

ARTICLE

Stakeholder identification through participatory and speculative design: A case study

 Davide M. Parrilli¹* and Giulia Calabretta²
¹UNIDCOM, Design and Communication Research Unit, IADE - Faculty of Design, Technology and Communication, Universidade Europeia, Lisbon, Portugal

²Department of Design, Organisation and Strategy (DOS), Faculty of Industrial Design Engineering, Delft University of Technology, Delft, South Holland, Netherlands

Abstract

As organizations face increasingly complex and shifting stakeholder landscapes, innovative methods are needed to identify and engage with both present and future stakeholders. This article explores the integration of participatory and speculative design approaches for stakeholder identification. Our case study was conducted within an international organization focused on intellectual property protection, and it addressed a critical organizational task: Identifying actual and potential stakeholders. Traditional top-down approaches to stakeholder identification were found to be limiting due to the evolving nature of stakeholder relationships. Therefore, we proposed a design-led approach that involved participatory workshops and speculative thinking, empowering the organization to maintain a dynamic stakeholder list in the future. The project involved interviews with key staff, participatory workshops to identify and prioritize values, and a speculative approach – the Stakeholder Mapping Cone – to identify stakeholders and predict their future impact. By combining the creativity of speculative design with the inclusivity of participatory methods, the project allowed the organization to identify existing stakeholders and envision potential future stakeholders. This research demonstrates that speculative and participatory design are viable methods for stakeholder identification, offering innovative approaches that challenge conventional strategies and empower organizations to adapt to future challenges. It also introduces the need to explore how speculative design can evolve into operative speculative design thinking.

***Corresponding author:**

 Davide M. Parrilli
 (davide.parrilli@
 universidadeuropeia.pt)

Citation: Parrilli DM, Calabretta G. Stakeholder identification through participatory and speculative design: A case study. *Design+*. 2025;2(3):025060011. doi: 10.36922/DP025060011

Received: February 8, 2025

Revised: May 13, 2025

Accepted: May 23, 2025

Published online: June 11, 2025

Copyright: © 2025 Author(s).

This is an Open-Access article distributed under the terms of the Creative Commons AttributionNoncommercial License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Publisher's Note: AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Keywords: Participatory design; Speculative design; Stakeholder identification; Strategy; Value

1. Introduction

The constant transformation of society into a web of complex systems – where difficult-to-solve issues are the norm – has pushed the discipline and practice of design to change and evolve. In their 1973 seminal paper, Rittel and Webber¹ coined the term “wicked problems” to describe challenges that lack straightforward solutions and cannot be framed in terms of right or wrong. Over the past decades, the complexity of our societies, governments, and businesses has only increased due to technological advancements, globalization, and the growing demands of diverse social groups for

visibility and voice – factors that have multiplied both the number and intensity of wicked problems. Therefore, designers increasingly see themselves as responsible for shaping a better, more inclusive, sustainable, and ethical world.^{2,3} This shift reflects a socially progressive view of the designed subject: design is not only tasked with meeting human needs but also with contributing to the improvement of society.^{4,5} Since the 1970s, this orientation has given rise to various progressive and socially engaged design approaches, including participatory design, social design, critical design, design fiction, and speculative design.

These theories and practices share a common understanding that design can and should work to improve society and people's condition. However, they differ in their conceptual and practical approaches, methodologies, and motivation to act through design. This study focuses on two specific design practices: Participatory and speculative design. It presents our recent research in which these methods were implemented within an international non-profit organization to address a task that has been extensively studied by scholars from different fields, particularly management and public policy.⁶ However, to the best of our knowledge, this task – the identification of an organization's stakeholders – remains relatively unexplored within design research and practice. This is the first step for an organization to understand and address complex, wicked challenges. To design for change, organizations must understand the actors who can benefit from it, as well as those who may facilitate or hinder it.

This study presents and analyzes research performed through an exploratory design case study: a stakeholder identification project conducted between November 2024 and January 2025 for an international non-profit organization in Europe involved in intellectual property (IP) protection. The organization addresses significant societal challenges by protecting innovations and promoting advancements that drive sustainable solutions for companies, workers, and society. The main mission of the organization is to receive and process IP registrations in its jurisdiction and to foster the development of a societal ecosystem where IP rights are valued and protected. The project focused on the identification of the organization's strategic, general stakeholders that influence and are involved in the overarching activities of the organization,⁷ as opposed to specific project-related, operational stakeholders.

2. Literature review

According to the stakeholder theory, or the stakeholder approach to organizational management,⁸ stakeholders' participation and engagement are key factors in the success

of various planned activities. Therefore, organizations need to know their stakeholders for decision-making processes⁹ and to design effective engagement strategies. The identification of stakeholders is the first step in this strategy, and it leads to a complete understanding of an organization's stakeholder community.¹⁰⁻¹³

Defining stakeholders is a taxing task, and several scholars have contributed to determining what constitutes a stakeholder. The present research relies on the classical definition of Freeman and Reed,¹⁴ who identify a stakeholder as an individual or group that can affect, or be affected by, the achievement of an organization's objectives. It also builds upon the broad idea of actual or potential stakeholders proposed by Mitchell *et al.*,¹⁵ which includes not only people, social groups, communities, and organizations, but also the natural environment.

