on the time from going to the market to answering the demands of the users, then we are losing strength.	4	3	12

R3	Market segmentation	If we are failing on identifying a right market segments then our approach may not be reaching to the real end users: we are approaching users to whom our product is not suitable.	3	2	6
R4	Impossibility to respond to fast changes in market needs and perceptions of the customer	Market needs may change so fast that our knowledge and resources may not be enough to respond to the new demand.	5	3	15
R5	Existence of strong competitors in the market such as CISCO and Microsoft	Strong competitors are already in the market offering solutions similar to ours.	3	5	15
R6	Adoption of applications is submitted to the politics whim	Governmental changes influence the adoption and maintenance of certain applications that may have social character divergent from the current priorities at a time.	5	2	10
Risks in collaboration network					
R7	Availability of skilled experts	Not having skilled experts: low probable because we have good contacts with technical teams and we should be able to cope with this risk.	4	2	8
R8	Commitment in the network	Partners not willing to cooperate with the consortium.	3	2	6
R9	Form of network needed for the development (partnering, joint venture, outsourcing, etc.)	The way of facing the project may not the correct.	2	2	4
Risks in management					
R10	Improper KPIs and milestones	The management may have not identified the right KPI for measurement of the exploitation objectives. This can affect the whole platform.	4	1	4
R11	False knowledge on abilities	The management partner of ED may not have the proper knowledge or the resources and the abilities for finding the resources required to achieve the exploitation plan - Biggest impact and very probable because this is a new market area for ED and they may have not the necessary knowledge.	5	3	15

R12	False assumptions on experience	Exploitation partner may be wrongly assuming their previous experience is enough for managing the exploitation of this asset.	4	2	8
R13	Unknown sources of information, relevant projects, consortiums, groups, etc.	Other competitive projects or group may exist without us being aware of them.	3	3	9
Risks in Business Environment					
R14	Changes in business environment	Continuous changing environment of this business area	4	3	12
R15	Slow growth of developers and municipalities	The business plan may be based on a wrong perception of the business environment, KPIs may not be reached soon enough	4	3	12
R16	Changes in data regulations across countries	Changes in regulations to more restrictive one regarding data management may affect cloud developing	4	4	16
R26	Different country legislation adds complexity to SLA management	Have in mind that customers and laws are not the same in every country.	3	4	12
R27	Austerity / Low resources	Due to the economic and political situation: municipalities may not have enough resources to afford this	4	3	12
Risks in Technology					
R17	Wrong perception on the technology capacities for certain functionalities	Handling payments and trials on the app store requires extra functionalities to make different things automated. The exploitation partner may not be ready from the technological point of view to develop the required technologies.	5	2	10
R18	Inability of the company to follow technological trends	Lack of resources, knowledge or technologies for following the state of the art technological trends.	5	0	0
R19	Open source approach on the implementation using public cloud platform may not work	The assumption of using open source technologies for public cloud platforms may not be sustainable from the security point of view and hamper end users' trust. However, open source approach may or may not work, and there are live examples of both, like Apache and Microsoft	4	4	16
Risks in Idea/Value proposition					

R20	Timing: new competing services appear in the market	We may have the internal believe that this concept is very attractive but external players may have a different idea	4	4	16
R21	Not as attractive externally as believed internally	The project is still in the planning phase and other projects in a similar area may be potential contributors offering stronger solutions. And right now we have still not information of other FP7 or H2020 projects that are in process	4	4	16
R22	Acceptability in markets		4	4	16
Risks in market need					
R23	IT staff reluctant to change	IT staff from the municipalities/customers may not be interested in changing their way of work	4	4	16
R24	Government change	Decision making mechanisms can change depending on the government changes after elections. These changes frequently affect the IT department of the municipalities.	4	3	12
R25	Limited interest in small or less developed cities	Small or less developed cities may be reluctant to the introduction of technological advances that require some extra investment on time, resources and personnel.	3	3	9
Other risks					
R28	All parties must earn in a fair way	Lack of transparency or fairness in the consortium - if we are different partners and some of them think that they are not earning as much as they deserve in comparison with other partners that may be earning more than what they deserve. This may lead to breaking the team for unfair earnings from some of the stakeholders	4	3	12
R29	The cost of providing services in the trial period: how this can be financed	It is not clear how this cost is going to be financed: the cost of offering a free testing period for the testing. Financing problems may be found and this solution is not self-sustaining	4	5	20
R30	Developers can go directly to the cloud and to the potential customers bypassing the intermediation	Developers have the real knowledge of the services they are providing and it is not very clear the benefit we are providing, so developers may think they don't need the SCP	5	4	20

R31	Big cloud competitors offer similar services	Amazon etc. there is a context run by amazon offering money for cities	5	3	15

Exploitation risks heat map

An illustrative heat map of risks is elaborated with the results of risk evaluation. The map represent on the horizontal axes the probability of risk occurring and in the vertical axes the severity of the consequences of this risks. Risks located on the red area are extreme risks. Risk located on the orange area are high risks.

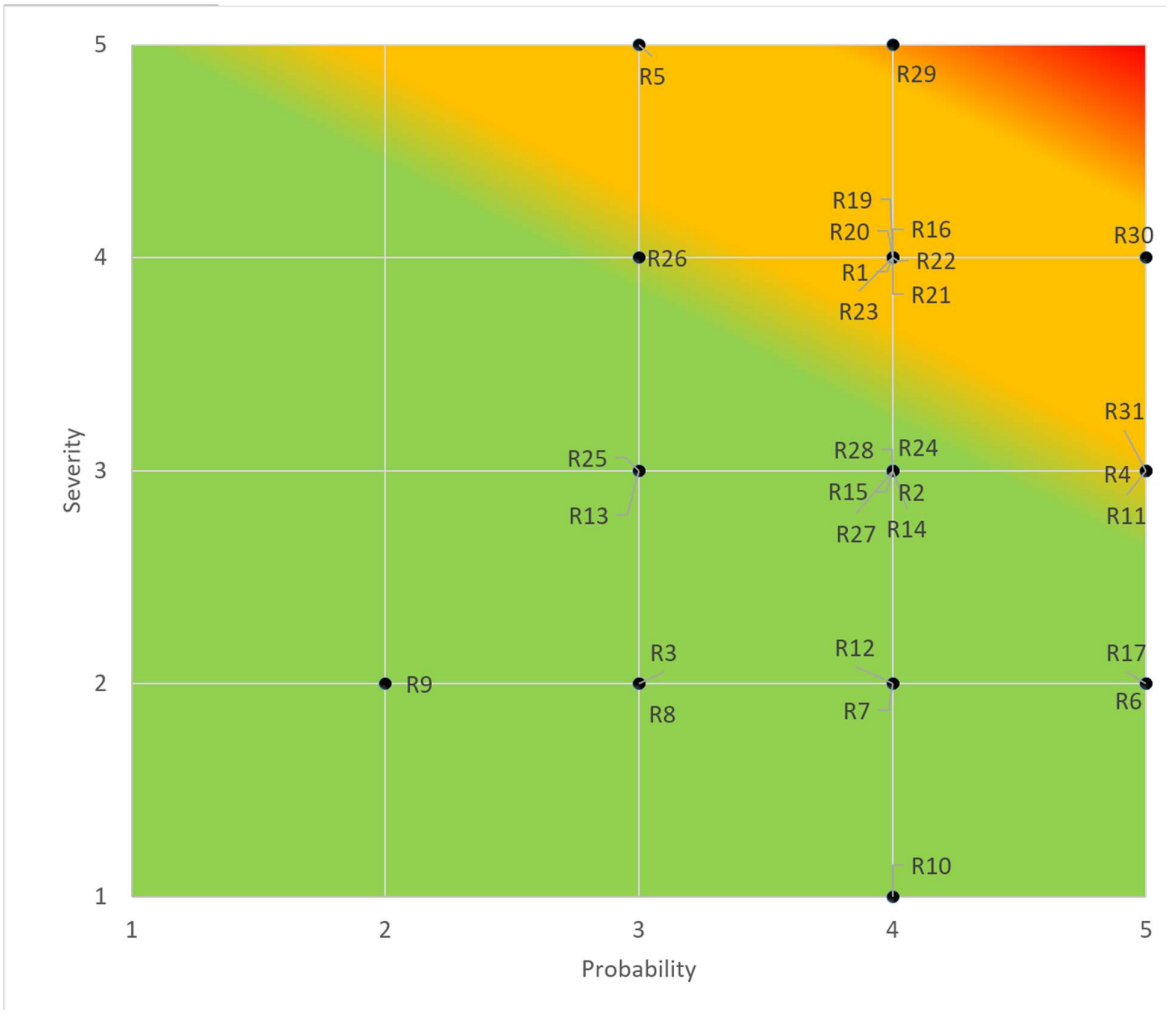


Figure 4: Exploitation Risks Heat map

Risk management:

Risks located on the orange and red areas, i.e. those classified as high and extreme were submitted to the risk management process. Those are summarized in the following table:

Table 12: Risk Management Actions

	Risk name	Contingency actions	Mitigation actions
R01	Changes in market situation		- Create mechanisms for market surveys in order to identify changes as they appear.

			- Create new versions and upgrade the applications once it is needed
R04	Impossibility to respond to fast changes in market needs and perceptions of the customer		
R05	Existence of strong competitors in the market such as CISCO and Microsoft		
R11	False knowledge on abilities from management	Elaborate a formal business plan in which we identify the key skills needed and train or hire competent personnel in order to acquire the required skills in the team.	
R16	Changes in data regulations across countries		Adapt the platform to offer different data senders from different locations. Also data should be storage in different locations to fulfil local regulations. However, it will not be feasible to have one data storage in each country.
R19	Open source approach on the implementation in the cloud platform may not work	Focus the exploitation on the applications instead of on the technology used for supporting them.	
R20	Timing: new competing services appear in the market	Market research will be performed before delivering the platform, to get to know what are the other competitors offering and the market demands and act according to that.	Focus on the ability of having the services on the cloud as a tool to bring attractiveness to our product.
R21	Not as attractive externally as believed internally		Have external consultants or mechanisms for testing market needs before going to the customer.
R22	Acceptability in markets	Focus on the marketing of the applications and enrich the catalogue with more, so every municipality/government can find something interesting.	
R23	IT staff reluctant to change		- Create a change management procedure for training and

			communications to the employees so they could adapt their jobs. - Act on the motivation of the employees to have them engaged.
R29	The cost of providing services in the trial period: how this can be financed	Elaborate a trial financial study for the costs with or without the cloud.	Have a virtual machine for hosting the applications on trial mode on limited capabilities with a minimum investment.
R30	Developers can go directly to the cloud and to the potential customers bypassing the intermediation	Open more features to the developers and them that they can develop applications to cater their customers based on SC capabilities.	Study in deep what is our added value provided to the customers: study their needs and respond to them. Keep control on the customers.
R31	Big cloud competitors offer similar services	- Do not compete with amazon by offering the same solutions than they do. Instead, make a tailor made offering for individual customers. Also focusing on the fact that this is a European solution and more restrictive security can be a benefit to compete with USA providers. - Emphasis the uniqueness of the fact that the platform is open - Prevent vendor locking. - Add to the catalogue, services that we already know they are useful for the customers.	Focus on specific sectors and make specialized offerings instead of going for a general offering

6.2 Scalability and exploitation plans for exploitable city services

6.2.1 Towards the final version of Business models for the city services

Services deployed by the STORM Clouds project in the municipalities, either involved in the project as partners or third parties under the call for cities, are self-contained, valuable assets that could be commercially exploited with high potential for market success and widespread uptake. However due to the constraints discussed by in the previous sections the municipalities (i.e. the owners of the assets in question) cannot sell them directly to the end users. However if we consider an increase in tax revenues as indirect income that can result from the operation of the service then a complete and viable business model can be defined for each public service. The services help the local communities and authorities to support their local economy, social policies and foster the wellbeing of the citizens. What is more, the services piloted within STORM Clouds project address community issues that commercial offering might not be able to solve. Strengthening local community, connecting and engaging with citizens bring value other than monetary benefits that local authorities and citizens appreciate.

Six (6) city applications divided into three categories has been identified as exploitable assets and considered in the business model generation workshop: (i) city governance (Have Your Say, TiMi), (ii) innovation economy (Virtual City Market, Cloud Funding, City Branding) and (iii) quality of life (Live the City). All of them are applications cloudified, update or developed by Storm Clouds and are currently deployed in partner cities.

All services are described in detail in the deliverable D3.3 “Cloud-based public services portfolio”, so we will not repeat this information here.

In the following sections we will present the business models defined during the Agueda meeting and the followed offline work within the consortium. Afterwards, we present the exploitation plans elaborated during online iterative mentoring sessions with each of the exploitable asset owners.

6.2.2 Scalability and exploitation plan for Virtual City Market application

6.2.2.1 Virtual City Market business model

a. The Virtual City Market lean canvas

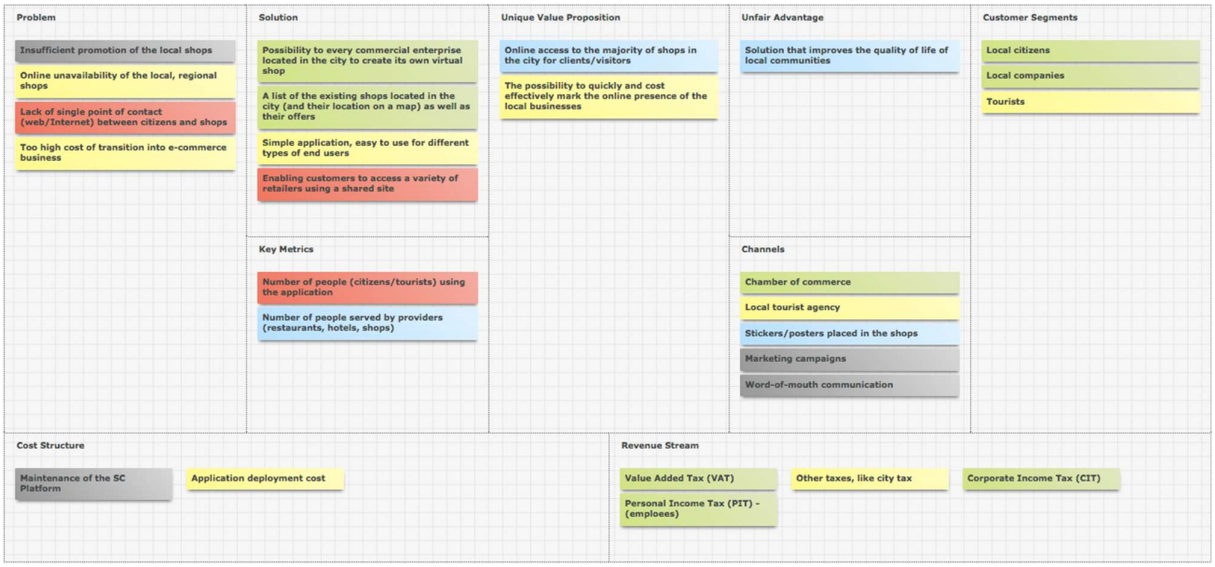


Figure 5: Lean Canvas for Virtual City Market application

b. Problem addressed by Virtual City Market

Virtual City Market is an application, which addresses the problem of the online unavailability of the local, regional shops. The main barriers are too high cost of transition into e-commerce business etc., an insufficient promotion of small local shops and lack of one single point of contact between citizens/tourists and shops.

