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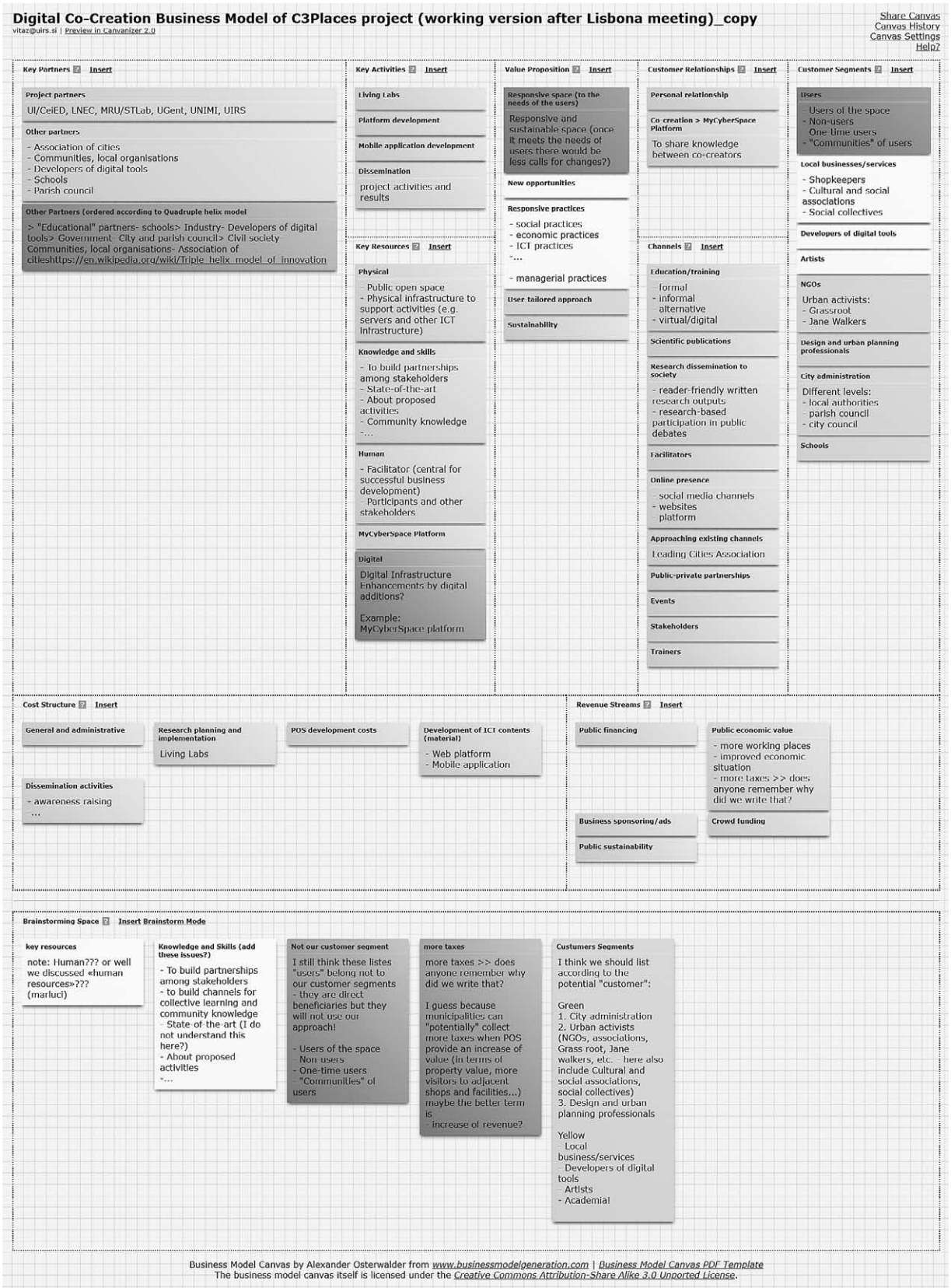

Fig. 1 Development of the C3Places BMC through online communication and filling in of the framework on the website canvanizer.com by all project partners

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Understanding the Exploitation Plan and Business Model in EU-funded Research Projects by Applying the Business Model Canvas Approach in Public Space

business model canvas
European research scheme
exploitation
public benefit-oriented projects
value proposition

European Commission has obliged Horizon 2020 and Horizon Europe beneficiaries to specify the dissemination and exploitation of their funded activities' outcomes. In this way, research results can be extended to benefit the wider society. However, beneficiaries have difficulties meeting these goals due to the overlap between dissemination and exploitation and the uncertainty of how to translate research activities and outputs into socio-economic benefits for the society. This paper developed a framework based on the business model canvas to operationalise an approach to exploitation. The framework was tested within the EU-funded research project C3Places in the fields of urban planning and sustainable spatial development. The resulting reference framework can be used as a guideline for the design and development of research project exploitation plans. It is especially valuable for projects in the fields which usually do not have 'sellable' or even marketable outcomes and products but rather result in soft measures and recommendations for public policies. Accordingly, it can support the decision-making processes of both policy-makers and private organisations.

INTRODUCTION

The exploitation and dissemination of research project outcomes has become an integral part of European research and innovation funding. In Horizon 2020, the European Commission (EC) has put forward Rules for Participation (EC, 2013), which oblige beneficiaries to exploit and disseminate the outcomes of their funded activities. The applicants are required to submit a draft Plan for the Exploitation and Dissemination of Results (PEDR) at the project proposal stage. Through this plan, EC aims to increase the availability of research results to relevant policymakers, peers in the research field and industry for direct use in public policymaking, commercial purposes and indirect contribution to the development of science (EC, no date).

The Rules for Participation (EC, 2013) define exploitation as 'the use of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities' and dissemination as 'the public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium'.