To distinguish real stakeholders from potential stakeholders or non-stakeholders, in their seminal research paper published in 1997, Mitchell *et al.*¹⁵ identified three criteria for stakeholder status: Power, legitimacy, and urgency. More recent scholarly works^{16,17} identified other criteria, such as influence, attitude, interest, support, and contribution. The application of these criteria, however, poses practical problems because, for example, there may be stakeholders who do not have power but are nevertheless important for organizations and their managers.¹⁵

The claim that people or groups with no power, legitimacy, or urgency are not stakeholders and are not important to organizations' managers¹⁵ is not entirely convincing. This is because it keeps emerging stakeholders who, in the near or far future, could be salient for the firm or have a broader societal impact off the managers' radar. Indeed, Mitchell *et al.*¹⁵ recognized that people or groups that do not possess specific attributes are non-stakeholders or potential stakeholders. The project described in this article took a pragmatic approach consistent with the inclusive nature of design: stakeholder identification is understood to encompass both actual and potential stakeholders.

Extensive literature in the field of stakeholder theory claims that the objective of stakeholder management is to create value for stakeholders¹⁸⁻²⁰ – or with stakeholders through a process of joint value creation.²¹ Value creation extends beyond the economic value that stakeholders may seek,²² including financial and non-financial benefits.¹⁸ This argument can be extended to the firm that creates value – indeed, a firm may seek to reach value beyond economic or financial benefit – and it applies with particular strength to non-profit organizations.

The research on stakeholder theory and value creation has a potential gap because it considers value creation for

stakeholders, or for and with stakeholders (joint value creation), while offering limited consideration of value creation for the stakeholders and the firm. Although filling this gap is beyond the scope of this article, it is acknowledged as a relevant research challenge. As stakeholder management practices that establish a fair relationship between the firm and its stakeholders – where interests are mutually considered and balanced – have been shown to positively affect organizational performance,²³⁻²⁵ value creation for the firm should be included in more mature stakeholder management theories.

Given the strong connection between stakeholder management and values, stakeholder identification should be value-driven. The identification of an organization's stakeholders should create value for both the organization and its stakeholders. However, before identifying specific stakeholders, a firm should determine the common values it plans to create for or with them. In the research presented in this study, this step involved specific work with the organization to assess the values supporting the stakeholder identification process. These are the most important values that stakeholder identification (and, at a later stage, management) should create for the organization and its stakeholders collectively.²⁰

Following the most common managerial approach in the literature and practices, stakeholder identification is typically done by a research team following a top-down approach (which relies exclusively on the team perception, thus potentially reflecting biases and with no involvement of stakeholders) or a bottom-up approach (where the assessment of potential stakeholders by the research team involves research methods, such as interviews and surveys with stakeholders, requiring a substantial investment of time and resources).^{26,27} In both cases, the research team identifies stakeholders using the most appropriate criteria and delivers the results of their work to their supervisor(s) or client, who is not directly involved in the process. However, as suggested by Mitchell *et al.*,¹⁵ static maps of an organization's stakeholders are useful as heuristics, but one should also consider stakeholders' impact and relevance change. This consideration was one of the foundations of the project described in this article to support the adoption of participatory and speculative design to identify stakeholders.

The participatory design emerged in the 1970s in Scandinavia – and concurrently in England, with a more multidisciplinary agenda²⁸ – to engage workers in the development of new systems for their workplace, merging the methodology and system knowledge of the designers and the experience and expertise of the workers affected by the new systems.²⁹⁻³¹ Participatory design is well-suited

for projects where identifying, mapping, or engaging stakeholders is important. In this article, participatory design is understood as a process of collective creativity throughout the entire design process, in which designers and people with no education and training in design collaborate creatively in the design development process.³¹

Over the years, scholars and practitioners in marketing and business have endorsed participatory design as a practice that empowers firms to co-create value with customers.³² The emergence and affirmation of participatory design within both design and business practices indicate that the scope of design practices extends beyond product design.³³ What legitimizes the use of the term “design” in a project is not solely the outcome of the creative process, but also the application of a design – and thus creative – mindset and way of thinking throughout the process. Participatory design can be effectively implemented to address business problems and challenges, which legitimately become design problems and challenges.

Some scholars suggest using the expression “co-creation” or “co-design” instead of participatory design. However, this article sticks to participatory design; not only because the expression participatory design has been commonly used for more than 50 years,³¹ but also for semantic reasons. The term participatory design highlights with particular strength that creation happens in a participatory, thus democratic, way. Democratic participation is one of the key pillars of participatory design. For Manzini,³⁴ the process of co-designing means that everybody brings their ideas, regardless of the problems and tensions they may potentially generate, together with an attitude to listen to each other, change opinions, and converge toward a shared view on the results.

The importance of listening and exchanging ideas between co-designers implies that workshops play an extremely important role in participatory design, together with collective prototyping and prototypes, iterative development, and mock-ups.³⁰ The project described in this study relied extensively on participatory workshops – because they can help elicit valuable insights for creating interventions and fostering collective thinking among participants from diverse organizational units³⁵ – and on the iterative development of the stakeholder identification. The involvement of direct stakeholders within an organization can empower them, resulting in more coherent and resilient strategies that enable greater readiness for future and speculative outcomes.³⁶

On the other hand, speculative design emerged in the 1990s as a form of critical design practice focused on socio-scientific and socio-technical concerns.³⁶ It evolved as a reaction against the neoliberal model of capitalism,

which turbocharged the emergence of liquid and flexible societies of individuals.³⁷⁻³⁹ Due to its strong focus on technology and its impact on people's lives, speculative design corresponds to a form of speculative philosophy of technology that questions what technology means.³⁷ In Malpass's words,³⁶ speculative design maps alternative systems to challenge the dominant technological ideology and proposes different technological futures grounded on alternative values.

