

MIND THE GAP: THE OUTCOME MAP AS A BRIDGE FROM SYSTEMIC SENSEMAKING TO PSS DESIGN IN A CASE STUDY ABOUT CHILDREN WITH INCARCERATED PARENTS

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ABSTRACT

Children of prisoners are often referred to as orphans of justice or forgotten children. These children are unheard and unseen in a world made by adults for adults, they are reliant on their environment. To be able to design for these children, the whole system of actors and actants around them should be included and addressed. Systemic design is a design approach to tackle this social issue. It provides insights into the complexity of the context. However, after mapping the context, the major challenge lies in translating the output toward a design solution. This paper proposes an approach to address complex design challenges by applying both systemic design and product-service system (PSS) design and using outcome mapping to facilitate the translation from systemic analysis to PSS design. The process is applied to a project supporting children with incarcerated parents as a case study. Systemic design is used to understand the complexity of the issue, while PSS design applies systemic insights to design a concrete and integrated product-service system. The paper contributes to the design field by evaluating outcome mapping as a possible bridge between the analysis phase and the idea generation phase of socio-technical issues.

1 INTRODUCTION

According to an estimate by Children of Prisoners Europe [1], there are 2.1 million children in Europe with a parent in detention. Despite this alarming number, children of prisoners remain invisible to the general public. Children of Prisoners Europe describes a child with an incarcerated parent as a double victim. Beyond the loss of a parent, these children face stigmatization, trauma, and stress. Children of prisoners are innocent but carry the sentence too. The effects of parental detention impact the emotional well-being, physical well-being, and personal development of the child. They are three times more likely to develop mental health problems, and five times more likely to be imprisoned than other children [1]. The impact of these children on society is underestimated.

Research [2], [3] shows that a good relationship between the child and the incarcerated parent results in less recidivism. So, by supporting and guiding children with imprisoned parents, the number of prisoners will decrease in the long run, the mental health will increase, and the amount of recidivism will decrease because children and parents are taken into account. The government stands to make considerable financial savings from reduced expenditure on mental health care, prisoners, and prison overcrowding. Further, society will benefit from less criminality, more inclusivity, and more social contribution.

On the one hand, this paper reports on a design research project that applies a systemic design approach to tackle social issues, providing insight into the complexity of the context. On the other hand, after mapping the context, the major challenge lies in translating the output towards a design solution, in order to shape a product-service system that empowers children with imprisoned parents. Thus, obtaining autonomy for children with incarcerated parents based on the levers of trauma, attachment, and resilience [4]. The paper focuses on the transition from systemic sensemaking to the design of a product-service system by employing an outcome map, allowing the designer to advance from the analysis to the possibility space. The design-inclusive research adopts a process to serve as a case study aimed at supporting the children of prisoners. Qualitative research was applied to understand the context of children with imprisoned parents in the analysis phase. The data collection methods supporting this research are literature research, observations, in-depth interviews with psychologists and prison staff, cultural probes, brainstorming sessions, focus groups, and user tests. This paper contributes to the design field by evaluating outcome mapping as a possible bridge between analysis and idea generation.

