Co-Designing a Startup Ideation Tool

Master's Thesis for Master of Arts degree in Design

Aalto University
Aalto School of Arts, Design and Architecture
Department of Design
Master's Programme in Collaborative and Industrial Design

Author: Brian Kaszonyi
Supervisor: Kaisa Savolainen
Advisor: Namkyu Chun

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Abstract

Over two-thirds of startups never deliver investors a positive return. This suggests that in order for the startup entrepreneur to succeed, a systematic generation of new startup ideas is needed. However, popular business modeling tools seem more useful for the analysis of the entrepreneur's already existing idea or are too complex to be easily used or adapted to suit individual needs.

Generating ideas from inspiration and experience is part of the professional designer's everyday. Designers have developed process frameworks to help guide their creative work from its motivations towards a solution. Similarly, insight frameworks explain how, for example, seemingly unrelated knowledge can come together to form an insight.

Co-design promises to make design more relevant by designing *with* rather than *for* stakeholders. Relevant co-design tools sit at the core of successful co-design activities. This thesis engages entrepreneurs and startup coaches in the co-design of a startup ideation tool to better serve their needs by also conducting research for the design of the activities themselves – specifically the co-design tool – from a designer ideation perspective as well as a business perspective.

In addition to a literature review, research for this thesis can be divided into three parts: research for the design of the co-design activities, the co-design activities themselves and analysis of the co-designed artifacts.

The literature review surveyed co-design, co-design tools, business modeling tools and their frameworks (frameworks being their overall structure and parts), design process frameworks and insight frameworks.

Interviews and action research – through participation in a startup pre-incubator – helped identify the key parts of a startup. The research showed that the key parts of a startup ideation tool are potentially made up of the same three parts necessary to express a startup idea: the *motivation* behind the idea, the investor-friendly *market* the idea will serve and the *mechanism* that bridges these. Business modeling tool, design process and insight frameworks were then integrated with this knowledge into a co-design tool.

With this co-design tool as their starting point, five co-design sessions and one co-design workshop produced six co-designed startup ideation tools with entrepreneurs and startup coaches as co-designers.

Participant startup entrepreneurs and coaches tended to accept the co-design tool as is, basing their own ideation tools quite clearly upon the frameworks and parts of the co-design tool. However, several co-design participants also expressed a strong desire to link back, even measure, the market and motivation parts which resulted in a possible fourth part: the feedback that measures the relationship between a market and an entrepreneur's motivation. This created a circular framework connecting all four parts.

Through affinity diagramming of the co-design session and workshop artifacts and data, a prototype startup ideation tool was designed and is proposed for further co-design, testing and validation.

Keywords
Co-Design, Co-Design Tools, Business Modeling Tools, Business Model Innovation, Ideation, Design Processes

1 Introduction

Over two-thirds of startups never deliver investors a positive return (Eisenmann, 2021). As Höyssä and Hyysalo (2007) explain, the "fog of innovation" makes even breakthrough inventions difficult to bring to market successfully. Whether this suggests that most ideas are somehow "bad" is open for debate but, nevertheless, it does suggest that the startup entrepreneur must have a number of new ideas in order for one to succeed; a systematic way to generate new startup ideas is needed. However, existing business modeling tools such as the *Business Model Canvas* (Figure 1; presented as a *framework* of its key parts and its overall structure) seem better suited to analysis than initial ideation because of their complexity. Users may also find it difficult to adapt them to their individual needs.

Co-design seeks to harness the creativity of those who are not designers to work with designers (Sanders & Stappers, 2008). By expressing their creativity through co-design tools, non-designers may, in effect, design for themselves. This promises to make design more relevant by designing *with* rather than *for* stakeholders (Sanders & Stappers, 2014).

"He doesn't have the patience for it."

– Entrepreneur reflecting on a colleague not using the *Business Model Canvas*

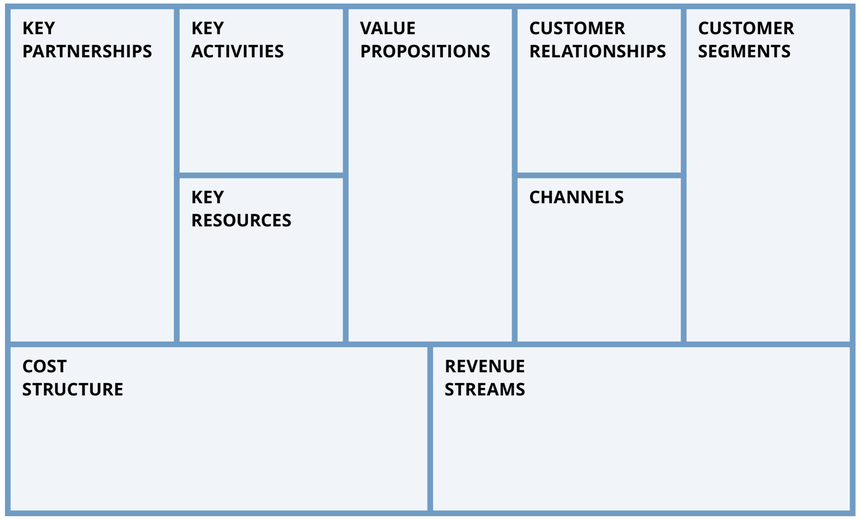

Figure 1. *The Business Model Canvas Framework*

Note. Adapted from *The Business Model Canvas* [Diagram], by Osterwalder, 2004. Copyright Strategyzer. It is presented as a *framework* of its key parts and its visual structure (as are all of the following business models, design processes and insight frameworks) for clarity and comparison.

Ideation is an everyday activity for the designer. Following new design literature (see Dezeen, 2023; Visuelle, 2023; designboom, 2023), keeping a sketchbook of some sort and noting trends and commercial activity all help prepare the designer for the projects that come their way. The author's own Posti logo design (Figure 2) was a result of this and what Cross (2007) describes a creative "bridge." This concept of insights as similarly bridging seemingly disparate elements appears in other literature as well (see Klein, 2013; von Hippel, E. and von Krogh, 2016).

Design process frameworks, such as the *Double Diamond* (Figure 3), make structuring and communicating the design process easier, dividing it into short, memorable steps. It could be asked if this type of framework, business modeling tool frameworks and the "bridging" described above could be somehow integrated into one tool – one that is both more relevant and easier to use, by those who use and need a startup ideation tool – through co-design.

The overall goal of this thesis is to present possible co-designs of such a startup ideation

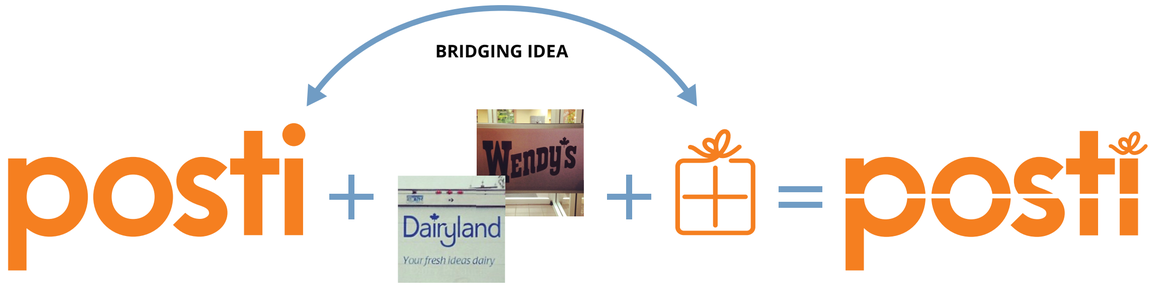

Figure 2. *A Simplification of Posti Logo Design Process, Including the Bridging Idea*

Note. Equation framework adapted from *Possible combination of 'panel' plus 'bag' to give 'tray'* [Diagram] and the "bridging" metaphor, by Cross, pp. 73, 78. Copyright Springer. The Posti logo and package icons, copyright Posti Group. Dairyland is a trademark of Saputo Dairy Products Canada, copyright Saputo Dairy Products Canada. Wendy's is a trademark of Quality Is Our Recipe, copyright Quality Is Our Recipe. Photos copyright Brian Kaszonyi.

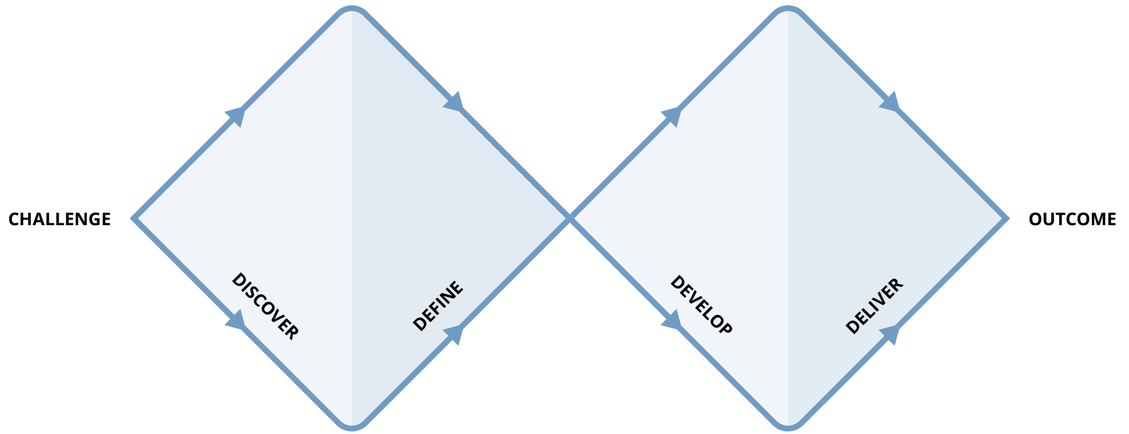

Figure 3. *The Double Diamond Framework*

Note. Adapted from *Framework for Innovation: Design Council's evolved Double Diamond* [Diagram], by Design Council, 2019. Copyright Design Council.

tool by engaging entrepreneurs and startup coaches in co-design activities – specifically the co-design tool – designed from this designer ideation as well as a business perspective.

Research for this thesis can be divided into three parts: research for the design of the co-design activities, the co-design activities themselves and analysis of the co-designed artifacts. The thesis sought to answer the following three research questions, which reflect these three parts:

1. **What are possible key parts of a start-up ideation tool?**

2. **How do startup entrepreneurs and coaches use a co-design tool to co-design a startup ideation tool?**

3. **What is a possible framework of a co-designed startup ideation tool?**

Answers to these questions were researched through interviews with entrepreneurs, startup coaches and investors, through the author's participation in a startup pre-incubator (action research), by co-designing startup ideation tools with entrepreneurs and startup coaches and then by analyzing the resulting co-designed artifacts.

The thesis is divided into six chapters: this *Introduction*, which introduces the goal, research questions and structure of the thesis; *Literature Review*, which surveys the literature on co-design and co-design tools, business modeling tools and their frameworks, design process frameworks and insight frameworks; *Research Methods*, which presents which research methods were used and how, when and where they occurred and were applied and who participated; *Preparing the Co-Design Activities*, presents the conclusions of the research for the co-design activities and how it was implemented into the design of co-design activities, particularly the co-design tool; *The Co-Design Sessions and Workshop,* which chronicles the co-design activities, presents their results and introduces affinity diagramming of the activities' data; and *Discussion and Conclusion*, which discusses the results of the affinity diagramming as a possible startup ideation tool prototype and presents conclusions.

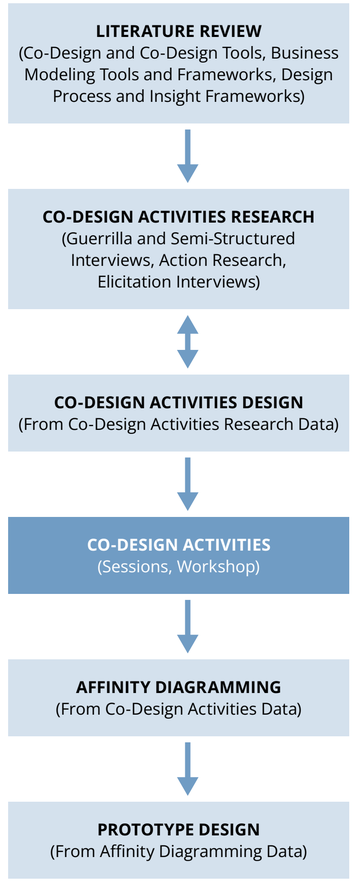

Figure 4. *Thesis Process*

Note. The thesis sections roughly follow the process – from a literature review and research for the co-design activities through to a startup ideation tool prototype design – of the thesis activities.

2 Literature Review

This literature review surveys the literature on co-design, co-design tools, business modeling tools and their frameworks, design process frameworks and insight frameworks. The resulting knowledge also informed the design of the co-design activities, particularly the co-design tool at their core (Figure 5).

2.1 Co-Designing with Stakeholders

Sanders (1999) explains that actively co-designing is "Postdesign," a mindset that focuses on user experience for design ideation so that it can make use of an ever-growing amount of opportunities and ideas emerging from stakeholder participation. Later, as this approach develops, engaging designers with non-designers is the mindset of designing *with* rather than *for* and a way to envision a common future (Sanders & Stappers, 2014). Where Postdesign is described as ongoing and not a linear process, later literature describes four phases – pre-design, generative, evaluative and post-design – placed along a timeline.

Sanders (1999) explains that co-design methods can "establish resonance between a company and its customers"; Sanders & Stappers (2008) hope that "consumerism and the rampant consumption that goes with it has almost run its course." A designerly way of doing research, co-design is part of the sustainable design toolkit with each potential stakeholder a potential "codesigner" (Sanders, 1999; Sanders & Stappers, 2014).

However, Meroni et al. (2018, p. 17) explain that to co-design is to engage in participatory design; co-design is simply a new label for the collaboration of stakeholders with varied viewpoints in the design process. Taffe (2015) explains that co-design is a *philosophy* that challenges the designer's expertise at problem solving.

Ardito et al. (2011) describe the end user as co-designer contributing to a challenging, never-ending cycle of design-develop-use-evolve. However, Vaajakallio and Mattelmäki (2007) note the importance of the trained designer as a facilitator in spotting opportunities.

Von Hippel (2005) describes how "lead users" contribute to this ecosystem of product innovation. However, Sanders & Stappers (2008)

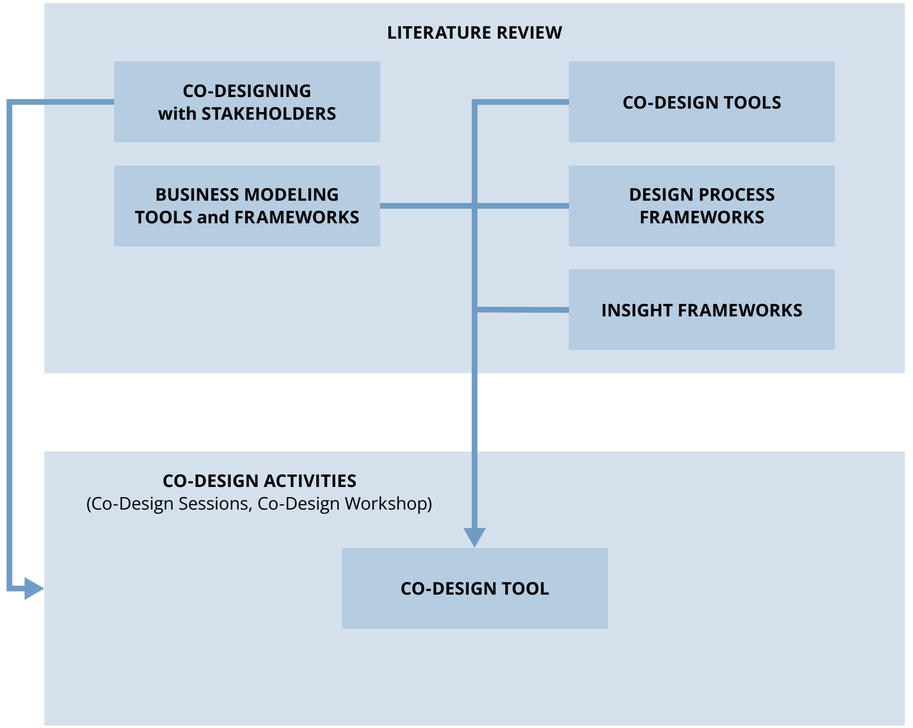

Figure 5. *Literature Review Structure*

Note. With the exception of co-designing with stakeholders, the literature review surveys tools and frameworks that could be integrated into a co-design tool that would form the basis of co-design activities.

consider the potential elitism and limitations of the lead-user approach compared to co-design; participatory thinking necessarily changes power structures away from business (and its "'expert mindset") in their view.

Taffe (2015) suggests that the form of artifact (physical or information-based) being co-designed influences an activity's success due to how participants *imagine* interacting with it. Also, that roles within co-design are not fixed – end-users may come to see themselves as designing for "imagined users" rather than themselves. Trapani (2019) claims that facilitator training is needed for group-based co-design activities to succeed. Diversity of member personalities and skills can lead to "blockage" and the facilitator must know how to manage these; motivating the group requires reading its "temperature."

Co-Design Tools

Sanders and Stappers (2008) explain that there are levels of creativity, from "doing" as the productive act of achieving something up to the act of "creating" itself. Sanders (1999) explains that people need "Make Tools" to express and articulate their creativity.

Make tools (or co-design tools) make co-design possible; Sanders (1999) explains that co-design changes design from a creative act into a generative act because the individual designer transforms into a collective of stakeholders. This "collective generativity" is about networks of participation; people are able to use their influence to get what they want. But the tools of co-design help access more than what they say or do (or what designers observe), perhaps as much as their unknown and future needs; ideas generated are more relevant because the co-design tools can help users to project their desires and needs. However, Trapani (2019) notes the need for the creation of improved co-design tools to better facilitate participation; there is a correlation between the tools and their purpose.