The project described in this article decoupled speculative design both from technology and from its more pungent socially critical dimension. Instead, it endorsed and highlighted other aspects of speculative design, in particular, the projection into the future of speculative design artifacts and its capability to stimulate creative and critical thinking – in this context, “critical thinking” should be understood as a form of reflection that goes beyond the specific situational status quo, but not necessarily with macro-social and ethical implications. Projection into the future is indeed a key characteristic of speculative and conceptual design practices, which are more concerned about designing for how things could and should be.³⁷

Despite speculative designers criticizing several aspects of the relationship between technologies and society (and the impact of technologies on society) through their designs, they also want to have social usefulness.³⁷ In the research project presented here, usefulness played an important role. Speculative design was used to design a solution that could be accepted and understood by the organization. Imagination-based speculation is a powerful tool to change existing situations. Speculative design provides the opportunity for the organization to flexibly and iteratively shape the outcome of the stakeholder identification through speculations, not about how the future will be (like in other design approaches, such as design roadmapping⁴⁰) but about how the future should be made – through activities, innovations, and processes that have a direct impact on the stakeholder identification.

Due to the limitations of traditional stakeholder identification strategies, our methodological approach incorporated established speculative design methods to address these shortcomings. In particular, we invited the organization's members to identify stakeholders critically and creatively through fictional (but possible), narrative-centered scenarios⁴¹ built as thought experiments. The proposed scenarios, which are the core of a thought experiment,⁴² partially follow the paradigm of thought experiments described by Dunne and Raby³⁷ – mental constructions based on ideas expressed through design that support thinking about challenging issues. The thought experiments used in the study stimulate critical

and creative thinking, explore possible implications, and fully engage the imagination. What-ifs were also extensively used to explore ideas, encourage creativity, and potentially improve the quality of predictions about the impact of specific stakeholders. We challenged the organization's members to assess how the outcome of the identification process would change if, for example, specific actions were implemented (such as communication or awareness campaigns). This project included a dimension of realism to speculations, which are not merely possible and narrative abstract happenings, but realistic factors that may take place in the future, and not just by accident, but also because the organization decides so.

3. Research challenges

A stakeholder landscape is not static, but it evolves constantly. The traditional approach to stakeholder identification, discussed in greater detail in the literature review section above, often results in static stakeholder lists primarily generated through desktop analysis. This method makes it resource-intensive to keep the stakeholder list continuously updated. Furthermore, it may be challenging to plan stakeholder engagement strategies starting from complex lists of stakeholders.

Therefore, the directors of the organization were proposed to adopt a design-oriented approach for the project that allows iteration and staff participation. Based on a literature review and our experience as designers and researchers, participatory design and speculative design were identified as suitable design practices for the desired approach. Both approaches presented immediate challenges in identifying stakeholders. As pointed out in the previous section, speculative design is normally used with technologies and technological artifacts rather than management processes. In addition, speculative design is a form of critical design that focuses on socio-scientific and socio-technical issues, focusing on concerns related to possible futures. The main research challenge involved decontextualizing speculative design and using it to engineer a future-oriented process grounded in design thinking,³³ tailored to the specific needs and requirements of the organization. Another challenge was the implementation of participatory design methods within an organization with no prior experience. A further issue, discussed in the next section, was that organizations usually identify their stakeholders in a non-participatory way, leading to unsatisfactory results.

4. Research question and methodology

This article answers the following research question: Are participatory and speculative designs adequate methods to design a methodology and process to identify stakeholders?

This study aims to find and establish new connections between participatory and speculative design and stakeholder identification. Across the case study discussed in this paper, new knowledge is generated for design, both as practice and discipline. Moreover, the design also served as a means to develop a method, approach, and practice for addressing an unprecedented situation – the identification of stakeholders through participatory and speculative design.

Building upon a literature review on stakeholder management, participatory design, and speculative design, the research methodology consists of individual interviews, participatory workshops, and the critical assessment of the material collected and produced during the project. All individual interviews were recorded and transcribed to identify inputs for the project. For the workshops, the Miro platform and its digital notes were used to record participants’ inputs, supported by ethnographic observation of the participants.

5. Case study: Participatory and speculative design for stakeholder identification

In this project, we aimed to identify the organization’s stakeholders, and we acted as facilitators and enablers of the design process.^{31,43-45} The case study involves an

international non-profit organization with the mission to benefit companies and society through IP protection. However, the organization had no experience with participatory and speculative design processes. The literature reports some cases of projects where the research team conducted stakeholder mapping through co-creation; however, the participants were invited for their background and expertise in stakeholder mapping and co-creation⁴⁶ (which were both missing in the present project). The development of the project followed the chronological and methodological steps summarized in Figure 1.