c. Solution

The aim of the service is to give local entrepreneurs the possibility to create their online shops using the Virtual City Market application without the need to invest in e-commerce. The solution offers visibility of shops to visitors online as well as facilitates physical access by helping visitors to locate the shop on the map and navigate them via the mobile map application (e.g. Google Maps). Because the database of shops has been built in the cooperation of the local chamber of commerce the catalogue of shops is as complete as it can be which is of value to city visitors.

d. Customer segments

The application is primarily targeted at the following customer segments: tourists, local citizens and local companies.

e. Unique value proposition

The unique value proposition of the service is online access to the majority of shops situated in the city from one virtual marketplace for the clients/visitors. As for the local business the possibility to quickly and cost effectively mark their online presence, become visible to the wider group of the visitors and open an online shop or website at a minimal cost.

f. Channels

The main channels to access the tourists and local shop goers will be local tourist agency and stickers/posters placed in the shops. As for the shop owners they can effectively be approached via a chamber of commerce, targeted outbound marketing campaigns and word-of-mouth communication.

g. Revenue streams

The money necessary to deploy and maintain the service is provided from the municipality budget, and this investment should be returned in the increased revenue from taxes. The impact of the service should result in additional income from Personal Income Tax (PIT) (against increased revenues of business owners acting as sole traders and their employees), Corporate Income Tax (CIT) (corporate tax paid by the incorporated business establishment benefiting from the service), Value Added Tax (VAT) (form the increased turnover of goods and services paid by tourists and local citizens) and other taxes like city tax (increased number of tourists coming to the city due to better service). Additional revenues from taxes can enable to cover essential maintenance cost of the application as well as encourage investment in further development of the services or even in new services.

h. Cost structure

Main costs are derived from application deployment and costs derived from platform maintenance and updating

i. Unfair advantage

Principal competitors will be applications that add value in order to improve the quality of life of local communities

6.2.2.2 Virtual City Market application exploitation plan

NEW: This section has been introduced to present the Exploitation Plan elaborated for the Virtual City Market application.

OPPORTUNITY ASSESSMENT PLAN FOR VIRTUAL CITY MARKET APPLICATION AS A SERVICE PROVIDED BY THE MUNICIPALITY OF THESSALONIKI

Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

This application, offered by the municipality of Thessaloniki, is a digital platform through which the city entrepreneurs can create their business website, promote their products and services and elaborate their online shop without the need of investing on dedicated web design, hosting services and IT personnel. It has been created with the objective of being a virtual mall exclusive for the local businesses and shops. It simultaneously serves to citizens and visitors as a business directory, to find and locate the products and services they are looking for, offered by their fellow citizens, in just a couple of clicks.

b) Market need

This service put in contact two types of users:

- Local business and shop owners, who are needing advertising and the means for creating their online sites easily and with the least possible investment. The unstable political environment of Greece during the last period, along with the ongoing financial crisis particularly harm small local businesses, who are being supported by the Municipality of Thessaloniki by launching this service.
- Citizens and visitors wanting to find particular shops and products in the local offerings.

c) Specific aspects of the service

For the final users, who are citizens and visitors searching for shops, products and services, the application works as a virtual mall, accessible through the web, containing a directory of local shops and services. The user can find a place of interest by:

- Using an integrated search tool, that includes the option of displaying the places sorted by their proximity to the user.
- Browsing a list of categories and subcategories of shops and services.

- Selecting it from a city map.

After selecting the shop or business of interest, a new page opens showing the location of the shop in a navigable city map, information on the shop, including description, address, web page, access to its page on social networks (Facebook, Twitter, Google, YouTube…), users' reviews and rates, a QR code to send the information to the user's smartphone, and access to the online shop created within the application.

Clients can rate and comment, sharing their experience after visiting a shop or using the services. Ratings and reviews, which are accessed directly through the main menu, are powerful tools for attracting clients basing on other clients' opinions.

For the city's businesses, the application is a common platform for them to create and operate their own online shop. To do so, a registered shop owner with a user account contacts the application administrator for creating the online shop. The administrator generates the PIN that connects the owner's user account with the online shop and gives him full access to the application tools.

When promotions and special offers are available for a certain shop, those are accessed directly from a dedicated tab in the menu. This brings the owners the option for promoting their business and making it more visible than the competence by creating an offer or promotion.

d) Competitive products or services available filling this need

The direct competitors of this service are:

- Outlets and shopping malls that at the same time have online page with a directory of shops and descriptions. Examples of these are Mc Arthurglen Athens, and Mediterranean Cosmos mall in Thessaloniki.
- Global online shops, in particular those of very well-known brands, such as H&M, Zara, Swatch, etc.

e) Competitive companies in this market space.

Global online shops of known brands:

Strengths:

- Fame and renown. Many of those shops are very well known globally and nationally and benefit from fame and positive opinion from millions of consumers worldwide.
- Higher budgets for advertising and trend-building capacities.
- They can offer competitive prices and have broad commercial margin.

Weaknesses:

- They are unfamiliar global entrepreneurships who don't cater for those customers who trust more a local company.
- They are non-personalized and standardized shops with identical offerings worldwide. Customers aspiring to find different, original and local products.

Outlets and shopping malls with online page:

Strengths:

- Shops and services are located close to each other and have a synergistic effect in the attraction of customers, who may visit the shopping mall interested in just one of the shops.

Weaknesses:

- Businesses should pay renting fees to be physically present in the shopping mall (and thus in its web page). This is economically feasible only for strong businesses with already acquired renown who most frequently are not the locally owned ones.
- In these online sites can be found the description of the shops only, without the option of creating the site for online shopping.

f) Unique Value Proposition

- It is free of charge for the local entrepreneurs.
- It promotes the brand name of the Municipality of Thessaloniki.
- It combines different products and offers from local businesses.
- It constitutes a Virtual City Mall right in the historical centre of the city.
- It includes geolocalization of the shops and services in a navigable map.
- It has a community character, in which reviews and ratings given by clients have a strong role in building up the local businesses renown.
- It allows owners to promote their businesses by the creation of special offers.
- It brings owners the option to sell their products online without any additional investment.

Part II: Assessment of the opportunity:

a) Market need filled by the service

The service addresses:

- The local entrepreneurs' needs for:
    - Having a channel for advertising their businesses with priority over not locally owned competitors.
    - Having the means for creating their website and online shop without additional investment.
- The citizens and visitors' need to shop and make use of services that are locally owned. The current economic difficulties in the country have boosted a patriotic feeling that evolved to an increased willingness to support fellow citizens. Making use of locally owned shops and services is a mean of support to local economy accessible to the ordinary citizen.

This needs are not addressed by the competing solutions, which are just directories of the shops present in a certain shopping centre, without making any distinction of their local character. Moreover, shopping centres most frequently host retail businesses that are already consolidated, are franchises enjoying a reputation in the market and can invest in paying the leasing the storefront.

b) Social condition that underlines the market need

The final user this service is directed to, the average citizen of Greece, is a person who chooses to use the local market seeking for best products and results for the minimum cost and effort. Average Greeks are not skilled and trusting internet users and would search information on the shops and go there to buy personally, rather than make use of online shopping and credit card payment. Their trust in the government of the municipality is scarce and have the general believe that the Municipality is the enemy with the only purpose to collect taxes.

City's shop owners have a sceptical and, at times even hesitant or wary attitude towards the new and quite innovative programme that the Municipality has offered to support local businesses. This may have been caused by the ongoing financial crisis and the unstable political environment of Greece, during the last period. For this reason, although this service has been designed by the municipality to support local retail businesses, the municipality doesn't expect enthusiastic cooperation or massive adherence from the local owners.

c) Market research data

According to the Hellenic Statistical Authority, around a 69% of the Greek population has used the internet in 2016. This would be some 224 thousand internet users in the municipality of Thessaloniki. Depending on the age, from 74 to 94,7% of internet users access the internet every day. Although finding information about goods and services is one of the most frequent activities (81.9% of the users) only 11.7% of internet users have purchased or paid for good through the web on 2016.

There is not data on the number of retail businesses registered in the municipality of Thessaloniki. In the whole region of Thessalia, there were around 11900 retail shops in 2012. According to the Hellenic Statistical Authority, around a 75% of the Greek enterprise have their own web site. Of them, some 65% use their web sites for showing the description of the goods and services and price lists and only a 27% for online ordering and reservation, most of which are hotels and restaurants.

Regarding the Virtual City Market application, it hosts 618 different shops. Since its launch in the city of Thessaloniki, 12.416 different users have completed at least one session, and a total of 19.949 sessions and 57.563 page views have been registered.

d) Size, trends and characteristics of the domestic and/or international markets

Thessaloniki is a typical urban city with little resistance to the modern economic problems. All types of retail shops can be found here, from a small convenience stores to glamorous boutiques such as Dolce Gabbana. Living standards for current Greek citizens are low and small cities are very much affected by the economic problems of the country.

It is not possible for the city government to monetize a service offered to the citizens, due to legal restrictions. However, the municipality of Thessaloniki, the enterprises and citizens may obtain indirect benefits from the existence of this service. For this to happen, the application should be promoted, gain trust between businesses owners and become a necessary one-time stop for users searching for products and services and for entrepreneurs to place their offer on the internet and reach out to their customers.

e) Growth rate of the market

The number of retail businesses it is not expected to experiment noticeable changes in the following years.

However, with the improvements in the internet safety and the gain of trust between users it is expected to see an increase in the number of online transactions and internet users in the following years.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

The municipality of Thessaloniki doesn't expect to have any direct income from the offering of Virtual City Market application to the citizens. However, it is foreseen that this service will indirectly benefit the city by supporting the local economy, strengthen enterprises and adding an extra boost to the local market.

b) Experience, education and background of the team

The team in charge of launching and maintaining the City Branding application is not made of entrepreneurs but civil servants from the city's government. However, this is a heterogeneous team with experience in IT engineering, public administration and on launching and maintaining similar projects for improving the local economy and the citizens' quality of life.

Stylianos Zaxariou, Mechanical engineer. Head of the Department of Entrepreneurship since 2013. He worked in different Departments for the Municipality since 1987 and he is Head of Department in different positions in the Municipality since 2006(Mechanical Workshop etc.). President of the Union of Engineers of Higher Technological Education for the public sector of Central Macedonia (Greece).

Dr. Dimitris Simitopoulos, Systems and Network administrator. He has a PhD in Electrical and Computer engineering Works. He works for Information and Communications Technology Department of the Municipality of Thessaloniki since 2006.

Christos Lampros, Mechanical engineer. He holds a master's degree from Sheffield Hallam University in Advanced Engineering. He was a laboratory professor for the Technological Educational Institute of Arta's, Department of Computer Engineering from 2001 until 2003. He works for the Municipality since 2005. Works for the Department of Entrepreneurship since 2014. (Second degree in Theology and second master's degree in Byzantine History)

Theodosia Tsouli, employee of Department of Entrepreneurship since 2013. Administrative procedures inside the Municipality and administrative support for the Department.

c) Business skills of the team

The team is formed by civil servants working for the Municipality of Thessaloniki with no entrepreneurial skills. Some of team members have been working for years in the department of Entrepreneurship of the city council and collaborating with local entrepreneurs in a daily basis. This gives to the team an extra experience particularly valuable for the characteristics of this service itself, which requires teaming up with local entrepreneurs in order to get to joint objectives.

d) Adequateness of this service idea to the team's background and experience

Mutual trust between the team's member and improved communication skills, will be at the service of the citizens of Thessaloniki. The excellent compatibility of the team plus the strength and prestige of Thessaloniki's brand name will be an extra motive for the success of the application.

e) Needed experience and business skills to successfully implement the business plan

Experience in:

1. Promoting and organizing disseminations events to support the local entrepreneurships.
2. High level IT technology.
3. Bureaucracy and solving of legal issues related with entrepreneurships issues, such as operation license.

f) Identified stakeholders with the required skills

- The department for Tourism of the Municipality of Thessaloniki
- The Commercial Association of Thessaloniki
- The department of Operational Planning & Monitoring of Structural Funds in the Municipality

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan, b) Necessary elements, for each action & c) Time and money needed for each action.

The municipality of Thessaloniki has simultaneously launched two online applications that have been offered as a service for citizens. Being conceived for the support of local businesses and shops, both applications share the target group. For this reason, the steps for exploitation will be taken simultaneously for both services and with the use of the same personnel and resources.

1) Organization of dissemination events and promotional activities with the objective of reaching out to local businesses owners and raise their interest in being part of the offering of those applications.
    a) The city council expects to gather a great number of citizens through the organization of 2 concerts to which popular bands will be invited, and that will be used for the promotion of those services.
    b) Organization of 2 cultural promotion activities in the city hall destined to local entrepreneurs and citizens. These promotion activities will be used also to show the functionalities and share detailed instructions of the applications. Workforce: 1 week/each. Infrastructure: City hall premises are used free of charge.
    c) Organization of 4 meetings for stakeholders (city entrepreneurs) with different government department. Workforce: 1 week/each. Infrastructure: City hall premises are used free of charge.
    d) 12 mailing campaigns yearly to city entrepreneurs. Workforce: 3 days/each.
    e) Continuous advertisement campaigns in the local radio, newspapers and TV channels. Workforce: 1 week for the organization of each campaign. Infrastructure and other

resources: the use of local communication media is free of charge for the city government. However, effort and resources should be mobilized for recording the ads.

2) Partnership with all the Chambers and associations of Thessaloniki. Chambers of Thessaloniki have direct contact with branch members, and they will be a good vehicle for reaching out to local businesses owners. There are 12 Chambers: The Commercial Association of Thessaloniki, the Metropolitan Developing Agency of Thessaloniki S.A., the Thessaloniki Youth Capital 2014, the Thessaloniki Convention & Visitors Bureau, the Greek National Tourism Organisation, the Thessaloniki Hotels Association, the Chalkidiki Hotels Association, the Thessaloniki Union of Tourist Guides, Various Museums of Thessaloniki, the Thessaloniki's Integrated Transport Authority, the Organisation of Urban Transportation of Thessaloniki and the National Exhibition Agency, TIF HELEXPO SA.
   The objective of this partnership is to involve the city Chambers on the dissemination and promotion of the applications.
   a) Email and telephone contacts with the Chambers for agreement on the cooperation. Workforce: 1 week.
   b) Organization of 2 information meetings in the city hall. Workforce: 1 week/each.
   c) Preparation of the informative materials, in the form of electronic leaflets and emails, to be distributed to the local chambers and by the local chambers to their members. Workforce: 3 days.
3) Door to door visits to the shop, restaurants and hotel owners to attract them to use the applications and registering. This is the most time consuming, yet more effective way to reach out to the local businesses owners, as it allows for the registration of the businesses directly during the visit. Considering that visiting all of the existing premises is a huge work that will require a great workforce, it has been assumed that not all of the businesses will be visited and decided that only one person will be dedicating 1 day a week for this task. Workforce: 1 full day a week.
4) Visiting and engaging points of interest. Workforce: 1 month.
5) Gathering of feedback and proposals on usability and additional features from the users and entrepreneurs for the improvement of the services. Workforce:

d) Time and money needed for the whole action plan

Since the existence of both services doesn't bring direct benefits to the city government, the time and money that will be dedicated to their exploitation is just a political decision. However we have estimated that more than 6 working hours per day are needed to obtain tangible results. Taking this in consideration, the total of money required is around 10.500 € per year for personnel costs, plus the costs of the IT technology maintenance and solving of any possible malfunctions.

e) Source of money needed to launch the service

Any possible European Fund, taxes from citizens, maintenance cost to the entrepreneurships, advertising.