These generative co-design tools (see example frameworks in Figure 6) can help give form to "the thoughts and ideas of people from different disciplines and perspectives" especially unmet, experience-based needs (Sanders 1999); they provide a language for all stake-

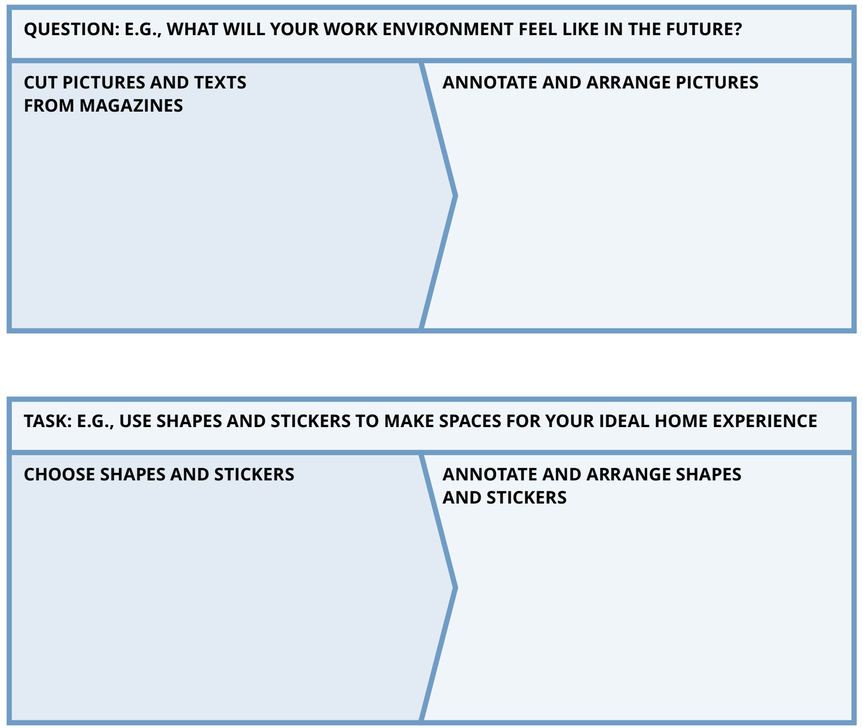

Figure 6. *Examples of Co-Design Tool Frameworks*

Note. Co-Designers mix easy-to-use imagery and annotate it with text to express themselves. Adapted from *Figure Z.6: Tools for Storytelling – "Tell us a story about your life with consumer products at home."* [Photo] and *Figure Z.7: Tools for Dreaming – "Use shapes and stickers to make spaces for your ideal home experience."* [Photo], by Sanders, 2000. Copyright Sanders.

holders to help develop everything from products to services by balancing visual and verbal literacy. Sanders and Stappers (2014) explain that these tools for the non-designer are used for a more controlled process of designer and co-designer making than probes. The co-designer's making cannot be separated from enacting and telling; they eagerly tell why they have made an artifact and how to use it.

Vaajakallio and Mattelmäki (2014) explain how a playful tool can open one's mind towards possibilities, leaving the "rules" of ordinary living behind; one is able to test ideas in a consequence-free environment.

2.2 Business Modeling Tools

The *Business Model Canvas* has its origin in Osterwalder's PHD thesis (Osterwalder & Euchner, 2019). Osterwalder explains that visualizing is at the heart of what he does, helping simplify understanding of business concepts without making them simplistic. He says that this understanding of visual tools power came from feedback of 470 "co-creators" (sections of the book *Business Model Generation* were given to paying practitioners for feedback). They fulfilled the authors' desire to increase the accessibility of its concepts. (Osterwalder & Euchner, 2019; Osterwalder & Pigneur, 2010).

Osterwalder (Osterwalder & Euchner, 2019) believes competing with a business model is better than competing with technology or products. As he explains

> We want people to turn their thinking around, to start with designing a better business model and then design the offerings and other elements of the business to support it.

Maurya (2022) has created another popular canvas, the *Lean Canvas* (Figure 7). It seeks to help entrepreneurs model business ideas quickly. Whereas the *Business Model Canvas* has "key partnerships" as its far left module, the *Lean Canvas* has a "problem" and asks one to reflect on "existing alternatives." The next *Lean Canvas* module is for one's "solution" whereas the *Business Model Canvas* asks for one's "key activities." Both place one's reflections on "customer segments" in the far right module.

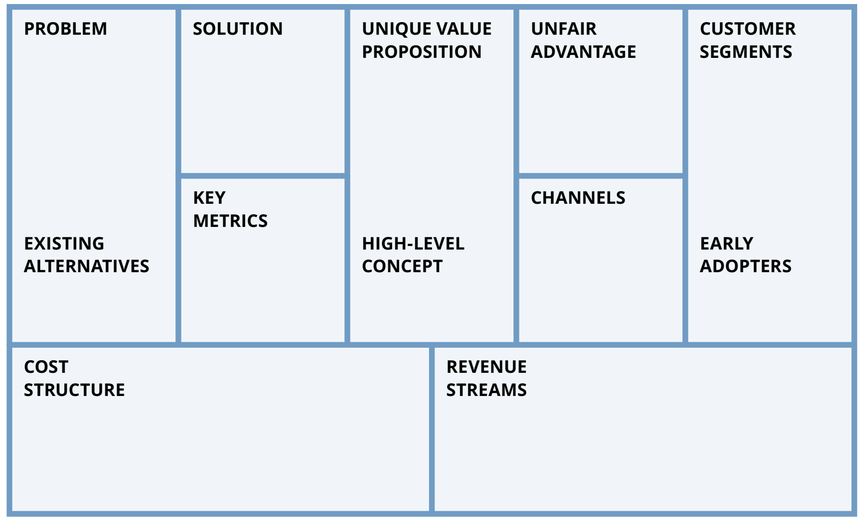

Figure 7. *The Lean Canvas Tool Framework*

Note. Adapted from *Deconstruct Your Business Model on a Lean Canvas* [Diagram], by Leanstack, 2022. Copyright Leanstack.

The *Lean Canvas* and the *Business Model Canvas* starting points are not apparent, but one can quickly pick out a problem-solution-customer connection from the *Lean Canvas* whereas one might be left wondering how to consider one's "key partnerships" on the *Business Model Canvas* before having a fully developed business idea.

The *Value Proposition Canvas* (Figure 8) was created to complement the *Business Model Canvas* by focusing on the (missing) details of customer value after experience with real businesses revealed a gap (Osterwalder & Euchner, 2019). It breaks down this value into two parts, services and customers (Osterwalder et al. 2014). Each part is then subdivided into three, detailing services, customers, and customer satisfiers and customer needs (which are split into problems and advantages). Wording such "pains" and "gains" seek, perhaps, to resonate emotionally.

Schwarz and Legner (2020) say that enabling a shared language for an organization is one of a business modeling tool's, such as the *Business Model Canvas*, key benefits. But they note that

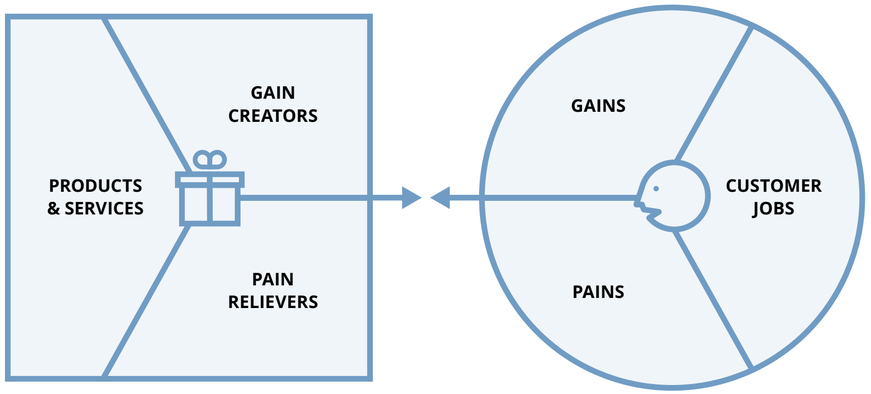

Figure 8. *The Value Proposition Canvas Tool Framework*

Note. Adapted from *The Value Proposition Canvas* [Diagram], by Osterwalder et al., 2014. Copyright Strategyzer.

business modeling tools do not have a widely shared definition.

In their study (which included the *Business Model Canvas*) of business model tool effectiveness in aiding business model ideation, Athanasopoulou and De Reuver (2020) note that they can help provide direction and focus but do not effectively aid decision making.

Expressing direction through the linking of elements also seems important to understand how they function together. The *Value Proposition Canvas* shows this relationship well with its arrows connecting its two halves (the intersection is defined as “Fit”; Osterwalder et al., 2020, pp. 26, 32-33). Boldrini and Antheaume (2021) explain the importance to show these connections because they facilitate alignment in their business modeling tool, the cryptically-named BM^3C^2.

Arrows directing “awareness” to “interest” then to “purchase” etc., help one understand the wheel-like cycle depicted in the *Customer Engagement* canvas shown in Figure 9 (Futurice, 2022). The concentric circles of various map-

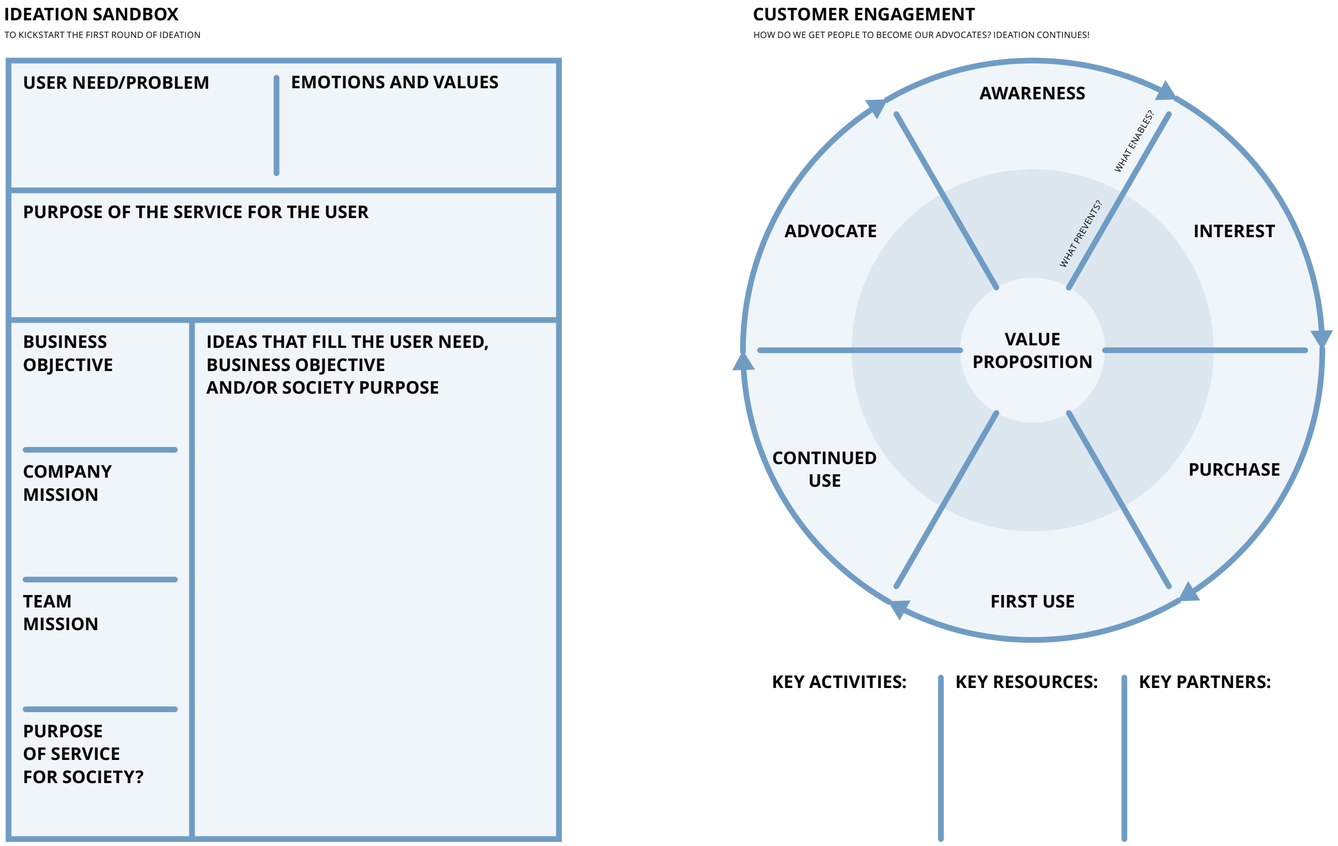

Figure 9. *Examples of Lean Service Creation Canvas Business Modeling Tool Frameworks*

Note. Adapted from *Ideation Sandbox* [Diagram] and *Customer Engagement* [Diagram], by Futurice, 2022. The *Lean Service Creation Toolbox* by Futurice Ltd is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

ping tools and *The Golden Circle* (Figure 10, right), help one understand how elements are linked to their cores (Sinek, 2009, p. 37).

Though the concept of needs appears in early design literature (see Arnold & Clancey, 1959/2016) and figures prominently in start-up discussions, business literature includes invented terms, such as “jobs to be done” which seeks to help map the process of satisfying a need (Bettencourt & Ulwick, 2008). The (existing) business model itself evolves over time. Its four elements – a value proposition, resources, process and profit formula – are on a journey from creation towards efficiency that require their own types of innovation (Christensen et al., 2016).

Lean Service Creation tools (p. 11, Figure 9, left, and Figure 10; Toiminen et al., 2014) are extensive and reinforce impressions of these types of tools being better for analysis. Using a diagram with overlapping areas that remind one of IDEO’s (2023) *Question Desirability, Viability, and Feasibility* diagram, Futurice (2019) shows that lean service creation is at the intersection of technology, users, society and business.

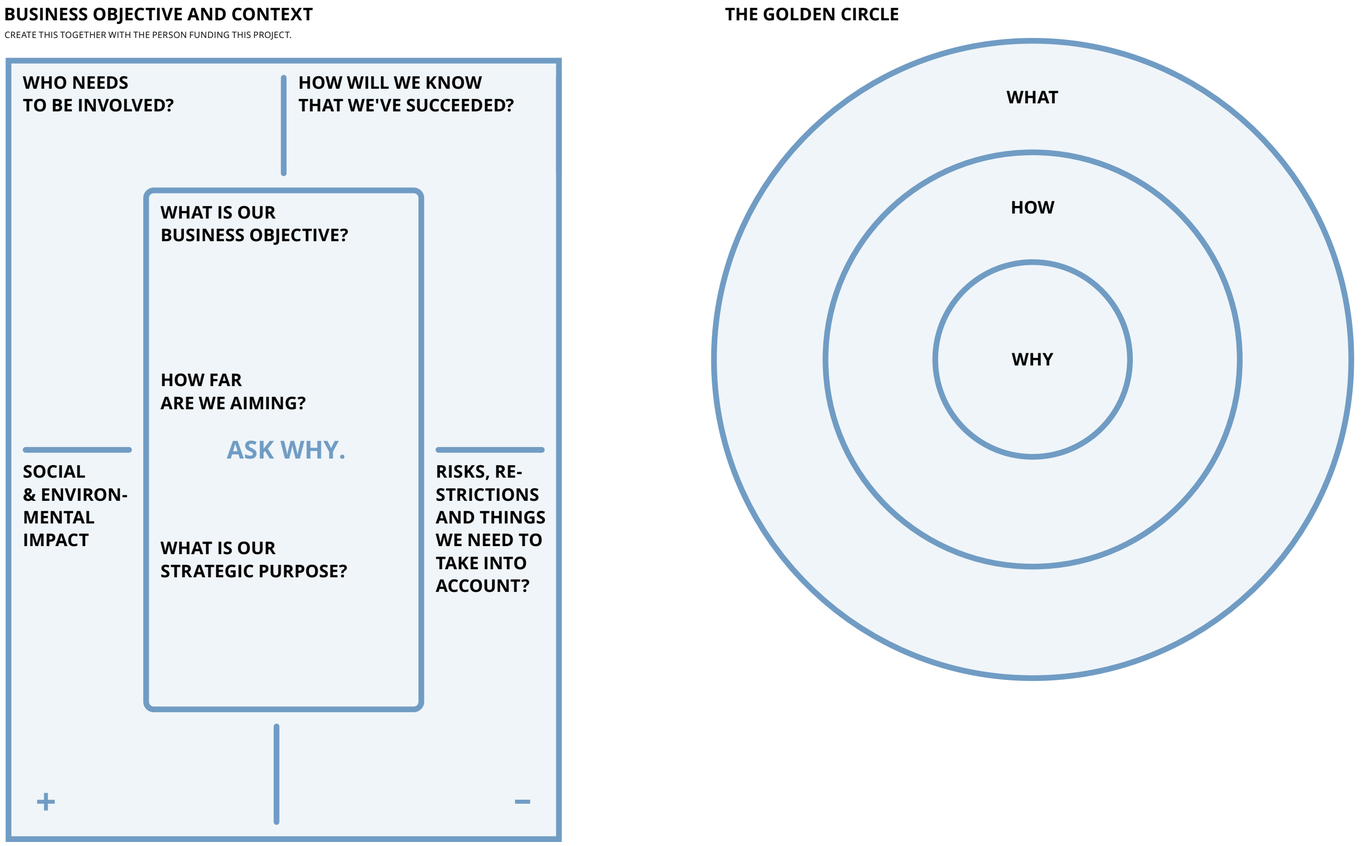

Figure 10. *Comparison of the Business Objective and Context Canvas Business Modeling Tool and The Golden Circle Business Modeling Tool Frameworks*

Note. Adapted from *Business Objective and Context* [Diagram], by Futurice, 2022, and *The Golden Circle* [Diagram], by Sinek, 2009. The *Lean Service Creation Toolbox* by Futurice Ltd is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License and *The Golden Circle* is copyright Sinek, 2009. https://futurice.com/lean-service-creation/download-lsc-canvas

Acknowledging the large amount of canvases, they explain that deciding which one to use depends on your goal, using all of them for an internal “business pitch” seeking funding, for example.

One of them, the *Business Objective and Context* canvas (p. 12, Figure 10, left), places “ASK WHY” at the center which reminds one of Sinek’s (2009, p. 37) *The Golden Circle* which seeks to help communicate the core reason for a company’s existence and how its unique way of operating and its products evolve or grow out from this; they must align. Sinek (2009, p. 38) explains that this approach is naturally used by those wishing to motivate through inspiration rather than manipulation. He claims that we can achieve more if we first ask ourselves “why” when starting something.

The Startup Mindset

Entrepreneurs must go through steps to realize their vision. A framework of these steps (Figure 11), is created by comparing the sections of Aalto University startup courses, which are arranged in a step-by-step fashion.