2 METHOD

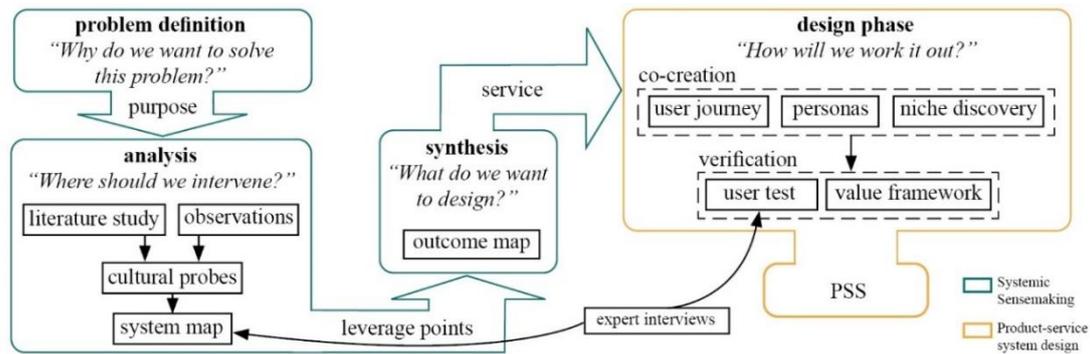


Figure 1. Approach of the design project

The design project consists of four main phases: the problem definition, the analysis, the synthesis, and the design phase (Fig. 1). The analysis determines where to intervene in the complex system and the synthesis, through outcome mapping, determines how to intervene in the system. Together they form the systemic sensemaking. Whereas the design phase uses the methods of product-service system design. The qualitative data collection methods supporting this research are discussed below. The prison of Hasselt, Belgium, is the main location for the data collection. Executing research in prison is a strenuous task. Not only does it take a serious effort to arrange a gathering in prison itself, but the prison system also imposes countless restrictions. For instance, electronics, such as phones and laptops, are forbidden. Therefore, all data is collected manually. As a result, the reporting is not a detailed account, but rather a summary of the insights from the various qualitative methods. To verify the reliability, several in-depth interviews are conducted with psychologists and prison staff.

The data collection methods are divided into three groups: the analysis, the design, and the verification methods. The first category includes a literature study, participant observations, and explorative expert interviews. The literature covers the topics of children with incarcerated parents, the Belgian prison system, and pre-existing prison initiatives. Through participant observations, the designer integrates with the prison environment for a period of 8 months during the weekly children's visits in Hasselt prison. The long-term period is important to reduce first impressions, and biases and limit time sensitivities [5]. During this period, conversations are held with an estimated thirty children and sixty adults, including (incarcerated) parents, family members, and prison staff. Interviews are executed with experts in the health care and prison sector to gain a better understanding of the context.

The design methods used are co-creation and a focus group. The prison system is an overwhelming context, especially for children. Gielen [6], [7] emphasizes that involving children in the design process gives them a feeling of control, which helps children to handle overwhelming situations. During this project, children are design partners. These children are the experts in their experiences, while the designer is the expert in the innovation process [8], [9]. The design team consists of a designer and two eight-year-olds. Besides the permanent team, about ten other children were consulted monthly to assist with decision-making. The focus group consists of six imprisoned fathers. The aim is to unravel their perspective on parental incarceration through motivations, obstacles, concerns, and expectations.

The third group of methods verifies decisions and prototypes during the process. The user test, performed by two children and their incarcerated parents over the course of one day in Hasselt prison, evaluates the user experience of the PSS and the functionality of the interactions of the product. It should be noted that no longitudinal simulation has been conducted, due to a lack of resources. Users indicated the user test was necessary to fully comprehend all the features and possibilities of the PSS. Although some confusion was encountered with the interface, the key feedback is that both children and parents were elated about the child's ability to take control of their relationship. To minimize subjectivity and bias experts are consulted to discuss insights, prototypes, and implementation. Examples of these experts are a family detention counsellor, a child therapist, an educator, the network managers of the prison in Hasselt and Beveren, the prison warden, and the policy coordinator.

3 SYSTEMIC SENSEMAKING

After the broad purpose definition to support children with an incarcerated parent, multiple analyses were performed to deepen the understanding of the topic. However, processing all this new knowledge requires a certain structure and approach. Therefore, the systemic design methodology, including causal

loop diagrams and the outcome map, is used as a way of sensemaking [10]. “Systemic sensemaking is the ability to recognize and understand complex patterns of relationships and interactions within and between systems, and to use this understanding to make informed decisions and take effective action.” [11]. For this case study the goal is to uncover interrelationships and emergent behaviours regarding the impact of incarceration on children with an incarcerated parent and to identify the leverage points that will form the DNA of the future product-service system.

The analysis phase uncovers several insights. For example, children of prisoners do not have the opportunity to avail their rights, they feel powerless and unheard by the adults surrounding them, and there is a lack of information toward children in all layers of the system. Further, a strong connection was found between the psychological concepts of trauma, attachment, and resilience. The detention of a parent is considered an Adverse Childhood Experience (ACE) [12], [13]. An ACE can lead to trauma, but also harms the attachment relationships and resilience of a child. According to Felitti et al., [12] there is an association between exposure to ACEs and negative health and behavioural outcomes later in life. The insights from the analyses are the input for systemic sensemaking.

3.1 Causal Loop Diagram

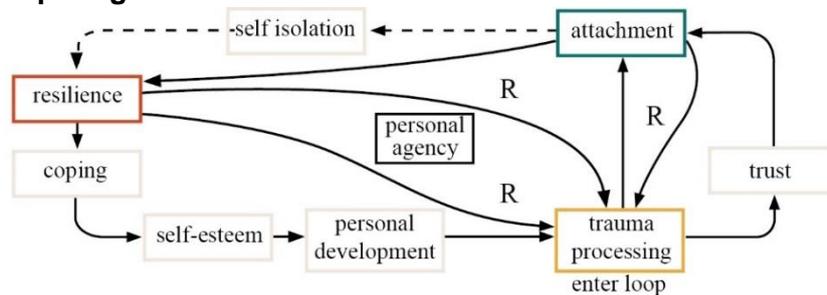


Figure 2. Core loop to facilitate personal agency for the child

The context of children with incarcerated parents is a complex issue that is hard to fathom, let alone tackle. Causal loop diagrams (CLD) [14] bring the dynamics of the issue into focus, which shows opportunities to influence change.