5.1. Phase 1: Understanding needs and expectations and defining operational criteria

It was realized that engagement by the organization’s team in the project was a key factor for the success of the project. After a series of frequent interactions with the project officer, the first step was to explain the project to all staff members working with stakeholders and collect their feedback, insights, and expectations. Twelve key staff members who commonly interact with the organization’s stakeholders were identified and interviewed individually, in person or online. All interviews were recorded and transcribed using Microsoft Teams. Each interview included six questions, as reported in Table 1.

	Phase 1 Project preparation	Phase 2 Value definition	Phase 3 Design for stakeholder identification	Phase 4 Stakeholder identification and validation
Goal	Create awareness, collect feedbacks and insights	Define the overarching values for stakeholder identification	Design a tool for the creative and participatory identification of stakeholders	Test the methodology, validate the findings of the research
Participatory design method	12 individual interviews in preparation of workshops	Participatory workshop with 12 staff members	Planning and design of the participatory workshop of phase 4	Participatory workshop with 7 staff members to identify stakeholders
Speculative design method		Use of thought exercises and what-ifs during the workshop to discuss about values	Design of the Stakeholder Mapping Cone; design of thought exercises and what-ifs	Use of the Stakeholder Mapping Cone through thought exercises and what-ifs
Other research method	Desktop research	Ethnographic observation	Desktop research	Ethnographic observation
Outcome	Knowledge of needs and expectations; 6 operational criteria	Identification of the values that support the stakeholder identification	The Stakeholder Mapping Cone	First iteration of the stakeholder identification, feedback to validate methodology

Figure 1. Overview of the project phases

Then, the transcription of the interviews was processed to assess the comments and topics discussed during the interviews and map them in thematic clusters, as reported in Table 2.

For each interview, the 20 most frequently used words and expressions were identified, excluding common ones. Then, the information was aggregated to determine the frequency ratio of these words across all interviews. The objective of this analysis (Figure 2) was to provide input for the participatory workshop in phase 2, where participants would be invited to reflect on these words, why they are frequently used in connection with stakeholder identification, and the values these words underpin.

Table 1. List of interview questions

No.	Question
1	Do you work with stakeholders in your position within the organization? Can you elaborate?
2	Based on your experience, what is a stakeholder?
3	The organization team defined a stakeholder as: “By stakeholders, we mean people, groups of people, organizations, or companies that have a direct or indirect interest in the organization and vice versa. They are affected in a positive or negative way by the organization and our activities.” Would you change it or add something to it?
4	In your opinion, how can stakeholders add value to the organization?
5	Based on your experience, what is the value in the context of stakeholders?
6	Do you want to add any comments?

Table 2. Theme clusters emerged from the interviews

Theme No.	Description
1	Gaps and challenges
2	Opportunities and strengths
3	Visibility and awareness
4	The organization in the IP ecosystem
5	IP organizations as key stakeholders
6	The political dimension of stakeholdership
7	Stakeholders, customers, and accounts
8	Understanding and interacting with stakeholders
9	The value of reciprocity
10	The value of tier 1 stakeholders (and its limits)
11	Business rationale
12	The need to measure the stakeholder impact

Abbreviation: IP: Intellectual property.

5.2. Phase 2: Prioritizing values through participatory design

The second phase of the project relied extensively on participatory methods. A workshop was organized with all staff members interviewed in the first phase of the project, with two objectives:

- (i) Introduce the most frequently used words in interviews as a trigger to collective thinking and discussion.
- (ii) Identify, map, and prioritize the values that direct the stakeholder identification.

The core of the workshop was about identifying, mapping, and prioritizing values. To promote active participation from all attendees, each participant was individually asked to quickly and instinctively propose a value. Participants have identified diverse values, such as collaboration, efficiency, consultation, professionalism, income, understanding, empathy, and consistency. The exercise was repeated several times. The research team wrote all suggestions in digital notes using the Miro platform. In the next step, participants grouped the values per theme: entrepreneurs, customer, system, organization, business, contact, project, approach, interest, relationship, work, collaboration, partner, information, awareness, and operations.

Next, participants moved to the identification of the most important project values. The discussion led to the reflection that the overarching project values should relate to customers because the organization wants to be customer-centric. Indeed, “customer” ranked among the most frequently used words in interviews. Participants also decided that the project values should be consistent with the organization’s statutory and legal missions. As evidenced in Figure 3, two values emerged from the final discussion: awareness (the organization should stimulate awareness about IP in its ecosystem) and conversion of the awareness into actual IP registrations. In practice, participants agreed that the stakeholders will be identified for their (potential) role in co-creating these values.