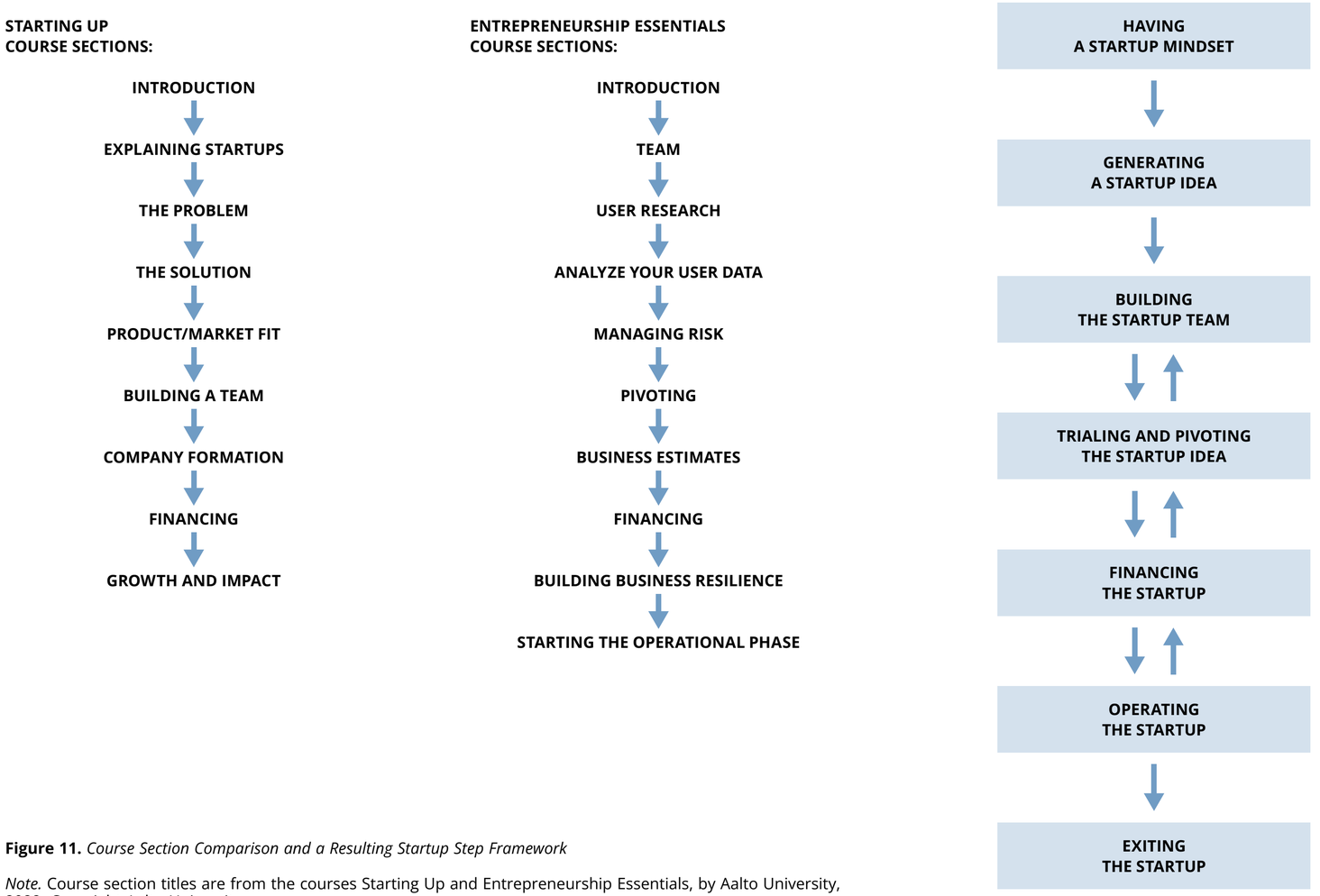

Figure 11. *Course Section Comparison and a Resulting Startup Step Framework*

Note. Course section titles are from the courses Starting Up and Entrepreneurship Essentials, by Aalto University, 2022. Copyright Aalto University.

There is also a difference between entrepreneurship and startup entrepreneurship. It seems important to note that all startup founders are entrepreneurs but not all entrepreneurs are startup founders. As the Starting Up course explains

> A startup isn't a normal company … [it] is a group of trials, through which a company is born – or isn't … they offer a unique opportunity for global influence and growth … Startup entrepreneurs create stories about how the future could look and try to make these visions come true. (Aalto University, 2022a)

2.3 Design Process Frameworks

Bobbe et al. (2016) describe nine different structures of design process models in their paper comparing academic and professional practice-based models. They analyze fifteen models, dividing their stages into four overall stages, "analyze, define, design and finalize," and an additional stage (employed by roughly half of the models), "implement."

As Arnold (1959/2016), a major influence on Stanford's design thinking framework (Auernhammer & Roth, 2021), relates in 1959

> …four key words that I find especially useful for my thinking: Question, Observe, Associate, and Predict. For my own case, I do not feel that I have to break these four broad steps into smaller intervals. In fact I don't actually like to think of them as steps of a process that are followed in a certain definite sequence. To me these four words represent attitudes of the mind or the personality of the learner, the seeker, or the creative problem solver. They represent the cognitive process as well as the process of science. The first three should be going on all the time, simultaneously or in almost any kind of combination or sequence.

One sees this as a historical link to the *Double Diamond* steps of "*Discover*, *Define*, *Develop* and *Deliver*" and IDEO's (IDEO, 2022b) explanation of design thinking as "*Inspiration*, *Synthesis*, *Ideation/Experimentation* and *Implementation*." Stanford d.School's (Doorley et al., 2018) own variation is presented in Figure 12. IDEO's design thinking website (IDEO, 2022a) explains

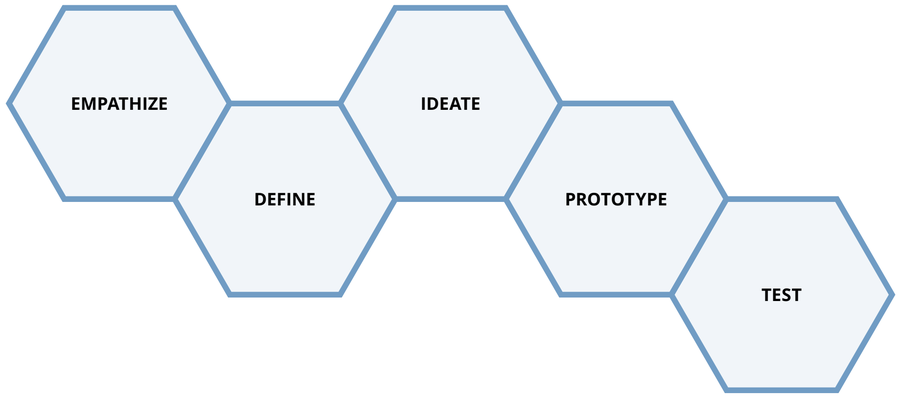

Figure 12. *Stanford d.School Design Thinking Process Modules Framework*

Note. Adapted from *Process modules* [Diagram], by Doorley et al., 2018. Copyright Hasso Plattner Institute of Design at Stanford.

that design thinking is bigger than one simple definition – it is "…an idea, a strategy, a method, and a way of seeing the world." The *Double Diamond's* shapes express divergent and convergent thinking at each stage of the process (Ball, 2019); when designing, one diverges to "create choices" and converges to "make choices" (IDEO, 2022a).

Rylander Eklund et al. (2022) describe design thinking as "sensemaking," to support the creativity behind and compliment solving problems.

Auernhammer and Roth (2021) identify design thinking as being rooted in theories of Gestalt (and humanistic) psychology in their defense of its theoretical grounding. Similarly, Zott and Amit (2015) describe how real innovation must affect "the overall gestalt of the business model," not only be improvements of its parts. A process framework can both help focus and manage a project (Ball, 2019).

2.4 Insight Frameworks

Von Hippel and von Krogh's (2016) paper on "need-solution pairs" (see Figure 13, left) pro-

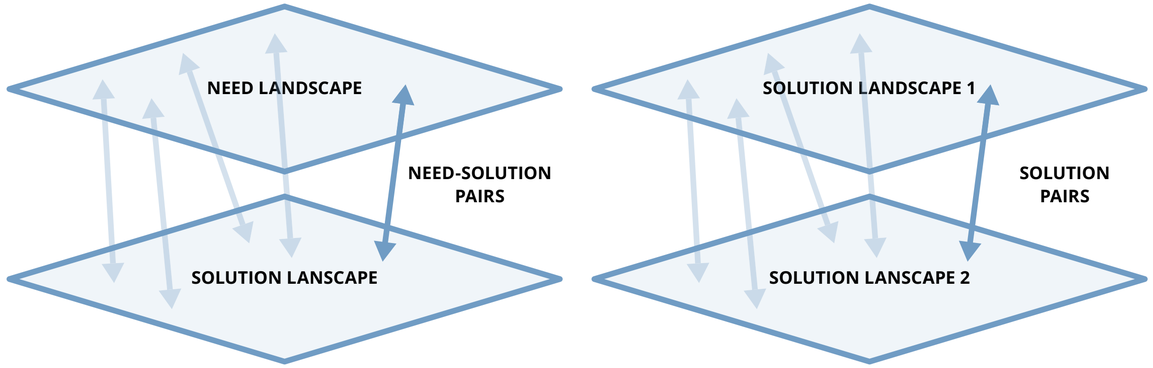

Figure 13. *Need-Solution Pairs Seen as the Pairing of Solutions*

Note. Adapted from *Need and Solution Landscapes Connected by Need–Solution Pairs*, by von Hippel, E. and von Krogh, 2016. Copyright INFORMS.

poses that needs and solutions are often identified simultaneously then validated as a pair; one may see a problem after its solution appears or problems may be “discovered” after the solution. It is also possible to see this as connecting two solutions or as a solution-solution pair (p. 15, Figure 13, right), similar to the “bridge” between two solutions described by Cross (2007), to satisfy a need.

Klein’s (2013, pp. 103–104) *Triple Path Model* (Figure 14) is about insights. The framework notes a solution pair “Connection Path” but adds the concepts of contradictions and desperation as distinct pathways. One rebuilds, adds or discards an “anchor” – which is described as a “core belief” that acts to anchor our understanding – to create change.

A good example of such a connection is James Dyson’s cyclone-based vacuum cleaner. Its idea came from him comparing the effectiveness of a cyclone-based industrial system to a home vacuum cleaner; in fact, he connects both the failure of a previous industrial system and the success of the new one to the home vacuum

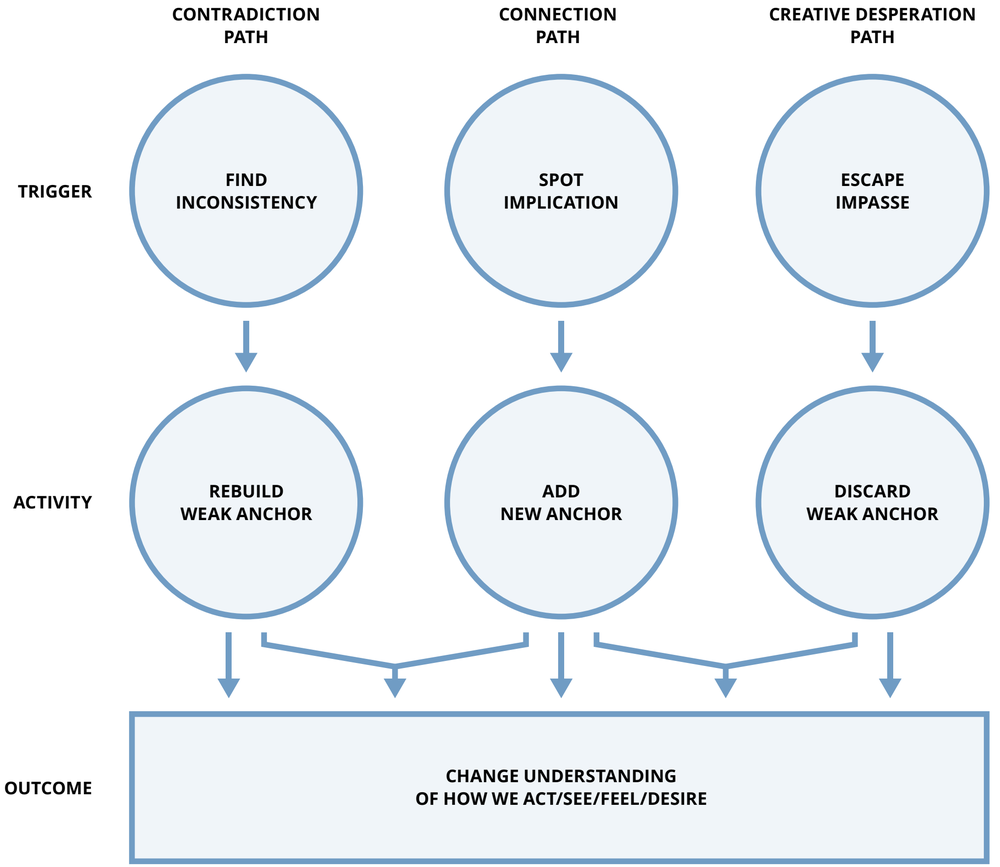

Figure 14. *The Triple Path Model Framework*

Note. Adapted from *Triple Path Model* [Diagram], by Klein, 2013. Copyright Klein.

cleaner (Dyson, 2023). As Klein (2013) notes, insights can use multiple paths.

2.5 Summary

The co-design tool is an excellent way to engage non-designers in a design activity while discussing their motivations and needs. The literature explains both the openness and structure needed to benefit best from co-design.

As the literature shows, business modeling tools are highly developed and discussed but are perhaps most useful for analysis because of their complexity or focus. They favor a sense of direction and connectedness between their parts but one can start from anywhere.

Design processes work forward in steps from fixed briefs as a starting point but then stress exploration and iteration; exploration will somehow lead to ideation and the steps are not simply steps even if presented that way. However, these frameworks were created by designers who may find ideation a more natural result of such exploration.

The theme of play appears in both design and business literature: McDonald and Eisenhardt (2020) have compared business innovation to play and Vaajakallio and Mattelmäki (2014) explain how "design games" have become popular and how co-design tools can provide structure to this way of harnessing a non-designer's creativity. This can perhaps be summed up as a following simple rules for structure, with an open mindset.

The design processes' steps seem useful for remembering and communicating their frameworks. They do not include as many steps or parts as the business modeling tool frameworks, which may be attempting to be more comprehensive. Where the business modeling tool frameworks seek to create matches among its disparate parts, the design process frameworks have a clear direction towards a goal.

The author's own design process (Figure 15, bottom) bridges briefs and solutions with ideas iteratively until a final solution is agreed upon.

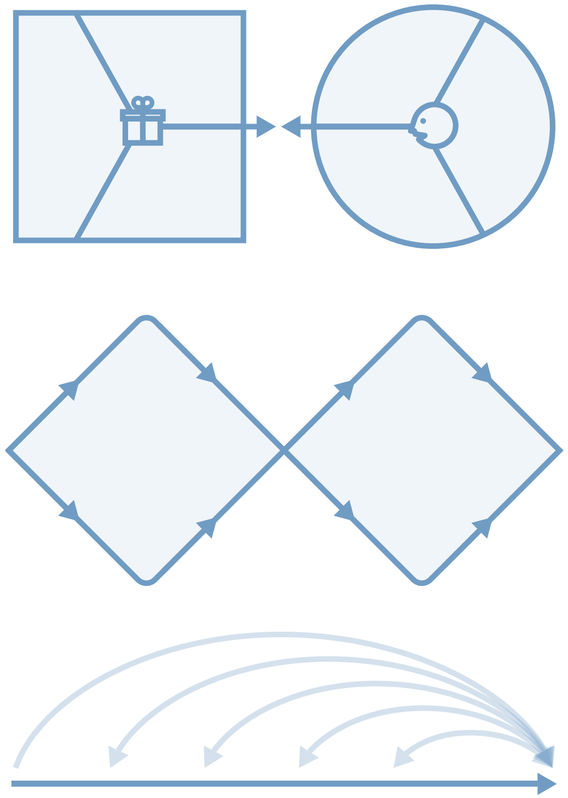

Figure 15. *Comparison of the Value Proposition Canvas, The Double Diamond and the Author's Own Design Process*

Note. Adapted from the evolved *Double Diamond* [Diagram], by Design Council, 2019 (top) and from *The Value Proposition Canvas* [Diagram], by Osterwalder et al., 2014. The *Double Diamond* copyright Design Council and *The Value Proposition Canvas* copyright Strategyzer.

3 Research Methods

This section presents the research methods used in this thesis and how, when and where they occurred and applied as well as who participated.

Research for this thesis can be divided into three parts: research for the design of the co-design activities (especially the co-design tool), the co-design activities themselves and analysis of the co-designed artifacts. A rough timeline of all research activities – which took place in June 2022 and from September 2022 to April 2023 – is presented in Figure 16.

Specific details regarding the interviews, action research (participation in Aalto Digital Creatives pre-incubator and its related activities) and co-design activities shown in Figure 16 is included in their respective subsections.

For the analysis, which began before the co-design activities were over, of the co-designed artifacts (including comments about them from notes and video), the author used affinity diagramming. This is further explained at the end of this section and in section four.

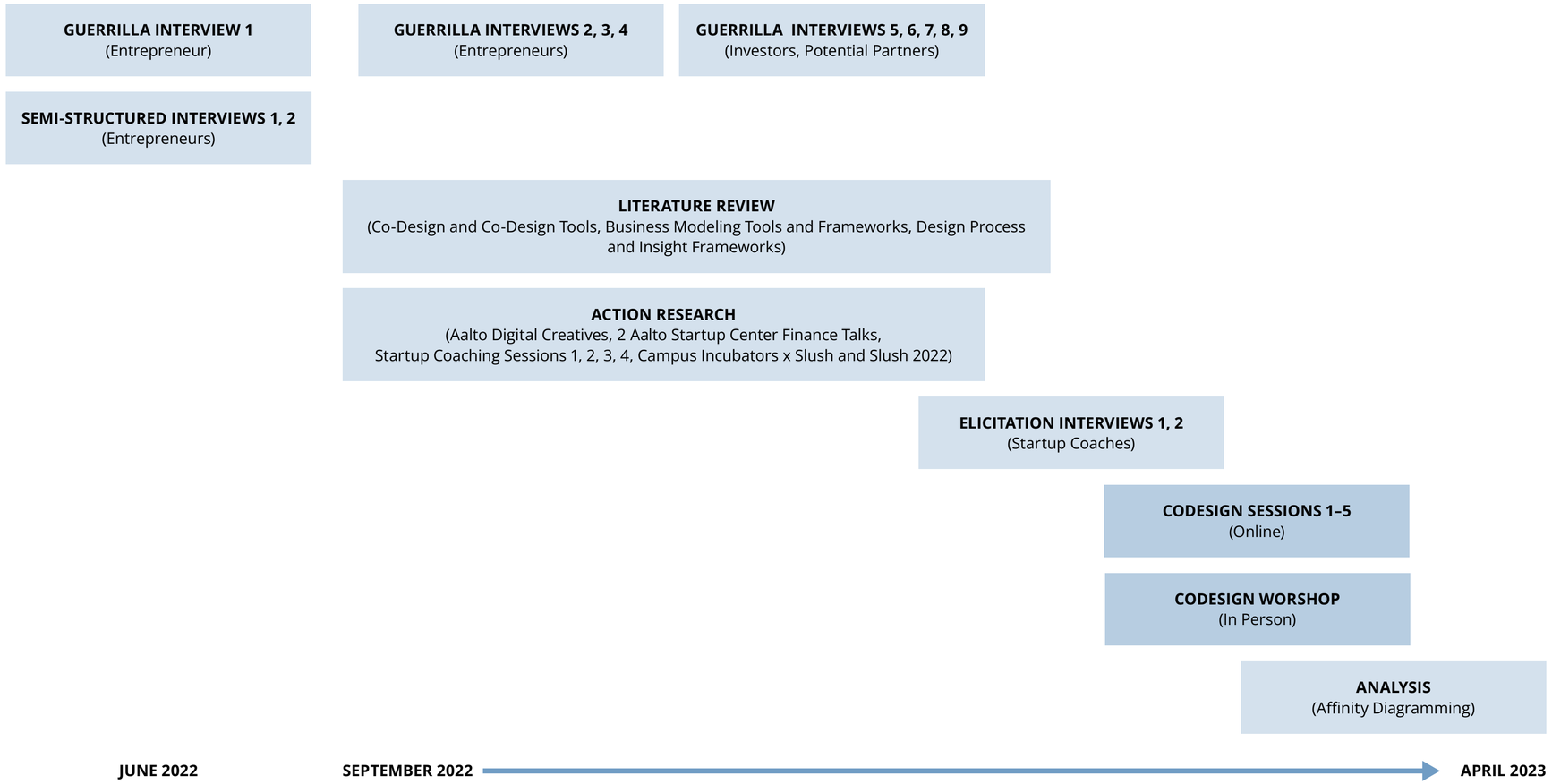

Figure 16. *Research Methods Timeline*

Note. The methods are shown here roughly arranged along a timeline with some research activities occurring within the same time frame. However, some overlaps are exaggerated for legibility.