Proposals for obtaining funding for this service are going to be placed in different funding programmes for regional development, trying to get funding for keeping the application working and financing updates. In particular it was introduced as a model of good practices to the Interreg Europe programme Pure Cosmos initiative (http://www.interregeurope.eu/purecosmos/) for enhancing the competitiveness of SMEs.

6.2.3 Scalability and exploitation plan for the Cloud Funding application

6.2.3.1 Cloud Funding application business model

a. Cloud Funding application lean canvas

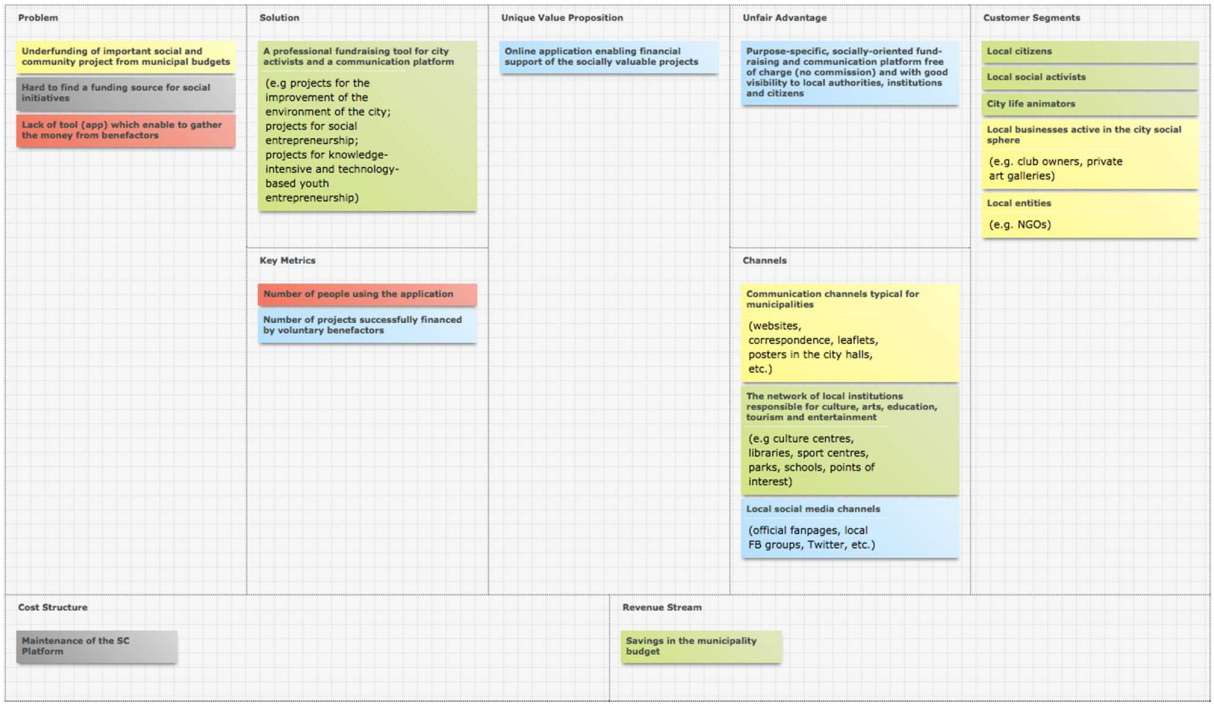


Figure 6: Lean Canvas for Cloud Funding application

b. Problem addressed by Cloud Funding application

Cloud Funding is an application, which addresses the problem of underfunding of important social and community project from municipal budgets. It helps to overcome the difficulties and barriers in fund raising for citizen-driven, grass-root initiatives that has not been addressed so far by local authorities.

c. Solution

Cloud Funding provides a professional fundraising tool for city activists and a communication platform allowing them to attract attention to and build critical mass of support for city-related causes and projects. The application enables end-users (citizens, activists, NGOs, etc.) to raise money and support for specific projects under a typical crowd-funding model. The causes can vary from encouraging local entrepreneurship, or promoting innovative technologies to improvement of the local environment or infrastructure, or even organising cultural events and fests.

d. Customer segments

The application is primarily targeted at local citizens, local social activists and city life animators, but also local businesses active in the city social sphere (e.g. club owners, private art galleries) and other local entities (e.g. NGOs), which would like to raise funds for their social initiatives targeted at local communities.

e. Unique value proposition

The unique value proposition of the service lies in that it offers purpose-specific, socially-oriented fund-raising and communication platform free of charge (no commission) and with good visibility to local authorities, institutions and citizens.

f. Channels

The service will benefit from the wide range of communication channels that the municipality typically uses while contacting the citizens (websites, correspondence, leaflets, posters in the city halls, etc.) and the network of local institutions responsible for culture, arts, education, tourism and entertainment (culture centres, libraries, sport centres, parks, schools, points of interest). The municipalities can also leverage local social media channels (official fan pages, local FB groups, Twitter, etc.).

g. Cost structure and revenue streams

Again, the money necessary to deploy and maintain the service is provided from the municipality budget. This service focuses on the quality of life and the wellbeing of the citizens so there it has lesser impact on the tax revenues. However the service can help municipalities to better prioritize on local investment and spending, as the service will provide clues on the needs and priorities of the citizens. Efficiency gains can be achieved while delegating some of the projects directly to local activists. The platform could also help improve the management of the participatory budget initiatives held by some cities (when citizens vote on projects that they think should get highest priority in the municipality budget for the given year). Importantly some of the projects will solve issues or satisfy needs that otherwise would have been covered from the city budget and the management cost would be delegated on the initiators of the project taking off the burden from the local officers. Savings in the municipality budget can be allocated for covering essential maintenance cost of the application as well as encourage investment in further development of the services or new services.

h. Unfair advantage

6.2.3.2 Cloud Funding application exploitation plan

NEW: This section has been introduced to present the Exploitation Plan elaborated for the Cloud Funding application.

OPPORTUNITY ASSESSMENT PLAN FOR CLOUD FUNDING APPLICATION AS A SERVICE PROVIDED BY THE MUNICIPALITY OF THESSALONIKI

Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

Cloud funding service is an Internet platform for supporting crowdfunding campaigns in Thessaloniki. This service has been launched by the municipality of Thessaloniki in order to support local communities to raise money for social and charitable purposes for which the municipality is not directly responsible. Supported projects are related to social entrepreneurship, knowledge-intensive and technology-based youth entrepreneurship, nongovernmental organizations that support specific social groups, the improvement of urban environment in small projects independent of the city council, etc.

b) Market need

The economic crisis that Greece is suffering in the last years is in a great extent limiting the capabilities of the government of the municipalities in campaigns that are just slightly beyond the indispensable ones. Despite this lack of resources, the municipalities are still willing to raise the citizens' quality of life, by making improvements in the city environment, and taking actions for stimulating the local economy, by supporting entrepreneurship.

For this reason, the municipality of Thessaloniki has delivered this service, necessary for raising money for actions that interest the citizens, and will improve their quality of life and/or move the local economy, but can't be totally funded with the public budget available. The Cloud funding service is also a tool for empowering the citizens, by giving them the capacity of decision on the campaigns that interest them most.

On the other hand, the delivery of this service responds to the need of certain local organization to raising money for their projects in a model independent of the current status of the local economy

c) Specific aspects of the service

The service is available through the smart city Thessaloniki web page https://smartcity.thessaloniki.gr/crowd-funding

The main page gives an overview of the ongoing projects open for fundraising. Each project includes a related image, a one-sentence abstract, the optimum and minimum amounts needed, remaining days and icons leading to additional information and benefits.

Each project page contains an explanatory short video, a detailed description of the project, a description of the benefits that accomplishing the project will bring to the municipality and a short list with the latest contributions.

The status of the fundraising is graphically represented for a fast overview.

Comments and donations can be done by registered users. Donations are through PayPal and credit cards. When contributing, donors can choose to receive an individual reward in gratitude for the donation which varies depending on the project and the amount donated. Individual rewards start with a "thank you e-mail", for a small donation and can include invitations to concerts, thank you cards, photographs, posters or commemorating dinners.

The service also allows for non-monetary contributions such as labour, tools, materials, etc.

Projects are created by the organizations and associations interested in raising the money and, to be published through the application, they should go through a committee for approval. This committee is formed by members of the Municipal Corporation who is the one that administrates the application and publishes the projects. The Municipal Corporation is a private corporation started by the council and managed by the vice mayor. The corporation belongs to the municipality and has as one of its functions to ease the process of spending public budget in the city.

Money sent by donors is pooled in the municipality corporation accounts until the time established for the money raising process has finished. Once this process ends, the crowdfunding model is "all or nothing" type, if total donations haven't reached a previously declared minimum amount, then the money is sent back to donors.

The creation of a project takes place through a process that includes a number of predefined steps where the applicant should describe his organization as well as the proposed project. The detailed information helps citizens to evaluate the projects and to support those they consider as most important for the city.

The platform shows statistics and indicators, which allow City Authorities to draw conclusions on the successful crowdfunding process.

d) Competitive products or services available filling this need & e) Competitive companies in this market space.

The number of internet platforms dedicated to host projects for crowd funding is high:

Most famous ones are located in the USA, although projects from outside this country are also welcomed. To mention some of them, Kickstarter http://kickstarter.com/ focused on creative projects, Indiegogo http://indiegogo.com/ for fund raising campaigns for almost everything, even personal needs and charities, Crowdfunder http://crowdfunder.com/, Crowdrise http://crowdrise.com/, etc. In Europe, Seedrs https://www.seedrs.com/ and Crowdcube www.crowdcube.com are the most popular for funding business projects and ideas.

Back to Greece, most popular platforms for crowd funding of entrepreneurial ideas are:

One Up www.oneup.gr focused on crowd funding creative businesses.

Open Circle www.opencircleproject.com bridging investors and entrepreneurs

Winners Fund www.winnersfund.com for fundraising campaigns to support businesses.

E-Fund www.efund.gr particularly focused on attracting investors to businesses.

Class Fund www.classfund.gr

Other platforms with more heterogeneous character are:

Jump Start Greece www.jumpstartgreece.com is the biggest crowdfunding platform in Greece. Projects hosted in this platform for crowdfunding are of different nature, and can be created by companies, communities, NGOs, start-ups etc.

Easy Starter www.easystarter.com supports every type of project, not necessarily related with business.

Act 4 Greece www.act4greece.gr that promotes social and developmental banking in Greece. Projects hosted in this platform are supporting social welfare, health, cohesion and sustainable growth prospects for Greece.

Greek Fund www.greekfund.gr

Groopio www.groopio.com

Services competing with Cloudfunding application are already consolidated platforms, operating in Greece and hosting projects of different nature.

f) Unique Value Proposition

Despite the fact that there are already consolidated crowd funding platforms with similar characteristics to Cloudfunding application, some aspects make Cloudfunding unique:

- The local character: Cloudfunding allows the whole community of Thessaloniki to work for the same social purposes. It empowers the community and gives them the responsibility for taking care of their neighbors. Hosted projects are opened locally and directed to support local causes.
- The public sector implication: to date, no other crowd funding service in Greece has been promoted and supported by public organizations and government. Cloudfunding is a tool that allows the city government to overcome their lack of capabilities

The legislative framework in Greece has changed in the last few months in order to exclude crowdfunding activities and donations from strict legal constraints. This has been done to give a significant boost to the survival of SMEs. New rules include:

- Crowd funding and donations should be made exclusively through an electronic system.
- The total value of the raised funds should not exceed EUR 500 000 per issuer and per period of 12 months.
- One private investor can't donate more than EUR 5000 or 10% of the average of the reported income of the previous three years per issuer.

Part II: Assessment of the opportunity:

a) Market need filled by the service

The service addresses:

- The social institutions, Hospitals, Universities, NGOs, Neighbour Associations, Chambers of Commerce, Cultural Centres, Young Christian Associations, other religious institutions and entrepreneurs who need to raise money for their projects. Frequently, those institutions/entrepreneurs have unsuccessfully tried to get loans or getting funds from other sources and need an alternative way of funding.
- The citizens' need of contributing to projects that directly affect the city and their everyday life and their neighbours.

b) Social condition that underlines the market need

Before this service existed, money was gathered by volunteers asking for donations on the streets and on door to door visits. Frequently money was collected on hand-held collection boxes and sometimes through bank transfers that were established through a bank form filled in by the collectors at the donor's door.

c) Market research data, d) Size, trends and characteristics of the domestic and/or international markets, & e) Growth rate of the market

Providing that there is no other service similar to Cloudfunding dedicated to collect money for local needs, no data can be found that may allow for illustrating the market need, size and trends.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

Launching this service will benefit the municipality of Thessaloniki in the following ways:

- It unites the citizens of Thessaloniki and gives them the options and the tools to work together in projects that affect their lives and those of their neighbors.
- It supports the creation of new entrepreneurships in the city, those that could be launched thanks to the joint support of the community. This brings to the municipality indirect benefits in form of revenues from taxes and growth of employment.
- It helps association to ask to the municipality for help and cooperation on projects that require the cooperation of the city government.

b) Experience, education and background of the team

The team in charge of launching and maintaining the Cloud Funding application is not made of entrepreneurs but civil servants from the city's government. However, this is a heterogeneous team with experience in IT engineering, public administration and on launching and maintaining similar projects for improving the local economy and the citizens' quality of life.

Stylianos Zaxariou, Mechanical engineer. Head of the Department of Entrepreneurship since 2013. He worked in different Departments for the Municipality since 1987 and he is Head of Department in different positions in the Municipality since 2006(Mechanical Workshop etc.). President of the Union of Engineers of Higher Technological Education for the public sector of Central Macedonia (Greece).

Dr. Dimitris Simitopoulos, Systems and Network administrator. He has a PhD in Electrical and Computer engineering Works. He works for Information and Communications Technology Department of the Municipality of Thessaloniki since 2006.