The draft plan should define clear objectives adapted to the relevant target users and establish a concrete protection, exploitation and dissemination strategy. According to the guidelines for PEDR drafting (European IPR Helpdesk, 2015), the strategy should address questions related to the needs addressed by the project, problems identified and solutions offered, characteristics of the new knowledge generated, users of the results and benefits delivered. In addition, it should detail the geographic coverage and economic size of target markets, potential users, main competitors, analyses of state-of-the-art, analyses of intellectual property introduced in the project, facts and figures on the planned exploitable results, business model, timeline of the planned dissemination activities, etc.

The implementation of the Horizon 2020 programme showed that distinguishing among the dissemination, communication and exploitation activities was not easy for beneficiaries (EC, 2022). There were overlaps among these activities, especially for the research projects with marketable outputs (EC, 2022).

In the Horizon Europe funding programme, communication remains a requirement, but EC emphasises dissemination and exploitation as crucial to ensure impact at three levels: scientific, societal and economic (European Parliament, 2021). It also requires a continuous reporting of communication, dissemination and exploitation activities throughout the project. For dissemination and exploitation activities, project consortia are also required to continue such reporting after the project has ended, informing EC of potentially exploitable results within one year of the project's end (EC, 2013). In Horizon Europe, the Plan for Dissemination and Exploitation, including Communication activities (PDEC), was made an integral part of the project design from the beginning. Once a project starts, the PDEC should be developed based on the proposal content and then further widened to include the perspectives of all stakeholders (EC, 2022).

Both the guidance from Horizon 2020 and the updated guidance from the Horizon Europe funding programme (EC, 2022) are applicable to all research areas. However, we are interested in determining how such a plan can be drafted for research projects in the fields of urban planning and sustainable spatial development. This question was found relevant since projects in these fields usually do not have 'sellable' or even marketable outcomes and products but rather provide soft measures and recommendations for public policies. Accordingly, it can be challenging to set an exploitation strategy and business plan as defined by guidelines and accessible models. Therefore, it is necessary to first translate research activities and outputs clearly into socio-economic benefits for the society, which can be understood as an exploitable value proposition of the project.

The research activities and results reported in this paper were developed within the research project funded by the European Union (EU) under the Joint Programming Initiative (JPI) Urban Europe/ERA-NET Cofund Smart Urban. JPI Urban Europe was designed to implement the European Research Area, which aims to promote strategic cooperation between EU member states and associated countries. The project was titled *C3Places – using ICT for co-creation for inclusive public places*, and its aim was to increase the quality of public open spaces (POSs) (e.g. squares, parks and green spaces) as a public good, reflecting the needs for different social groups through information and communication technology (ICT). Developing an exploitation plan and a related business model was one of the tasks in Work Package 6 (WP6) 'Dissemination and Exploitation'. Due to the predominant research orientation of the project, the dissemination strategy and exploitation plan were developed in a way to fit the outcomes, mostly related to methodologies and tools to support public services for public goods, and are not a directly 'sellable' product. Deriving from WP6 activities, we mainly aimed to develop a framework to operationalise an exploitation approach to understand the generated value, the relations between the stakeholders and the project's social benefits and financial components.

This article presents, compares and assesses the approach adopted to draft the exploitation plan developed for the C3Places project. The business model canvas (BMC) is a framework that can describe how a project creates, delivers and captures value (Osterwalder and Pigneur, 2010); therefore, it is often used as a basis for the analytical evaluation of business model items. This article hypothesises that the BMC can be a useful tool for research grant beneficiaries to better frame research project outputs; however, it requires certain adjustments to apprehend the values which are not marketable or sellable but critical for public benefit. Our purpose was to test whether the BMC can also be a promising method to ease the knowledge transfer and integration of outcomes from research to practice.

The resulting reference framework can be used as a guideline for the design and development of exploitation plans for research and public benefit-oriented projects. It can also support the decision-making processes of both policymakers and private organisations to cooperate and communicate more efficiently with stakeholders and the public.

State-of-the-art

To determine how different beneficiaries develop their exploitation activities around projects, this paper starts with the exploration of best practices adopted by various EU research projects, targeting projects under the topics of urban development and spatial design. However, since the search returned scarce results, the exploration had to be broadened to projects under other topics and some useful exploitation and dissemination plans were identified, such as the OI-Net project (*Sustainability & Exploitation plan & monitoring: WP8 _ deliverable 8.1*, 2017), SafeCity project (Gallego et al., 2012), SciGaIA (SIGMA ORIONIS, 2015) and PATHS project (Skjćvestad and Bergheim, 2014). This review indicated that most project reports focused on dissemination strategies, and many combined dissemination and exploitation strategies. Very few targeted result exploitation, and even fewer framed their exploitation as a business model, which confirms the frequent overlap between dissemination and exploitation in projects' outputs. Moreover, some observations have indicated that the design and implementation of an effective valorisation strategy that can sufficiently promote projects and their outcomes is difficult for promoters and coordinators of European research projects (Antunes, 2011).

There have been several other attempts to use a business model approach to analyse and evaluate the outputs of different projects in urban planning, smart cities and mobility. For example, Tanda and De Marco (2019) studied how a business model framework works for smart city mobility solutions; Díaz-Díaz, Muñoz and Pérez-González (2017) used this framework to evaluate and map sustainable city projects; Kajanus et al. (2019) explored its application in the European forest sector and Gasparin et al. (2020) defined a business model for social innovation. Although these projects addressed value generation and the way stakeholders interact with each other, to various extents, this was not their prime focus. We believe that C3Places can not only provide a strategy to exploit project results but also act as a role model for future exploitation strategies and a guideline for using a business model approach to present the value of public benefit-oriented projects with outcomes in public interest.