Research participants are outlined in Table 1. Participants in the interviews (with the exception of guerrilla interviews occurring during the action research) and co-design activities gave oral consent for their participation to be included in this thesis on condition of their anonymity.

To preserve this anonymity, participants were asked to ensure that neither confidential nor personal information was discussed nor included in their co-designed startup ideation tools. Furthermore, participants are not identified by their nationality nor specific location and, regarding the co-design activities, are not identified as entrepreneurs nor startup coaches in relation to individual sessions or the workshop.

3.1 Interviews

Cachia and Millward (2011) explain that interviews can be unstructured, semi-structured or structured, noting the limitations and benefits of each, from qualitative richness to quantitative comparability. As a flexible method between between the latter extremes, Kallio et al. (2016) note the popularity of the semi-structured interview for the collection of data. Interview methods were otherwise chosen based on the interviewees' availability and location, online and in person. Cossu and Fleming (2022) describe guerrilla interviews as approaching potential interview subjects in relevant surroundings (without prior notification) and interviewing them in a structured or unstructured way.

Overall, potential interviewees were chosen based on their perceived knowledge and availability, many being co-participants in Aalto Digital Creatives and its related activities.

3.1.1 Guerrilla Interviews

Nine guerrilla interviews took place, the first in June 2022 with an entrepreneur, to compliment planned semi-structured interviews to discuss startup ideation tools. Interviews two, three and four with entrepreneurs took place between October 2022 and November 2022 during action research participation in startup pre-incubator activities. Interviews five through nine, occurred at Slush 2022 in November 2022 with startup investors and potential partners, also as part of the startup pre-incubator activities. The interviews lasted approximately

RESEARCH ACTIVITY	PARTICIPIANTS	LOCATION
Guerrilla Interview 1	Entrepreneur	Southern Finland
Guerrilla Interviews 2, 3, 4 (As Part of Action Research)	Entrepreneurs	Southern Finland, Aalto University
Guerrilla Interviews 5, 6, 7, 8, 9 (As part of Action Research)	Investors and Potential Partners	Southern Finland, Slush 2022
Semi-Structured Interviews 1, 2	Entrepreneurs	Southern Finland, Video Calls
Coaching Sessions 1, 2 (As part of Action Research)	Startup Coaches	Southern Finland, Aalto University
Coaching Sessions 3, 4 (As Part of Action Research)	Startup Coaches	Southern Finland, Aalto University
Action Research	Entrepreneurs and Startup Coaches	Southern Finland, Aalto University
Elicitation Interviews 1, 2	Startup Coaches	Southern Finland, Video Calls
Co-Design Sessions and Workshop	Entrepreneurs and Startup Coaches	Southern Finland, Video Calls and In Person

Table 1. *Research Participants*

Note. Detail is minimal for the sake of anonymity. Although they all shared an interest in startup businesses, they had varied backgrounds and focus areas within the startup community.

10–20 minutes. Key and relevant points of the interviews were later noted down from memory in the author's thesis notes, co-design tool notes (see Appendix for partial notes) or by later modifying a pre-incubator artifact.

During the first interview, the interviewee was asked, "What business modeling tools have you used?" This was followed up with, "How?" and questions seeking more information about the situation in which they were used.

The next three guerrilla interviews occurred during short breaks while participating in the startup pre-incubator. The author's own startup idea – prepared for participation in the Aalto Digital Creatives startup pre-incubator – was briefly explained and then the interviewee was asked if the explanation was clear and concise enough. Each interview explained the startup idea slightly differently, developed from feedback during the previous guerrilla interviews and startup pre-incubator coaching. The interviewees were entrepreneur participants in the startup pre-incubator.

The last five guerrilla interviews occurred at Slush (as part of the pre-incubator participation), three while showing the author's startup idea "one-pager," a document which attempts to explain a complete startup idea and opportunity on one page (Figure 17, bottom right). The interviewees were potential investors and potential partners in the author's startup idea. Interviewees were briefly told the author's startup idea and then asked, "What do you think of the way this one-pager explains the startup idea if I am looking for investment?" or gauged for their reaction to the startup idea as a potential opportunity, if the one-pager was not shown. Spontaneous questions developed based on the interviewees' reactions and own questions.

3.1.2 Semi-Structured Interviews

Two entrepreneurs were interviewed in June 2022 on video calls lasting about one hour.

The starting question set (or outline) for the semi-structured interviews was as follows:

1. How do you get a startup idea?

2. Do you use any tools?

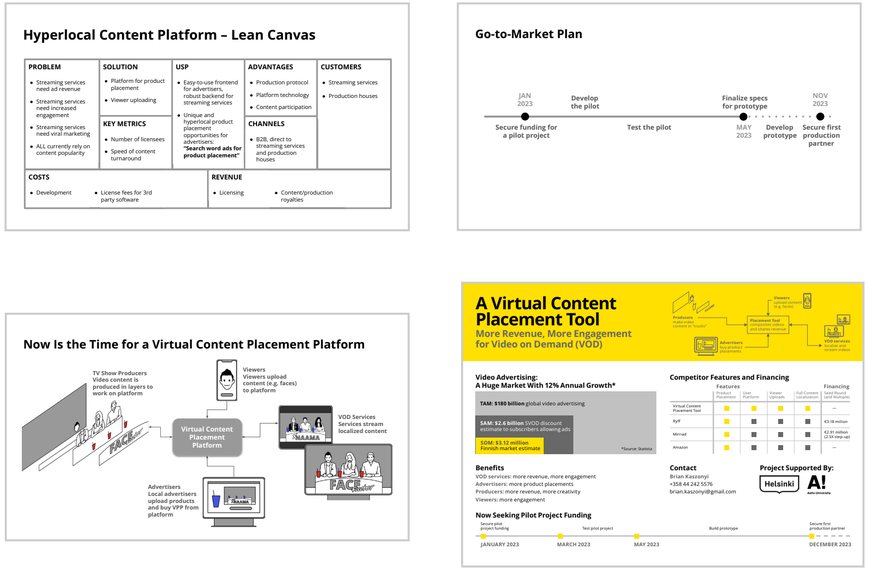

Figure 17. *Artifacts Created for the Startup Pre-Incubator (Action Research)*

Note. This is a much abbreviated selection of the artifacts created for the Aalto Digital Creatives pre-incubator. They are, from top left: a *Lean Canvas* exercise, a go-to-market plan and startup concept pages from a pitch deck and a one-pager that briefly attempts to bring all of the pitch deck's information together onto one concise page. One may zoom in on the image for more detail.

3. Are there any stages?

4. How do you communicate the idea?

5. Is the business idea “spark” missing from current tools?

One semi-structured interview was recorded (see Appendix for a partial transcript) and notes were taken for the other.

3.1.3. Elicitation Interviews

Two elicitation interviews with startup coaches for the co-design tool were made while looking at the two early versions of the co-design tool in PDF format. The interviews occurred during January 2023 and lasted about one hour. Notes were taken during each interview.

The first version of the co-design tool (Figure 18) was revised in response to comments from the first interview and then used for the second interview (Figure 19). Both PDFs were emailed to the startup coaches beforehand.

During the interviews, the startup coaches were first asked to explain their understand-

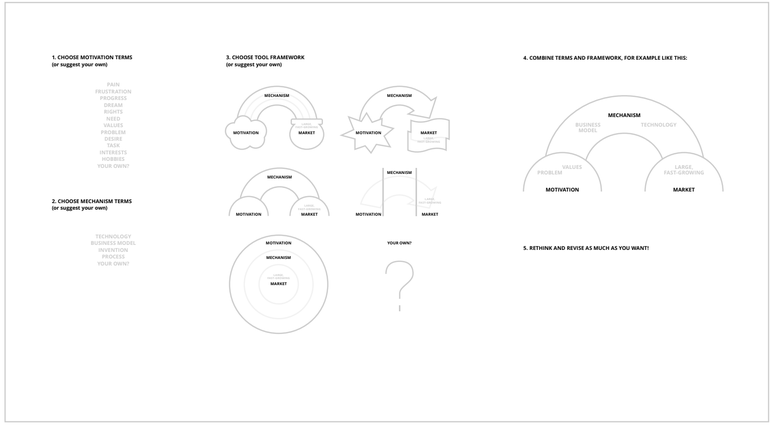

Figure 18. *PDF of the Co-Design Tool Prototype*

Note. One may zoom in on the image for more detail.

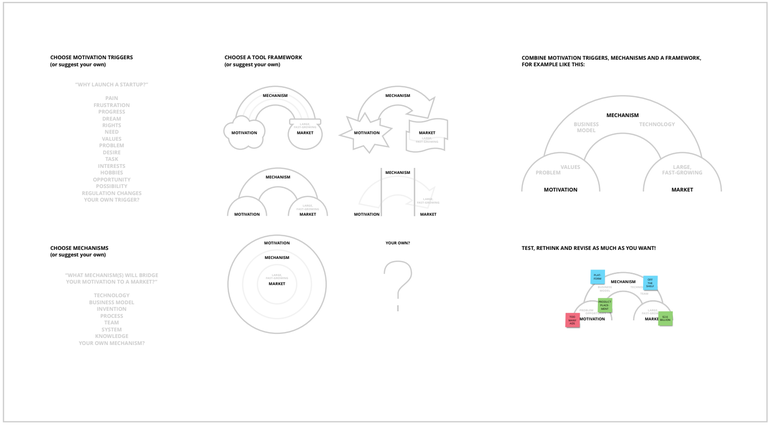

Figure 19. *PDF of the Revised Co-Design Tool Prototype*

Note. One may zoom in on the image for more detail.

ing of the co-design tool and comment on its process as presented in the PDF, after a short explanation of the task that co-design participants would undertake. This was followed by a detailed explanation of the thinking behind each part of the co-design tool for commenting.

3.2 Action Research

Action research in this thesis is defined as what Avison et al. (1999) describe as researchers and practitioners working together in real-life situations in an iterative way. It was undertaken as participation in a startup pre-incubator, Aalto Digital Creatives – a startup activity meant to help develop a startup idea towards the incubator stage where one may already receive funding but not yet launched a product. The action research occurred between September 2022 and December 2022.

As part of the overall pre-incubator activities, other activities included participation in four startup coaching meetings, two Aalto Startup Center finance talks, Campus Incubators x Slush and Slush 2022. Specific activities varied greatly in length, lasting from one hour to an entire day.

The Aalto Digital Creatives pre-incubator was run by Aalto University Startup Center. The Startup Center explains that its "core functionality is to coach pre-startups and early-stage startups to seek out and maximize their own unique potential to grow and scale up" (Aalto University, 2023). The Aalto Digital Creatives program is specifically aimed at creative industries, stating that one needs "to have a background in the creative industries and a business idea you would like to explore further in this program" (Aalto Digital Creatives, 2023).

Schoffelen et al. (2013) note that practicing research and design simultaneously may put making out of focus, that ways of connecting reflecting with making are needed. Yet making can never be completely separated from what a designer thinks or knows (Nimkulrat, 2012). As Gibbs (1988/2013, p. 8) explains

> Traditionally, teachers have seen it as their job to teach learners how to apply theory … this may be to put the cart before the horse, since many, if not most, learners seem to benefit from being able to draw on their experience through opportunities for reflection and concept development, and to reapply to new experience what has become a much clearer understanding…

Vaughan (2017, p. 157) relates that designerly research models create a useful structure and allow for a more objective practice; that they aid in communicating decisions and in creating shared understanding among stakeholders.

Mäkelä and Nimkulrat (2018) note three ways that documentation of experiential knowledge can function: help communicate and share the creative process, illustrate "ways of knowing" and be a research tool in itself by capturing reflections "on and in action." This documentation can take the form of journal writing but also any verbal or visual shape – including the artifacts themselves – relevant to making. Evans (2010) notes that data collected in this way is unique.

Athanasopoulou and De Reuver (2020) describe using action research to study business modeling tools because it allowed prac-

titioners and researchers to test the tools together.

Creating artifacts for the Aalto Digital Creatives pre-incubator (see p. 20, Figure 17) thus functioned as research itself, further defining as well as documenting key parts and terms needed in a successful startup ideation tool.

Coaching Sessions

The coaching sessions were iterative – each artifact created for one was updated for the next session. These artifacts were “pitch decks,” a series of slides that briefly explain a startup idea to create investor interest for funding (note: they are not included due to copyright ownership of images on some of the slides; they were meant for internal use only). Four coaching sessions took place from October 2022 to November 2022, as the pre-incubator progressed.

3.3 Co-Design

Participation in these co-design activities was chronicled through note-taking (see Appendix for partial notes), the co-designed artifacts and, in the case of the workshop, with video to afterwords reflect on and explain how the co-design participants used the co-design tool and the resulting co-designed startup ideation tool frameworks.

There were eight co-design participants, three female and five male, of which five were entrepreneurs and three were startup coaches. None had a background in design. Four of the participants also participated in the earlier guerrilla and semi-structured interviews. Co-design activities with a single participant are called “sessions” and the group session is called a “workshop.” Single participant sessions were necessary due to the difficulty of finding participants and their availability.

The co-design sessions were run online, using a video calls and the collaboration app Miro (Figure 20), from February 2023 to March 2023. Each session lasted for approximately one hour. Although these co-design sessions took place sequentially, sessions were not designed to inform following sessions with the exception that each new session participant could see the previous sessions’ boards. The co-design workshop took place in person, during March

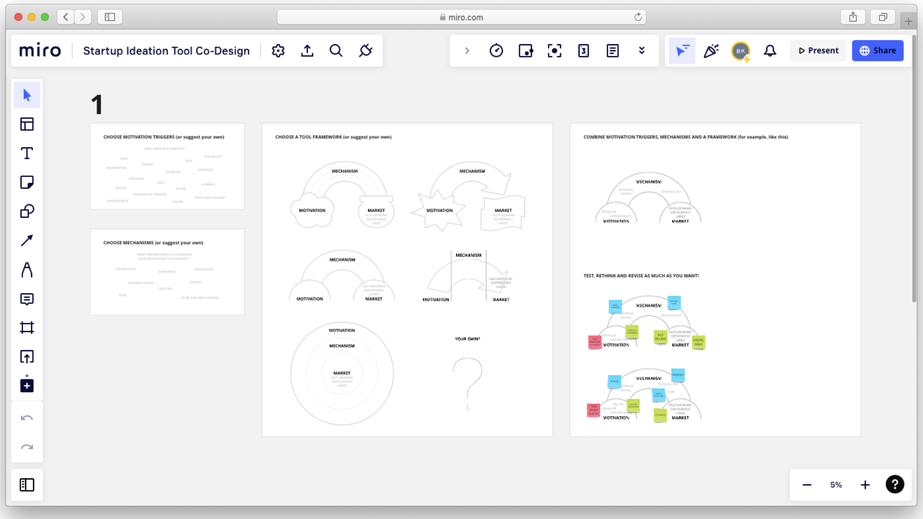

Figure 20. *The Co-Design Tool for Online Collaboration*

Note. Pre-made trigger words and frameworks could be dragged into place. Participants could also add or suggest their own. One may zoom in on the image for more detail. Miro is a trademark of RealtimeBoard, Inc.

2023 and lasted just over one hour.

The author, as facilitator, also participated in the co-design sessions and workshop by asking questions and asking for clarifications and by giving examples when participants seemed blocked from going further. The co-design workshop was recorded on video (see Appendix for a partial transcript) for later analysis due to the difficulty of taking notes while facilitating a workshop with three participants.

With the exception of modifying the ideation tool testing examples after the second session, all co-design sessions and the co-design workshop used the same co-design tool and were run in the same way.

First, the overall task of designing a startup ideation tool together was explained followed by explaining each part of the co-design tool and how they came together to form a possible startup ideation tool.

Choosing the *Motivation* part's trigger words was the first task. Participants were engaged in a discussion as they made their choices (the workshop had less specific discussions about specific choices because of the amount of participants). Next, the *Mechanism* part's terms were chosen; again, with discussion. Then the participant was asked to choose or draw a framework and the words and terms were added to it and the framework choice as well as the co-design tool's underlying three-part framework was discussed.

Participants were encouraged to challenge their choices while they were discussed. When the participant was happy with their startup ideation tool, how it could be used was explained through pre-made examples. While their tool was tested in use (Figure 21), the participant was engaged in a discussion to explain their thinking. The participant's final startup ideation tool was then discussed as well.

Discussion of the participants' final ideation tools was undertaken as a group for the workshop participants, resulting in additional changes to an ideation tool that the group chose as best representing their thinking.