Figure 2. The most frequently used words in individual interviews

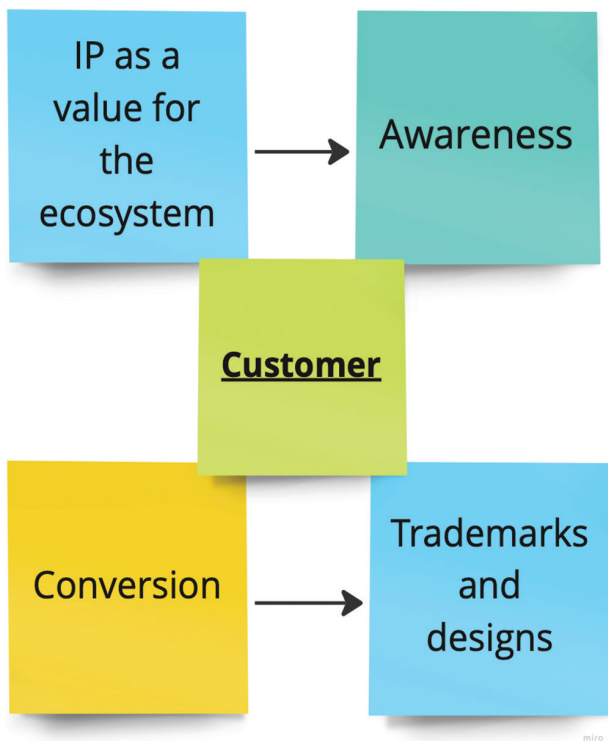


Figure 3. Identification of the overarching project values
Abbreviation: IP: Intellectual property.

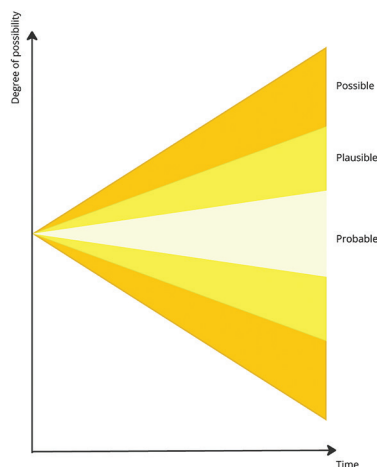


Figure 4. The Stakeholder Mapping Cone. Image created by the authors with Miro (<https://miro.com/>).

5.3. Phase 3: Designing a speculative design approach to map stakeholders

In this phase, principles and practices from both speculative design and participatory design were used to set up an approach to identify the organization's stakeholders. The approach was built upon Dunne and Raby's³⁷ diagram to illustrate different kinds of potential

futures (the so-called PPPP diagram): Possible, plausible, probable, and preferable futures. We named our approach the Stakeholder Mapping Cone, as illustrated in Figure 4.

The Stakeholder Mapping Cone is designed for two purposes:

- (i) Identify stakeholders.
- (ii) Predict the future projection of the stakeholders' impact in terms of values.

The vertical axis represents the level of possibility, plausibility, or probability, while the horizontal axis refers to time. When identifying stakeholders, time may indicate when the organization expects that a stakeholder will generate value or when the organization will approach the identified stakeholders. The user of the cone can set a scale on the timeline for more accurate predictions. The key aspect to consider when identifying stakeholders with the cone is the expected creation of value for the organization (as identified by the organization) and its stakeholders. The Stakeholder Mapping Cone is both value-based and future-oriented. When identifying stakeholders with the cone, three groups of stakeholders emerge:

- (i) Possible stakeholders: These are stakeholders that may potentially create value for the organization, its stakeholders, or the IP ecosystem of stakeholders. The notion of possibility refers to new situations supported by a credible series of events,³⁷ which are not impossible but difficult to foresee in the present. More pragmatically, a possible stakeholder is associated with an event that may happen at an unspecified point in the future. To explain the difference among the three areas, participants were invited to reflect on the following thought exercise: a design school, in general, may be considered a possible stakeholder. However, if the organization organizes a demonstration on trademark and design registration specifically for the school's final-year master's students, the design school shifts from a possible to a plausible, or even a probable, stakeholder.
- (ii) Plausible stakeholders: These are stakeholders that plausibly will create value for the organization. Plausibility refers to outcomes that could happen³⁷ with a reasonable degree of likelihood.
- (iii) Probable stakeholders: These are stakeholders that will probably create value for the organization. Probability indicates what is likely to happen in reality.³⁷

In the next sub-section, the use of the cone to identify and map stakeholders is presented. Once stakeholders have been identified and categorized as possible, plausible, or probable, the cone plays a role in the prioritization process. Stakeholders classified by the organization as priorities are placed within a fourth area of the cone: the preferred stakeholders, that is, those considered central to

the stakeholder engagement strategy (Figure 5). During the prioritization process, selected stakeholders are moved into the cone of preferred stakeholders. This cone can ideally span across all other cones, with two, or even with only one, depending on the organization's strategic decision.

The Stakeholder Mapping Cone is also designed to predict and visualize the future projection of stakeholders' impact in terms of values. In this case, the organization can forecast whether a specific stakeholder will possibly, plausibly, or probably contribute to generating awareness and conversion in the future (or any other value identified by the organization). The Stakeholder Mapping Cone helps the organization make and represent the predictions. Discussion with participants revealed that, from a logical standpoint, awareness is created before it is converted into registrations. For example, a campaign targeted at product design students (where the main stakeholder is the design school) is likely to create immediate awareness about the importance of protecting their designs. However, actual conversion into design registrations may only happen later when the young designers have developed designs that can be registered.

Not all stakeholders have the same opportunity to contribute to the creation of shared values, nor do they do so at the same time or pace. These values may be assessed in combination or separately. In the thought experiment discussed earlier, where the organization arranges a demonstration on IP registration for design students ready for graduation, the Stakeholder Mapping Cone may appear as illustrated in Figure 6. In this scenario, IP awareness is immediate and classified as probable, while conversion is considered possible and projected into the future. However, the extent to which this future materializes depends primarily on specific conditions, such as the age and design maturity of the students.