BMC and Value Proposition

The business model concept can be understood and defined from different perspectives (see Gasparin et al., 2020 for a review). Osterwalder, Pigneur and Tucci (2005: 10) stress the importance of the business model to describe the value a company offers to one or several segments of customers. A business model describes how a company organises itself to create, distribute and retain value (Baden-Fuller and Morgan, 2010). Apart

Fig. 2 Creation of first draft of the C3Places BMC jointly with contributions of all partners at the meeting in Ljubljana, Slovenia, during 17-19 September 2018

from different businesses in accounting and entrepreneurial settings, business models have been increasingly applied in the public sector as well (Gasparin et al., 2020). This has been facilitated especially by the development of BMC (Osterwalder and Pigneur, 2010), which is a well-known standard for designing or analysing business models. Because of its simple and concise structure, the BMC is also convenient for individuals with non-business backgrounds.

BMC is a strategic management template for developing new or documenting existing business models. It is a visual chart with elements describing a firm's value proposition, infrastructure, customers and finances, assisting them in aligning their activities by illustrating potential trade-offs (De Reuver, Bouwman and Haaker, 2013). The main elements included in the BMC structure are key partners, activities and resources; value proposition; customer relations and segments; channel cost structure and revenue stream (Osterwalder et al., 2014, Strategyzer.com).

BMC was proposed as an effective tool for preparing an exploitation plan in C3Places by a project partner from a business school. The project partner, responsible for delivering the exploitation plan, had expertise in spatial planning and decided to test whether BMC can be used as a tool to translate C3Places's research outcomes into a language understandable to policymakers and other end users, as defined in *customer segments*. The 'translation' was based on the assumption that the project results are intended primarily to provide added value to the public policy and public goods (i.e. to improve POS attractiveness, accessibility and inclusiveness). The purpose of the exploitation plan for such a project is to describe how the consortium intends to use the results of activities conducted during and after the project and what C3Places outcomes are mostly intended for public use (*C3Places – using ICT for co-creation of inclusive public places*, no date).

A crucial component of a business model is *value proposition*. It refers to the value to be delivered, communicated and acknowledged and can apply to the entire project or specific products or services. Value proposition addresses customers' problems or satisfies their needs. Each value proposition bundle of products or services is linked to the requirements of a specific *customer segment*. Thus, value proposition is an aggregation of the benefits that a project offers to customers. Value proposition can be innovative or similar to existing market offers but with added features and attributes (Strategyzer AG, no date a). Values may be quantitative (e.g. price and speed of service) or qualitative (e.g. design and customer experience). This study used value proposition canvas (VPC) (Strategyzer AG, no date b) to better understand the target user group's needs and to develop and interpret the value and different benefits of the project outcomes in detail.

Methods

C3Places's Approach to Exploitation Activities

C3Places was a multidisciplinary research project which included basic and strategic research, innovation and application, involving partners from different European countries and cultures.[1] It was aimed at developing strategies and tools to increase POS quality through ICT by positively influencing co-creation and social cohesion. The project generated a knowledge base and know-how for a co-creation approach, which was used to merge the use of ICT with the essential functions of POSs. It explored the new dynamics of open spaces as a trusted service for the community and expanded the understanding of how mediated POSs function, focusing on stakeholders, the local context and different social groups. Through ICT and co-creation with users, C3Places also expanded the knowledge on meeting citizens' emerging needs regarding future POSs. In particular, it aimed at advancing knowledge on the interactions among POSs, urban design and urban sociology with behaviour research and ICT, on one hand, and exploring the possibilities and benefits of using ICT for the co-creation processes of POS, on the other (*C3Places – using ICT for co-creation of inclusive public places*, no date).

The C3Places activities were divided into seven WPs. The objective of WP6 was the dissemination and exploitation of project results. WP6 ran in parallel with other WPs throughout the project lifecycle. Its principal objectives included the development of a dissemination strategy and its coordinated application, ensuring the widest possible dissemination of the project results among target audiences (i.e. stakeholders, society, urban practitioners, policy makers, ICT developers and researcher community), and the analysis of further exploitation methods, including drafting of appropriate exploitation plans and a related business model for the C3Places solution (*C3Places – using ICT for co-creation of inclusive public places*, no date).

WP6 encompassed dissemination and communication, innovation management and exploitation. The exploitation focused on explor-

1 Further details can be found on the project website: C3Places.eu.

ing opportunities within the project and beyond, which could lead to creating new solutions, services or products. It also aimed to create connections between the consortium and external stakeholders, such as policymakers, NGOs and SMEs. In this WP, the exploitation plan and a related business model for C3Places were drafted as deliverable outputs (Žlender and Šuklje Erjavec, 2020).

This article focuses on WP activities related to exploitation only, since this is largely an unresearched and undefined area in the guidelines for EU research programmes' outputs. Next, the BMC's application is presented as a framework to guide the exploitation of C3Places' outputs. Further, the success of the BMC application is evaluated and its potential application to research projects in urban development is discussed.

Building the Exploitation Strategy

The exploitation plan was developed by the coordinating partner of WP6 with the support of all project partners. The BMC was used as a starting point to discuss and develop different relevant parts of the C3Places business model, such as customer segments (end users), value proposition (benefits) and customer relationships.

The BMC framework was first presented to all C3Places partners and then jointly discussed. This was achieved through a brainstorming workshop in which all C3Places partners collectively filled in the original BMC (Fig. 2). The contents of the framework were further discussed and developed through online communication and filling in of the BMC created on the website canvanizer.com (Fig. 1), where all partners were free to add content to align the framework as closely as possible to the C3Places exploitation plan needs. The frame was then discussed again in person during two workshops, which occurred during two further meetings of the project partners. The workshops were the milestones for the exploitation strategy and the 'C3Places business model' development. These involved discussions in person, which facilitated exchanging views on different topics, resolving emerging disagreements and issues and proposing new ideas in an open and involving manner (Fig. 2; Žlender and Šuklje Erjavec, 2020).