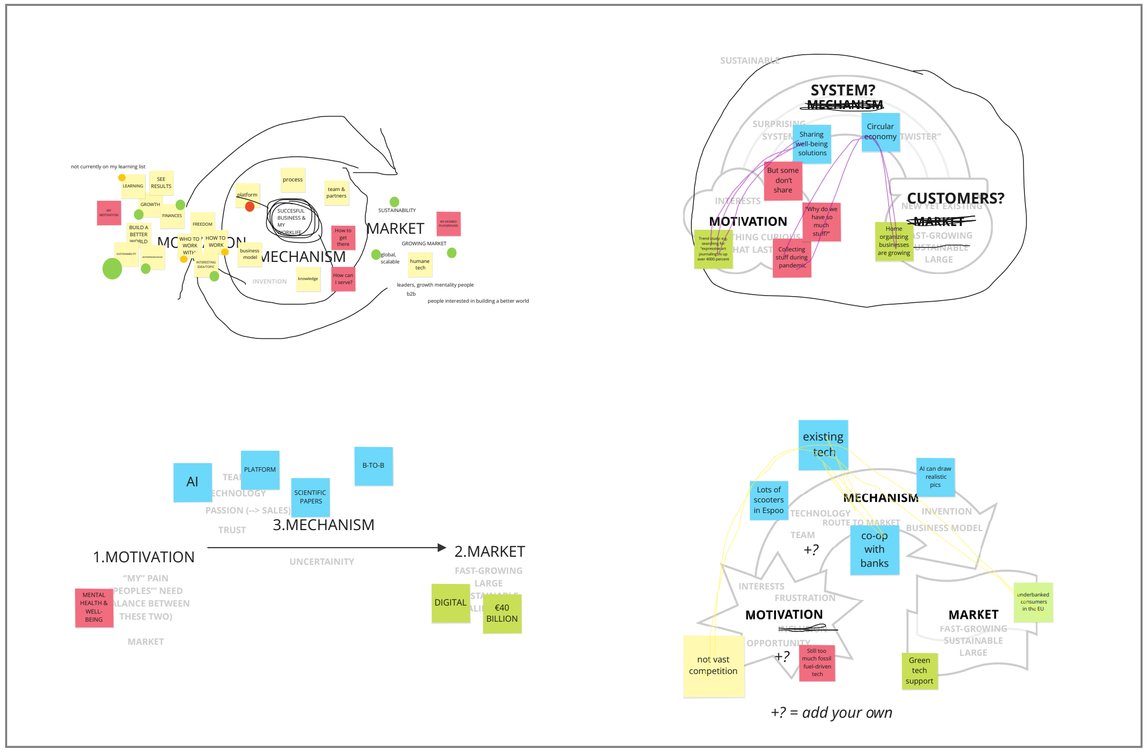

Figure 21. *Co-Design Participants' Startup Ideation Tools Tested with Annotations*

Note. The co-design session involved the participant writing and drawing or telling the facilitator what they wished to write or draw, after which they agreed or asked for modifications. One may zoom in on the image for more detail.

Analysis of Co-Design Artifacts

Sanders (1999) explains that co-design toolkits can range from the emotional to the cognitive, facilitating a broad range of expression. Whether the artifacts are diaries or maps, they come with a story that a facilitator can ask its creator.

Participants in the co-design sessions readily related their reasons for their designs, often described in personal terms or as an expression of an existing business case. Their chosen trigger words and terms directly reflected these reasons, allowing for use in an affinity diagramming exercise to discover common themes and frameworks by clustering them with the co-designed artifacts and other annotations “based on affinity” (Hanington & Martin, 2019).

This affinity diagramming (by the author) occurred over a number of sessions (beginning while the co-design activities were ongoing), between March 2023 and April 2023. The process is explained in detail in section five.

4 Preparing the Co-Design Activities

This section documents and presents the conclusions of the research for the co-design activities and how it was implemented into the design of co-design activities, particularly the co-design tool which forms their core. How participants were found for the co-design activities is also explained.

The three main preparation tasks were to design the co-design activities (specifically the co-design tool), find co-design participants and arrange and organize the activities themselves.

Data obtained from the first semi-structured and guerrilla interviews helped with the understanding of entrepreneurs' business modeling tool usage and what the key terms and parts of a startup ideation tool might be.

Participation as action research in the startup pre-incubator (and related startup activities) added to these key terms and solidified an understanding of the startup ideation tool's possible parts. It also provided further insights into how popular business modeling tools are used and understood by both entrepreneurs and startup coaches.

Interviewees (with the exception of guerrilla interviewees at Slush 2022) and startup coaches were also asked if they might be available for a co-design activity to take place at a further date.

4.1 Business Modeling Tool Usage and Terms

To be useful, the co-design tool would need terms that are understandable and used by entrepreneurs. Background interviews of entrepreneurs (one guerrilla and two semi-structured) served as the first step towards understanding which tools entrepreneurs use and if they use any for ideation. Inquiries were also made about communicating a startup idea, if there are stages to their processes and if ideation is missing from current tools.

The entrepreneurs all expressed the importance of simplicity and clarity and how personality determines which tools are used as well as the importance of teamwork. Comments about not having "patience," one's "attention span" and starting with "values" stood out. All agreed that there is not a tool, to their knowledge, that helps form or "spark" initial ideas.

They explained how their views (and interests) have changed over time. One described starting with a "clean slate" and pondering "the Lego blocks." But, overall, their ideas are directly related to personal experience and interests. A tool (like the *Business Model Canvas*, which is mentioned) is used to analyze an idea.

Working in stages (from inspiration to reaching a market) and with a team was seen as important. Being able to present ideas clearly for feedback is important for the idea's validation. Slides in a "deck" (one mentioned only needing "one slide") are made to get funding.

Terms such as "values" must somehow be included; otherwise potential motivational terms included "interests," "problems," and "freedom."

4.2 Startup Ideation Tool Parts and Terms

Participation in the Aalto Digital Creatives pre-incubator (action research) was undertaken with the aim of gathering more data about

relevant parts of and startup terms for the co-design tool. A secondary aim was to network with entrepreneurs for recruitment to participate in the co-design activities. As explained earlier, the Aalto Digital Creatives program is aimed at those with a background in creative industries to begin developing a business idea; the author hoped to find like-minded designer-entrepreneurs to participate in the co-design activities. In fact, the group that the author participated in (the program takes place twice a year, one during the fall and one during the spring) had few designers.

The author's startup idea application, for the sake of participating in the pre-incubator was a *Localizable Content Management System and Protocol for Streaming Media*. This idea was used as a way to track and document understanding of startup communication needs and the corresponding requirements for a startup ideation tool.

An early task was to prepare a "pitch deck" of the overall idea and a version of the *Lean Canvas* (see p. 9, Figure 6, for its framework) examined in the literature review. The *High-Level Concept* sub-box struck the author as closest to the goal of ideation, suggesting an "X for Y analogy." Maurya (2023) explains this as, for example, YouTube being "Flickr for video." The *Problem* box is presented as a *Problem/need/Opportunity*.

As the pre-incubator program progressed, it was necessary to explain one's startup idea again and again (we were told that helping us refine and perfect our pitch is a goal of the program). It was necessary to simplify an idea (or find its core elements) to state it clearly. Many in the program had problems explaining their startup idea in simple terms. This seemed akin to the ideation process itself: if there was no simple way to explain (or deconstruct) an idea, there was no simple way to ideate a new one.

Most, if not all, of the pre-incubator participants' ideas had come from their personal interests (hobby, study or professional). They believed that their needs and interests might be true for many others. One mentioned designing something then realizing that "this could be a business."

The author's *Localizable Content Management System and Protocol for Streaming Media* was shortened to *Product Placement Platform* to get to the heart of its market potential and simplify explaining the idea and then, based on feedback from guerrilla interviews, it was later revised back towards the original name to *Virtual Content Placement Platform* to expand the communication of its appeal beyond advertisers. An idea was not enough, one needed to explain easily to whom it was aimed. Also, what an idea was was easily confused with how it worked. In the author's case, "platform" was a technical solution to satisfying a need for buying "virtual content placement." The author needed to explain why virtual content needed a platform for placement.

Understanding investment proved to be difficult; everyone found it difficult to quantify potential markets that would be necessary for investors to see a startup as a good investment. It became clear that the goal for a startup must be to serve a (potentially) large, fast-growing (i.e., faster than the general economy) market. All startup ideas must somehow lead to this and be easily explained as leading

to this in order to find funding. One relevant part of a potential startup ideation (and therefore co-design) tool was now clear.

Two pre-incubator participants were invited to attend Slush 2022, a popular annual gathering in Helsinki for startup networking. A startup coach suggested to prepare a “one-pager” (Figure 22) to be able to show the startup idea quickly and send follow-up emails to new contacts gained at the event. From an example given by a startup coach, the information expanded on an easily grasped problem-solution-market structure, followed by the startup’s intellectual property and needs. As explained above, the market must be large (or potentially large) and growing faster than the economy. It seemed that a startup ideation tool therefore could be made up of three parts: a problem, a solution, and (aimed at) a potentially large and fast-growing market. This could be integrated into a co-design tool.

Slush had many talks on startup ideas. One entrepreneur gave a talk specifically on where to get ideas for startups. Partners sitting down to discuss, “What should we do next?” came up often. None of this seemed to go beyond searching for inspiration with one’s experience or previous startup knowledge in mind; one of the three parts described above could be favored above the others for this reason.

During a coaching session, a startup coach mentioned the “build-measure-learn” cycle. This seemed analogous to the problem-solution-market parts of the one-pager, in that it is easy to remember, communicate and visualize (even in one’s mind). One could divide finding an idea into collecting separate ideas for the three problem-solution-market parts; these parts could form the underlying framework of a co-design tool.

However, simply solving problems seemed too narrow. Lists of other motivational terms (“need,” “desire,” “task,” “opportunity,” “pain,” “frustration,” “progress,” “dream” and “rights” as well as “values”) and solution descriptors (“technology,” “business model,” “invention” and “process”) heard through discussions was built up over the course of the pre-incubator. It seemed that the co-design tool would need to allow for terms within the parts of the tool.

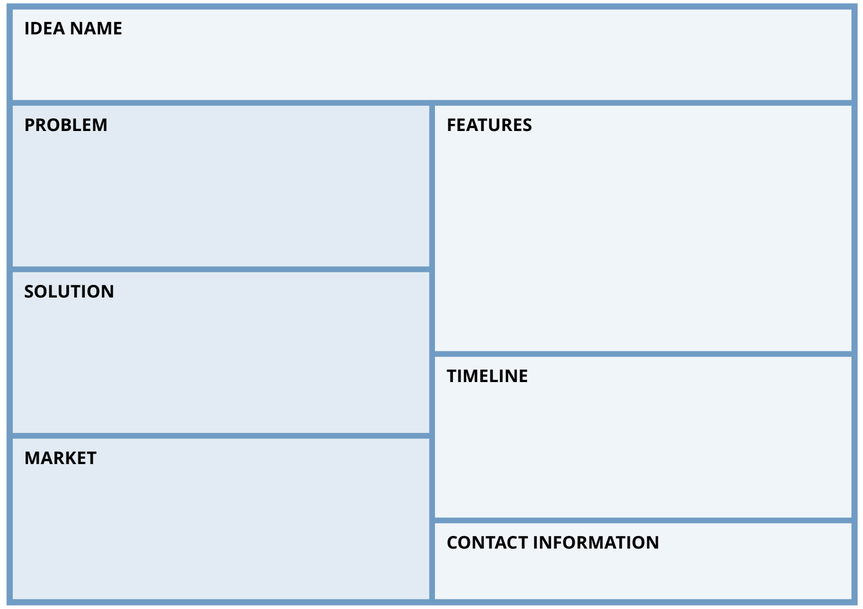

Figure 22. *Framework of a One-Pager Used to Communicate a Startup Idea Concisely*

Note. The *Problem*, *Solution* and *Market* boxes form a startup idea’s most concise explanation.

4.3 The Co-Design Tool

Problem-solution-market formed a clear three-part underlying framework for the co-design tool. Inspired by the Design Council's (2019) alliteration of *Discover*, *Define*, *Develop* and *Deliver* use in the *Double Diamond*, the three parts became *Motivation*, *Mechanism* and *Market* to make the framework memorable and broad enough to include motivations besides problems, and solutions ranging from business models to technology (Figure 23). Design processes also inspired the co-design tool's simple, step-by-step, left-to-right framework.

Previously researched motivational terms, or "trigger words" to inspire motivation, could be chosen or added to by the participant. Previously researched solution descriptor terms bridging the need and market – in a designerly way – could be applied similarly. The terms "large" and "fast-growing" were already validated as essential market attributes.

The co-design process would then be to choose motivation triggers (or add one's own), choose mechanism terms (or add one's own), choose a framework (or sketch one's own) and

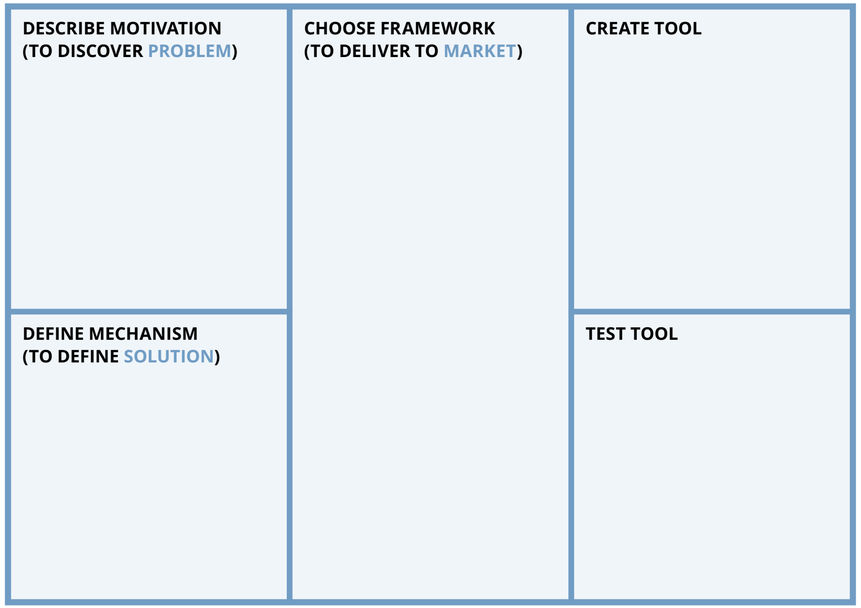

Figure 23. *Framework of the Co-Design Tool*

Note. Finding the *Problem*, *Solution* and *Market* parts of a startup idea are arranged as tasks to create a startup ideation tool that *discovers* a problem, *defines* a solution and *delivers* (or connects) it to the market. The ideation tool is *developed* (or created) by co-design participants by combining the three parts. The ideation tool can then be *tested*. This overall process is similar to the design processes described in the literature review.

create an ideation tool from those parts. The process could be repeated or revised and discussed as much as the participant wished. Predrawn frameworks included business modeling tool conventions such as concentric circles and neutral graphics, a literal bridge for the *Mechanism* part as well as visual icon-like metaphors common to both design process and business modeling tool frameworks.

Elicitation Interviews

Two elicitation interviews took place with startup coaches first looking at independently, then discussing a PDF of the co-design tool prototype (a PDF of the revised co-design tool prototype for the second interview; see p. 21, Figures 18 and 19).

It was necessary to explain its co-design context and process immediately during the first interview, though the coach was very familiar with business modeling tools. The coach did not understand how *Motivation* (as a title) could be understood as the "why" for starting a business but then agreed when it was explained as an umbrella term for many different reasons to launch a startup.

The coach suggested that the *Market part* could be a motivation but it was agreed that "making money" would be actual the motivation if it is a financial market. This led to an affirmation of the market's importance in a startup, "Why waste resources if there isn't a market?" the coach said.

A suggestion was made to be able to use the co-design tool from anywhere, rather than in a step-by-step, left-to-right fashion (the numbering – the prototype's parts were numbered – suggested that it *must* be co-designed in a particular order). It was now clear that both less and more information would be needed to explain how to co-design with the co-design tool.

More terms were suggested for the *Motivation* part: "opportunity," "possibility" and "regulation changes"; for the *Mechanism* part: "knowledge-intensive," "people" and "systems." The co-design tool was revised following the interview.

The elicitation interview with a second startup coach required less initial explanation (the coach asked if the tool was meant to be used like the *Lean Canvas*).

The coach liked the underlying three-part, bridged framework, especially the cloud-rainbow-pot of gold version, mentioning having explained a startup as two hills united by a road or path. The concept of bridging two parts was readily accepted.

The coach believed that the concentric circles type of framework was overused because the three market dimensions – total available market (TAM), serviceable available market (SAM) and serviceable obtainable market (SOM) – use concentric circles to visualize their difference in size.

The coach suggested adding "impact" (meaning sustainability) to the *Market* part of the framework – regulations were requiring investors to consider this.

Other suggestions included adding the UN's Sustainable Development Goals (these, the coach described as the basis for sustainability), typical business models with matching met-

rics and a roadmap to help guide questions. Another visual metaphor suggestion was for the parts to be pieces of a three-part puzzle.

Based on this data, the co-design tool was revised once again, adding “sustainability” to the *Market* part of the framework and a headline explaining the co-design task (Figure 24).

4.4 Arranging the Co-Design Activities

As explained above, interview participants (and a few other contacts not interviewed) made during the action research’s pre-incubator activities were already asked to participate in co-designing a startup ideation tool for this thesis at some point in the future.

The entrepreneur contacts were sent an email (see Appendix) that included the PDF in Figure 24, inviting them to participate in an online co-design session. A notice was also posted on an entrepreneur community channel by an entrepreneur on the author’s behalf (see Appendix). The startup coaches’ participation was agreed in person and they were also sent the same PDF in a follow-up email.

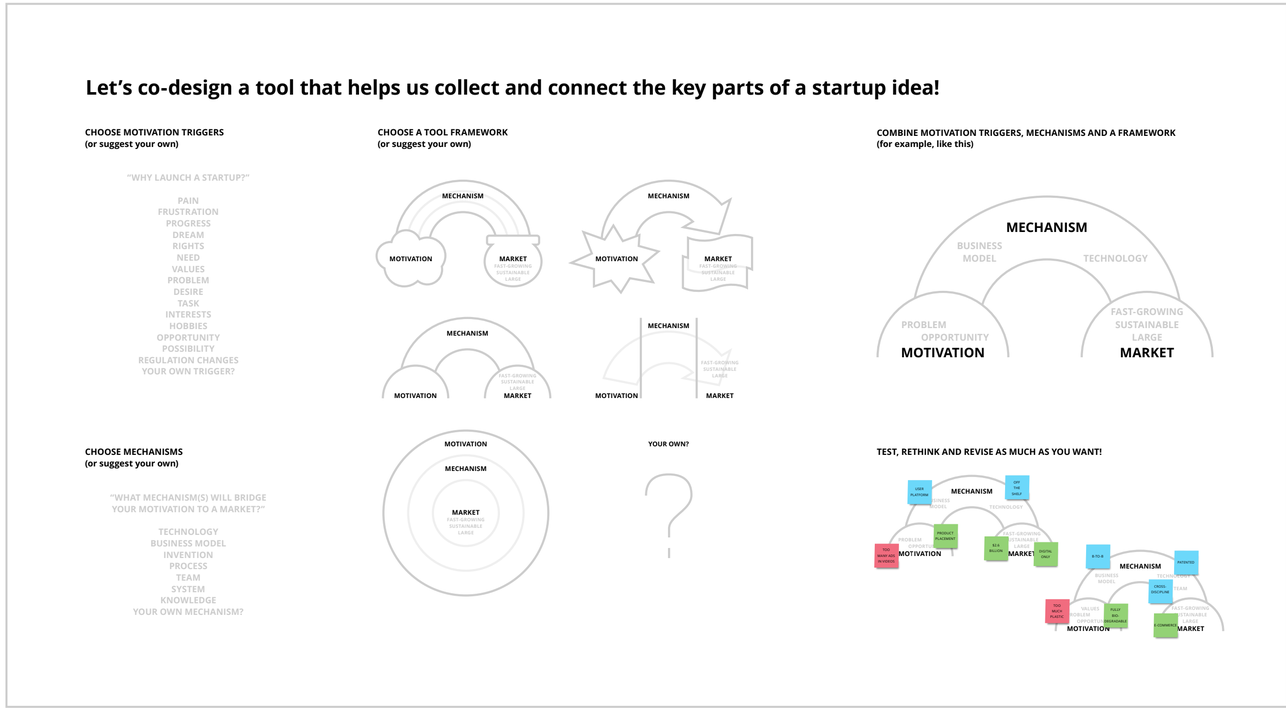

Figure 24. *The Co-Design Tool PDF Preview*

Note. This PDF was included in the co-design session invitations. One may zoom in on the image for more detail.