Figure 2 illustrates the core loop of the system that contains the levers that are targeted for intervention. The goal of the loop is to create personal agency within children with an incarcerated parent. Currently, these children have no sense of control, they feel powerless [1]. They lose confidence in themselves and their environment. The objective of the core loop is to facilitate the development of children’s autonomy and self-confidence. The core levers within the system are trauma, attachment, and resilience. These concepts form a reinforcing loop that leads to escalation [15]. In simpler terms, an intervention to process trauma will increase both the attachment and the resilience of the child. During the design process, this core loop will be the foundation. The final product-service system should empower children with incarcerated parents by reducing the child’s trauma, fostering attachment between child and parent, and building the child’s resilience.

3.2 Outcome map

The outcome map [16] (Fig. 3) synthesizes the analyses. It consists of a comprehensive, cohesive collective strategy and action plan to reduce and respond to the impact of parental incarceration on children [15]. The outcome map, simplified in this diagram, has five structural elements: the sustainable goal, the impacts realized through the achievement of the sustainable goal, the strategic impact, the strategic outcomes, and the associated actions. The map describes the long-term impact on the right and the short-term outcomes toward the left. The sustainable goal is the direct result of the activities and outcomes. The sustainable goal indirectly leads to the strategic impact through various impacts that arise by realizing the sustainable goal.

The strategic outcomes are based on the levers discovered in the core loop (Fig. 2) of the system. The outcome map is a systemic design tool using ideation techniques [15]. Hence, the map provides an understanding of the long-term goal and the short-term actions that must be implemented to achieve that long-term goal. The outcome map forms the transition from the analysis phase to the design phase. This tool allows the designer to start to concretize a complex problem. The activities hint toward design requirements for incorporating the service component of the product-service system (PSS), rendering the strategic impact viable and perceptible. The outcome map is the first step in designing the product-service system. However, the tool does not encourage enough creativity to determine what the product component should look like. The map is useful to transfer from the abstract long-term goals of a project, identified through the CLD, to the short-term actions necessary to reach the long-term goals. Consequently, another method or set of tools is essential to generate a fitting design process that defines the product component that delivers the service.

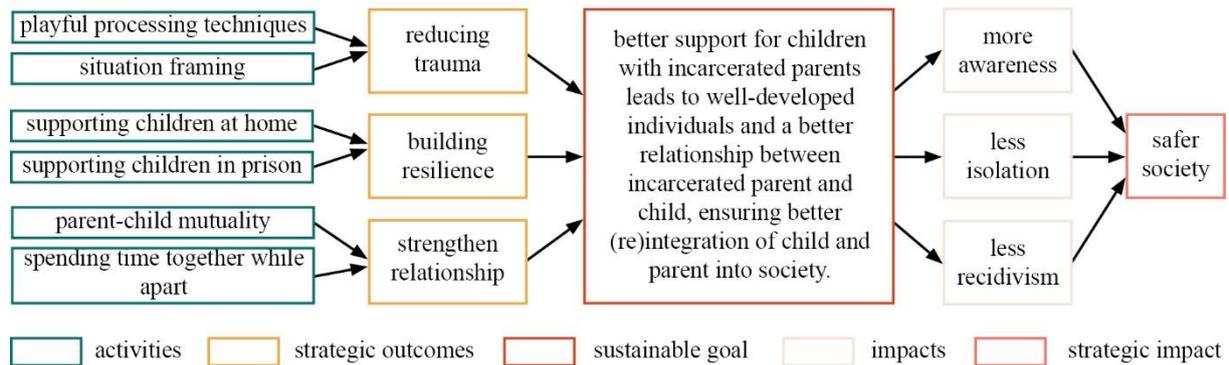


Figure 3. Simplified outcome map

4 PRODUCT-SERVICE SYSTEM DESIGN

Therefore, the product-service system design methodology is used to fulfil the need for creativity. PSS design has strong connections to both product design and service design. However, PSS design surpasses the individual disciplines and applies each other's tools and methodologies to tackle the complexity of today's issues. The aim is actual product-service integration [17]. The acknowledgment of the complex nature of society corresponds to the approach of systemic design. In this case, PSS design is a method to structure the design phase without losing sight of the initial leverage points. Thus, multiple tools are implemented to create solutions during the creative phase of the design project. The key tools that shaped the leverage points into a thorough PSS are the Lotus Blossom, the Niche discovery, Personas, and the user journey [18].