During this process, the project partners identified areas of exploitable outcomes, some of which were common to all project partners, while some were applicable to individual partners only. Based on the data gathered from the workshop and on the draft created on the website, data were analysed to further develop the BMC and exploitation strategy for C3Places.

Analysis and Results

General Exploitation Framework

In drafting the C3Places exploitation strategy, the first step was to determine the exploitable results and deliverables. To begin, aspects such as potential geographical spread with respect to the spatial level of the markets targeted for the project results' exploitation, potential users of the C3Places results, analyses of the state-of-the-art of the ICT-supported co-creation to highlight the innovation value of the results, difference from existing competing products and services and management of the research data generated and/or collected during the project were considered (*C3Places – using ICT for co-creation of inclusive public places*, no date).

Given these aspects, the objectives (Table I) and main goals of the exploitation plan (Žlender and Šuklje Erjavec, 2020) were defined:

(1) Elaborate a continuous work plan for establishing the main exploitation aspects to maximise the benefits of project results.

(2) Establish suitable actions for successful further exploitation of C3Places results achieved during project implementation.

Accordingly, the exploitation strategy identified and described the exploitable outcomes, potential users (target groups), activities, instruments and channels through which project results were to be exploited. To develop this further, BMC was used, facilitating exploratory research into customer value, information sharing and business model design.

Each BMC component was addressed in detail, starting with an explanation of how the C3Places project relates to the component, continuing with the list of relevant guiding questions and leading further to the detailed C3Places exploitation content addressed by the component.

To better address the specific contents of C3Places, each component was translated into more closely related terminology and supported by guiding questions relevant to the project.

Expected C3Places Exploitable Outcomes and Value Proposition

In continuation, the VPC (Strategyzer AG, no date b) was used to better define the value of the deliverables to different users. Figure 3 shows the building blocks of VPC and its relation to BMC.

The main objective of C3Places was to produce results that would influence public policies in POS development. Most of the project's

Table I Objectives of the C3Places exploitation plan

IDENTIFY	**ACTIONS to take:**
Identify the expected outcomes and deliverables from the C3Places project	• Align partners' exploitation activities for a more efficient and effective exploitation; • Coordinate all levels and types of exploitation of the knowledge produced by the project; • Identify the project's know-how and knowledge transfer opportunities.
↓ **PROMOTE**	**ACTIONS to take:**
Promote and raise awareness about the project's contents and results	• Establish interactions and networking to create a core group of stakeholders interested in exploiting C3Places results; • Strengthen the visibility of the project results beyond the core target groups to other organisations, policymakers, etc., which can promote the project to their own networks.
↓ **EXPAND**	**ACTIONS to take:**
Explore how the project's deliverables can be further utilised	• Define additional interactions and networking aimed at addressing a wider group of stakeholders interested in exploiting C3Places results; • Specify channels for exploitation; • Determine possible directions in which the C3Places topics can be extended.
↓ **TRANSFER**	**ACTIONS to take:**
Transfer results to appropriate external agents	• Transfer exploitable project results through different channels to different targeted users; • Ensure availability for continuous use of project results and enable further development.

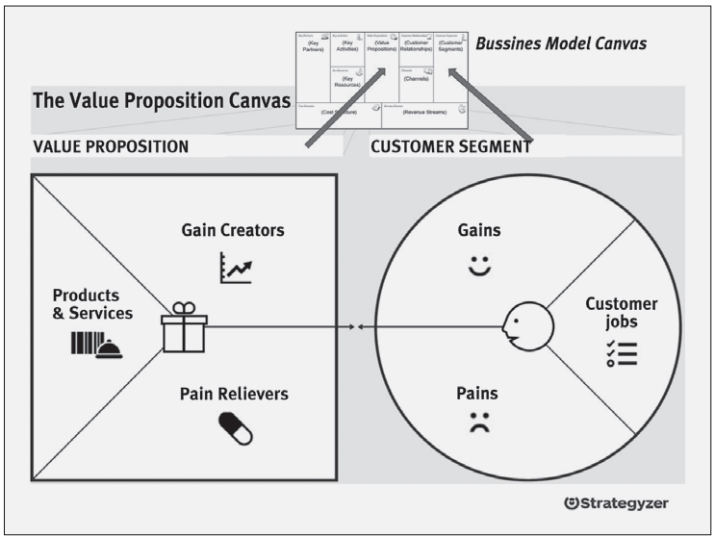


Fig. 3 VPC and its relation to BMC

co-creation actions aimed at raising awareness, creating more responsive behaviours, successfully involving different stakeholders and interlinking them with decision-making and public policymaking (Žlender and Šuklje Erjavec, 2020). Accordingly, the values developed by the project were qualitative and mostly related to improvements in present policies and strategies. The guiding principle of C3Places' *value proposition* was to offer scalable solutions adjusted to different target audiences (customer segments) and situations or places. According to the VPC, '*Who do you help?*' is the key question for defining customer segments. To define the target audience or *end users* of C3Places outcomes, the following guiding questions were used:

– For whom is the value being created? For whom is the project being delivered?
– Who benefits from the results?
– Who supports future applications?
– Who could be the user of (different) project results?
– Who are the most important users/stakeholders?
– How do they differ from each other?