5 The Co-Design Sessions and Workshop

This section chronicles the co-design activities, presents their results and explains the affinity diagramming of the activities' data. More details about the co-design activities are provided in the *Research Methods* section above.

5.1 The Co-Design Sessions

As the co-design sessions were held one-on-one through video calls, using the Miro app for co-design collaboration, they are chronicled here from the author's notes (see Appendix for a partial notes example) and PDFs of the collaboration boards exported from the app (presented in each subsection). The participants' final designs are in the lower right corner of the PDFs.

The co-design session participants were critical of the trigger words but readily accepted the underlying three-part framework of the co-design tool. An illustrative (i.e., cloud-rainbow-pot of gold) framework approach was most preferred, especially after reflection and testing of their own versions of the startup ideation tool, which often resulted in a change of heart towards visual metaphors.

Overall, the co-design tool suggestions were not seen as obstacles in reflecting on other possibilities – they triggered ideas and reflections, for example on the need for "direction," and how the three parts should be arranged.

5.1.1 Co-Design Session 1

Self-described as the type of person who does not follow instructions, the first participant had no trouble seeing the co-design tool as just a starting point. "Motivation triggers" were explained as the first priority but the participant mentioned having already thought of an underlying triangle-shaped framework. Co-design session one's collaboration board is presented in Figure 25.

Rather than copy-paste (or rewrite) the existing motivation triggers, the participant used the app's digital sticky notes to make a list under the suggested triggers. The *Mechanism* part of the co-design tool framework was difficult to understand, as expressed by the statement, "I don't know what the *Mechanism* means." This part required the most explanation and discussion. Clearer examples of existing businesses would have helped.

"I would need to think about the market first."

– Co-design participant reflecting on dissatisfaction with the market trigger words

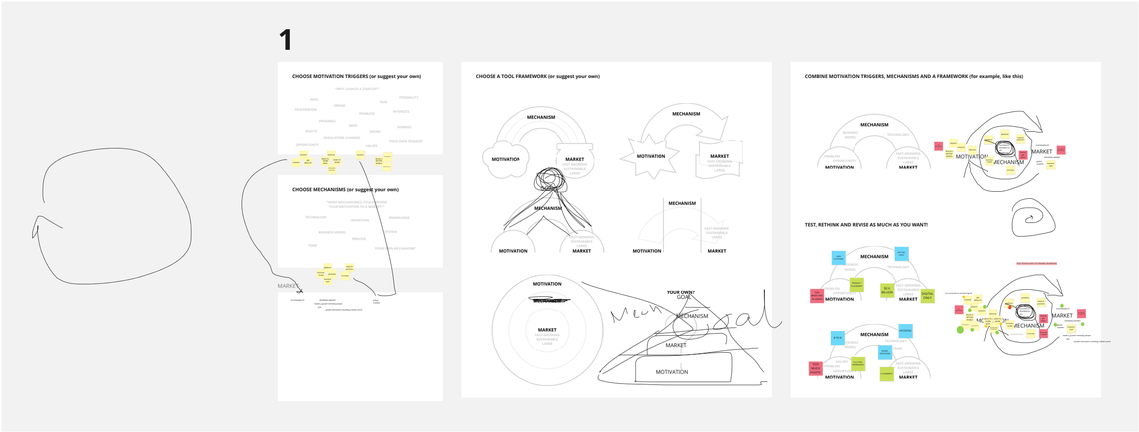

Figure 25. *Collaboration Board from Co-Design Session 1*

Note. This participant most radically rethought the underlying framework, keeping the three-part underlying framework, however. As occurred to some degree in all sessions, a strong link (or confusion) between *Motivation* and *Market* was noted. The final co-design is on the lower right side of the board. One may zoom in on the image for more detail.

The *Market* part's trigger words were challenged – the participant created a board specifically for thinking through market descriptor words. Jumping back and forth among the parts, the participant also began to see a deeper connection between *Motivation* and *Market*, stating that they come "from me" whereas the *Mechanism* could have levels; and perhaps the ultimate goal of a "successful business" should be somewhere between *Motivation* and *Market*.

The *Motivation* part's list of trigger words was long: "learning," "growth," "freedom," "finances," "sustainability" and "entrepreneurship" as well as longer phrases: "see results," "who to work with," "interesting idea/topic," "how to work" and "build a better world." The *Mechanism* terms were: "business model," "process and knowledge" from the existing terms and the participant's own: "platform," "humane tech" and "team & partners." For *Market*, the participant affirmed "sustainability" and "fast growing market" but added "global," "scalable," "B2B," "leaders" and the phrases: "growth-mentality people" and "people interested in building a better world."

The words, phrases and terms were all applied to the participant's framework. When tested, each of them was assigned a colored dot whose color and size indicated (or would indicate) its priority in analyzing an idea.

The rainbow arch-shaped bridge between *Motivation* and *Market* was not seen as appropriate; a spiral was suggested as a way to express the relationship between them (see Figure 26). Having some sort of framework was suggested for the *Mechanism* part, such as "must-win battles."

Reflecting on *Motivation* also led the participant to consider, "What motivates you in *Mechanism*?" In some way, the participant was reconsidering *Mechanism* as being an appropriate bridge between *Motivation* and *Market* and saw the co-design tool's underlying three parts as appropriate. The participant stated that, "This tool helps me clarify the bigger reasons," and that it also helps to note what is missing in potential ideas.

When testing the new tool, the participant's own methods were incorporated. For example,

"This tool helps me clarify the bigger reasons."

– Co-design participant reflecting how the tool's three-part framework brings more clarity than list-making

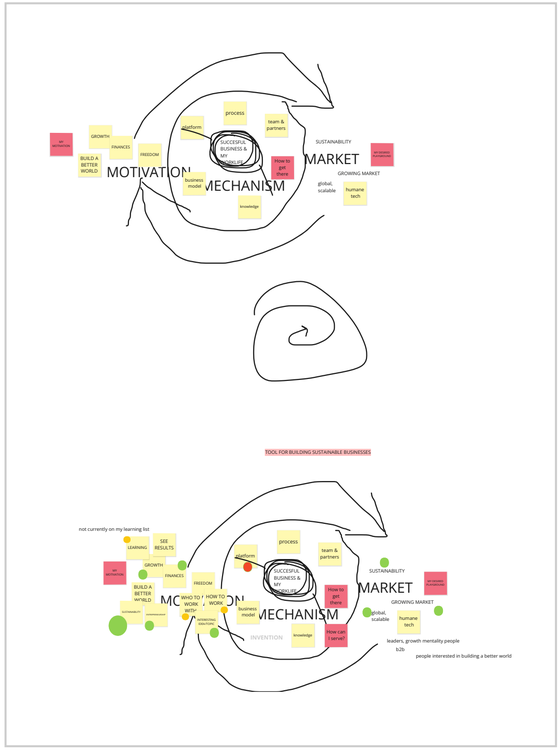

Figure 26. *Detail of Collaboration from Co-Design Session One Note.* One may zoom in on the image for more detail.

color-coding priorities (which the participant uses when making lists) and adding notes to trigger words. Values-vision-mission was mentioned as a framework for the participant.

The participant also suggested that a startup ideation tool could be a *sustainable* startup ideation tool, that such a tool would be the most useful, judging from the participant's own experience. The "sustainable business doughnut" (a diagram called *Doughnut*; Kate Raworth, 2018, p. 38) was suggested as a reference.

5.1.2 Co-Design Session 2

The participant requested an explanation of the task in spite of having reviewed the preview PDF sent with the co-design invitation; the co-design tool was not obvious. As someone with expert knowledge, the participant then analyzed the underlying three-part framework of the co-design tool during the author's explanation, suggesting that visualization varies from person to person (when asked to visualize time, for example, which is also affected by one's experience and training) and that studies show that one has to have motivation and then a goal. In this participant's view, this meant a straight line from the *Motivation* part to the *Market* part. Co-design session two's collaboration board is presented in Figure 27.

From the *Motivation* part's trigger word suggestions, the participant chose "pain" and "need" but elaborated on them as "my pain" and "people's market" and that the overall motivation would be a balance between these two. Similarly to the participant in session one, the participant wanted to establish the market as part of the motivation. There was a desire to form a stronger link between the *Motivation* and *Market* parts, the participant going so far as to suggest that first knowing the market conditions would affect their motivation.

However, further reflection started to awake the sense in the *Mechanism* part being a bridge between the two and analysis of the *Mechanism* trigger words began. For example, "technology" was seen as a team activity because of its complexity, expressed as, "You can't make anything without the team."

For the *Mechanism* part, the terms "team," "technology" and "trust" were chosen. The par-

"You can't make anything without the team."

– Co-design participant reflecting how technology is made by a team

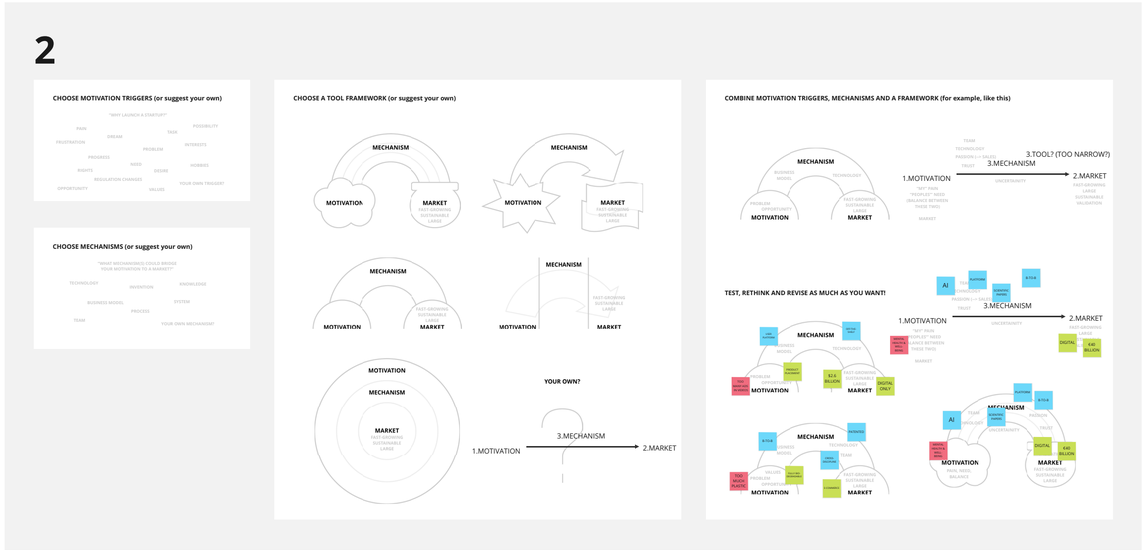

Figure 27. *Collaboration Board from Co-Design Session 2*

Note. This participant emphasized the need of direction towards a goal strongly. However, testing brought interest in the rainbow visual metaphor. The final co-design is on the lower right side of the board. One may zoom in on the image for more detail.

ticipant added “passion,” which was described as necessary for sales. Renaming this part as “*Tool*” was suggested as somehow noting the uncertainty of its success. “Validation” was added to the *Market* part of the tool.

Further reflection on the tool as a whole, led to choosing the cloud-rainbow-pot of gold visualization because “we’ve seen it as kids” and it triggers good feelings. However, the participant noted that, “Except [for] colors, I don’t think the design is important”; such a visualization in a tool would be most useful if pre-drawn.

Near the end of the session, the participant was shown the Posti logo example (see p. 5, Figure 2) of how a bridging idea was needed to complete the design. This sparked a new understanding of the visualizations and the participant noted how comedy works in a similar way – often by bridging seemingly unrelated things – which resulted in a stronger appreciation of the previously selected rainbow-type bridge for the *Mechanism* part.

5.1.3 Co-Design Session 3

The first two co-design sessions made it clear that a better usage example was needed to understand the co-design tool’s underlying structure and purpose for testing. A ridesharing service (from the perspective of 2009) was visualized on the co-design tool. An example was also made of using the tool for collecting parts before any connections are made. This addition and co-design participant three’s collaboration board is presented in Figure 28.

Of the *Motivation* part’s suggested trigger words, only “interests” was chosen. The participant added “something curious,” which was explained as something lasting in provoking this curiosity. From the suggestions for *Mechanism*, only “system” was chosen with the caveat of adding “surprising” as a descriptor word. “Twister” was also added to *Mechanism*, suggesting its inherent chaos. For the *Market* part, “sustainable” was moved out to apply to the framework as a whole. The concept of “new yet existing” was added.

While testing, the participant considered if changing the *Mechanism* part’s name to “*System*” and the *Market* part’s to “*Customers*” would better aid understanding.

“I can put there my ideas then and get back to it tomorrow.”

– Co-design participant reflecting on using the startup ideation tool

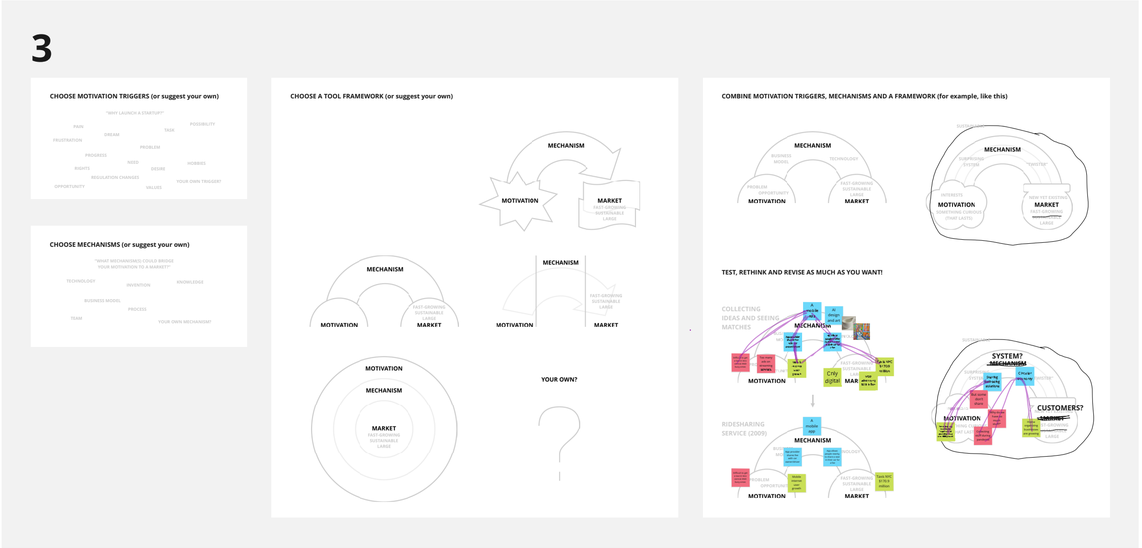

Figure 28. *Collaboration Board from Co-Design Session 3*

Note. This participant chose the rainbow visual metaphor but suggested rethinking the names of the three-part underlying framework. The final co-design is on the lower right side of the board. Example images copyright Brian Kaszonyi. One may zoom in on the image for more detail.

The participant saw difficulty in bridging a market and the participant's personal motivation, suggesting that "greedy stereotype founders more easily align with the *Market* [idea]." Sustainability cases seemed harder to bridge – it should encompass the whole tool. Timing was also missing from the co-design tool, according to the participant. Motivational triggers are something that one encounters and "haunts" you; mechanisms can have "an element of surprise and mysticism"; tools that make things simple give the impression that things in life can work simply but that is not the case, explained the participant.

Taking a personal view of the tool's use, "You may get ideas that are good for other people but not for you," was suggested. As the participant's own version was tested, the comments turned more positive. The participant saw the possibility to start ideating from any one of the three parts. Calling it an "idea collage," the participant said that it is useful for ideating then returning to the ideas later and that, "I got something from [going through] my own ideas." However, a printed version would be necessary, according to this participant.

5.1.4 Co-Design Session 4

The participant in session four was impressed that the co-design tool's underlying framework was designed for the co-design sessions and workshop and found the three-part structure and visualizations better than concentric circles, saying, "The idea of the rainbow is funny, it's kind of cute," but that the "blast" (meaning the "idea spark" visualization) is more in line with business thinking. With the arrow-type visualizations, the participant noted that the parts are differentiated and that there is *direction*. Co-design session four's collaboration board is presented in Figure 29.

The *Motivation* part's trigger words were thought through extensively. The motivation behind making money and the meaning behind sustainability was discussed as a sustainable business can mean a business that makes enough money to operate. "Frustration," "opportunity" and "interests" were chosen.

A frustration was noted as a personal type of problem, exemplified by needing a car or ordering food. The participant described an

"Each person or team would have to choose their own motivation."

