

Designing an incubator for social innovations in libraries: Learnings from the Research through Design approach

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Abstract. Promoting social innovations in libraries requires a new approach to designing innovation programs. In order to provide the effective learning program on social innovations for libraries, the Research through Design methodology was selected as a tool for setting the program for the needs of participants as well as for providing scalable approach to designing innovation programs aimed at increasing the innovation competencies of librarians. Design thinking and the design process are a suitable basis for incubating new socially innovative services. However, the design process needs to include the subsequent phases of the social innovation life cycle, such as demonstrating the impact, its strengthening the importance of participatory community network mapping as a key input in solving community problems and the role and future direction of the library. When designing, it is necessary to integrate all these components into one whole, and when facilitating, it is necessary to pay attention to all these parts. Four runs of the incubation program are described as well as their results, outputs, and learnings from the whole designing process. Gasparini's concepts of openness, dialogical spaces and temporality have proven to be applicable also for designing the incubation programs for public libraries. Within the incubation programs attention should be paid both to user-oriented and inner organizational social innovations.

Keywords: libraries, social innovations, design thinking, incubator, participatory community network mapping, library leadership, research through design

1 Introduction

Public libraries are currently gaining significant new roles, such as acting as community centers, non-formal and lifelong learning sites, and places for meetings, communication, dialogue, and inclusion [1]. With this change in position, libraries can strengthen their role in solving societal or local problems, broaden their fields of

competence and better respond to the identified needs of their users and local communities. Developing library services around these new roles is an example of social innovation [2]. In order to meet these new challenges, new types of librarians' capabilities and skills need to be strengthened within the libraries - especially design thinking and other participatory approaches. Several methodological materials and case studies have already been published around introducing design thinking into libraries. IDEO [3] published a toolkit for introducing design thinking into libraries, more case studies of the application of design thinking in libraries [4], [5], [6] are increasing. But there are also opinions that "despite the interest in the application of design thinking and methods in librarianship, there seems to be a disconnect between application and education to support it" [7]. Generally, only a small attention is paid to sharing knowledge from the actual prototyping, implementation and testing of individual educational and developmental products aiming to increase the design thinking capabilities in libraries, especially when aiming to scale up their scope and impact. The example of this kind of study is Gasparini [8], [9], who focused on strengthening design capabilities in academic libraries and chose the Research through design (RtD) approach as his main methodological approach. According to this study, openness, temporality, and dialogical spaces were the important concepts foundational to understanding design capabilities building [8]. Follow-up case studies (especially for public libraries) are still lacking here, especially for the public libraries, although they might have a great potential to help practitioners design educational and developmental products and services for librarians without repeating the same mistakes made by others before.

The primary goal of the study therefore is to present our approach to the design of an educational and development program aimed at strengthening the competencies of librarians in the design of socially innovative library services and the new knowledge that emerged during the design process. The secondary goal is to present and evaluate the scalable Research through Design approach [10] to designing an educational and innovation program aimed at increasing the competencies of librarians in the field of introducing social innovations in public libraries.

In the introductory part of the paper, we will first introduce the Incubator for Social Innovation in Libraries as an educational and development program for libraries. In the second part of the text, we will focus on the methodological approach to evaluating and improving this program. The third section will present four runs of the incubator from the point of view of organization, partial findings, and revisions. In the fourth section, we present the most important learnings from the incubator design process. In the Conclusion section, we summarize how knowledge from the organization of individual runs and design changes can thus help the organizers of other similar events and programs.

1.1 The Incubator for Social Innovations in Libraries: Introduction of the program

In the Czech Republic, libraries have been given the opportunity to move within their new roles and work on innovative services for new specific target groups within the “Center for Social Innovation in Public Libraries” project. The project team served libraries and librarians to acquire the desired competencies for the implementation of social innovations in libraries. The main result of the project was the implementation of two educational and developmental services called Incubator for Social Innovations in Libraries and Accelerator of Social Innovations in Libraries. The concept of incubator and accelerator was based on extensive qualitative research, which pointed out that in the design and implementation of socially innovative services and activities fulfilling new roles of public libraries, there are certain barriers that can be found at the structural, local, organizational and personnel level [2]. Based on the analysis of the current situation, the concept of an incubation process of social innovations for public libraries in the Czech Republic was proposed as a means of helping libraries to design, set up, or innovate their own services to increase their positive social impact. Thus, the main goals of the incubator and accelerator were to increase the competence of librarians in designing social innovative services (main goal for the Incubator) and to help libraries develop and test proposals for new services or to innovate existing services so that they have a demonstrable impact on the community (main goal for the Accelerator).