Christos Lampros, Mechanical engineer. He holds a master's degree from Sheffield Hallam University in Advanced Engineering. He was a laboratory professor for the Technological Educational Institute of Arta's, Department of Computer Engineering from 2001 until 2003. He works for the Municipality since 2005. Works for the Department of Entrepreneurship since 2014. (Second degree in Theology and second master's degree in Byzantine History)

c) Business skills of the team

The team is formed by civil servants working for the Municipality of Thessaloniki with no entrepreneurial skills. Some of team members have been working for years in the department of Entrepreneurship of the city council and collaborating with local entrepreneurs in a daily basis. This gives to the team an extra experience particularly valuable for the characteristics of this service itself, which requires teaming up with local entrepreneurs in order to get to joint objectives.

d) Adequateness of this service idea to the team's background and experience

Mutual trust between the team's member and improved communication skills, will be at the service of the citizens of Thessaloniki. The excellent compatibility of the team plus the strength and prestige of Thessaloniki's brand name will be an extra motive for the success of the application.

e) Needed experience and business skills to successfully implement the business plan

Experience in:

1. Promoting and organizing dissemination events.
2. Handling online donations and money transfer.

3. High level IT technology.
4. Bureaucracy and solving of legal issues related with entrepreneurships issues, such as operation license.

f) Identified stakeholders with the required skills

- The department for Tourism of the Municipality of Thessaloniki
- The Commercial Association of Thessaloniki
- The department of Operational Planning & Monitoring of Structural Funds in the Municipality

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan, b) Necessary elements, for each action & c) Time and money needed for each action.

Resulting from this project, the municipality of Thessaloniki has launched, simultaneously to Cloudfunding, two other online applications that have been offered as services for citizens. Although those other two applications do not totally share the target group with Cloudfunding, some of the steps for exploitation will be taken simultaneously for all three services and with the use of the same personnel and resources.

1) Organization of dissemination events and promotional activities with the objective of reaching out to institutions and citizens, inform on the existence of Cloudfunding service and ways to use it and increasing their interest in either opening campaigns for gathering funds or supporting already open campaigns.
    a) The city council expects to gather a great number of citizens through the organization of 2 concerts to which popular bands will be invited, and that will be used for the promotion of those services.
    b) Organization of 2 cultural promotion activities in the city hall destined to local entrepreneurs, different associations and citizens. These promotion activities will be used also to show the functionalities and share detailed instructions of the applications. Workforce: 1 week/each. Infrastructure: City hall premises are used free of charge.
    c) 12 mailing campaigns yearly to stakeholders. Workforce: 3 days/each.
    d) Continuous advertisement campaigns in the local radio, newspapers and TV channels. Workforce: 1 week for the organization of each campaign. Infrastructure and other resources: the use of local communication media is free of charge for the city government. However, effort and resources should be mobilized for recording the ads.
2) Information campaigns for institutions that would possibly be interested in this service such as: neighbour associations, Christian and Orthodox organizations, NGOs, educational and cultural centres, Chambers of Thessaloniki in contact with new entrepreneurs, etc. The objective of these campaigns is to raise awareness between the target groups on the existence, uses and benefits of this service.
    a) Email and telephone contacts for information. Workforce: 1 week.
    b) Organization of 2 information meetings in the city hall. Workforce: 1 week/each.
    c) Preparation of the informative materials, in the form of electronic leaflets and emails, to be distributed to the institutions by their members. Workforce: 3 days.
3) Gathering of feedback and proposals on usability and additional features from the users and entrepreneurs for the improvement of the services. Workforce: 1 week.

d) Time and money needed for the whole action plan

Since the existence of this service doesn't bring direct benefits to the city government, the time and money that will be dedicated to its exploitation is just a political decision. However we have estimated that more than 2 working hours per day are needed to obtain tangible results. Taking this in consideration, the total of money required is around 3500 € per year for personnel costs, plus the costs of the IT technology maintenance and solving of any possible malfunctions.

e) Source of money needed to launch the service

The needed capital will be taken from the public budget of the municipality. In addition, any possible European Fund will be seek, as well as sponsorship in exchange of advertisement.

6.2.4 Scalability and exploitation plan for the Live the City application

6.2.4.1 Live the City application business model

a. Live the City application lean canvas

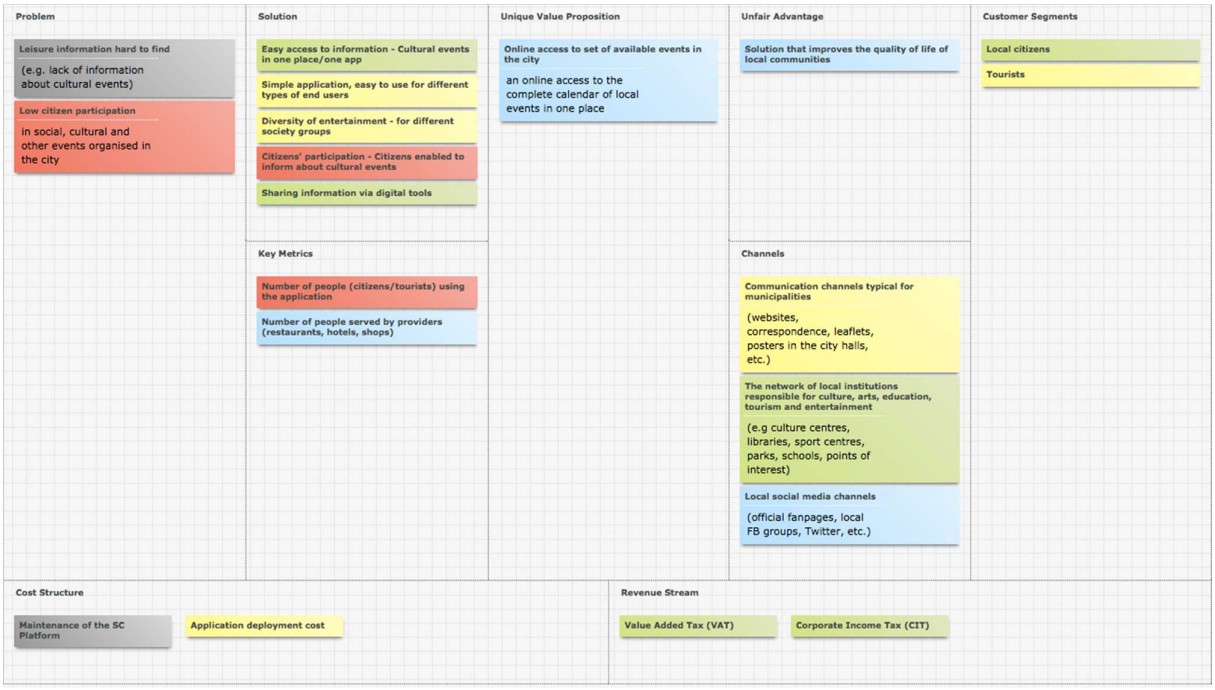


Figure 7: Lean Canvas for Live the City application

b. Problem addressed by Live the City application

Live the City is an application, which addresses the problem of low citizen participation in social, cultural and other events organised in the city caused by lack of information about that event or by difficulties with finding them.

c. Solution

The service offers the citizens one simple digital, easy to use tool, for different types of end users, which enables trouble-free access to information about different types of events. Furthermore, the application facilitates citizens' participation in organizing and informing about such events in the city.

d. Customer segments

The application is primarily targeted at: tourists and local citizens. Its unique value proposition is an online access to the complete calendar of local events in one place. Importantly, the content is build both by local institutions as well as collective effort of the citizens and event organisers and the service is maintained by the local authority providing ad-free experience, transparency, equal visibility to all events, collaborative filtering and quality check.

e. Unique value proposition

Live the City brings online access to a complete calendar of local events in the city.

f. Channels

Similarly to the Cloud Funding the Live the City application is targeted at the citizens at large, so it can benefit from the wide range of communication channels that the municipality typically uses while promoting these types of services (websites, correspondence, leaflets, posters in the city halls, etc.) and the network of local

institutions responsible for culture, arts, education, tourism and entertainment (culture centres, libraries, sport centres, parks, schools, points of interest). The municipalities can also leverage local social media channels (official fan pages, local FB groups, Twitter, etc.).

g. Revenue streams

As before, the money necessary to deploy and maintain the service is provided from the municipality budget. This service focuses on the quality of life and the wellbeing of the citizens so its impact on the tax revenues is only indirect. The city cannot charge any type of subscription fee, however it could make an agreement with the Broker to act as the service exploitation entity, however this would imply a different business model, where the Broker is the service provider subsidised by the local authority. Such and alternative model is fully compatible with the exploitation strategy of the STORM CLOUDS Smart City Platform described in section 4.1.

h. Cost structure

Costs are derived from application deployment and updating of the S.C. platform

i. Unfair advantage

Main competitors are applications that add value for improving the quality of life of local communities

6.2.4.2 Live the City application exploitation plan

NEW: This section has been introduced to present the Exploitation Plan elaborated for the Live the City application.

OPPORTUNITY ASSESSMENT PLAN FOR LIVE THE CITY APPLICATION AS A SERVICE PROVIDED BY THE MUNICIPALITY OF VALLADOLID

Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

This application offered by the Municipality of Valladolid clusters information on leisure events that happen in the city, classifies them on categories, locates them in a navigable map and allows registered users to comment and rate them. It has the form of a social network in which information on events is published by registered users that can be either participants or organizers.

b) Market need

Two types of users, with complementary needs, advantage from this application:

1. Organizers of events and cultural events of the city, that were lacking of a free, centralized and dedicated tool to publish the information related to the events and reach out to their audience.
2. Citizens looking for activities to do during their free time and events to assist. Citizens were in need of an easy way to obtain ad-hoc information on leisure options in the city, including opinions from other participants that help them decide whether it is worth to participate.

c) Specific aspects of the service

The service works as a social network of registered users that can be accessed through the web or an online application. Users publish without a previous approval from an administrator, and any kind of event can be published, from a play in a local theatre to a protest gathering on the streets. Events are classified in categories and can be liked, followed and commented.

Both, the web and the application include a city map with events location that can be navigated using the smartphone's GPS.

d) Competitive products or services available filling this need & e) Competitive companies in this market space.

- Kedin Valladolid - http://kedin.es/valladolid/ Kedin is a Spanish community that provides similar functionalities than Live the City. Registered users can publish events that are classified on categories that include concerts, arts and culture, workshops, street markets and fairs. However, Kedin doesn't have the network character and interactivity of Live the city and doesn't include options such as liking, following or rating of the events.
- Guia del Ocio - http://www.guiadelocio.com/valladolid. Guia del Ocio gathers, classified by cities, cultural event information on the whole Spain. The content is updated by the web administrator and information can be accessed by users with no previous registration. This guide includes features such as online purchase of tickets. As it is managed by an administrator, this application doesn't have the spontaneity and variety that an application such as Live the City offers.
- La Guia Go - http://www.laguiago.com/valladolid/ with very similar characteristics than the previous one.
- Other web services that have been developed specifically for the city of Valladolid are nothing more than cultural and leisure agendas managed and updated by an administrator with no community participation and that include solely information on official events. Examples of these are: the tourist and culture page administered by the Valladolid city council http://www.info.valladolid.es/, the "culture and leisure" section on the portaldetuciudad.com and the "culture and leisure" sections on printed or online local newspapers.

f) Unique Value Proposition

A great strength of Live the City application is that it combines the social network concept with the features of a cultural and leisure guide. The users are the ones responsible for uploading and validating of the information, and it is the interaction between them what brings the crowdsourcing value to the service.

The geolocalization of the events in a navigable map feature that offers the mobile version is also one best features so far not seen in similar applications.

Part II: Assessment of the opportunity:

a) Market need filled by the service

This service fills the citizen need of having the possibility of advertise the events organized outside of the regular leisure and cultural calendar. Citizens would go to the local theatre or cinema's web page for a listing of films or plays, but they will hardly find information on alternative options such as those organized outside of the official locations.

Till now there are no private initiatives to deliver the whole range of cultural and leisure information in the city of Valladolid, and it was the city council who created this service.

b) Social condition that underlines the market need

This service is directed to two types of users with different but complementary objectives:

1. Cultural events organizers wanting diffusion of their event and greater audiences. Any registered user can publish information on the events, but this service particularly benefits amateur organizers that still don't have their own marketing channels. Before Live the City existed in Valladolid organizers used alternative channels to make themselves known, such as social networks, ads on local newspapers and media or putting up advertising posters on the streets. Organizers with lower

budgets relied only on free social networks and the reach out was conditioned to the diffusion, liking, sharing and retweeting power of their friends.

2. Citizens in search of information need to find verified multichannel information in one single place with minimum effort. Previously they checked local media and online cultural guides but were unaware of the existence of other alternative events that may as well enjoy.

c) Market research data & d) Size, trends and characteristics of the domestic and/or international markets

Due to the unofficial nature of the events this service is targeting, it is difficult to estimate the potential market for this application.

The official web page for culture and tourism in Valladolid, administered by the city council, published around 2300 different cultural events in the city last year. Included in this amount are also activities organized by the city council for tourists, such as tours around the city. Considering that the events to be published by using the Live the City application can include both, officially organized events and events organized by other institutions, associations and plain citizens, it is expected the number of events to be higher than the officially organized ones. However, there is no data available on the number of these not-official events organized in the city last year.

Regarding final users, any citizen with internet access is a potential user of this service. According to a research published by Fundacion Telefonica with data of 2015, a 74,9% of the population in Castilla y Leon are Internet users. This would be around 230 thousand potential users of the application. This percentage is higher in the population between 16 and 25 years old, the 98.8% of which use Internet frequently. Other studies[9] show that social networks are the places most visited by teenagers and young adults. A 75.3% of them access social networks very frequently.

The increase on the ownership and affordability of mobile devices with internet access, such as smartphone and tablets, we have witnessed in the last few years, it is expected to influence positively the number of potential users for the Live the City service.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

This service is an opportunity for the city council to deliver to the citizens of Valladolid a service that didn't existed before. The city council expects a greater use of the leisure options offered in the city, what would improve the quality of life and well-being of the citizens.

Additionally, it is expected that this service encourages citizens to go out more frequently, what should have an indirect economic impact on the city by: increase on the use of public transport, higher renting of street areas by bars and restaurants for outside dining, renting of public spaces for concerts and, in definitive, higher consumption and indirectly more indirect incomes from taxes.

Additional indirect benefits for the city can include employment generation to satisfy the greater demand of services derived from more leisure demand.

b) Experience, education and background of the team

The main responsible for the implementation and cloudification of this service in Valladolid is Julián Arroyo. He has broad experience in research and development projects affecting the city council. He is a computer Engineer from the "Universidad de Valladolid", with appreciation of research superiority in the doctoral program "Information Technologies" from the same university. He holds masters in Management of

[9] Garcia, Lopez-de-Ayala and Catalina. 2013. The influence of social networks on the Adolescents' online practices. Comunicar 41. XXI, 2013.

Information Systems and Technology at the "Universidad Politécnica de Madrid" (2001) and Public Administration of ICT by the National Institute of Public Administration (2009). Assigned since 1991 in Valladolid City Council and, since 1999, holding a position of Senior Technical Systems and Information Technologies dedicated to the implementation of computerization projects at corporative scope.