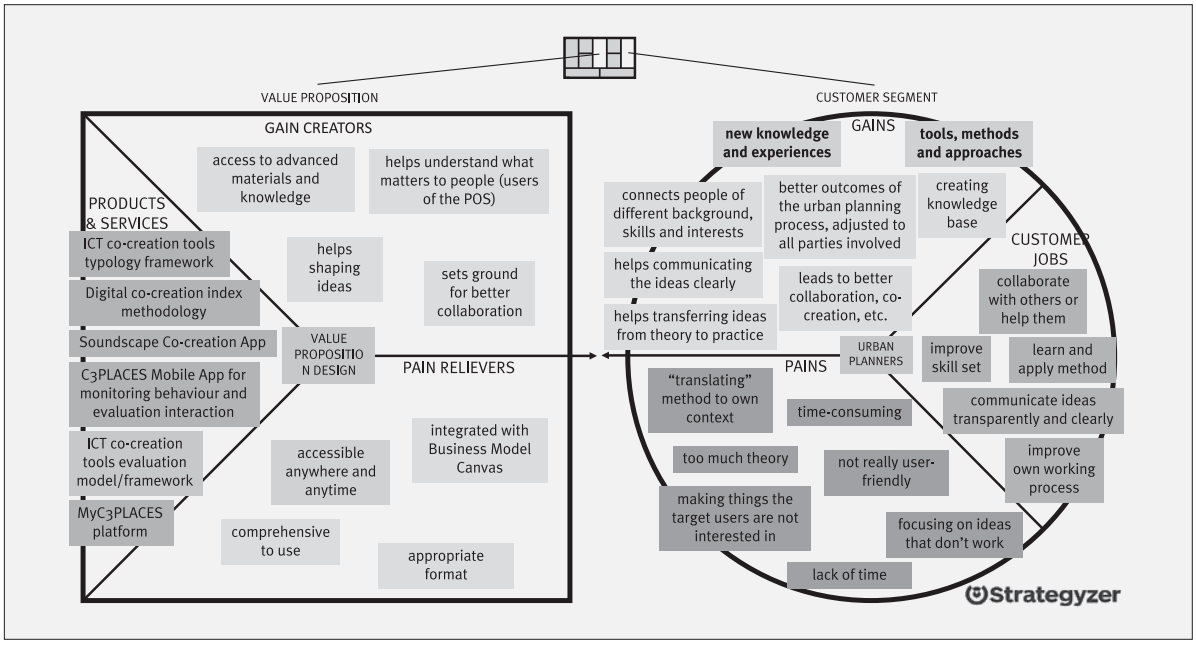
By answering these questions, three main C3Places 'customer segments' were defined as *end users* to adopt or apply project results and potentially benefit from the knowledge produced:

I. **POS users**, which can benefit directly from project outcomes during the project (through co-creation), as participants of living labs, and after the project through future improvement in POSs, new ways of using and experiencing them and more general future improvement in quality of place, quality of life conditions and enhanced well-being and satisfaction.

II. **POS developers** (spatial development stakeholders), which encompass parties for which C3Places can propose a user-centric approach. Concerning their role in the process, POS developers can be structured into four main groups: city administration at different levels as policymakers and decision makers, experts as POS planners and designers, citizens as active co-creators and similar.

III. **Supporters of POS development** as users related to new opportunities that C3Places outcomes would open for new business and market developments related to POS and digi-

Fig. 4 VPC (Strategyzer AG, no date b) applied to C3Places: example of the application for *customer segment* of 'POS developers'



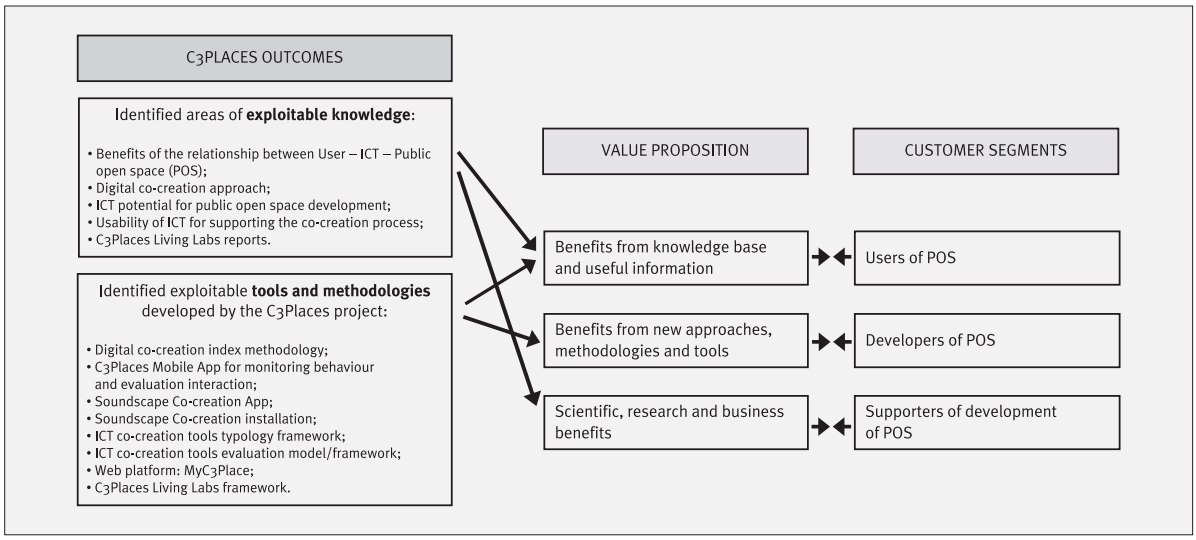


Fig. 5 Identified C3Places outcomes and corresponding customer segments and their value proposition

tal tools, such as local businesses, developers of digital tools, developers of urban furniture, artists, educational institutions and academia.

Considering these, the value proposition of C3Places was divided into two groups of exploitable outcomes: exploitable knowledge and exploitable tools and methodologies. Figure 5 illustrates how these two groups are related to the value proposition component and its three groups of benefits, as well as its correspondence with the customer segments (end user) groups. Such structuring of the exploitation process can help researchers understand how the aspects of project outcomes should be understood and presented to overcome challenges and sustain project objectives.