The main theoretical basis for the incubator design were the theory of social innovation [11] and design thinking approach [12] together with participatory community network mapping [13]. The combination of these three approaches promised a great potential for addressing the barriers in the process of introducing social innovations to libraries.

First, the model of social innovation development represents a design process from mapping opportunities and challenges, through the creation of an idea - the way of solution, its development and testing, demonstrating the impact, its realization, implementation, scaling to systemic change [11], which can cause a change in attitudes or conditions related to socially innovative services and their provision by the libraries. The proposed concept of the incubator focused mainly on the first three phases of the development of social innovation - from mapping opportunities to testing the innovation (other phases were covered mainly by the Accelerator program).

The second methodological starting point of the incubation process is the human centered design approach and the Double diamond methodology. Human-centred design is a creative approach to solving difficult problems [14] based on the application of design thinking to solve complex societal challenges and wicked problems [15]. Its contribution in the field of library services has already been described by multiple case studies [16] and methodological handbooks or websites [3], [14]. The design approach allows librarians to design, test and implement innovations with minimal demands on the budget, or in terms of the possibilities of the organization or community. The application of human-centered design also minimizes the main concern of librarians uncovered by our initial interviews with librarians about providing socially innovative

services (the willingness and interest of the target group to participate in projects and events) by directly involving target groups in the service design process. Double diamond framework is a four-step human-centered design process consisting of Discover, Define, Develop and Deliver phases [12].

The third methodological resource for the design of the incubator for social innovation in libraries was the participatory community network mapping approach [16], [17]. Societies, such as those at the city or regional level typically being served by a library, consist of many different, partially overlapping communities: neighborhoods, citizen associations, business networks, educational communities, cultural associations, environmental activists, and so on. For them to address their common problems, they need to find ways to make sense across their community boundaries. Mapping as a participatory visualization and sensemaking methodology helps stakeholders develop a common collaborative language and shows the various local communities with their members, problems, resources, practices, and other characteristics as distinctive groups, but also has the potential for spanning those boundaries and activating and connecting the communities. By mapping this rich "collaboration ecosystem" and looking at those maps through various perspectives, community members develop an understanding of the issues they have in common, what could be joint priorities, and to plan interventions - changes within and across the communities. The mapping methodology also assesses the changes that the previous interventions have brought and their impacts, for example by collecting "sensemaking stories". Thus, community librarians can use participatory community network mapping to better understand their local communities, activate them, and build connections between them. Librarians can be natural facilitators of the process, effectively becoming community stewards and curators [18].

1.2 The design of the Incubator for Social Innovation in Libraries

Design workshops are widely used to support and start service innovation throughout the design process. These are based on the embodied experience, during which the participants also learn the right methods and design mindset, master them and at the same time solve a specific problem.

People participating in the incubator can be divided into four roles:

1. Participants. Library staff, most often formed in teams consisting of employees of one single library.
2. Stakeholders. Important groups of interest affected by the service or innovation being developed either as a target group or as part of a local network (library users, politicians, non-profit organizations, educational institutions, nursing homes, etc.)
3. Mentors and domain experts. Design thinking experts, designers, social innovation experts, librarians with experience in service design.
4. Organizers. Members of the project Social Innovation in Libraries. The authors of the research on which the creation of the incubator stood.

The original inspiration of the incubation program was the format of the design sprint [19] - an intensive walk through the design process in five consecutive days, in which

teams work on a specific innovation plan and the output being a user-tested design of service prototype:

Day 1: Problem definition, empathic research

Day 2: Ideation and solution proposal

Day 3: Analysis and decision making

Day 4: Prototyping

Day 5: Prototype testing

Based on the findings from the initial interviews with librarians that preceded the design of the incubator, we made several changes to the format of the design sprint. Due to the excessive time intensity of the design sprint format compared to the real possibilities of libraries, this stable format was significantly modified. The 5 day-design sprint model was changed to a more accessible monthly program that allowed teams to collect data in the field with real users. Participants' concerns about the missing competencies (no experience with user research, adequate choice of methods, formulation of design challenges) were alleviated by involving stakeholders with these competencies, especially skilled mentors, and domain experts (experienced service designers, but also product designers, researchers, library directors with experience in service design or experts in social entrepreneurship). The research also identified uncertain expectations about new types of services or unfamiliar target groups (young people, people with disabilities, homeless people). Emphasis was therefore placed on user involvement. The concept of the program as a prototype has been stressed, thanks to which it was possible to try to work with target groups from above and think about not just traditional areas of library work with less risk and without a further commitment.