Currently, he is responsible for municipal website and technical coordinator of the electronic office of Valladolid City Council.

Between 1995 and 2011, Associate Professor in Department of Computing of "Universidad de Valladolid", being now honorary associate professor of that department.

c) Business skills of the team

Julian is not an entrepreneur but a civil servant working for the municipality. However, he holds experience in managing similar projects and services in the city council office. The municipality of Valladolid, as an institution, is not directly implicated in activities directed to business development. However, the institution have its own channels for promotion of the services offered to the citizens that may reach out to a big percentage of the city's population.

d) Adequateness of this service idea to the team's background and experience

From the technological point of view, offering this service totally fits into the background and experience of the group that has implemented in the Valladolid council.

However, offering an application as a service for citizens in order to promote alternative ways of culture and leisure does not fall within the priorities of Julian's group. Additionally, this group doesn't have enough skills and means for promoting the service.

e) Needed experience and business skills to successfully implement the business plan

To successfully implement our business plan will be necessary:

- Experience in promoting and organizing culture and leisure events.
- Experience in marketing and dissemination, for reaching out to the citizens.
- Entrepreneurial experience for identifying business opportunities.

f) Identified stakeholders with the required skills

Other departments of the city council, such as the department of culture have the experience in promotion and organization of cultural events.

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan, b) Necessary elements, for each action & c) Time and money needed for each action.

The application is already up and working for the municipality of Valladolid. For this reason no further technical activities will be needed for its launching. The identified activities are the ones focused on sustainability and exploitation of the service.

1. Enrol other departments within the city council, for example the department of culture and nominate a person responsible for the organization and implementation of activities for sustainability and exploitation and monitor the usage of the service. Estimated time: 10 working hours. Estimated cost: 0€ providing that the person responsible for this task is a civil servant whose salary is already covered by the city budget. Other aspects needed: agreement and approval of the corresponding authority in the city.
2. Create local campaigns of dissemination and advertisement of this service with the objective of create the need in the citizens of its use. The first approach will consist on using the council's channels, such as the city council web page and the cultural magazine. Secondly, advertising campaigns could be created in local press and media. Estimated time: 1.5h/day. Estimated cost: 10 000€/year.

3. Finding and signing contracts with partner enterprises and sponsors in exchange of advertising through the platform. Estimated time: 2h/day. Estimated cost: 0€ providing that the person responsible for this task is a civil servant whose salary is already covered by the city budgets.
4. Identify and partner with local event organizers that are more active or who organize the most populated events and sign partnership contracts. Estimated time: 0.5h/day. Estimated cost: 0€

d) Time and money needed for the whole action plan

Needed time: 4 working hours a day.

Needed resources: 10 000€/year plus the enrolling of a civil servant part time.

e) Source of money needed to launch the service

For the first steps the capital will be extracted from the council's budget. Once we have successfully partner with enterprises and enrolled sponsors part of the capital can be obtained from advertising contracts with sponsors.

6.2.5 Scalability and exploitation plan for the Have Your Say application

6.2.5.1 Have Your Say application business model

a. The Have Your Say application lean canvas

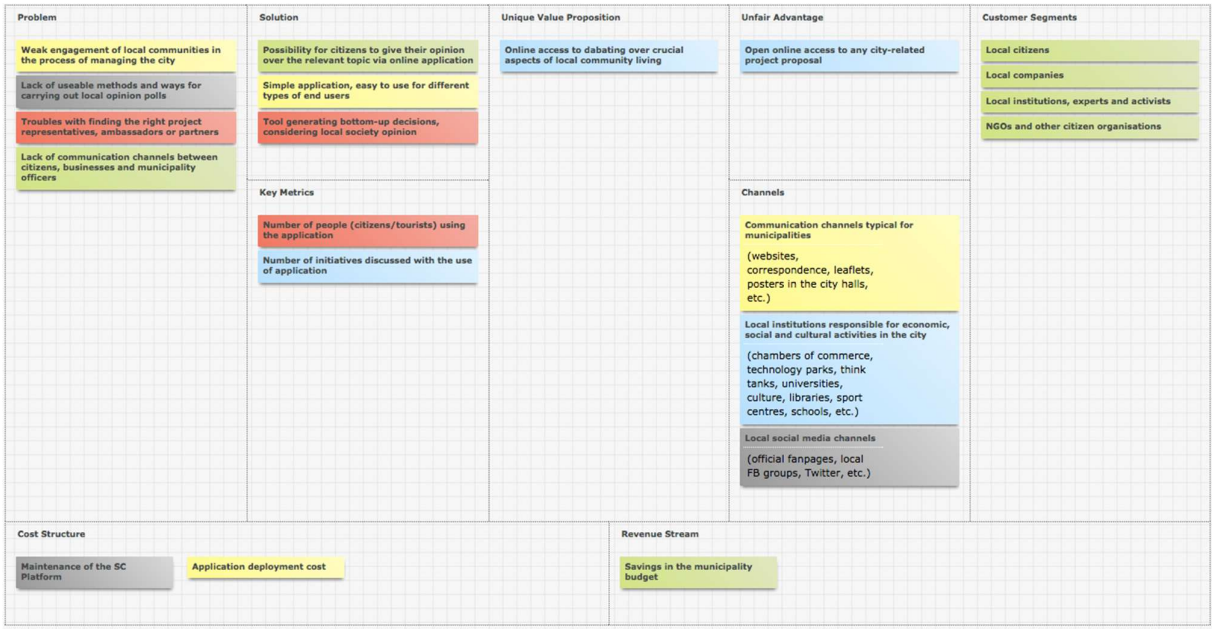


Figure 8: Lean Canvas for Have Your Say application

b. Problem addressed by Have Your Say

Have Your Say is an application, which addresses the problem of unavailability of the tool for discussing social initiatives among different local community groups. Other barriers hindering social engagement are: lack of useable methods and ways for carrying out local opinion polls, weak engagement of local communities in the process of managing the city, lack of communication channels between citizens, businesses and municipality officers posing difficulties in finding the right project representatives, ambassadors, partners and enabling important city projects, for instance smart city initiatives.

c. Solution

Have Your Say is a public consultation platform for municipality driven projects. The service offers municipalities a possibility to put online any project proposals and launch public consultations. On the other hand the citizens gain possibility to express their opinion on the relevant topic via an easy to use online application.

d. Customer segments

The application is targeted at local citizens, local companies and other local entities (e.g. NGOs). Unique value proposition of the service is open online access to any city-related project proposal and an easy way to express opinions and moderate discussions about crucial aspects of local community living.

Similarly to other applications in the same category Have Your Say is targeted at the citizens, local businesses, local institutions, experts and activists, NGOs and other citizen organisations, so it can benefit from the wide range of communication channels that the municipality typically uses while promoting these types of services (websites, correspondence, leaflets, internal communication tools, posters in the city halls, etc.) and the network of local institutions responsible for economic, social and cultural activities in the city (chambers of commerce, technology parks, think tanks, universities, culture, libraries, sport centres, schools, etc.). The municipalities can also leverage local social media channels (official fan pages, local FB groups, Twitter, etc.).

e. Revenue streams

As in previous cases, the money necessary to deploy and maintain the service is provided from the municipality budget. This service focuses on the city management quality. Efficiency gains can be achieved by building common understanding and support for a given projects and making better-informed decisions. The service should be considered as an important risk mitigation tool that can bring in important savings by avoiding wrong decision and taming citizen dissatisfaction. The initial investment cost in the application deployment and the maintenance cost are expected to be fully covered with the efficiency gains in better investment decisions.

6.2.5.2 Have your say application exploitation plan

NEW: This section has been introduced to present the Exploitation Plan elaborated for the Have Your Say application.

OPPORTUNITY ASSESSMENT PLAN FOR HAVE YOUR SAY APPLICATION

Part I: Product or service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

Have Your Say service is a bridge between the citizens and the government of the municipality, facilitating the participation of the community on the decision-making processes on subjects that affect their environment and everyday life, usually related with urban development and legislation.

The service is used by the city authorities in the necessary process of consultation with the citizens any changes related to urban planning and development and legislation changes. City authorities publish the issues, open them to discussion and collect opinions from the citizens.

b) Market need

The existence of this application answers to the need of the city authorities to ease the process of consultation with the citizens. This consultation is by law mandatory to the city council on certain subjects related with town planning and changes of legislation. Additionally, the city authorities would want to involve the population in other subjects in order to make their decisions in a more sustained and transparent way by involving the population.

On the other hand, the city population demanded easy access to the information related to the city planning and a more effortless and efficient way to participate in the management of the territory, particularly in matters that affect them directly.

This service responds to these needs. First, it provides the necessary tools for the authorities, to open issues to public participation, describe, moderate and add all the documentation necessary for citizens to understand the public participation itself. Secondly, it provides simple and user-friendly tools for citizens to express their views.

c) Specific aspects of the product or service

The service administrator opens the discussions following the needs of different departments in the city council. An open discussion includes a presentation page with the description of the suggested plan. It is coordinated with technology based on a geographic information system, with maps or other elements that represent in detail the territory under discussion, which eases the identification of the places and the understanding of the changes that are suggested. The necessary documents related to the discussion, including photographs and pdf files are also available in the discussion page and can be downloaded by the users.

The service allows multiple discussions to be simultaneously open, depending on the projects that are currently ongoing in the city.

From the administrator point of view, the service allows customization by choosing different in-house or other open street maps, adding personalized colours, logotypes, pictures, etc. The administrator has access to the statistics of participation for monitoring the incidence of participation in real time. Data can be exported in postgreSQL / PostGIS databases.

Citizens can access the application and open discussions and reading other users' comments without previous registration. However, to participate in the discussion, i.e. posting comments in one open discussion, it is necessary to be logged-in as a registered user. Registration is user-friendly and can be done through social networks (Facebook, Google or Microsoft) or by creating a new user.

To participate in the discussions it is enough to post a new comment in an open discussion. Additionally, participants can also choose to upload documents or photographs to illustrate and justify their participation, and to introduce a geo-localizer to pinpoint the exact place their comment is about. Geo-localized comments remain indicated in the map with a clickable marker that allows easy location of the comments posted related to that location. Commenting on posts published by other users is also possible.

On top of it, users can access to statistical data referring to the number of participations, comments and users on a certain discussion.

d) Competitive products or services available filling this need

There are no other products or services that fill this need. This is due to the characteristics of this service and the fact that it was created addressing the demand of the city authorities for a tool to standardize and make the process of consultation more accessible to the population. To our understanding, there are no other applications or services that allow bidirectional interaction between the authorities and the citizens.

e) Competitive companies in this market space.

As stated before, no companies exist that provide a service competitive to this one.

f) Unique Value Proposition

The best values of this service are the following:

- It allows citizens to be useful actors in the management of the municipality, city or neighbourhood and by defining public policies. It is a bottom-up decision-oriented tool for empowering citizens and improving their quality of life.
- It allows authorities to open, monitor and collect the results of the consultation processes with a minimum effort. The opinions collected are automatically organized allowing an easy access and management of this information by the authorities.

Part II: Assessment of the opportunity:

a) Market need filled by the product or service

This service fills:

- The need of the authorities to collect citizen's opinions and suggestion on urban planning and regulatory issues.
- The need of the citizens to be informed on the authorities' plans related to the modification of the urban space and regulations, and on the consultations that are open at a certain time.
- The need of the citizens to participate in an easy way on the consultation processes opened by the authorities and have influence on the modifications that will directly affect their surroundings and everyday life.

b) Social condition that underlines the market need

Typical users are citizens with skills in the use of internet. They are interested in the changes that happen in the city and have their own opinion in how they should happen. Some users are very participative and like to

participate and discuss issues publicly, opening new discussions and including supporting materials such as photographs and other files. Others emit their opinion without feeding a discussion. Participating users are both private citizens and persons representing groups or organizations.

Before this service existed, the few interactions between the citizens and the authorities that happened had a very directional and closed character, with almost no feedback from the authorities. For consultations, the local government published themes open for consultancy on the city council's web page and physically on the bulletin board in the city hall. Participation of citizens was done by email and regular mail. This method didn't allow actual discussion between citizens or between citizens and authorities. Citizens didn't had access to the comments sent by others and thus no exchange of opinions was possible.

c) Market research data & d) Size, trends and characteristics of the domestic and/or international markets

There is no data available on the number of citizens with internet access in the city of Agueda. However, according to the Internet Live Stats data for 2016, the 67.3% of the Portuguese population has access to Internet. This would be around 32 thousand potential users in the municipality of Agueda. With the data we currently have in hand, it is not possible to estimate the actual number of citizens interested in taking part in the consultation processes.

e) Growth rate of the market

The municipality of Agueda is making efforts for the delivery of this and other e-services to its citizens. It is expected that, with the each time more extended use of tablets and smartphones with internet access, the citizens will get more and more familiar with the use of services delivered through the internet and thus more involved in the participation on this online consultations.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

The offering of this service brings a good opportunity to the municipality to address aspects of nuclear importance for the city administration: it is a tool for approaching to the citizens, it opens a bidirectional communication channel with them, it allows going through certain administrative processes with transparency, it helps improving the quality of life in the city and it is a step forward for Agueda in its transition to a smart city.

Additionally, we believe that a better city, built in part by the contribution of citizens, is also a better city for visitors, because it is a city with a soul. With the use of this service it is expected an improvement on the attractiveness of the city, what should redound on a positive impact on the tourism.

The direct and indirect benefits to the city and municipality are thus very important, as it is important to continue captivating the population for constructive participation.

For the city authority, the existence of this service notably eases the consultation process and the gathering and management of the information collected, resulting in a more efficient work of the officers in charge.

b) Experience, education and background of the team

Miguel Tavares, the main responsible for this application / service in Águeda, has some experience in development projects in his area of knowledge - Geographic Information System. He has a bachelor's degree in geographic engineering and a graduation degree in information technology. He is currently the head of the Technical Unit of Geographic Information System of the Municipal Council.

c) Business skills of the team

The team responsible for this service is formed by City Hall employees, i.e. Civil servants, not entrepreneurs. Moreover, the City Council does not have any activities related to business development.

However, the local authority has its own channels to promote the services offered to the citizens, both within the municipality territory we manage, and in various events in which we participate inside and outside the country. Additionally, in the last few years the municipality of Agueda has made an important effort in offering different online services to the citizens, in a road towards becoming a smart city. With these offerings, we have gained skills and experience essential for the success of this project.

d) Adequateness of this service idea to the team's background and experience

The service, based on a geographic information system fits perfectly within our experience and technological know-how. Our team has been working with PPGIS - Public Participation Geographic Information System since 2006, so we have accumulated some experience in this type of service.

The team has also gained experience in the creation, maintenance, promotion and monitoring of other online services to the citizens.

e) Needed experience and business skills to successfully implement the business plan

Experience in designing each PPGIS, in the geographical layers, in the typification of problems, in the brief explanation of the problem placed, among others.

Experience in establishing a communication and marketing plan tailored to each topic opened for public discussions in order to reach de adequate target audience.

Experience in holding a good dialogue with citizens so that they are motivated to use the service and participate actively in the discussion.