Since value proposition is a key building block in the BMC, VPC was applied to determine C3Places' value proposition in detail for each identified 'customer segment'. Figure 4 presents the VPC applied to 'POS developers'. The C3Places partners identified many *gains* and *pains* which developers may encounter. Note that in Figure 4 'new knowledge and experiences' and 'tools, methods and approaches' are put in bold since these *gains* were identified for all C3Places customer segments (Žlender and Šuklje Erjavec, 2020). Among the listed jobs and activities relevant for developers, the emphasis lies on communication and collaboration, which the C3Places partners learned from project expe-

Fig. 6 VPC for public benefit-oriented project: guiding questions for each building block

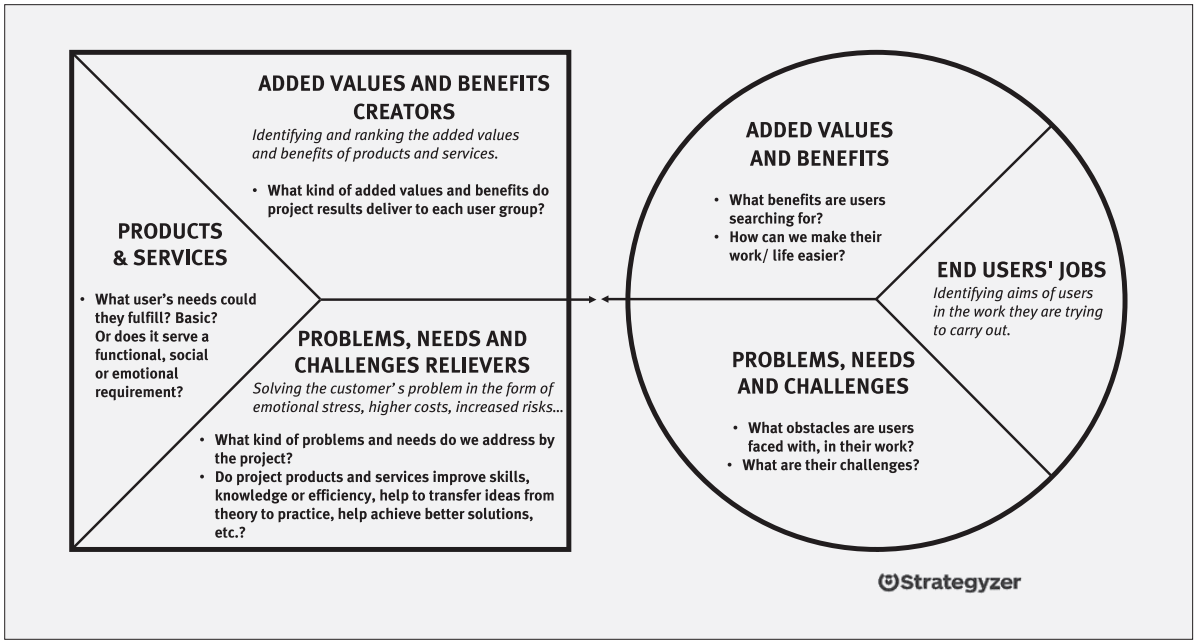


TABLE II BMC FOR THE C3PLACES PROJECT

Key partners	**PROJECT PARTNERS** **OTHER SUPPORTING PARTNERS:** • **Government:** city and municipal council • **Civil society:** communities, local organisations, associations of cities • **Industry:** developers of digital tools • **Academia:** experts' education **+** • **Practitioners** • **Other public institutions**
Key activities	**LIVING LABS** **MYC3PLACES PLATFORM DEVELOPMENT** **MOBILE APPLICATIONS DEVELOPMENT** (developing, testing within Living Labs, improving for final use, presenting to relevant user groups, sharing /selling to the interested public) **DIGITAL CO-CREATION INDEX** (development of the index, testing within Living Labs, sharing via project website, publishing and presenting) **OVERVIEW OF ICT TOOLS' FRAMEWORK DEVELOPMENT** **ICT TOOLS' EVALUATION MODEL FOR CO-CREATION OF POS** **DISSEMINATION STRATEGY**
Key resources	**PHYSICAL RESOURCES** [POC, physical infrastructure to support activities (e.g. servers and other ICT infrastructure)] **RESEARCH RESULTS, KNOWLEDGE AND SKILLS** **HUMAN:** • **facilitator** (central for successful business development); • **public participants and other stakeholders;** • **POS users** **DIGITAL:** • **digital infrastructure,** • **co-creation process enhancements by digital additions;** • **software products**
Value proposition	**BENEFITS FROM KNOWLEDGE BASE AND USEFUL INFORMATION** **BENEFITS FROM NEW APPROACHES, METHODOLOGIES AND TOOLS** **SCIENTIFIC AND RESEARCH BENEFITS**
Customer relationships	**REAL-TIME AND PLACE DEVELOPERS of a chosen POS** **CO-CREATION (for planning design, implementation and management) ON THE CITY LEVEL** **CO-CREATION ON THE LOCAL LEVEL** **SCIENTIFIC AND RESEARCH COMMUNITIES** **PERSONAL CONTACTS AND AMBASSADORS** **EDUCATIONAL INSTITUTIONS**
Channels	**SCIENTIFIC PUBLICATIONS** **RESEARCH DISSEMINATION TO SOCIETY** **ONLINE PRESENCE** [social media channels, websites (project, institutional), MyC3PLACES platform] **EXISTING CHANNELS** (e.g. Leading Cities Association, social centres in the area, facilitators, municipalities, parishes and zone councils) **PUBLIC–PRIVATE PARTNERSHIPS** **PERSONAL CONTACTS AND AMBASSADORS** **EDUCATION/TRAINING** (formal, informal, alternative, in-person, virtual/ digital)
Customer segments	**USERS OF POS**: • **regular users of the space, one-time users,** non-users/potential/virtual users; • **cities, neighbourhoods, local communities** **DEVELOPERS OF POS:** • **city administration at different levels** (local authorities, municipal councils, city councils); • **experts** (design and urban planning professionals, co-creation process mediators, stewards, etc.); • **citizens, NGOs and urban activists;** • **public institutions and companies** (schools, museums, galleries, cultural centres, etc.) **SUPPORTERS OF POS DEVELOPMENT:** • **local businesses/services** (shopkeepers, cultural and social associations, social collectives); • **artists;** • **developers of digital tools;** • **developers of urban and park furniture** • **academia and educational institutions**
Cost structure	**GENERAL AND ADMINISTRATIVE** **RESEARCH PLANNING AND IMPLEMENTATION** (Living Labs) **POS DEVELOPMENT COSTS** **DEVELOPMENT OF ICT CONTENTS (MATERIAL)** (web platform, mobile application) **DISSEMINATION ACTIVITIES**
Revenue streams	**PUBLIC FINANCING** **PUBLIC ECONOMIC VALUE** **BUSINESS SPONSORING/ADs** **PUBLIC SUSTAINABILITY** **CROWD FUNDING** **PUBLIC EVENTS**