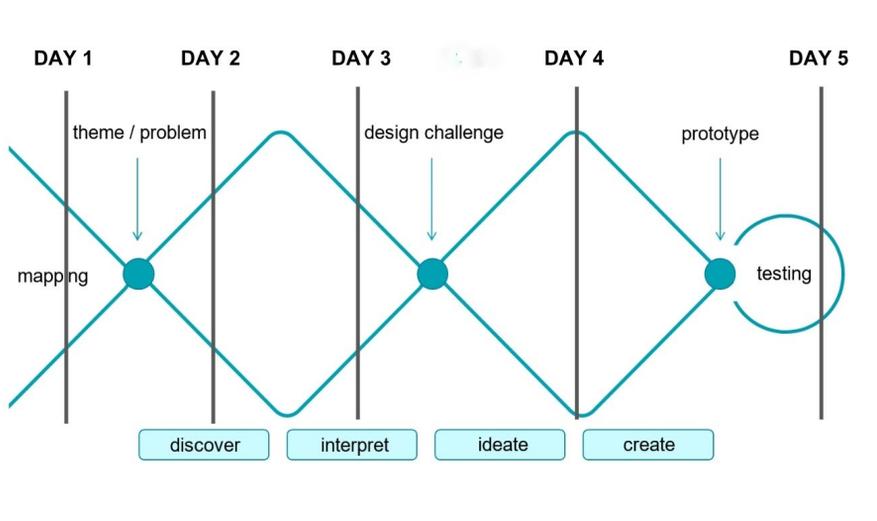


Fig. 1 The visualisation of the incubation program process based on the double diamond methodology extended by an initial phase of opportunity and problem mapping as the first initial step in the development of social innovation

From a methodological point of view, the incubator can be described by a process scheme of modified double diamond [12] (see Fig. 1). This model emphasizes the key stages of the service design process, namely: prioritization of opportunities leading to the definition of a topic or problem to be solved, expanding the database of knowledge through research with users and other stakeholders, analysis of findings with the aim of defining the so-called design challenge, describing as precisely as possible the goal of subsequent phases, designing and creating a prototype of the service, which is subjected to verification with users at the end of the process and testing and design of possible modifications (iterations of the prototype). These five phases were usually framed by five full-day workshops, of which the incubation program consisted.

2 Research through Design as a methodology for the continuous improvement of the Social Innovation Incubator in libraries

Research and design have long stood side by side as separate areas - the first embedded in academic experiments and reflection, the second in craft and industrial production. With the discovery of new design concepts and the establishment of new design disciplines such as UX design, interaction design, service design and more at universities, research has come to be an integral part of design [20], [21]. Frayling [22] distinguished three ways in which research and design intermingle: "research into design", "research for design" and "research through design". It is the third approach - Research through Design - that radically changes the relationship between design and research, because design becomes an integral part of research and vice versa. This does not mean that the difference between design and research disappears, but in the design process, research and design cannot be separated in time, and design and research tools also merge. In practice, the designer's main research tool is a prototype, each iteration of which is a testable hypothesis about solving a problem. Prototype design should not only serve a specific application - but the knowledge also that emerges during design should be stored in interdisciplinary platforms to serve the further growth of the theory [21]. In the field of information studies and librarianship, the Research through design approach is not yet very widespread. But as Clark [23] writes, it is also an approach that has the potential to rehabilitate the traditional library genre of case studies, which is also exaggerated as "how we did it good in our library" – assuming that the elements of research through design will be explicitly included, a connection between particular artefacts and universal concepts will be stressed, extensibility will be emphasized over the adoption and the RtD projects will not be disconnected from theory.

2.1 Methodology for continuous improvement through the Research through Design approach

The Social Innovation Incubator for libraries program was designed to allow iteration based on the observation and the feedback collected after each run. Thus, each of the four runs of the incubator was an updated version of the previous run, and the

implementation itself was essentially a continuous research and design process (see Fig. 2).

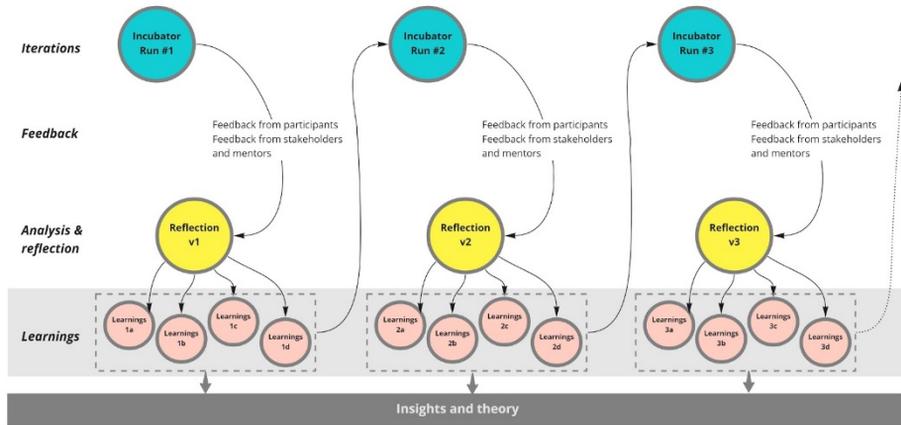


Fig. 2 Methodology for continuous improvement of innovation incubators through the RtD approach

Our main goal was to design an incubation program that will increase competencies and skills supporting social innovation in libraries. From the point of view of Research through design approach, the design process is framed mainly by the following research questions:

RQ1: What way to combine the concept of social innovation, design thinking methodology and participatory network community mapping leads to the best results?