Experience in presenting the results in a compelling way and disseminating all the ideas, included in the final solution.

f) Identified stakeholders with the required skills

In the City Hall we do teamwork, with other departments, to place each theme in public participation, thus responding to the needs of the service. Teamwork responds to each component of a participation, i.e. the geographic component (the map), the information about the theme itself, the moderator (deep knowledge of both the subject and the political will), systematic dissemination and dissemination of PPGIS, and information collection and presentation of results.

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan.

1. Technical improvements of the application

The Have Your Say application is up and working and has held several consultation with public participation. However, some technical improvements need to be made for better usability and attractiveness.

- Upgrade the tools and functionalities for optimal usability.
- Include the possibility to access, in read-only mode, to all the participations, even the ones that are closed.
- Design improvements for a better look and feel.
- Gathering feedback from users and stakeholders for further improvements.

2. Marketing and dissemination

Each consultation that requires public participation needs to be promoted individually. The extent of this promotion will depend on the importance of the project for the city council. Promotion activities will include:

- Elaboration of printed materials such as posters and flyers with description of the project open for consultation and the way to participate
- Distribution of printed materials in the neighbourhoods affected by the plans subjected to consultations.
- Promotion ads on local or regional radio stations.
- Organization of meetings and public discussions in the city hall and/or in other venues in the districts affected by the plan, such as cinemas.
- Publication on the city hall's web page.

Additionally, promotion activities will be held in order to promote the application and service themselves. This will include:

- Design of a new logotype that will help identify both the application and the service

- Creation and distribution of posters and leaflets.

3. Creation of a community around the application.

The application is free and it is desired to have a community of developers that will be in charge of introducing further developments to the application in order to adapt it for its use in other cities. This will also help in solving problems of usability etc.

- Promotion of the application in events in other cities
- Partnering with other cities

b) Necessary elements, for each action

1. Technical improvements of the application. The team in charge of technical improvements is already hired and working. No additional personnel or equipment is required.
2. Marketing and dissemination
    - Assignation of one person in the city council to be in charge of the marketing and dissemination campaigns.
    - Agreement of local radio stations to publish ads.
    - Hiring of an advertising company for recording ads.
    - Hiring of personnel for distributing leaflets.
3. Creation of a community
    - Legal advice for licensing

c) Time and money needed for each action

It depends on how far we want to go.

- For developing / upgrading the application 3000 € | one month
- Better design and communications 10000€ | three months
- Promotion and marketing activities 5 - 10000€ | per year (it depends on the number of PPGIS that the city wants to put online in one year)
- Build a community |3000 € | 3 years

d) Time and money needed for the whole action plan

Around 26000€ and 3 years

e) Source of money needed to launch the service

Technical improvements of the application will be funded from the SC budget.

Promotion of every consultation process will be funded with the city council budget.

6.2.6 Scalability and exploitation plan for the City Branding application

6.2.6.1 City Branding application business model

a. The City Branding application lean canvas

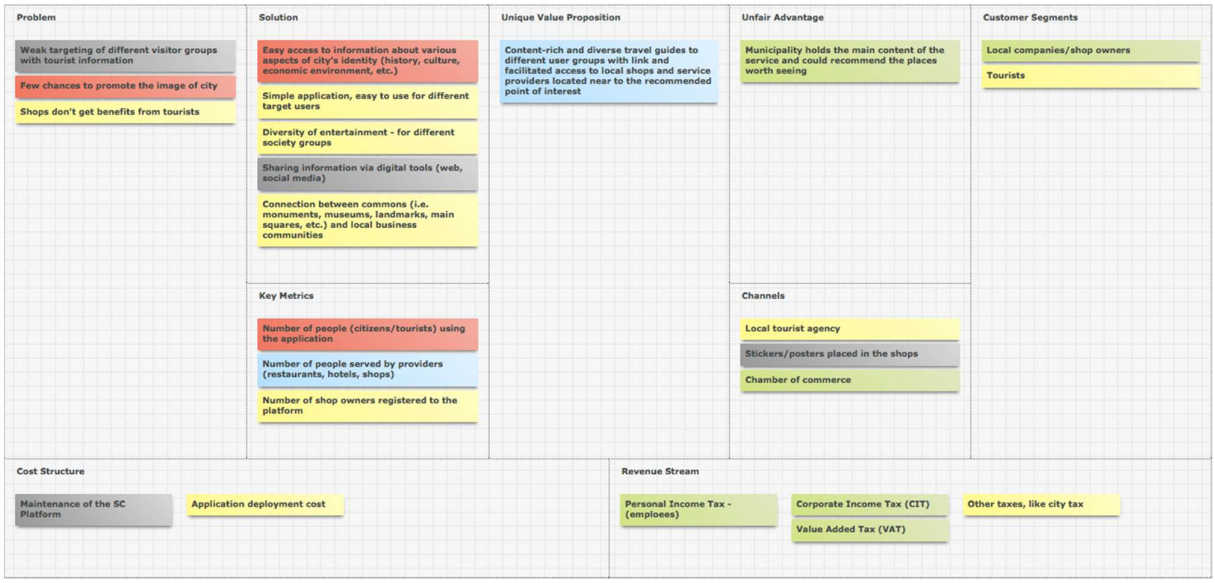


Figure 9: Lean Canvas for City Branding application

b. Problem addressed by City Branding application

City Branding addresses the problem of weak targeting of different visitor groups with tourist information. The available information is fragmented, not adjusted to the needs of different type of tourists and their diverse interests. Furthermore currently, when only third party guides are available, the municipalities have little influence on what the visitors see and therefore have no means for shaping the image of the city and converting the touristic traffic into the revenues for local business owners. Linking guided tours to shops and services of relevance and true value to particular user groups is very limited.

c. Solution

The service will facilitate access to information about various aspects of city's identity (history, culture, economic environment, arts, entertainment) in connection with local business and entrepreneurship.

d. Unique value proposition

The unique value proposition of the service lies in providing content-rich and diverse travel guides to different user groups with link and facilitated access to local shops and service providers located near to the recommended point of interest.

e. Customer segments

The application is targeted mainly at tourists (end-users) and local companies (end beneficiaries).

f. Channels

The main channels to access the tourists and local shop goers will be local tourist agency and stickers/posters placed in the shops. As for the shop owners they can effectively be approached via a chamber of commerce, targeted outbound marketing campaigns and word-of-mouth communication.

g. Revenue streams

The money necessary to deploy and maintain the service is provided from the municipality budget, and this investment should be returned with the increased revenue from taxes. The impact of the service should result in additional income from Personal Income Tax (PIT) (against increased revenues of business owners acting as sole traders and their employees), Corporate Income Tax (CIT) (corporate tax paid by the incorporated business establishment benefiting from the service), Value Added Tax (VAT) (form the increased turnover of goods and services paid by tourists and local citizens) and other taxes like city tax (increased number of tourists coming to the city due to better tourist information available). Additional revenues from taxes can cover essential maintenance cost of the application as well as encourage investment in further development of the service as well as new ones.

h. Unfair advantage

Municipality holds the main content of the service and could recommend the places worth seeing

6.2.6.2 City Branding application exploitation plan

NEW: This section has been introduced to present the Exploitation Plan elaborated for the City Branding application.

OPPORTUNITY ASSESSMENT PLAN FOR CITY BRANDING APPLICATION AS A SERVICE PROVIDED BY THE MUNICIPALITY OF THESSALONIKI

Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

City Branding application is an interactive tourist guide of the city of Thessaloniki designed for simultaneously informing the travellers and promoting local businesses related to tourism. For travellers, it provides free access to a combination of a complete and categorized information on the city attractions, religious and historical sites, museums and other significant points of interest with all the services a tourist would need while traveling. Examples of those services are souvenir shops, hotels, pharmacies, tourist information offices, restaurants, grocery shops, local public transport, etc. For local businesses dedicated to tourism, it provides free promotion and increase of visibility.

The application allows the municipality to focus on different target groups, which are associated with various aspects of city's identity (history, culture, economic environment, etc.) by supporting the differentiation of the commons according to the target group in which the visitor belongs.

b) Market need

The unstable political environment and the ongoing of the financial crisis of Greece during the last period has dramatically affected the city of Thessaloniki, damaging numerous local businesses. The bankruptcy and dissolution of small local businesses can create hardships, not only for the business owner but also to the surrounding community. Tourism is the main income industry for the Greek economy, and the city of Thessaloniki is one if the top tourist destinations worldwide, according to the National Geographic Magazine. That's why a great percentage of local business are centred on services destined to travellers.

The City Branding application has been deployed as a tool for the city government to support local entrepreneurs in branches directly related with the tourism. By combining tourist information with tourism related services it increases the visibility of local businesses to visitors and allows for inexpensive promotion.

Two types of users will be interested in using City Branding application:

- Local entrepreneurs that are dedicated to provide services to tourists or tourism-related, are in need to efficient ways of communication for reaching out to the maximum number of clients. Entrepreneurs will want to register their business and relate it to city's point of interest for easier location.
- Tourists, travellers and citizens, wanting to plan their sightseeing to the city and satisfy their essential needs for a more pleasant traveling.

c) Specific aspects of the service

The following table presents the main features and the benefits of the City Branding application.

Feature	Benefit
Rich Multimedia Content Each Point of Interest is presented using interactive maps, 360o panoramas, video and images.	**Creates an immersive user experience** Tourists explore the city's attractions in various ways and discover unique places to visit.
Virtual Marketplace of Touristic Services Local business can add their commercial brands and connect them to specific POIs	**Supports Local Economy** Local business communities can offer services tailored to the tourists' needs and expectations.
Multiple Classification Schemes POIs and Brands can be classified using multiple categories (i.e. type, time period, etc.).	**Supports the differentiation of the commons** Municipalities can focus on different target groups, which are associated with various aspects of city's identity.

City Branding is a web application that can be accessed without registration. It shows information of point of interest in the city, classified in categories that are focused on three target groups that are related to the history of Thessaloniki: visitors from orthodox countries, Turkey and Israel. The categories thus depend on the historical and religious character of the monuments, such as: Roman monuments, early Christian and byzantine monuments, ottoman monuments, Hebrew monuments, post-byzantine churches and modern monuments. Categories can be access from the main menu or by using a search engine.

Clicking in one category opens a new page that shows the monuments of the selected category in a city map, and a list of those monument, including a clickable thumbnail photograph and an icon showing to which categories it belongs. Selecting one of the monuments it opens a new page that includes a navigable map of location and an extended description and photographs of the monument. Brands located close to it are described at the bottom of the page and pinpointed in the same map with a different marker colour and shape.

Tourism and service information is filled in mainly by the page administrators. However, entrepreneurs can also introduce and promote their shops and brands and locate it in the maps, marking the monuments that are on the surroundings.

d) Competitive products or services available filling this need

General tourism guides are accessible online and provide extensive information on city attractions, and services dedicated to tourists. The most common ones are:

- Lonely Planet, https://www.lonelyplanet.com/greece/northern-greece/thessaloniki It provides information and locates in a map all of the sights and points of interests of the city. Information on each point of interest includes a location map (not navigable) and a "nearby and noteworthy" list of activities that are related to it, such as tours for purchase, bars and restaurants, and that are as well

located in a map. This web application allows also for searching and booking accommodation and finding catering options.

- Trip Advisor, https://www.tripadvisor.com/Tourism-g189473-Thessaloniki_Thessaloniki_Region_Central_Macedonia-Vacations.html This web application is mainly focused to finding accommodation, restaurants, car rentals and activities for purchase. However, it includes a very extensive list of city sights that is validated, assessed and commented by a strong community of users. Promotion of local business is done directly by the users, who post comments and give valuation points to the places they've visited.
- The Department for Tourism of the Municipality of Thessaloniki has their own tourism information site hosted by the municipality. However, this service doesn't includes shops or local services directed to tourists.

e) Competitive companies in this market space.

The previously described web accessed tourist guides share the following **strengths** that make them a strong competitor in capturing a greater number of final users (tourists).

- They are very well known services between travellers and have been frequently used as guides of reference for tourists.
- They allow for in-page purchase of tickets, reserving tours, accommodation and restaurants.

TripAdvisor is backed-up by a strong community of users, which recommend and evaluate the places according to their experience.

The **weaknesses** of those tourist guides are the following:

- They don't show direct and extensive connection between public points of interest and the services that are close to them.
- It is not possible to show in the same navigable map both the tourist attractions and the services at the same time.
- The crowd-recommendation system has the effect of over-promoting well known and frequently visited services and places. Newly opened or less popular businesses tend to remain invisible in the crowd of famous places.
- They are not directed to the promotion of local businesses, and do not offer information on services other than accommodation or restaurants.

f) Unique Value Proposition

The unique value proposition of the service lies in providing content-rich and diverse travel guides to different user groups with link and facilitated access to local shops and service providers located near to the recommended point of interest.

It allows for targeting of different visitor groups and adjusted to the needs and interests of different types of tourists. Also, it brings to the municipality the influence on what the visitors see and do, and the tools to promoting only locally owned brands. Additionally, it promotes the brand name of the Municipality of Thessaloniki.

Part II: Assessment of the opportunity:

a) Market need filled by the service

The service addresses:

- The local entrepreneurs' need for having a channel for advertising their businesses directly to their target groups of visitors, and with priority over not locally owner competitors.
- The visitor's need to plan their sightseeing, knowing not only what to do in the city but also what services are around the points they will be visiting. This combination of information on monuments and points of interest with services is what makes City Branding application so unique. This need is partially addressed by other tourist guides, such as TripAdvisor or Lonely Planet. However, the information visitors get from these doesn't include services other than accommodation, restaurants

and tours. In the case of TripAdvisor, this information is not directly related to a certain point of interest, and finding services in the surrounding area can be a thought task for inexperienced travellers. Lonely Planet gives a very incomplete list of some restaurants or cafeterias located in the proximities of monuments.

b) Social condition that underlines the market need

Two types of users have been identified:

- Local entrepreneurs that are running a local business, frequently small, and need to attract the highest flow of clients in order to increase their incomes and make their business profitable. Before this application existed local business had very few possibilities for making themselves visible to visitors, who rarely read local newspapers or listen local radio stations. Printing leaflets and distributing them in the streets one by one directly to the tourist's hands, or leaving them in the tourist offices', hotels or restaurants stands is the most frequently used way for advertising.
- Visitors, who are rarely aware of the excellences of local restaurants, cafes and shops and would rely on the security of the most famous global chains or the widely advertised trendy restaurants or shops to satisfy their hunger or make their shopping. On top of it, visitors want to make the most of their leisure time, and they would rather choose a catering location or other service on the surroundings of the place of interest they are just visiting, rather than traveling through the city just to have their lunch.

c) Market research data

According to the Hellenic Statistical Authority www.statistics.gr around 1 million of visitors spent at least one night in Thessaloniki last year. There is no data available of the number of local or visitor that have made use of other services dedicated to tourism, (such as restaurants, bars, cafeterias or gift shops) or other related services and shops. Only in the city centre there are more than 600 restaurants, bars, taverns and shops selling food.

d) Size, trends and characteristics of the domestic and/or international markets

Thessaloniki is a typical urban city with little resistance to the current economic problems Greece is experiencing. All types of local business can be found here, from small convenience stores to glamorous boutiques (such as Dolce Gabbana). However, the living standards of the Modern Greek citizens is low. The economic problems have great impacts in urban cities, and small businesses use to be the most affected, having huge difficulties to make profit.