Note: The BMC blocks are organised as a table to improve the legibility of their content.

TABLE III BMC FOR A PUBLIC BENEFIT-ORIENTED PROJECT: GUIDING QUESTIONS FOR EACH BUILDING BLOCK

Key partners →	**Key actors – Who helps you?** • Who are our key actors? • Who is producing and supplying? • What are the incentives and impediments for actors? • Who may be projects' key supporters? What are the possibilities for joint partnerships and strategic alliances with them? • Which key activities do key actors perform, and which key resources do they have?
Key activities →	**Key activities – What do our key actors do?** • What key activities do our benefits and added-value possibilities require? • How are activities related to the communication approach and interactions and relationships/co-creation process? • How to achieve suitable revenues/public benefit-oriented streams?
Key resources →	**Key resources – What you are and what you have?** • What key resources do our benefits and added-value possibilities require? • Using which communication approaches do our end-user segments want to be reached?
Value proposition →	**Benefits and added value possibilities – How you help?** • Who could be the users of the project outcomes/results? • For what purposes could the outcomes/results be used? • With this outcome/result, what services are being offered to each user segment? • Do the outcomes meet the needs of specific actors? • Are the actors interested in adopting our outcomes/results? • Which one of our user problems are being solved? • What value does our outcome/result deliver to users? • Are our outcomes a plausible improvement in the quality of life of users?
Customer relationships →	**Interactions and relationships/co-creation process – How different users interlink and interact?** • How does the project define, get, keep and grow networks of possible users? • Which relations have the project established for interactions? Which are still needed? • How costly and time-consuming are they? • How are they integrated with the rest of the project's business model?
Channels →	**Communication approach – What are the ways to reach relevant end users?** • What communication approaches does the project (or each partner) use to reach the targeted audience? • How do other similar projects reach them now? • Which ones work best? • Which ones are the most cost-efficient? • How are these being integrated with customer routines?
Customer segments →	**End users' segments – Who you help?** • For whom is the value being created? For whom is the project being developed? • Who benefits from this? • Who supports the use? • Who could be the user of (different) project results? • Who are our most important users/stakeholders? • How are they different?
Cost structure →	**Cost structure – What you give?** • Which key activities and resources are the most expensive? • How high or low are our costs compared to similar services provided on the market? • Are our sources of costs less, equal or more diversified compared to similar services provided on the market?
Revenue streams →	**Revenues/public benefit-oriented streams** ***result from benefits and added value possibilities successfully offered to the users.*** • What project benefits and added value possibilities are users really interested in and willing to use? • What kind of added value can such use bring? • What are the currently used methodologies, tools and approaches? • What are the risks involved? • What are the costs involved? • What are the benefits? • How does it affect economic value?

Note: The BMC blocks are organised as a table to improve the legibility of their content.

rience in order to be critical for a successful application of developers' products.

Similar to BMC, VPC was originally designed for businesses with an economic mission. To better fit the aim and purpose of C3Places and the nature of its outputs, its guiding questions were modified to better fit the non-business approach. As presented in Fig. 6, the questions are closely related to the possibilities which VPC offers to a (research) project for public benefit. This can be clearly seen, for example, in the building block of *products & services*, where users' social and other requirements are prioritised over creating 'sellable' products. *Gains* are 'translated' into *added values* and *benefits of project results* and *pain relievers* into *problems, needs* and *challenges* to be addressed by the project.

Business Model Canvas for a Public Benefit Oriented Project

In this section, the BMC optimised for C3Places is presented. As shown in Table II, the joint work of all project partners through workshops and online communication resulted in a substantially filled-in canvas, compared to the initial ideas presented in Fig. 1. Whilst some building blocks were easy to fill in (e.g. key partners, resources and channels), others, such as value proposition and customer segments and relationships, were elaborated more profoundly after completing VPC, which helped define these blocks more clearly.

Using BMC, the generated knowledge and innovation for the purpose of public use was brought at different levels, hence 'translating' the classic business market, as defined originally for business plans, into the public interest and non-monetary values. At this point, we faced two challenges in drafting the 'business model for public interest': (1) the use of available frames for business models (such as the BMC) for public benefit-oriented project results and content, and (2) the translation of common business and exploitation plan terminology to match the public benefit-oriented project results. In translating the terms, some, such as business plan and value proposition, were retained to make the new approach more comparable to the original.

Table III presents our suggestions on how to deal with these challenges. To better fit the specific contents of the project, each BMC block was partially translated into terminology more closely related to spatial planning while being supported by relevant guiding questions related to the involvement of all actors in contact with public space, the potential co-creative role they can play and the benefits for the community. Such a framework can be used to develop other 'business models' for public benefit-oriented projects.