RQ2: What factors represent obstacles and barriers to increasing the desired competencies and skills for designing social innovations in libraries when designing an incubation program?

RQ3: What factors in designing an incubation program support the acquisition of the desired competencies and skills to design social innovations in libraries?

Great emphasis was placed not only on the final and ongoing evaluation of individual runs of the program, but also on the immediate evaluation of individual workshop days. During the whole program, each run of the incubator was considered both a comprehensive format for a given group of librarians and a prototype for the program (see section 3), which served to improve the further run of the incubator.

Feedback was collected in two basic ways:

1. Day-to day partial evaluation from the point of view of participants, stakeholders, mentors, and organizers of the program. The evaluation made it possible to adapt quickly to the situations brought about by the program. At the end of each day, the organizational team, together with a team of mentors, reflected (in form of semi-structured meetings and surveys after each day of each run of the incubator) on the course of the day in individual research teams, knowledge of the past day, successes and failures, obstacles, and the content of

immediate oral feedback from participants. Thanks to this, the team was able to think about the needs of the participants and the ways to cover them, about their concerns and ways to break them down, and about other possible adjustments to the program schedule. The evaluation of each run of the program then allowed proposed modifications to the next run, which reflected the identified shortcomings or opportunities, especially in the support of research teams.

2. Evaluation of the fulfillment of goals of the whole program from the perspective of participants. The evaluation of individual runs of the program was carried out using online feedback collection (CAWI) as soon as possible after the end of the program. Further feedback was collected ex-post half a year after the end of the program, either using again the CAWI method.

In both cases, the feedback focused mainly on the evaluation of librarians' competences for designing socially innovative services (acquisition of new knowledge and skills in participatory community network mapping, design thinking and social innovation, later in internal communication and setting up better internal library processes) and the quality and potential impact of the prototypes generated in the incubator.

Data collection was conducted using a qualitative research methodology. Both mentors, organizers and participants of the innovation incubator answered open questions, where they evaluated the incubator day by day and provided semi-structured feedback on the fulfillment of the incubator's goals. Their responses were then coded in the form of semi-structured and open coding. The analysis was conducted by the project evaluator, who was part of the project team but did not participate in the design of the program. Semi-structured coding was aimed at obtaining answers to research questions - it focused mainly on the overall quality of the program and the factors in the organization of the program that supported or hindered the acquisition of new competencies in the field of social innovation in libraries. This approach was inspired by the so-called programmatic approach [21]: the overall program, defines the area of exploration, experiments are the concrete activities such as producing and field testing a prototype and research questions refers to the overarching research question that guides a research project. In our case, the program equals the Incubator for social innovations in libraries, individual runs can be considered as separate experiments, between which there was always an evaluation and reflection of research questions from the previous run. The continuous collection of feedback made it possible to iterate and adapt the format on an ongoing basis, even within the individual runs. Above all, it made it possible to iterate over the format of the incubators.

3 The realization of the Incubator for Social Innovations in libraries

The incubation program was open in 2018 and 2019 and offered to all libraries in the Czech Republic; two runs of the program were implemented each year. All four runs were attended by representatives of all types and sizes of public libraries, who came to the program with topics focusing on, for example, working with youth and children,

promoting intergenerational dialogue, the elderly, more rarely disadvantaged groups, people with special needs, and some societal issues. Participating libraries could form intra-library teams with a minimum of three members. It was also possible to involve only one or two employees who, with regard to the topics addressed, merged into interlibrary teams with participants from other libraries. In addition to its own staff, the program enabled libraries to involve representatives of their funders, target groups or other types of stakeholders (NGO's, political representatives, schools, orphanages, homes for the elderly, see Fig. 3). The active involvement of library management representatives was desirable and recommended.