– Co-design participant reflecting on need for customization of the startup ideation tool

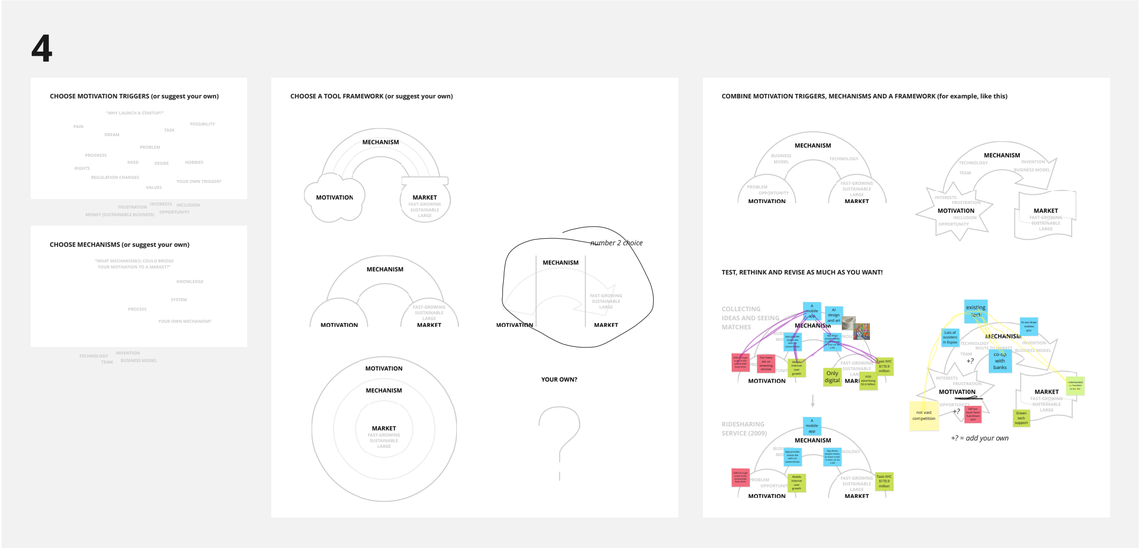

Figure 29. *Collaboration Board from Co-Design Session 4*

Note. This participant emphasized a preference for the direction provided by the *Mechanism* part's arrow graphic and customization. The final co-design is on the lower right side of the board. One may zoom in on the image for more detail.

opportunity as making a better wheel, noting that, “You don’t have to design a wheel again, just make a better one.”

Existing business examples helped the participant to consider the motivational trigger words. However, it was later noted that “each person or team would have to choose their own motivation.” “Inclusion” (meaning inclusivity, or the need to include everyone) and ”money” (as in needed for a sustainable – or able to operate – business) were considered and reconsidered but eventually abandoned. “*Competition*” was suggested for the *Market* part but also abandoned.

Overall, the participant found the three-part tool useful for a team as well and for noting and collecting ideas, starting from any part of the framework.

5.1.5 Co-Design Session 5

This participant needed an explanation of the task and co-design framework to start co-designing but grasped them easily. The participant was unfamiliar, however, with the online collaboration board (which also functioned differently with a mouse than a trackpad) and the author needed to perform the participant’s desired actions. Co-design session five’s collaboration board is presented in Figure 30.

When discussing the *Motivation* part, the participant stated, “I’ll start with my motivations,” before considering trigger words such as “need.” The motivation behind being an entrepreneur was expressed – an unwieldy trigger phrase, “no regrets/trying something/challenge oneself,” was added. The participant expressed difficulty in narrowing this motivation further at this point. Yet the customer’s point of view was also deeply considered; “challenges” was added as a trigger word that was distinct from the participant’s own self-challenges. “Frustration” was seen as relating to feeling out of control; choosing which technology to use is about choosing how to engage with it. Also, it is important to understand how customers see and feel about benefits according to the participant. From the list of suggestions, the participant chose “interests,” “progress” and ”frustration” as trigger words.

From the list of the *Mechanism* part’s terms,

“I’ll start with my motivations.”

– Co-design participant reflecting on the starting point for the *Motivation* part of the startup ideation tool

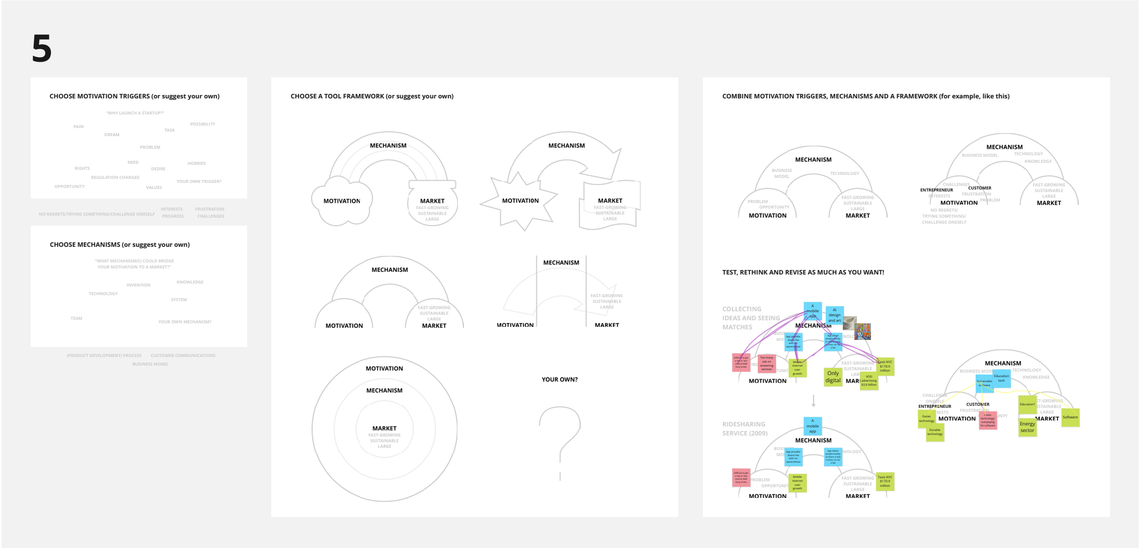

Figure 30. *Collaboration Board from Co-Design Session 5*

Note. This participant split the *Motivation* part into two parts: one for the entrepreneur and one for the customer. The final co-design is on the lower right side of the board. One may zoom in on the image for more detail.

"process" (as product development) and "business model" were chosen. "Customer communications" was added. "Technology" was considered but not added.

The geometric hill-bridge-hill framework was chosen immediately – the participant did not like the "idea spark" (calling it a "bang") but was also not interested in the more traditional concentric circles framework. The trigger words and mechanism terms were added to this framework ("fast-growing," "sustainable" and "large" were readily accepted for the *Market* part).

"Technology" was reconsidered and combined with "knowledge," which was also added. "Process" and "customer communications" were dropped. The participant continued considering this difference between an entrepreneur's motivation and a customer's, relating that, "You can do a great business out of a thing that you don't have a great motivation to change the world." This led to splitting the *Motivation* part in two, an *Entrepreneur* half and a *Customer* half. "Challenges" could overlap but be different. "Problem" was added to the *Customer* half.

Testing the ideation tool, the participant chose to simplify it further; the unwieldy phrase "no regrets/trying something/challenge oneself" was dropped. But "challenge" was expanded into "challenge oneself" and moved to the *Entrepreneur* half of the *Motivation* part. "Uncertainty" was added to the *Customer* half.

The numerical size of potential markets was not readily in mind for this participant (as it had not been with any others). Mapping potential interests and frustrations and a business model idea came easily. As with previous participants, the participant's own startup was top-of-mind and discussed when thinking of what to map onto the ideation tool.

5.2 The Co-Design Workshop

For the in-person workshop, the co-design tool was printed as one sheet on paper and the frameworks were also printed at a larger scale (Figure 31). A sheet of results from co-design sessions one to four and blank paper (for sketching one's own framework) was also included. Each participant received their own

"You have to have an arrow to indicate where you are going."

– Co-design participant reflecting on need for an arrow showing direction in the startup ideation tool

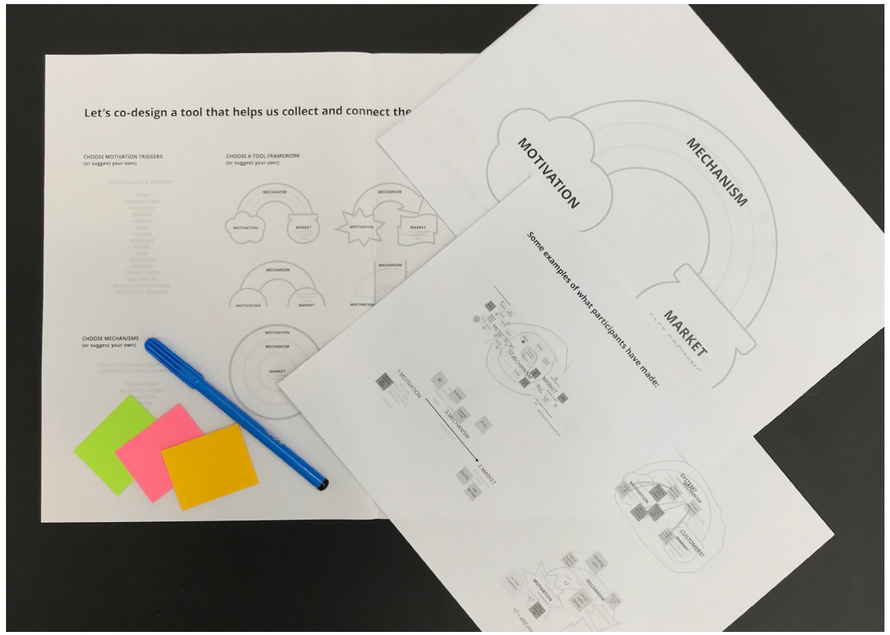

Figure 31. *Paper-Based Co-Design Tool*

Note. The paper co-design tool used the the same graphics as the online tool. However, each participant (and the facilitator) had a different colored pen so the author could follow each participant's line of thinking even if notes were added to another's design.

color pen to make analysis easier (the author's was orange). Real sticky notes were provided for testing the participant's own ideation tool.

There were three participants the co-design workshop. Workshop participants are called WP1, WP2 and WP3 to aid following their individual comments and actions.

As explained in the research methods section, the workshop was run in the same way as the online sessions, however, the author (as facilitator) was not able to engage in the same level of discussion regarding each trigger word or mechanism term as in the co-design sessions. For example, participant WP3 jumped ahead to drawing their own framework, choosing only "problem" from the trigger word list and using it as a step in the framework. This was discussed on a framework level only. Why other trigger words were not used was not discussed.

Similar to the participant from co-design session four, WP1 was somehow impressed with the co-design tool, perhaps indicating its uniqueness as a business modeling-related activity. All participants were interested in the ideation tool sketches from the previous co-design sessions. After a brief explanation of the co-design task, WP1 and WP2 began choosing motivational trigger words but WP3, after explaining that, "Normally when they talk about startups, they always say like, 'What is the problem you are solving?'" jumped straight to sketching their own framework.

WP2 chose the cloud-rainbow-pot of gold framework and added the chosen trigger words and mechanism terms to it as they are chosen. WP1 began drawing their own framework after ticking off motivational trigger words and mechanism terms from the suggestion lists. WP1's framework was a *Mechanism* drawn as a wave with three peaks between *Motivation* and *Market*. The second last and last peaks were explained as "pivots." WP1 emphasized, "There's always a pivot. Always." The three rough and one final design (top right corner) from the workshop are presented in Figure 32.

Trigger words chosen from the list of suggestions were: "problem," "opportunity (as oppor-

"I think these are the main ones."

– Co-design participant reflecting on the parts of the startup ideation tool

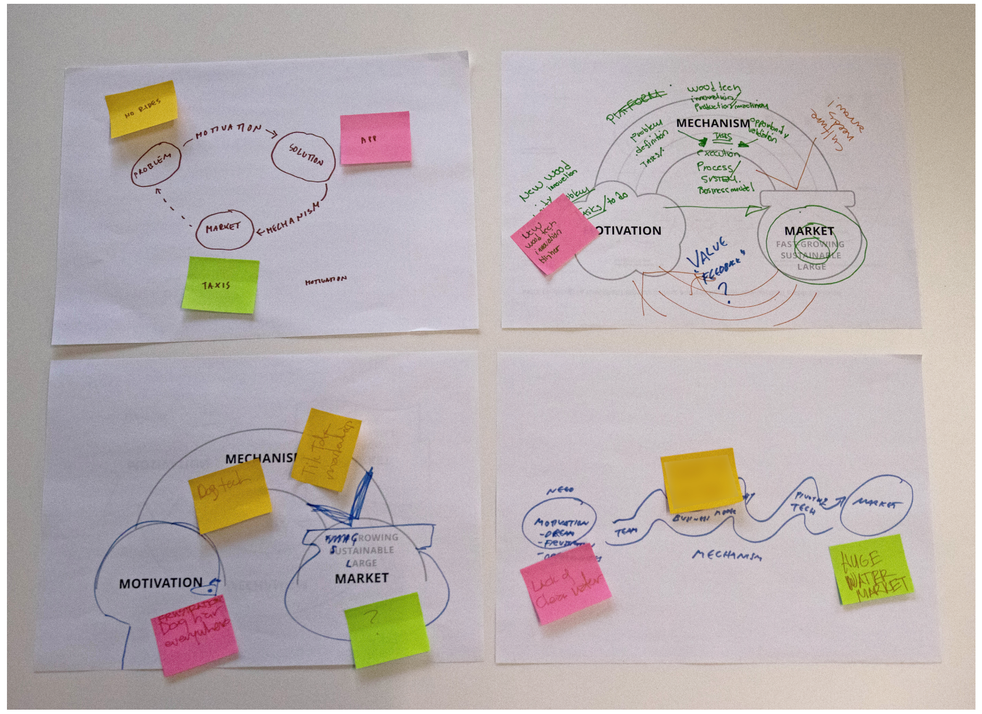

Figure 32. *Participants' Own Rough and Final Startup Ideation Tools from the Co-Design Workshop*

Note. Direction, a stronger relationship between the *Motivation* and *Market* parts and the cloud-rainbow-pot of gold as a visual metaphor emerged as a "double rainbow" ideation tool, which was the group's choice for the final startup ideation tool (top right).

tunities),” “dream” and “frustration.” A new trigger word was “innovation.” The *Mechanism* part’s terms chosen from the list of suggestions were: “process,” “system,” “business model,” “team” and “technology.” New mechanism terms were: “innovation,” “production machinery” and “execution.”

WP3’s framework drawing was a cycle, using the trigger word “problem” as a link from *Motivation* to *Mechanism*. The framework is structured as problem-motivation-solution-mechanism-market (then back to problem) cycle with arrows (see p. 39, Figure 32).

WP1 questioned whether *Market* must use the descriptor word “large,” that a niche market could be enough. A discussion about the *Market* part’s descriptor words ensued. It was agreed that these words are from the investor point of view; niche is possible only if it is a large enough niche.

Though quick to draw a framework, WP1 struggled to ideate with it for testing. Ridesharing was then used to test it. It would have perhaps been helpful to take a break after participants completed their ideation tool.

WP3 explained ridesharing expanding into food delivery as an example of moving on to a new problem, with the same or similar mechanism. WP3 related problems to opportunities, “If we talk about a business, a startup business, then there is a problem. There has to be an opportunity.”

We then discussed the overall frameworks. All agreed that the three-part structure and names made sense. WP1 said, “I think these are the main ones.” This led to a discussion about direction. WP2, when asked about their framework choice, suggested that it could also be a straight arrow. WP1 drew a human head (described as a “human brain”) and a pot of gold joined by an arched arrow. WP1 explained, “You have to have an arrow to indicate where you are going,” and that it is, in fact, necessary for cultures that do not read from left to right. All agreed that having an arrow is a good idea.

WP3 wondered how can “better” be in the *Motivation* part. WP1 considered how “research” as a motivation leads to a mechanism but not necessarily a market. Not having motivational words was then discussed; just having a phrase such as, “What’s your motivation today?” is suggested. WP3 noted, “Often when you have a list of words, people look at them and they get blocked.”

All of the participants’ own startup ideation tools and tests were placed together for discussion. A discussion of the need for an arrow resumed. WP1 suggested, “Maybe it’s a good idea not to put an arrow, because then people can use it from both ways.” The group was conflicted about having an arrow or not. WP2 asked why there cannot be a lower arrow (on the lower side of the cloud-rainbow-pot of gold framework).

WP1 brought up having seen the previous “circle” framework from the co-design sessions. WP3 (discussing how the *Value Proposition Canvas* works) said, “From feedback to the market, you redo your problem.” WP1 suggested drawing another rainbow on the bottom and labeling it *Value* (there was also some joking about which appropriate word might start with an

"M"). All agreed to add this fourth part to the framework.

When asked which of the ideation tools would be easy to draw on a flip chart or white board, this new "double rainbow" was chosen by the group. WP1 explained that this is, "Because it's easy to understand."

All six co-design startup ideation tools are presented in Figure 33.

5.3 Affinity Diagramming

Co-design participant comments, reflections and the participants' own startup ideation tools – both finished and unfinished – were arranged through affinity diagramming, a process of placing similar texts and visuals in groups and naming (and perhaps renaming as they develop) them. These groups may form and merge with other groups as similarities emerge. This allows one to see themes and recurring comments as well as common visual artifacts, in the case of the co-designed startup ideation tool (affinity diagramming is explained further in the *Research Methods* section).

Figure 33. *The Six Co-Designed Startup Ideation Tools*

Note. The annotations from co-designer testing has been removed where possible. One may zoom in on the image for more detail.

The affinity diagramming used the same Miro app as the co-design sessions and additional participant comments and reflections were added from the author's notes as well as analysis of the video from the co-design workshop. Photographs of the co-design workshop participants' visualizations were also added to the diagram. The affinity diagram is presented in Figure 34.

Six key themes – *Sustainable Over All* (meaning the whole tool should stress sustainability), *Closer Motivation and Market Link*, *Framework with Direction*, *Customizable*, *Needs More Explanation* and *Rainbow Metaphor* – as well as others relating to the ideation tool's underlying framework and usage emerged quickly. Some comments and reflections did not fit neatly within any group.