Additional thought experiments and what-ifs were used to show that conversion may also be classified as plausible or even probable in the near future. For example, when students are launching their first product and are committed to registering their designs within weeks or months. Conversion can also be probable and immediate, for example, a campaign organized during a show of student's final projects may lead them to immediately register their IP. Owing to its flexibility and adaptability, the Stakeholder Mapping Cone offers significant potential to support the organization in envisioning future scenarios and designing targeted strategies and actions. The last step in Phase 3 involved the planning and design of the final participatory workshop of Phase 4.

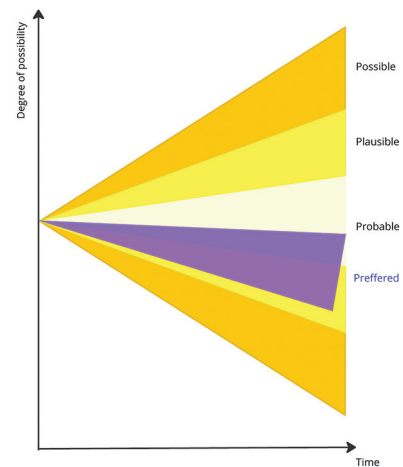


Figure 5. The Stakeholder Mapping Cone and its four cones. Image created by the authors with Miro (<https://miro.com/>).

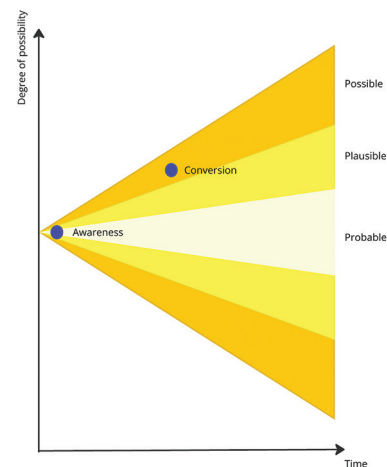


Figure 6. Example of use of the Stakeholder Mapping Cone to predict stakeholders' impact. Image created by the authors with Miro (<https://miro.com/>).

5.4. Phase 4: Identifying stakeholders through participatory design

The last phase of the project focused on the implementation of the Stakeholder Mapping Cone to identify stakeholders and validate its usability. First, a method for identifying stakeholders was identified and suggested through the cone: in participatory workshops, participants were invited to express their creative potential and identify as many stakeholders as possible. For testing and internal validation purposes, a participatory workshop was organized with seven staff members (including a member of the Board of Directors and two senior managers) working with stakeholders on a regular basis. The workshop had three consecutive sessions: introduction, identification, and mapping of stakeholders (the core session of the workshop),

and a final discussion to refine the identification and mapping. After an introduction to the methodology proposed for the workshop and the Stakeholders Mapping Cone, participants were invited to identify stakeholders and map them in the cone. A scenario-based workshop was chosen to facilitate participants' engagement. The scenario used for the workshop is the following thought exercise: "Amber is a young fashion designer. She just launched her brand and found her first resellers. In classes at the design school, a professor talked about the importance of protecting a brand identity. Amber starts looking around for advice on which is the best strategy to adopt."

All participants were seated around a table, where a printout of the cone, as shown in Figure 5, was laid out. The research team acted as facilitators and recorded all stakeholders identified by the participants on the cone. In the core session of the workshop, participants used the cone creatively and effectively to identify and map stakeholders. The method of starting the creative process from a speculative but realistic scenario triggered dynamic collective thinking. At the beginning of the workshop, participants revealed a need to get rules and guidelines, but once they understood that the workshop should not follow a rigid script, the creative process developed smoothly. At the end of the workshop, the cone was populated with several stakeholders, as shown in Figure 7.

Participants identified a total of 28 potential stakeholders, ranging from chambers of commerce and lawyers (which are not only probable, but also actual and established stakeholders) to healthy food shops, hair stylists, and yoga clubs as possible stakeholders. The Stakeholder Mapping Cone sparked creativity among participants, who identified stakeholders that otherwise would have been ignored. On average, each participant identified four stakeholders. After the final discussion, one stakeholder ("association of students") moved from probable to plausible stakeholder; two stakeholders ("Google" and "ChatGPT") moved from plausible to probable stakeholders; and two probable stakeholders ("magazines/journalists") were moved left in the cone because participants agreed that their potential impact and value creation are likely to occur sooner than initially expected.

In total, 12 stakeholders have been identified as probable, five as plausible, and 11 as possible. The method led participants to identify stakeholders across several industries: the majority (11 stakeholders) are from retail, industry, and commerce; six are service providers (which includes chartered professions); three represent digital platforms and the institutional and government sectors respectively, two are from the education sector and professional organizations, respectively; and one stakeholder is from the press and communication industry.