Tourism industry is the engine of the Greek economy, and measures to attract more visitors and canalizing their expenses to locally offered businesses will have positive effects on local economy and foster local enterprises.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

The municipality of Thessaloniki doesn't expect to have any direct income from the existence of the City Branding application. However, it is expected to bring indirect benefits to the city, by:

- supporting to the local economy,
- enhancing entrepreneurship on zones around the monuments and historical points,
- enhancing the brand name of the municipality,
- giving extra boost to the local market,
- attracting tourists to the local services and increase of profits,
- creation of more business directed to tourist and thus employment,
- increase on the quality of life of the citizens that make use of the application to find options for their leisure time.

b) Experience, education and background of the team

The team in charge of launching and maintaining the City Branding application is not made of entrepreneurs but civil servants from the city's government. However, this is a heterogeneous team with experience in IT engineering, public administration and on launching and maintaining similar projects for improving the local economy and the citizens' quality of life.

Stylianos Zaxariou, Mechanical engineer. Head of the Department of Entrepreneurship since 2013. He worked in different Departments for the Municipality since 1987 and he is Head of Department in different positions in the Municipality since 2006 (Mechanical Workshop etc.). President of the Union of Engineer's of Higher Technological Education for the public sector of Central Macedonia(Greece).

Dr. Dimitris Simitopoulos, Systems and Network administrator. He has a PhD in Electrical and Computer engineering Works. He works for Information and Communications Technology Department of the Municipality of Thessaloniki since 2006.

Christos Lampros, Mechanical engineer. He holds a master's degree from Sheffield Hallam University in Advanced Engineering. He was a laboratory professor for the Technological Educational Institute of Arta's, Department of Computer Engineering from 2001 until 2003. He works for the Municipality since 2005. Works for the Department of Entrepreneurship since 2014. (Second degree in Theology and second master's degree in Byzantine History)

Theodosia Tsouli, employee of Department of Entrepreneurship since 2013. Administrative procedures inside the Municipality and administrative support for the Department.

c) Business skills of the team

The team is formed by civil servants working for the Municipality of Thessaloniki with no entrepreneur skills. However the studies for Byzantine Thessaloniki and basic knowledge about the archaeological history of the city gives a good opportunity to the team. Finally the daily involvement with the entrepreneurships of the city (The Department issues working licenses daily) gives an extra advantage to the team.

d) Adequateness of this service idea to the team's background and experience

The willingness of the civil servants to help the city's entrepreneurships (excellent scientific level) and promote the beauties of the City. Mutual trust between the team's member and improved communication skills, will be at the service of the citizens of Thessaloniki. The excellent compatibility of the team plus the strength and prestige of Thessaloniki's brand name will be an extra motive for the success of the application.

e) Needed experience and business skills to successfully implement the business plan

Experience in:

1. Promoting and organizing disseminations events to support the local entrepreneurships.
2. High level IT technology.
3. Bureaucracy and solving of legal issues related with entrepreneurships issues, such as operation license.
4. Promotion of local heritage and history.

f) Identified stakeholders with the required skills

- The department for Tourism of the Municipality of Thessaloniki
- The Commercial Association of Thessaloniki
- The department of Operational Planning & Monitoring of Structural Funds in the Municipality

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan, b) Necessary elements, for each action & c) Time and money needed for each action.

The municipality of Thessaloniki has simultaneously launched two online applications that have been offered as a service for citizens. Being conceived for the support of local businesses and shops, both applications

share the target group. For this reason, the steps for exploitation will be taken simultaneously for both services and with the use of the same personnel and resources.

1) Organization of dissemination events and promotional activities with the objective of reaching out to local businesses owners and raise their interest in being part of the offering of those applications.
    a) The city council expects to gather a great number of citizens through the organization of 2 concerts to which popular bands will be invited, and that will be used for the promotion of those services. For this two promotional event at least 1500 for each group will be needed.(Total amount :3000 Euro)
    b) Organization of 2 cultural promotion activities in the city hall destined to local entrepreneurs and citizens. These promotion activities will be used also to show the functionalities and share detailed instructions of the applications. Workforce: 1 week/each. Infrastructure: City hall premises are used free of charge.
    c) Organization of 4 meetings for stakeholders (city entrepreneurs) with different government department. Workforce: 1 week/each. Infrastructure: City hall premises are used free of charge.
    d) 12 mailing campaigns yearly to city entrepreneurs. Workforce: 3 days/each.
    e) Continuous advertisement campaigns in the local radio, newspapers and TV channels. Workforce: 1 week for the organization of each campaign. Infrastructure and other resources: the use of local communication media is free of charge for the city government. However, effort and resources should be mobilized for recording the ads. The production of a spot will cost around 2100 euros for the television spot and 1400 Euro for the radio spot. The price does not include possible discount that Municipality can achieve. Television and radio spot should be played 10 times a day for 30 days with estimated cost in 2100 Euro. (Total estimated cost: 5600 Euro).
2) Partnership with all the Chambers and associations of Thessaloniki. Chambers of Thessaloniki have direct contact with branch members, and they will be a good vehicle for reaching out to local businesses owners. There are 12 Chambers: The Commercial Association of Thessaloniki, the Metropolitan Developing Agency of Thessaloniki S.A., the Thessaloniki Youth Capital 2014, the Thessaloniki Convention & Visitors Bureau, the Greek National Tourism Organisation, the Thessaloniki Hotels Association, the Chalkidiki Hotels Association, the Thessaloniki Union of Tourist Guides, Various Museums of Thessaloniki, the Thessaloniki's Integrated Transport Authority, the Organisation of Urban Transportation of Thessaloniki and the National Exhibition Agency, TIF HELEXPO SA.

    The objective of this partnership is to involve the city Chambers on the dissemination and promotion of the applications.
    a) Email and telephone contacts with the Chambers for agreement on the cooperation. Workforce: 1 week.
    b) Organization of 2 information meetings in the city hall. Workforce: 1 week/each.
    c) Preparation of the informative materials, in the form of electronic leaflets and emails, to be distributed to the local chambers and by the local chambers to their members. Workforce: 3 days.
3) Door to door visits to the shop, restaurants and hotel owners to attract them to use the applications and registering. This is the most time consuming, yet more effective way to reach out to the local businesses owners, as it allows for the registration of the businesses directly during the visit. Considering that visiting all of the existing premises is a huge work that will require a great workforce, it has been assumed that not all of the businesses will be visited and decided that only one person will be dedicating 1 day a week for this task. Workforce: 1 full day a week.

4) Visiting and engaging points of interest. Workforce: 1 month.
5) Gathering of feedback and proposals on usability and additional features from the users and entrepreneurs for the improvement of the services. Workforce: 1 full day a week.

d) Time and money needed for the whole action plan

Since the existence of both services doesn't bring direct benefits to the city government, the time and money that will be dedicated to their exploitation is just a political decision. However we have estimated that more than 6 working hours per day are needed to obtain tangible results. Taking this in consideration, the total of money required is around 10.500 € per year for personnel costs, plus the costs of the IT technology maintenance and solving of any possible malfunctions.

e) Source of money needed to launch the service

Capital will be get from the municipality's public budget and from advertising. Additionally, it will be seek any possible European funding.

6.2.7 Scalability and exploitation plan for the TiMi application

NEW: This section has been introduced to present the Scalability and Exploitation Plan elaborated for the TiMi application, including Business Model and Lean Canvas for TiMi

6.2.7.1 TiMi application business model

a. TiMi application lean canvas

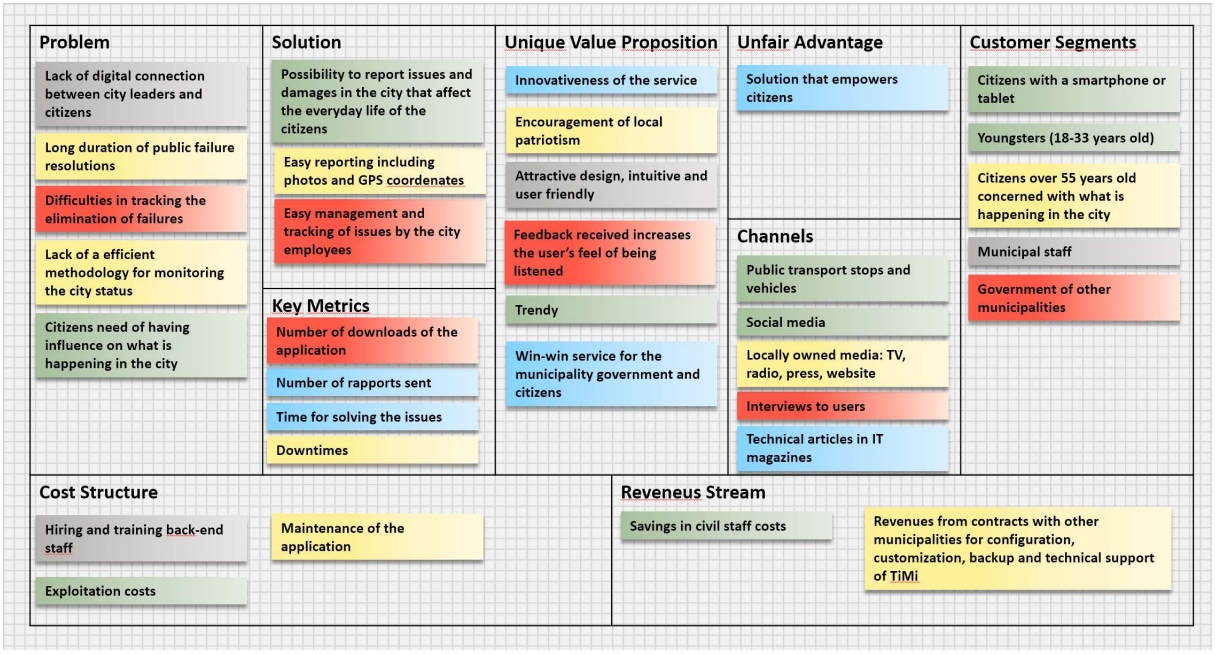


Figure 10: Lean Canvas for TiMi Application

Figure 11: Lean Canvas for City Branding application

b. Problem addressed by TiMi application

- Lack of digital connection between city leaders and citizens
- Long duration of public failure resolution - problems that require action from the municipality and that are not solved because of lack of information on the need
- Difficulty on monitoring the elimination of the failures - (keeping track of the failures)
- Lack of methodology for monitoring what is happening in the city - from the administrative PV. - There is not cost/efficient way to do this right now!! (public employees can work on this but this is not efficient)
- Social context - citizens need to be able to connect to city administration in a fast and easy way - this is an efficient tool for them - Empowering the citizens

c. Solution

The solution is a mobile application directed to citizens to report failures and damages they find in the city in an easy way. The back end of the application allows municipality administration to efficiently manage the reported issues and mobilize the people and resources in an optimal way.

• The 3 most important characteristics of this service are transparency, it is user friendly and it provides strong cooperation with executive organizations

• The technologies need for this application are: Drupal, JavaScript, JAVA, Xcode, Android Studio, HTML, AJAX, MySQL,

• The life expectancy of the service is long if the application works properly. This is because it substantially eases the communication between citizens and the city administration, and at the same time it helps the municipality government identify and manage the city needs while saving in time and money.

d. Unique value proposition

TiMi is an application that, on one hand empowers the citizens by giving them the tools to participate in improving the city by reporting failures, damages and dangers encountered in the city. On the other hand, at the city government level, it optimizes and automatizes the process of identifying and solving such failures with the minimum resources needed.

Main characteristics are:

1. Innovativeness - follows the trends for smart city applications.
2. It is trendy - these services are very popular in the present times and very well welcomed by users "Local patriotism" - gives to citizens the of feeling that they can influence what is happening in the city/neighbourhood they live in, and improve it with a minimum effort.
3. Design - it is attractive and easy to use - usability
4. It is more comprehensive than competition - categories can be edited - not closed categories - user can add new categories
5. Feedback is received by the person that has introduced the failures - this motivates the participant to keep reporting other issues and gives to the citizens the feeling that they are being listened

Win-win tool for municipalities to have the services: it improves satisfaction of the citizens and at the same time it is a fast, smooth and low cost solution for the administration to handle failures

e. Customer segments

Those 2 are identified as potential users of the application

- Youngsters (18-30 age) - high users of smart phone applications
- 55+ more concerned on what is happening around in the city
- All citizens open to use smart phones -

Other target segment: municipal staff employed by the by municipality (external companies working for the municipality administration but connected with it) - connected with identifying and eliminating the failures - they can benefit from TiMi

f. Channels

Available channels for Miskolck Holding to reach out to their customers are:

- Local buses and other transport - sticker posters - digital information boards at the bus stops they belong to the city and the administration can deliver messages to the citizens through them
- Social media and Facebook
- Web sites of the city: local web site, municipality's web page.
- Tv, radio and press - local owned by the administration.
- PR component can interview citizens on successful histories - to be published in the tv etc.
- Technical articles in IT magazines – are channels for exploitation in terms to selling the application to other cities.

g. Revenue streams

- Using the application for citizens is free of charge
- Leads to savings in the municipality budgets for less investment in this problem solving and staff costs -
- Indirect savings or improvement on the citizens' quality of life
- Configuration and customization of the app for interested municipalities who may buy the application and hire local cloud structure - this brings revenues to the IT department of the municipality - also maintenance, backup and technical support services can be offered for money

h. Unfair advantage

The service has been created and promoted locally

i. Cost structure

The main costs identified are personnel costs. And the minimal costs will be needed to be applied to advertisement, as we will use our own channels. No cash flow can be maintained related with this service.

Any software that operates the server can be get for free, including Linux, Apache, MySQL and Drupal.

Any costs incurred before starting to obtain revenues will be covered by our own resources (Miskolc Holding Zrt.)

Until our first revenue we expect to be needing approx. 16. 000 EUR

Mayor identified costs

- Training for the back end staff - to the protocol on what has to be done and when – 80 hours -> 4000 EUR
- Hiring of back end staff - for monitoring inputs and organize the solution: notify the right departments – 500 EUR/month, City Maintenance Company (Városgazda Nonprofit Kft.), Water Supply Company (MIVÍZ Kft.), Heat Supply Company (MIHŐ Kft.)
- maintenance – 1000 EUR/month

6.2.7.2 TiMi application exploitation plan

OPPORTUNITY ASSESSMENT PLAN FOR TiMi APPLICATION AS A SERVICE PROVIDED BY THE MUNICIPALITY OF MISKOLC

Part I: Service idea development, competitive services and companies analysis, identification of uniqueness of the idea in terms of its unique selling proposition:

a) Service description

TiMi is an application directed to citizens who can through it report failures, damages and dangers encountered in the city in a fast and optimal way. The application empowers the citizens by giving them the tools to participate in improving the city. Additionally, it is a tool for city government for optimizing and automating the process of identifying and solving such failures with the minimum resources needed.

b) Market need

Two main stakeholders are implicated in TiMi:

- Citizens in a need of delivering their remarks to the government in an easy way - this application gives them this opportunity. Specially on the issues in the city that are disturbing for them
- The city operation department - they are interested in getting real time information from the citizens, concerning any failures that are reportable with TiMi. This is also connected with cost efficiency: When the citizens are the ones reporting the failures, it is not need to hire special personnel to do so.

c) Specific aspects of the service

The application is optimized for mobile devices. Able to run on Android and iOS - it is a complex system formed by the application, the database on mySQL and the desktop application.