The proposed framework was later tested within another EU-funded research project titled 'Vertical Green 2.0: Vertical greening for living cities – co-creative innovation for the breakthrough of an old concept' (*Vertical Green 2.0*, 2018). In a workshop which took place within a project partners meeting, the BMC framework was first presented and then jointly filled in following the guidance questions presented in Table III. The participants found the framework useful in determining their research project outcomes and structuring the BMC blocks in a way to create value for the public. Furthermore, they applied the framework to their project and structured the blocks to best suit the theme and goals that the project pursued.

Discussion

Potential Implications

This paper presents and discusses how an exploitation plan and business model can be applied to a public benefit-oriented project and how value can be generated through defining and proposing solutions for social, cultural, environmental and other issues. Business models are recognised as 'crucial in determining an organisation's strategic direction and sustainable development' (Schaltegger et al., 2011); thus, it was considered worthwhile to see whether this approach could be appropriately modified for exploitation plans in research projects, thereby improving the understanding of non-monetary value. Examining some of the published exploitation plans of different EU research projects, as discussed in section 1.1, most of them were found to be limited in demonstrating the applicability and transferability of projects' outputs to benefit the public. Specifically problematic were the conceptualisation and definition of value, a lack of clear distinction between exploitation and dissemination and the disability to enable in-depth project analysis. Based on BMC, a framework was prepared to analyse and establish public benefit-oriented models in the design and development of research projects predominately in urban development and similar areas (Table III). This framework provides a common dictionary to describe the characteristics of public benefit-oriented projects and to illustrate how they create and deliver value. Scholars and academics can use this framework as a reference for analysing their (public benefit-oriented) research projects and understanding the dynamics behind their implementation. Accordingly, they can use it as a tool to further develop and direct their research projects depending on the value that they want to provide. It can also help them identify partners and stakeholders to develop and implement research projects effectively and efficiently and to discuss the outcomes of public benefit within research projects with

more business-oriented stakeholders. The framework can also help scholars and academics to discuss the public benefit outcomes of the research project with more commercially oriented stakeholders or to identify partners and stakeholders for its efficient and effective development and implementation.

The C3Places project, which was presented as an example in this paper, explored the use of ICT for the co-creation of inclusive public places. By using BMC in such a project, it was shown how a simple business planning tool can also be used to develop an exploitation plan for public benefit outcomes, how such a model can help identify different values and target audiences (stakeholders) and how it can be used as a strategic tool for researchers and the target audience. By applying the public benefit-oriented BMC, researchers can determine the research outcomes in public interest (products and services) in a structured manner. They can shape their outcomes in a way that is adapted to a specific exploitation context and can best serve the end user.

Such a framework can also be useful for experts, policy and decision makers as it enables them to compare different public benefit-oriented projects. Thus, it can help them in deciding how and why they might engage with stakeholders, how to approach financing, which solution is the most beneficial to citizens, which one delivers the desired policies most cost effectively, etc. Therefore, this framework acts as a tool not only for academics but also for public authorities to apply and further develop their own model applications for public benefit-oriented projects, products and services. This is a crucial contribution for exploring the possibilities for implementing project outcomes. Although it needs further development and testing, this framework has great potential to be used in the fields of spatial planning and urban development, as it emphasises a strong participative approach in specifying common values and ways to create them. This is crucial for creating inclusive and sustainable public spaces. It can also be used as a management tool for POSs.

Interestingly, the concept of co-creation also originated in the business world and has only recently been recognised as an important aspect for improving and further developing participatory approaches in spatial planning, especially in co-creating inclusive and quality development of POSs (Žlender, Šuklje Erjavec and Golićnik Marušić, 2021). Similarly, the business model, as developed for the needs of producer customers and simplified according to BMC, can broaden the view of urban planners and POS designers to a more holistic involvement of all relevant stakeholders in the process of creating different public benefits and solutions.

LIMITATIONS

In the application of the BMC to C3Places, several obstacles and limitations were identified for any future deployment of results. These include usability (will the results meet user needs?), acceptance (will the users accept any C3Places outputs and are there alternatives on the market?), technical limitations to the implementation of C3Places results and funding for further work. Researchers should focus on addressing these issues and their resolution to an as wide as possible extent during the project proposal phase through a joint discussion among all partners in a co-creative manner.

Another limitation of the content presented may be the critical or reluctant attitude of experts and practitioners towards the transfer of experience and tools from the business environment to areas such as spatial planning and provision of public goods, particularly from the viewpoint of the often-prevailing influence and pressure of investors on the spatial development of cities, as they prioritise their short-term benefits over long-term benefits for the community. With this in mind, the case presented in this article was taken up. Particularly, these monetary and business values seem to be followed by public funding systems that require the research results to be *marketable, sellable,* etc., as goals that EU funding bodies have emphasized in recent calls. A wider debate may be required to re-examine and set the long-term objectives of the EU-supported research.

CONCLUSION

This article explores the use of the business model approach to exploit public benefit-oriented project results. It illustrates how BMC can act as a tool for delivering research outcomes to different stakeholders according to their values and in a language familiar to them. This also confirms the hypothesis set at the beginning of this paper.

Although business models are gaining popularity in academic circles as a useful tool to sustain growth, only a few practical tools/frameworks are available for designing and supporting public benefit-oriented business models (Gasparin et al., 2020). Our proposed model, based on the BMC framework, is an attempt to fill this gap. Its testing within the C3Places and later the Vertical Green 2.0 project validated its effectiveness in structing the exploitation of research outputs, especially those of a non-monetary value. Further research should validate the framework and improve its structure, especially in terms of value proposition, to align it even closer to the common aims of public benefit-oriented organisations, particularly in sustaining their long-term social, economic and environmental value.

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