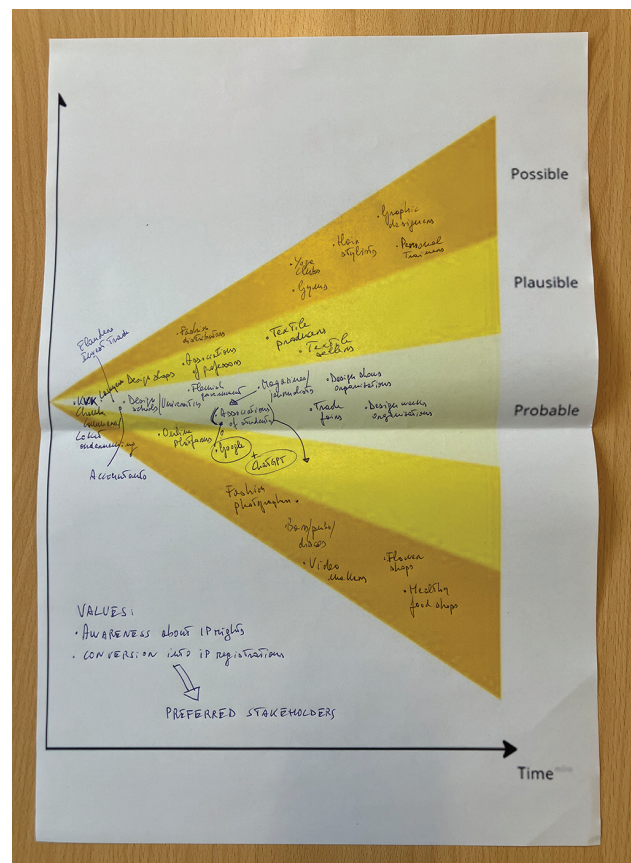


Figure 7. Identifying stakeholders in a participatory workshop using the Stakeholder Mapping Cone

5.5. Opportunities and limitations

Direct observation and final discussions among participants in the participatory workshops during Phases 2 and 4 revealed that all attendees actively and equally participated in the identification of the values underpinning the identification of stakeholders and in the identification of stakeholders. It was also observed that encouraging participants to empathize with the subject's perspective within the scenario effectively stimulated creative thinking. During the final workshop in Phase 4, the speculative thought exercise involved inviting all participants to play the role of Amber, the young fashion designer in the proposed scenario. They openly and freely speculated on what they would do if they were Amber. This speculative exercise proved effective, as evidenced by the fact that only three institutional and government-related stakeholders were identified. Participants demonstrated greater familiarity with institutional partners and stakeholders than with stakeholders from retail, industry, commerce, and the fitness and creative sectors. Nevertheless, they identified more stakeholders from the latter sectors than the former.

A replicable pattern emerges from the findings: to identify and map stakeholders creatively, the research team should invite people to actively consider the interests and needs of a vast array of speculative characters. This finding finds a vast echo in established literature in organizational behavior and management studies, which has emphasized for nearly a century the need to understand and consider other people's interests.^{47,48} This research builds upon and extends those conclusions by suggesting that the interests of fictitious characters within speculative scenarios should be considered to identify and map an organization's stakeholders effectively. Thought exercises are useful for creating a framework that supports creative and empathetic thinking, while what-ifs help participants to broaden and refine their ideas. In this sense, thought exercises and what-ifs complement each other, and both are effective in stimulating creative and critical reflections.

Some limitations of the research must be acknowledged. Regarding the workshop in Phase 4, in particular, the limited number of participants (seven people), their exclusive affiliation with the organization, and the absence of external validation represent key constraints. Such limitations were mainly due to the limited time and resources available for the project, as well as the organization's decision – not to involve external partners at that stage – to validate the methodology and its outcomes. The overall timeframe (10 weeks, including the Christmas break, effectively reduced to 8 weeks) also prevented any long-term validation. As such, a further limitation is that the method's practical impact over time has not been assessed. Nevertheless, there are plans to replicate the method with other organizations to evaluate its long-term effects and impacts.

6. Discussion

The research project addressed several challenges associated with stakeholder identification using a design approach based on participation and speculation. This section focuses on three aspects of the research: first, it reflects on the research question in light of the findings; second, it explores the role of the designer within the project; and finally, it offers a commentary on the application and implications of the speculative design approach adopted.

6.1. Using participatory and speculative design for stakeholder identification

The research reveals that participatory design and speculative design (thinking) are suitable methods to design a methodology and process to identify stakeholders. By the end of the project, it became evident that the organization was capable of creatively and critically identifying its stakeholders using the proposed approach.

This finding was validated by the final workshop, during which participants applied the proposed methodology and provided positive feedback about the experiment.

In particular, the organization managed to identify stakeholders that can create value for the organization, stakeholders, and the broader IP ecosystem. In addition, the findings suggest that the design-driven approach overcomes the limitations of the organizational management perspective. In this case study, stakeholder identification emerged as a naturally evolving and iterative process. Users of the Stakeholder Mapping Cone can add, delete, or move stakeholders at any moment.

Participants' feedback revealed that they appreciated the ample discussion time in all participatory workshops, and the clear clarification of the aims of the identification exercise, that is, establishing the concrete questions, issues, or activities relating to which individuals' and organizations' stakes are examined.²⁷ This research contributes to the understanding that when participants are involved in defining the aims of the stakeholder identification process, conditions are more conducive to productive discussions and richer outcomes.⁴⁶ The findings further suggest that stakeholder identification produces more creative results when participants not only determine the overarching aims of the project but also help establish the values underpinning the identification process.