The reports (the reporting of a failure) can be transferred from the app, and it includes photos and GPS coordinates - it makes easy to locate the failure. This is a great difference with the competitors

d) Competitive products or services available filling this need

2 of them: Hungarian and English

- Hungarian: vap based application in which is possible to add a photo and check the status of the failure but it doesn't have any other option. Jarokelo.hu It is available in several cities in Hungary and managed by a private company that acts as an independent intermediary between the city and the citizens.
- Clean London: the service was suspended by the city for being unable to respond to all the reported failures. Cleanlondon.co.uk

e) Competitive companies in this market space.

www.kezedbenabiztonsagod.hu application - ("your safety is in your hands") - the company offering this product to the cities is NRG Online Media Tanácsadó Kft. and they are offering their service to the cities at a very high price - it is focused on safety issues: private and road safety (to notify the police - also sometimes the municipalities have their own security companies that work on the safety. Also local sheriffs)

The main strengths of TiMi, that makes it preferable over the competence is that it is- locally owned by the city

f) Unique Value Proposition

TiMi is:

- locally owned, promoted and administered
- Managing of issues is fast and optimal: the application is directly linked with the companies and services that are in charge of managing and resolving the issues reported by citizens - TiMi prioritizes reports, and assign them to the competent organizations to be solved.
- Gives feedback to the person who has reported the damages and informs about the output of the action once it has finished
- Reporting of issues is fast, easy and optimal: allows citizens to send description, photos and GPS coordinates.

Part II: Assessment of the opportunity:

a) Market need filled by the service

The target group of TiMi, when it comes to exploitation, covers basically those cities that are interested in introducing something helpful that contributes to a tidier city in general - those are cities suffering for similar problems as Miskolc: there are problems on the streets and sometimes the city government are not aware of this problem soon enough. And thanks to this app and the active citizens they are informed soon enough of these problems.

Market need: the need of having some tool helpful for become aware of the problems happening in the city on real time and managing them. This application fulfils this need.

b) Social condition that underlines the market need

Typical user of the application: the end user is someone who has a smartphone or tablet in his pocket, is digitally literate and has some internal commitment to contribute to the tidiness of the city.

Previously, the only option for citizens was:

- Sending a formal written letter to the municipality office - this process was very slow and required a good amount of bureaucracy
- Sending an email - also slow
- There was a lack of feedback towards the citizens

City operation and management company - they staff is required to keep people on the streets to identify the problems and report the problems internally to their colleagues/other departments and start the procedures to eliminate the problem: contacting the companies or hiring personnel who will solve the problem. The timeframe necessary for overcoming the problem was long. The application solves this automatically and informs directly to the departments that should be in charge of repairing the failures.

c) Market research data & d) Size, trends and characteristics of the domestic and/or international markets

Domestically, the application is suited for small municipalities of up to 160 000 inhabitants. However, we believe that small municipalities, of less than 5000 inhabitants, are not included in the target group for

According to Eurostat, only in Hungary there are 88 medium municipalities with population ranging from 160000 to 15000 inhabitants, and 247 smaller towns (from 15000 to 1000 inhabitants).

In Europe, 567 municipalities have population between 160000 and 45000 inhabitants. The total number of smaller towns is around 85000 (CEMR data).

Since the mobile application is available for free, but revenues should be generated. It is possible to ask for an undefined amount of money for the operation of the back-end part of the application. Citizens are using the application for free but the city governments that are introducing this app may pay Miskolc Holding for supporting the operation.

Contracts come be used in order to use the application, supporting operation of the back-end and for adaption the TiMi application to the local system and local protocols for problem solving in the city.

Contracts may also include external support.

When it comes to the number of potential users of TiMi application in Miskolc, basing on the data of the Central Statistics Agency (KSH), a 77% of Hungarian Internet users access the internet through their smartphones. In the case of Miskolc municipality alone, this would result on around 90000 smartphone users.

Prior to the existence of this application, the following number of errors and damages were reported to the city government:

- To the local Heat Supply Company: around 1000 reports/year – 99% solved
- To the local City Maintenance Company: some 3500 reports/year – 70% solved
- To the local Water Supply Company: some 5500 reports/year – 98% solved

With the existence of TiMi we expect that the number of error and failures reported by citizens will see an 80% increment in the first year.

Part III: Corporate entrepreneurial self-assessment and the entrepreneurial team.

a) Interest of this opportunity to its owner

Miskolc holdings wants to increase their incomes with the use and offering of this application.

Also, the municipality of Miskolc is interested in the indirect benefits brought by TiMi in terms of optimization of the process for solving city damages and failures. This results in less personnel costs and fastest response to failures.

b) Experience, education and background of the team

Over the past 5 years a function concentration process happened that resulted in the development of the Miskolc Holding IT department into a service and development centre having more than 35 workers. They are providing services on a daily bases to the municipality and to all the member companies of the Miskolc Holding (that is more than 1000 people) plus has gained experience in providing services are being provided to the municipalities and to external public and non-profit companies. They have gained a deep experience in providing services. Also this team of developers have gained the capacity and skills of creating this applications and services from scratch.

This experience makes this team skilled enough for creating, supporting and offering these applications.

The workers of the Miskolc Holding are specialized IT department are IT engineers and IT developers.

c) Business skills of the team

Miskolc holding is a municipal asset management company. It is an umbrella organization that has public service companies. Legally, it is a PLC it is a publicly owned private company.

Within the organization they are dealing with operational running of the company, dealing with industrial partners, following investors, etc. The company has its own marketing and communication department.

This company has a department for economy development and project management that coordinates all of the business carried out by Miskolc.

When it comes to IT, Storm Clouds is the first opportunity which outputs can be sold to other cities as well.

d) Adequateness of this service idea to the team's background and experience

TiMi's idea came from the mayor of the municipality in response of a need in the municipality for reducing the response time and resources needed for solving city problems but at the same time having the citizens involved in the current status of the city.

The IT department enthusiastically got the role of developing the application on their own instead of involving an external company because they had the capacities and competences.

Part IV: Steps needed to be taken to successful translate this opportunity into a viable business entity:

a) Exploitation action plan, b) Necessary elements, for each action & c) Time and money needed for each action.

General steps for exploitation:

- To hire or assign one person in Miskolc Holding dedicated part time (or only during a portion of his/her time) to activities directed to the exploitation of TiMi
- To set up an application demo system with limited performance for other interested cities to test and see how does it work before implementing it - needed: 60 hours - 20 EUR infrastructure, 1000 EUR labour

Steps for reaching out to potential clients: needed: 30 hours – 500 EUR

- Participation on local exhibitions and fairs – preparation of the materials for the exhibition: 8 hours, exhibition: 8 hours. travel expenses: 100 EUR + 300 EUR other expenses / city / capita
- Presentations and exhibitions – for sharing the application characteristics and convince potential customers (other municipalities) on the efficiency of the system – preparation for the exhibitions: 8 hours, exhibition: 8 hours. travel expenses: 100 EUR + 300 EUR other expenses / city / capita
- Door-to-door approach: contacting with other municipalities presenting the application – 8 hours, exhibition: 8 hours. travel expenses: 100 EUR + 300 EUR other expenses / city / capita

Marketing and dissemination approach: 8 days and approx. 1100 EUR

- Publications at the municipality's web page.
- Sending out newsletters.

- Publications on Facebook, Twitter, LinkedIn groups and other social media.

d) Time and money needed for the whole action plan

In total: approx. 300 hours and 3000 EUR

e) Source of money needed to launch the service

Until this service is not on the market it is self-paid. Initiation will be financed by Miskolc Holding.

7 Networking activities for scalability at PAN-European level

NEW: This section has been introduced to summarize networking and dissemination activities

Networking and dissemination activities undertaken during the SC project lifetime have been described in detail in D6.4. and D6.5.2. As a result of these activities a STORM CLOUDS brand image has been developed and has gained some renown by the Public Sector, SMEs and Cloud Communities along Europe. We believe that this work have set the basis for SC to become a platform of reference when it comes to cloud applications for government, and it is already recognized as a quality label for the cloud and open-source applications in this field.

STORM CLOUDS organized two Calls for Cities to select additional cities that were willing to test and evaluate the services. In the first call for cities, eight cities expressed their interest. These were:

- Panevezys (Lithuania)
- Aberdeen (UK)
- Suupohja region (Finland)
- Aparecida (Brasil)
- Guimaraes (Portugal)
- Lisboa (Portugal)
- Hatay (Turkey)

The selection process concluded that the selected cities were Guimaraes (Portugal) and Hatay (Turkey)

In the second Call for Cities, four cities expressed their interest:

- Linares (Spain)
- Veria (Greece)
- Athens (Greece)
- Grenoble (France)

The cities selected in this second call were Athens and Veria.

Sustainability and exploitation process for the individual exploitable assets started already during the project's lifetime and was leveraged by the dissemination activities undertaken. Those activities included a set of activities for general and specialized audiences to provide information about the project and engaging stakeholders (at local and Pan-European levels). These were developed according to the level of dissemination from simple activities, from engagement activities at the community's level to specialized workshops, conferences and events directed to a more expert audience. Generating positive media coverage at local, national, European and Pan-European levels, as well as the creation of digital material provided in the website, blogs and social networks has been an essential element.

Summary of these activities are as follows:

1 - Web blog and social media: Web blog posts have been published under three categories:

- *News and events*
- *Storm Clouds watch* (general articles about cloud computing / smart cities / governance issues / cloud migration for cities
- *Storm Clouds reports* and deliverables (posts – articles using the project's deliverables

Every blog post is being shared through Twitter and Facebook

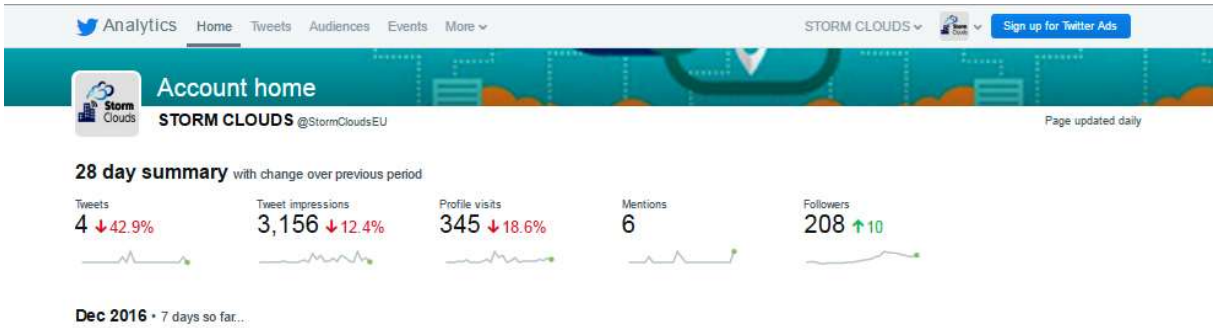
2 – Storm Clouds Facebook page – 155 likes

Storm Clouds Project @Stormcloudsproject

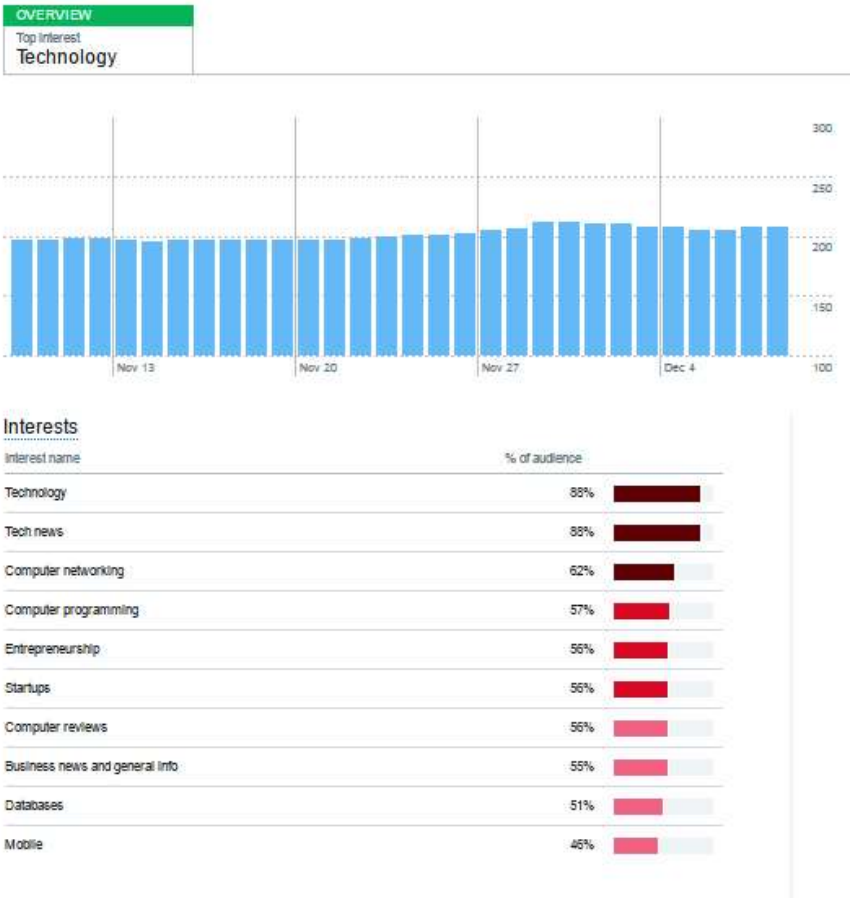
3 – Twitter account – 131 twits, Following 732, Followers 310

Using the hashtags:
#cloudcomputing
#cloudstrategies
#hybridcloud
#citiesinthecloud
#smartcities
#SmartCitiesApps

Twitter Analytics – December 7 2016 – "last 28 days".



Twitter Analytics – Better performance in audience attracting



4 – Pilot cities dissemination actions: workshops on Smart Cities, Cloud Computing and services, and Municipality actions for the smart city. Workshops included presentation of the SC applications and training sessions for public services cloud migration.

8 Annexes: Workshop slides

- Delivered in a separate file titled “Business Model Generation workshop_slides.pdf”.

- Delivered in a separate file titled “Exploitation risks identification and assessment workshop slides.pdf”

- Delivered in a separate file titled “Management of exploitation risks workshop slides.pdf”

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