Fig. 3 Incubator of social innovations 2018, Brno

Each run of the program consisted of five full-day workshops, held in three to four blocks over a period of about one month, which made it possible to use the time between for individual meetings and for user inquiries, interviews with potential partners or for testing the proposed new service. During the workshops, all teams from several libraries met in one place and went through individual activities, theoretical anchoring, and joint sharing. Each of the four runs of the program was attended by 25 to 35 librarians in five to seven teams. Each research team was always under the individual care of a mentor - a guide to the design process and a process consultant. Each joint day was moderated by an experienced facilitator, who at the same time anchored the completed activities theoretically and with the help of case studies from practice.

3.1 Individual runs of the incubation program

In 2018, the first run of the incubator was implemented in cooperation with the Municipal Library in Prague for several of its branches, organized directly in the central library. The second run was conducted in the same year in Brno for those interested from all over the Czech Republic. In 2019, incubation programs were implemented for libraries in the Karlovy Vary Region (in the Karlovy Vary Regional Library) and in the Ústí nad Labem Region (each workshop in a different regional library). These areas were selected because of the high interest from libraries preliminary research as well as these regions face the highest levels of social exclusion.

Table 1. The schedule of activities within the Incubator #1

Schedule of activities within the incubator #1	
Preparatory workshop	Participatory community network mapping (T)
Individual work	Mapping of problems and challenges in local communities (P) Registration (the Application based on the report from community mapping)
Day 1	Introduction (W) Design thinking (T) Design challenge (W) Stakeholder interviews (T)
Individual work	Stakeholder interviews (P)
Day 2	Synthesis and analysis of research findings with stakeholders (W) User research (T)
Individual work	User research (P)
Day 3+4	Synthesis and analysis of data from both studies Design Challenge Review (W) Prototype design of future service (T + W)
Individual work	Prototype testing (P)
Day 5	Analysing the outputs from user testing (W) Planning the further service development (W)

Incubator 1: Municipal Library in Prague

Number of participants: 27

Number of participating libraries: 1 (7 branches)

The first incubator consisted of 4 consecutive blocks (see Table 1), one block being for two days. Blocks, during which the activities focused on theory (T) and practical workshops (W) alternated, were interspersed with independent field work (P).

The most important lessons learned from the feedback:

- Some teams reported a lack of time for individual tasks.
- The set-up registration process, which presupposes independent participatory community mapping, was described as very demanding in terms of time effort

from the point of view of participants and from the point of view of stakeholders little focused on the burning social problems of the community.

- The identification of problems in the application reflected more the problems of librarians and individual libraries than the problems of the local community,
- Knowledge of the logic of the design process and the setting of the design mindset was valued by the participants as necessary, on the other hand, the participants felt overwhelmed by new concepts and terms in the field of participatory mapping and design thinking.
- Effective and open internal communication between workshop participants and other library staff during the incubator proved to be key to the project's success. However, it was present only where employees had wider autonomy for their own decisions and the trust of management.



Fig. 4 Incubator of social innovations 2018, Municipal Library in Prague

Incubator 2: Libraries from all over the Czech Republic

Number of participants: 26

Number of participating libraries: 7

The second run of the incubation program was open to all libraries in the Czech Republic. This program was preceded by workshops of participatory community network mapping, similarly to the first incubator, in all regions of the Czech Republic.

Following the findings from the first run of the incubator, several changes were made to the incubator program:

- The application was simplified, but still required the identification of possible problems and topics to be solved (See Table 2 – “Registration”).

- The identification of problems and challenges for social innovation took place within the first day with the help of mentors.
- Greater emphasis was placed on the need to involve internal stakeholders in individual libraries - primarily to ensure the time needed for tasks between meetings, and secondly to transfer findings from the incubator to real practice in libraries.
- The use of terminology (but not the methodology) from the field of design thinking and participatory community network mapping was minimized, even at the cost of more difficult traceability of other sources. More examples from practice from the Czech Republic and from the library environment were included.
- The assignment for tasks between meetings within the incubator has been simplified.

Table 2. The schedule of activities within the Incubator #2

Schedule of activities within the incubator #2	
Preparatory workshop	Participatory community mapping (T)
Individual work	Registration
Day 1	Introduction Design thinking: case studies (T) Identification of socially serious problems to be solved (W) Design challenge (W) Stakeholder interviews (T)
Individual work	Stakeholder interviews (P)
Day 2	Synthesis and analysis of research findings with stakeholders (W) User research (T)
Individual work	User research (P)
Day 3+4	Synthesis and analysis of data from both surveys (W) Design Challenge Review (W) Prototype design of future service (T + W)
Individual work	Prototype testing (P)
Day 5	Analysing the outputs from user testing (W) Planning the further service development (W)

The most important lessons learned from feedback:

- Some teams still reported a lack of time for individual tasks.
- The implementation of an incubator for several libraries from different regions in one place meant difficult access to real users within the meetings themselves.
- For almost all teams, despite the greater emphasis on the involvement of internal stakeholders, there was a clear fear whether the management and the rest of the library's working team will accept the prototype of the new service.