Figure 4. KiDO

The result of this design project is KiDO (Fig. 4), a product service system (PSS) for children with an incarcerated parent. Children of prisoners feel powerless because of parental incarceration. KiDO gives the power back to these children. The product-service system aims to improve the attachment between the child and the detained parent, reduce the child's trauma and strengthen the child's resilience. Children and their incarcerated parents are more often separated than together. KiDO captures these moments of loss by connecting children and detained parents up close and from a distance.

KiDO consists of one communication device for the child, one for the incarcerated parent, and six different types of cards. The *You, me, us* cards strengthen attachment, the cards are empty and ready to be filled with audio fragments from the incarcerated parent. Detained parents can store assignments, recipes, stories, treasure hunts, games, riddles, etc. on them, to which children can listen by inserting the card into the communication device. The yellow cards help to cope with trauma. The *This and that* card

explains a multitude of children's concerns about parental incarceration. While the *Ask a question* card enables children to ask questions in a barrier-free way. The pink and white cards build resilience, the *Do it* cards provide children with the right skill set to discover their potential and stimulate personal development. The *Reward* cards and the *Back-and-forth* card praise and encourage the children's personal growth. KiDO enriches the relationship between the child and their incarcerated parent. However, the aim is to encourage children to develop personal agency.

This design project in collaboration with CAW¹ focuses on children and their imprisoned parents within Hasselt prison, Belgium. While this ensures a defined case study, area for testing, and close collaboration between the designer, users, and the prison, it also means the product-service system is adapted to the operation of Hasselt prison and must comply with Belgian legislation and the policy of this specific prison [21]. However, KiDO has certain flexible characteristics that render the PSS capable to adapt to different prison policies, such as the ability to record and exchange cards at any time, working with recordings to overcome language barriers, and aligning recorded tasks with the values, restrictions, and structures of diverse cultures and countries. Nevertheless, implementing KiDO in different prison policies may have unintended consequences, so further exploration of the specific prison cultures and policies is necessary for effective implementation and preparation for emerging behaviour.

5 DISCUSSIONS

The goal of the design project was to create a future-oriented solution for children with incarcerated parents that could be implemented in the current society. To realize this goal two approaches were combined, systemic design and PSS design. Systemic design maps out the complexity of the current situation and identifies possible leverage points for change [15]. While PSS design turns the leverage points into a tangible result ready for implementation [17]. CLD's determined the leverage points; trauma, attachment, and resilience. However, the challenge lies in translating them into concrete interventions. The outcome map was used to transition from the analysis to the design phase. Outcome mapping is a useful tool to explore the possibility space and to ideate new services. This technique offers a roadmap to connect the future strategic impact with activities achievable in the short term. Another asset of the outcome map is that it allows the designer to maintain an overview, it is a consistent reference throughout the design project. The map consists of both a strategic component, the long-term impact, and a design component, the current activities and direct outcomes. As a result, a continuous guideline is provided for designers who encounter complex problems.

Besides the advantages of implementing the outcome map, the tool lacks the incentive for product design. The further development of the product-service system needed another approach. The PSS toolkit [18] was applied to guide the designer through the design phase and materialize the product-service system. The transition from systemic sensemaking to PSS design happened through the outcome map. However, a design process has an idiosyncratic and free character, so this tailored transition may not always match the imminent challenge. Further exploration of methods on the transition or combination of systemic design and PSS design may help practitioners to devise implementable interventions without being paralyzed by the complexity of the issue.

6 CONCLUSIONS

Designers are increasingly faced with complex problems, yet they often flounder by the intangibility of this complexity. This paper has explored a way to embrace the complexity while still obtaining an implementable forward-looking solution as an outcome. By combining systemic sensemaking and PSS design, we created a product-service system solution that helps children with incarcerated parents cope with trauma, build resilience, and strengthen their relationship with their incarcerated parent. This paper suggests using the outcome map as a transition to move from abstract insights to concrete idea generation. However, further exploration of the transition between systemic design and PSS design is needed to understand its effect on the design process and the end result in order to adopt this combined approach to a wide range of complex issues.

¹ The Centre for General Welfare Work (CAW) helps people with all their questions and problems related to welfare.

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