It was clear that sustainability and a sense of direction was paramount in an ideation tool. The underlying three-part framework of the co-design tool was not challenged, in fact it was validated to a great degree. The design process framework's use of a step-based process and bridging integrated naturally with a

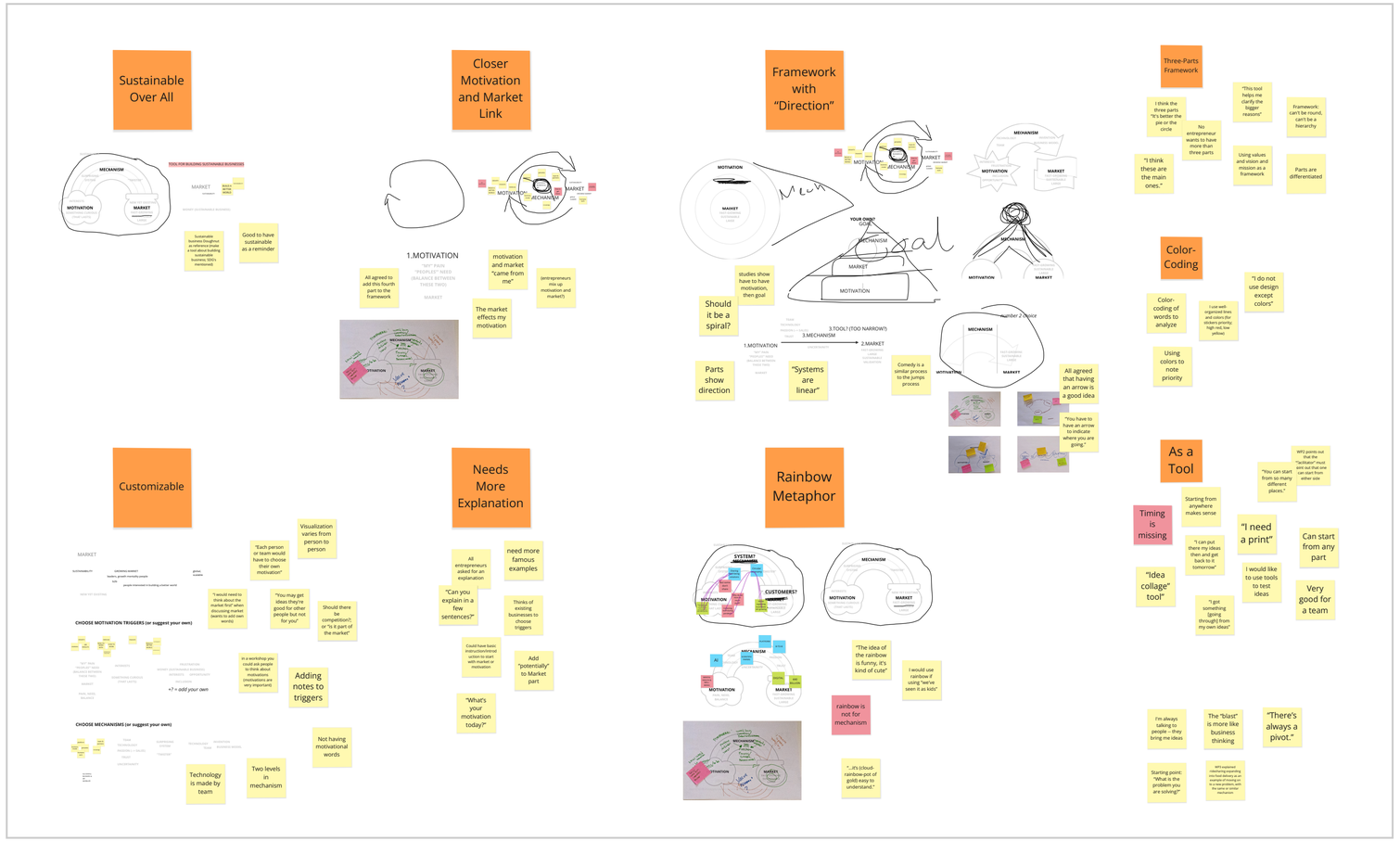

Figure 34. *Affinity Diagram of Co-Design Sessions and Workshop Data*

Note. Data provided directly onto the collaboration board and from notes taken during the sessions and the recording during workshop were arranged into themes. One may zoom in on the image for more detail.

business modeling tool's "start from anywhere" framework.

It was also apparent that a user of such a tool would require a clear explanation (and perhaps examples) of how it should be used. Explanations posed as questions could be used in place of trigger words and mechanism terms. This would also allow for a better explanation of how the frameworks' parts are linked.

Conclusions from the affinity diagramming are discussed further in the *Discussion and Conclusions* section of this thesis.

6 Discussion and Conclusions

The overall goal of this thesis was to present possible co-designs of a startup ideation tool. Six possible co-designed startup ideation tools (and rougher designs leading up to them) are presented (see p. 41, Figure 33). In addition to these, the author answered the following research questions:

What are possible the key parts of a startup ideation tool? According to this research, the possible key parts of a startup ideation tool are made up of the same parts necessary to express a startup idea: the motivation behind the idea, the investor-friendly market the idea will serve and the mechanism that bridges these two. However some co-design participants added what resulted in a fourth part that measures the relationship between them between the motivation and the market.

How do startup entrepreneurs and coaches use a co-design tool to co-design a startup ideation tool? Entrepreneurs and startup coaches creatively engaged in the co-design activities by bringing their experience and knowledge to the steps of the tool, yet with an open-minded appreciation of designerly ways of aiding the business modeling processes they work with. However, overall, they expressed a desire for a more familiar analysis type of function in the their ideation tool rather than pure ideation.

Perhaps because of this tendency toward analysis, the participant startup entrepreneurs and coaches tended to use the co-design tool as is, basing their own ideation tools quite clearly upon the frameworks and parts of the co-design tool.

What is a possible framework of a co-designed startup ideation tool? Participant co-designs varied to some degree. However, by affinity diagramming (see p. 42, Figure 34) the co-design activities' data, this research finds that a co-designed startup ideation tool possibly has four parts in a circular structure: *Motivation*, *Mechanism*, *Market* and some sort of value-based way to reflect the *Market* part's effect on *Motivation*.

The co-design activities – specifically the co-design tool – were designed from a designer ideation perspective, integrating design process and insight frameworks into business modeling tool frameworks and the research for the co-design activities. This points to greater potential for integrating more design methods into business processes.

As explained above, participants in the co-design sessions and workshop did not challenge the co-design tool's underlying three-part structure. However, entrepreneurs also tended to blur the boundary between their own motivations and the market to which they would be selling. This is akin to the startup coaching task of helping the entrepreneur to avoid considering themselves as good representatives of their target market.

Testing their tool designs led the entrepreneurs to rethink their tools and its potential visual metaphors.

While the three-part framework worked for all participants, creating short lists of motivational trigger words and mechanism terms did not. Participants also felt unsatisfied with the market descriptors. As one participant put it, "Each person or team would have to choose their own motivation." This applied equally well to the *Mechanism* and *Market* parts of the tool.

Interviews and co-design participation indicated the desire for simplicity in terms of a framework but complexity (or customization) in its possible detail.

6.1 A Startup Ideation Tool Prototype

A prototype startup ideation tool was created based on the results of affinity diagramming the co-design sessions and workshop data (Figure 35).

As the most popular visualization, the cloud-rainbow-pot of gold framework was chosen as its framework. The workshop confirmed a desire by two co-design session participants and the co-design workshop participants to more closely link (or effectively link back) *Motivation* and *Market*; a fourth part needed to be added. This resulted in a "double rainbow," one on the top and one on the bottom of the startup ideation tool.

Furthermore a desire for direction was clearly expressed by the participants; adding directions to the rainbows created a cycle, rather than steps, perhaps aiding the start-from-anywhere mindset needed for creative ideation and a norm in business modeling.

This second rainbow part was titled *Metrics* by the author because its purpose is to measure the value (as discussed in the co-design workshop), both the tangible and the intangible success that the *Market* brings to the *Motivation* of stakeholders.

Trigger words and mechanism terms and phrases were abandoned in favor of questions to help users reflect on each part of the ideation tool by inspiring unrestricted thinking because the research revealed a desire for a customizable tool. A desire to remind users of the tool of the need for sustainability is attempted by reminding that mechanisms must be sustainable.

A general description was added in the center of the tool as the co-design activities revealed a need for a clear explanation on how such a tool should be used.

The ability to start from anywhere on the tool was also noted and inherent in the co-design tools. One sees similarities when comparing

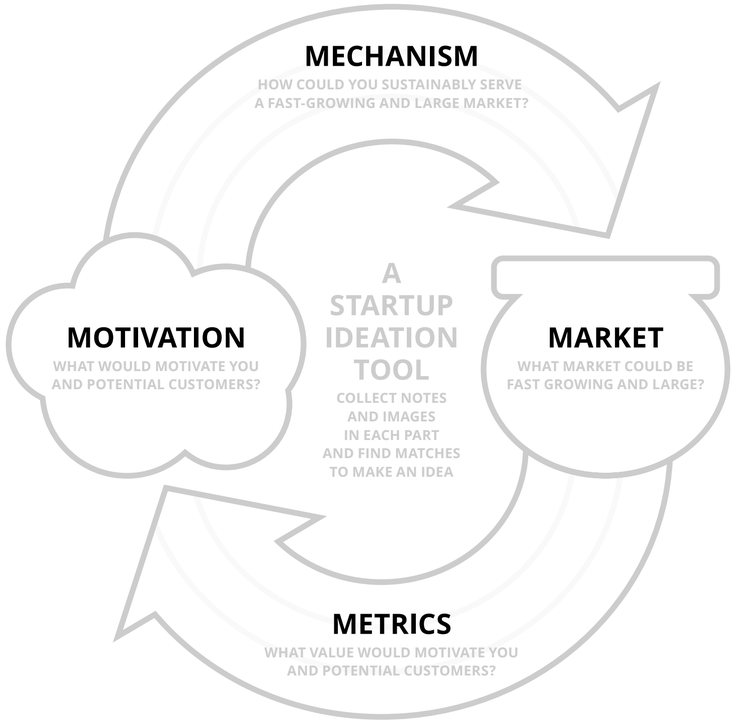

Figure 35. *A Startup Ideation Tool Prototype*

Note: Questions are used to inspire thinking but not to restrict it to certain terms.

the resulting startup ideation tool prototype to the *Value Proposition Canvas* (Figure 36). Both can be pictured metaphorically or with simple geometric shapes. Both allow mapping to start and continue from anywhere on the framework. *Motivation* includes both entrepreneur and customer motivation and, similarly to the *Value Proposition Canvas*, this must match with the value *Metrics* that participating in the *Market* brings; there is similar idea of "fit." One wonders, however, if this fourth part is actually analysis rather than ideation.

6.2 Limitations of the Research

This research was limited by the number of participants and their background and its geographic location as their co-designs may only represent their local experience and their individual needs, not that of the broader entrepreneur community. Co-design sessions (rather than a workshop) with single participants were held to accommodate the busy schedules of the participants.

The co-design tool itself, though based on data collected from entrepreneurs, startup coaches

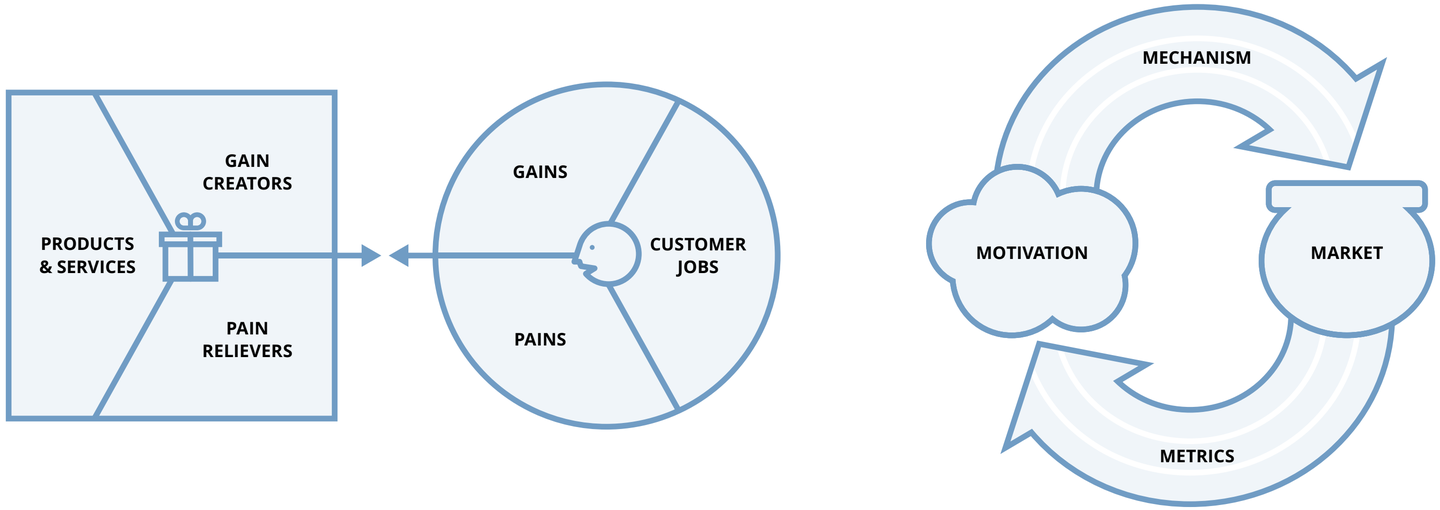

Figure 36. *Comparison of the Value Proposition Canvas and the Startup Ideation Tool Prototype Frameworks*

Note. Both frameworks use mapping to note thoughts in their respective parts, aiming for matches between theses parts. The *Value Proposition Canvas* framework adapted from *The Value Proposition Canvas* [Diagram], by Osterwalder et al., 2014. Copyright Strategyzer.

and entrepreneurial activities, may have both been too limited (because of the above) and too leading towards a particular solution. The process of using the co-design tool may also have contributed to leading the participants in a particular direction.

Co-designing in a group workshop provided mixed results compared to co-designing with individuals in sessions when aiming for a particular task. As an exercise in promoting cross-stakeholder understanding, a workshop can provide opportunities for consensus but in this case it lacked some amount of depth – due to time and attention constraints – for the designer-facilitator to engage deeply in each participant's thinking. Though short, the sessions did not seem to limit understanding and discussion of a participant's co-design. However, new insights (or building upon each other's ideas) may have been limited without a group discussion.

Also, due to a lack of time and potential copyright issues, a more visual approach to mapping – placing visual representations of motivations, mechanisms and markets on the framework – was barely explored and would serve testing another designerly approach to using a startup ideation tool.

Suggestions for Further Research

Beyond the design of an inspiring co-design tool, co-design, as Hyysalo and Hyysalo (2018) note, involves a large amount of mundane and strategic work to be successful. Limitations in time and accessibility limit the potential usefulness of a co-designed artifact. A greater number of longer co-design workshops and/or co-design sessions with a more representative group of entrepreneurs may result in a more relevant startup ideation tool.

Though testing the participant's own startup ideation tool was part of each participant's task, the small sample size suggests that a larger group would also be needed to test, refine and validate the startup ideation tool. Such studies could also follow the ideation tool's use from a startup's inception to its possible use in pivoting or in the refining of its startup idea.

The introduction of designerly ways of thinking or doing – such as Cross's (2007) bridging or collecting parts of an idea for later matching into a whole – into business modeling was welcomed, suggesting that ways to integrate more design methods, processes and visualizations could be explored in business modeling.

6.3 Conclusions

This thesis presents six co-designed startup ideation tools (see p. 41, Figure 33) and a prototype startup ideation tool (see p. 46, Figure 36) designed by the author. The co-designs are not final, useable designs but may indicate to some degree both the tacit and articulated needs and desires of entrepreneurs and start-up coaches for a startup ideation tool. This thesis supports co-design's value for end users designing with designers for more relevant design.

To the author's knowledge, specifically co-designing a business modeling tool with startup business experts has not been undertaken before and this thesis may present new knowledge in co-designing with startup business experts. It also contributes to the knowledge of startup ideation as a designed endeavor and

the frameworks of ideating in general.

Conducting research specifically for a co-design tool proved fruitful in helping with co-design activity relevance for its participants, and the co-design activity progress towards a co-designed artifact.

The author's startup ideation tool prototype, presented for discussion at the end of the thesis, is the result of analyzing multiple co-designed startup ideation tools from both a co-design workshop and multiple one-on-one co-design sessions, suggesting a positive benefit for the holding of multiple – and perhaps multiple types of – co-design activities for later analysis to reach a usable solution or conclusion.

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Appendix

Co-Design Tool Notes (Partial Example)

12.11.2022
- role of “filters”
- opportunities v needs
—
15.11.2022
- “What’s your business model?” follows every startup idea presentation (if it’s not clear)
—
17.11.2022
- Swat, product-market fit
- “Easiest solution probably best solution”
- not trends but expectations experience AND tech innovation
- user innovations
- service with no business model
—
18.11.2022
- Build, measure, learn (method/model for startups)
- Funnels are mentioned a lot in Slush
—
24.11.2022
- problem solving tools are mentioned in startup group (link)

Semi-Structured Interview 2 (Partial Transcript)

Did you use any tools for this? (The interviewer is in italics)

Umm…

Tools. You know, whatever you call a tool.

No. So, what happened, which is very untypical, was that I made a sales deck. And I actually got…

A deck?

A sales deck. So, pitch material. And I actually got [says amount of money].

You made the deck to get funding and you got funding?

Yes. so, it was just me. I didn’t have a team at that point. But I got the funding. With kind of the business rationale. Not maybe a design rationale. But, okay, this audience, this kind of an idea, this kind of business, this platform. So it was more of a business plan that I made than actually a design plan.

When you say “design plan” what do you mean by design plan?

That I would have described in detail what kind of product or game that [it] actually is. So, I had some mockups and feeling pictures, so to say.

Co-Design Session 4 Notes (Partial Example)

- there's a personal problem = frustration (e.g. getting car, ordering food)

- opportunity = making a better wheel "you don't have to design a wheel again, just make a better one."

- "My hobby is more important than my job" (interests are more than a hobby; I know about these things; wider)

- inclusion is about including everyone

- this person thinks of existing businesses to choose triggers

- a visualization reminds me of 90's (nostalgia); "It's more illustrative"; the parts are differentiated and show direction

- can start from any part

- I join in adding notes to get the ideation testing going

- customizing would be good "Each person or team would have to choose their own motivation"; the parts are set but there should be some potential motivations or ad your own

Co-design Workshop Video (Partial Transcript)

So, let's discuss this a little bit. So, we've got the arrow. The arrow was something important. There's a lot of thought about the arrow. So, even if it was a rainbow it still should be an arrow. (The facilitator is in italics)

WP1: I think [so], because of the cultural issue, yeah.

Culture issue?

WP1: It also makes [it] more clear that you're supposed to go from here, from point A to point B.

WP3: But then maybe if there's no arrow, people might think like, "Maybe there's a route from the *Market* to the *Motivation* [parts]."

WP1: Okay.

WP3: That you understand there's a problem with the *Market* [part]. I don't know.

WP1: That's why, yeah. It could be so, that…

WP3: But then it's too complicated.

WP1: Yeah.

WP2: Yeah.

Co-Design Activities Invitation Email

Hi,

I hope all your startup efforts are going well.

As I mentioned at the end of last year, I am doing my thesis on co-designing a startup ideation tool and hope that you would join in a session to make your version of the tool with me (and others, if more than one join in at the same time you are available). I have attached the task as a PDF for you to get familiar with it, but the idea is to use an online collaboration board with the same elements while also having the session online.

Do you have time during the next two weeks? Absolutely any time of day or evening is fine – I have left my schedule fully open for these sessions. When we agree on a time, I will send a you the links for the collaboration board and the meeting.

Brian

Startup Notice Board Post

Startup Ideation Tool Co-Design Thesis Project
I am co-designing a startup ideation tool (like, for example, the Lean Canvas but much simpler) for startups as my master's thesis topic. The main part of the co-design is one-on-one sessions with entrepreneurs to co-design a version of the tool from the parts I have pre-made. A session takes approximately 45 minutes and is online using Zoom and Miro. Please email me at brian.kaszonyi@aalto.fi if you can take part – the session can be at any time of the day that's convenient for you.