Fig 5 The innovation incubator for libraries, Brno 2019



Fig. 6: Incubator for social innovation in libraries 2019, Karlovy Vary

Incubator 3: Karlovy Vary Region, June 2019

Number of participants: 25 participants

Number of participating libraries: 7

One year's break from previous runs of the incubation program allowed the implementation team to introduce some significant changes:

- Instead of mapping the community separately, we have included preliminary interviews with library directors (see Table 3 – “preparatory activities”).
- The application process has been simplified as much as possible.
- The participatory community mapping activities has been narrowed down using library-specific mapping templates and completely moved to the content of the first day's activities and enriched with the input of experts working in the field of social innovation, while their selection was made according to their relevance to the problem’s characteristic of the region or to the development strategies of the region.
- Only teams that included the library director were admitted to the incubator. It was already clear from the previous year of incubators that an important condition for the emergence of socially innovative services is often the setting of the internal environment in the library, the way of communication, people management, their autonomy, and other components of leadership. Representatives of the library management were involved in the preparation of incubators in the form of phone consultations, and thanks to this we managed to better prepare the space for future changes in services and internal processes.

Helping through asking questions

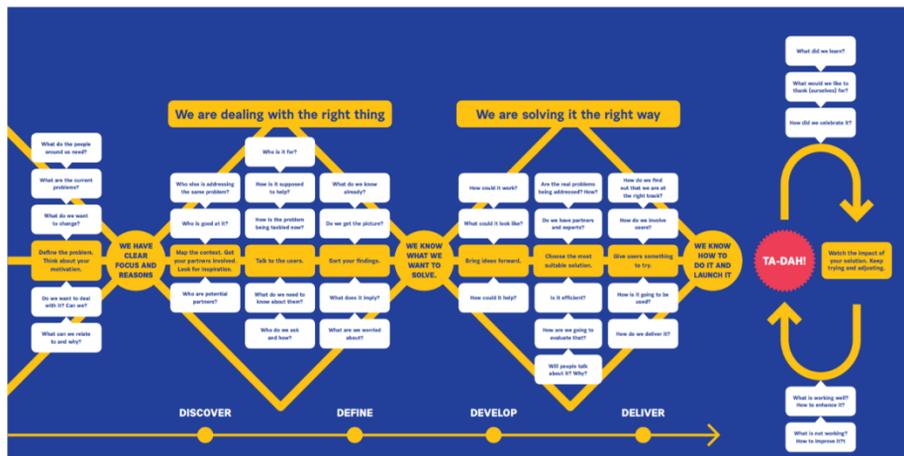


Fig. 7 Poster “Helping through asking questions”

Continuously obtained feedback also led to the design of new methodological tools for working with participants, especially the card methodology for social innovation in libraries and later the poster "Helping through asking questions" (Fig. 7), which illustrated the design process without technical design thinking terminology and with emphasis on social nature of innovations in libraries.

Table 3. The schedule of activities within the Incubator #3

Schedule of activities within the incubator #3	
Preparatory activities	Interviews with library directors (problem mapping and involvement)
Individual work	Registration
Day 1+2	Design thinking: case studies (T) Workshop with domain experts (W) Community mapping (W) Identification of important problems in the community to be solved (W) Design challenge (W) Stakeholder interviews (T) User interviews (T)
Individual work	Stakeholder interviews (P) User interviews (P)
Day 3+4	Synthesis and analysis of data from both inquiries (W) Design Challenge Review (W) Ideation (W) Design of future service prototype (T + W) Presentation and communication skills (T)
Individual work	Testing the concept of prototypes with stakeholders (P) Recruitment of participants for user testing (T)
Day 5	Analysis and synthesis of testing outputs (W) Prototyping - 1st iteration (W) User testing (W) Final presentations

The most important lessons learned from the feedback:

- The participants reported the acquisition of self-confidence when working with colleagues and the finding that they are also inclined to innovation. Many participants also reported getting rid of shyness in front of the funder's representatives as a positive experience. Both are because the implementation team emphasized communication and presentation skills, which the participants acknowledged and considered useful.
- The limited time for practicing research with users caused that workshop participants pay only a little attention to this task even during independent work.
- The lack of time for prototyping and testing with users was reflected in a lower quality of prototypes.

Incubator 4: Ústí nad Labem Region

Number of participants: 23 participants

Number of participating libraries: 5

The last of a series of incubators largely copied the design of the third run of the program. The main changes were:

- Greater emphasis on prototyping and testing, due to which the two final days were merged into one block (see Table 4).
- The specifics of this run of the program was the gradual implementation in the localities of individual libraries. Gradually, the incubator took place in Ústí nad Labem (1st and 2nd day), in Louny (3rd day) and in Litvínov (4th and 5th day). This model has helped to expand the possibilities to reach target groups in specific places at different stages.
- Due to the frequent problem of previous incubator runs, obstacles in the internal structure of libraries (insufficient communication, few opportunities to negotiate space for social innovation, lack of a shared vision for social innovation), a separate team of directors and leaders, which aimed to address the development of managerial competencies towards creating a more innovative work environment.

Table 4. The schedule of activities within the Incubator

Schedule of activities within the incubator #4	
Preparatory activities	(Same as Incubator 3)
Individual work	(Same as Incubator 3)
Day 1+2	(Same as Incubator 3)
Individual work	(Same as Incubator 3)
Day 3	Synthesis and analysis of data from both inquiries (W) Design Challenge Review (W) Ideation (W) Design of future service prototype (T + W)
Individual work	Testing the concept of prototypes with stakeholders (P) Recruitment of participants for user testing (T)
Day 4+5	Analysis and synthesis of the outputs from testing (W) Prototyping - 1st iteration (W) User testing (W) Presentation and communication skills (T) Final presentations

The most important lessons learned from feedback:

- The "home environment" was a benefit given the accessibility of users of library services, but on the other hand in some cases the cause of the absence of some participants as they were perceived by their colleagues as present at the workplace.
- Some teams encountered the limits of relations with the funder of the library, who did not pay sufficient attention to and trust in the innovations and their impact on the local community.
- Program participants have learned to clarify the situation and opportunities by mapping current activities, stakeholders, potential partners or contact points. In this regard, some teams (including the team of library leaders) used the method

of creating maps in their libraries as a tool of internal communication, as a tool suitable for the presentation of research findings and their analysis, defined stakeholders or activities related to the area or for a simple overview of the situation and procedure.



Fig. 8 The innovation incubator for libraries, Ústí nad Labem, 2019

3.2 Examples of topics and outputs from incubators

All implementation teams designed a prototype of a new service or innovation at various levels of detail, mostly in the form of storyboards or a service journey (see Table 5). In the table below, we enclose examples of individual design challenges and ways to solve them.

Table 5. Topics and outputs from incubators

Topic	Outputs
How can we work with the local grammar school to develop better information literacy of students and residents?	Process model of cooperation Service journey
How can we open the library to people for whom it is difficult to access?	Service prototype 3D model of library space
How can we help libraries and librarians to create a project through which they will be able to fulfill an information-educational function and which will develop together according to the real needs of users?	Concept of new services

	Community maps Personas
How can we create a place for library teenagers where they feel safe, where they feel fun, where they feel good and who want to visit?	Service prototype 3D model of library space
We want to build an environment for socially excluded and neglected children from Roma families aged 9-13 to use their free time outside school and circles for their development in our adapted background and through areas of interest related to the multimedia form.	Concept of new services Service prototype

4 Learnings from designing the Incubator for social innovation in libraries

Transferring the format of an innovation incubator that works in a certain context (for example, design sprint in a business environment) to the context of a new one (such as a library-driven community building effort in a societal context) requires significant modifications to the program design. In the case of social innovation incubators for libraries, it turned out that introductory research in the form of interviews with librarians is not enough and the format needs to be iterated depending on the knowledge from systematically collected feedback from program participants and stakeholders, mentors, and organizers. RtD, on the contrary, is an approach that allows for flexible changes that will lead to a more successful fulfillment of the objectives of such a program.

The first research question was “*What way to combine the concept of social innovation, design thinking methodology and participatory network community mapping leads to the best results?*”. Design thinking and the design process are a suitable basis for incubating new socially innovative services. However, the design process needs to include the subsequent phases of the social innovation life cycle, such as demonstrating the impact, its successful presentation or scaling [11]. For a higher social impact, it is necessary to strengthen the importance of participatory community network mapping as a key input in solving community problems and the role and future direction of the library. We conjecture that a lot of the resistance of participants to mapping activities had to do not so much with the technical complexity of the mapping - but with their not being used to and encouraged to „thinking outside of the box“. The mapping exercises forced them to do exactly that. With proper facilitation and the right procedures and materials (e.g., using printed cards of mapping symbols that they could use to handcraft their own maps with their breakout groups, publicly presenting and explaining their maps to their peer groups etc.), it was clear that they started to get into the activity. Once this barrier has been broken, future iterations of these exercises should become much easier. The focus of the community mapping activities must be part of the workshops themselves, so that participants could try out the activity under the guidance of experienced mentors. Interestingly, once several local communities

have been mapped, the next level up can be to scale up towards whole networks of local communities meshing, to reach more collective impact [24], [25].

For the long-term impact of the program, it is important to allow easy transferability and scalability of the methodology and the individual methods used, using appropriate tools and consultations. These tools must be adapted to the environment, i.e., it is appropriate to adapt professional (e.g., design thinking or participatory community network mapping) terminology and find the new set of methods and communication tools suitable for this specific context of designing social innovations in libraries. Gasparini [8] refers to the concept of openness, that allows tools to be adapted to specific purposes. The adapted version can then be captured, and the newly formulated tools serve as boundary objects [26] connecting social innovators, designers, and librarians and their communities.

The second and third research questions were “*What factors represent obstacles and barriers to increasing the desired competencies and skills for designing social innovations in libraries when designing an incubation program?*” and “*What factors in designing an incubation program support the acquisition of the desired competencies and skills to design social innovations in libraries?*”

The proposed incubation program with its above objectives has the potential for a large impact on the organization, implemented mainly *in situ* - directly in the library or the, community it serves - where it will be possible to achieve greater involvement of citizens, stakeholders, users and members of the organization or community and their direct participation in incubation activities.

It is crucial that participants have guaranteed time to participate in the program and for all related activities outside the workshops themselves. During several runs of the incubator, it turned out that the perceived lack of time is not so much related to the time allocation or the amount of time for individual activities, but to how the time for service innovations of selected staff is negotiated in the library. The theme of the time devoted to design activities was the highlight of the whole incubator. This is undoubtedly related to the concepts of temporality and dialogical spaces, as described by Gasparini [8]. In teams that did not lack the head or director of the library, the issues of temporality were better managed thanks to the fact that the teams had more opportunities to create dialogical spaces during the incubator.

An important topic also turned out to be the innovative environment of the organization, and, conversely, the possibilities of development. This concerns areas as a shared language, (non) cooperation across traditional departments, the existence and sharing of library strategy and values, topics of freedom at work, personal development, people empowerment, personal responsibility for entrusted projects. These areas are closely related to what kind of leadership style [27], [28], [2] is present at the library.

For the applicability of innovations arising from innovation incubators and for their social impact to increase, it is necessary to strengthen the relationship between libraries and their funders and to involve the founders in the preparation and implementation of the incubators. Librarians rarely see themselves as game changers. It is necessary to constantly strengthen the courage of program participants in their efforts to innovate and iterate the proposed solutions. It is desirable to support libraries as an environment

conducive to innovation and change and as an entity willing to take on the role of social innovators and community leaders [29].

5 Conclusions and final remarks

Four iterations of the incubator to support social innovation in libraries allowed us not only to set up the incubator to meet the expected goals, but also to gain a wealth of knowledge that we believe may be useful in other similar contexts - such as designing innovation programs for libraries or promoting and supporting social innovation in other public organizations. The emerging practices of design are increasingly oriented to promoting processes of social change and result in social innovations [30], but there is still a tension between research and design and around the use of the Research through Design approach [31], [32]. Although several authors remark that there is no clearly defined singular method by which RtD is conducted, Zimmerman suggests design actions embedded within a research structure that was familiar from a particular discipline[10]. In our case, we used the collection of qualitative interviews and questionnaires with open-ended questions during and after each run of the incubator. It would be interesting to compare how useful the choice of other methods would be in this case, such as more formalized quantitative post-tests or qualitative or quantitative expert evaluation. However, based on the described application of this approach in the case of designing the Incubator for Social Innovation in Libraries, there is a great potential of RtD for designing and improving specific services or programs, as well as revealing new knowledge about selected phenomena and similar innovation programs.

We hope that the documentation of knowledge from the organization of individual runs and design changes can thus help the organizers of other similar events and programs. Among all findings, these are the most important for future organizers of social innovation incubators for libraries:

- To support social innovations in libraries, a unique mixture of methodologies and approaches is useful – among all the design thinking, participatory community network mapping and the concept of the social innovation lifecycle. When designing, it is necessary to integrate all these components into one whole, and when facilitating, it is necessary to pay attention to all these parts.
- The openness of the design tools will allow the creation of new ones that will suit the exact context of the individual runs of the incubators. They can serve as the boundary objects for different communities of interest. In our case, the revised double diamond model “Helping through asking questions” emerged as a useful tool.
- One of the key factors for the success of the incubator was the involvement of directors or leaders through the creation of dialogue spaces around the incubators, in which time was negotiated for activities related to designing social innovations in libraries.
- Further research should focus on leadership roles and styles in libraries and their relationship with the promotion of social innovation. At the same time, organizers designing incubation programs for libraries that want to provide socially

innovative services to their users should pay attention to social innovations within the organization. Otherwise, the effort to introduce social innovations could bring difficult tensions.

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