Finally, a future-looking approach added significant value to the project. Speculative design thinking encouraged the organization to explore new stakeholder possibilities, moving beyond a limited and familiar list of pre-identified stakeholders. The speculative and value-based approach, rooted in projections into the future and combined with active participation, is the most outstanding aspect of the research project. This finding contributes to the literature on stakeholder identification with a design-oriented approach that shows not only the desirability but also the feasibility of identifying stakeholders in a participatory, dynamic, and iterative way.

6.2. The role of the designer: An active facilitator

As a research team, the first task was to create conditions for interaction⁴³ among the organization's members involved in the project. This was initiated through preliminary individual interviews with key staff members to ensure a clear understanding of the project's objectives and to foster engagement. These individuals were subsequently encouraged to interact with the research team and, more importantly, to collaborate with their colleagues during the workshops.

While recognizing that the practices of design facilitation have not been extensively examined in the

literature,⁴⁹ the present approach aligns with Manzini's³⁴ perspective on the designer's role in participatory sessions. He critiques what is often termed "post-it design," wherein the designer's role in co-design processes is narrowly confined to administrative tasks. In such scenarios, creative ideas and design culture tend to fade, reducing the designer to a mere process facilitator. Although digital post-its were used extensively throughout the process, this study rejected such a reductionist view of the designer's role, instead emphasizing the importance of their critical, creative, and dialogic input within the participatory sessions. According to this perspective, designers are expected to contribute to discussions by sharing visions and ideas grounded in their skills and cultural expertise. They should also actively listen to feedback from both their interlocutors and the broader environment in which they operate. Based on this feedback, designers are expected to refine and introduce new, more developed proposals into the conversation.

Designers cannot be passive listeners; experience from this project demonstrates that concrete results would not have been achieved without an active design role. Furthermore, design facilitators need to maintain a clear focus on the core and creative dimensions of facilitation before an event takes place, as this greatly enhances their ability to orchestrate design events effectively.⁴⁹

Participatory design relies on shared responsibility among participants to achieve meaningful outcomes; however, the designer carries the primary responsibility. Designers not only create the conditions for interactions but also ensure the positive outcomes of the project. The present research shows that participatory design methods are highly effective in fostering engagement and creativity, even in management and operational projects, such as stakeholder identification, which are typically performed independently by research teams.

6.3. From speculative design to speculative design thinking

The role of speculative design in our research project is sensitive and challenging. Tools and methods originating from speculative design research were used; however, the radical understanding of speculative design that emerged in the literature review was rejected.

The investigation suggests it is time to reflect on how speculative design can become a more mainstream design practice. Dunne and Raby³⁷ claim that large-scale speculative thinking in speculative design differs both from design thinking (which is about problem-solving) and social design (which, despite distancing itself from purely commercial pre-occupations in favor of human

issues, remains too concerned with fixing things). From a more general perspective, the present research contributes to establishing that designers should break the rigid ties between design, solution, and needs, which are commonly recognized as the starting points of the design process by scholars.⁵⁰⁻⁵³ As noted in the introduction, wicked problems may have different solutions, and often the problem and needs are ill-defined. However, design should bring a change, as suggested by Herbert A. Simon, in his seminal definition of design, "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones."^{54(p.111)} The outcome of the stakeholder identification process leads to a change in how the organization understands, approaches, and works with its stakeholders.

Apart from theoretical debates on whether speculative design qualifies as a legitimate design practice – an idea generally opposed here – there is a risk that speculative design, along with other critical practices, may become overly self-referential and inward-looking, confined to a closed community of practitioners.⁵⁵ Drawing from participatory design and related practices, such as socially responsive design and co-design, may provide a pathway for speculative design to gain broader acceptance in mainstream design practice or at least contribute meaningfully to everyday design challenges. Participatory design, for example, emphasizes the relationship between design and the communities it serves, whether designed for or with them. This approach is often considered progressive within the design discourse and has been fully integrated into the established norms of the discipline.

The present research indicates that speculative methods and tools have significant potential to address various contexts, including stakeholder management within organizations. While acknowledging that the present paradigm of speculative design cannot be entirely transformed, emphasis is placed on its potential application across different domains. This research lays the groundwork for what is proposed as an emerging speculative design thinking framework. This framework builds on speculative and critical mindsets, as well as conceptual tools and methods, to drive change through design in both micro and macro contexts. It operates independently of technology but places a strong emphasis on imagining and preparing for the future through speculation.

7. Conclusion

The research sets the stage for establishing a connection between stakeholder management and design. It shows that stakeholder identification is a design issue and can be tackled through design. Engagement through participatory design

methods and future-oriented speculations is the pillar of the project methodology. They are the first milestones of this research. However, limitations exist due to the use of just one case study, and further research on the implementation of the methodology is needed. Additional test cases with more scenarios in each (in private and government organizations and in different geographical and cultural contexts) are planned to validate the milestones presented in this paper.

The research also identifies another area requiring further investigation. Speculative design provides interesting methodologies and tools that can be used in several projects and scenarios. However, the present practice of speculative design makes it unfit to truly play a role in promoting change within organizations, both due to its exclusive focus on the relationship between technology and society and its radical, almost sectarian, approach to design. The design need not uphold existing power structures, but its primary function should not be to dismantle them either. Taking a pragmatic, designer approach to speculative design can enhance its value and make it a more relevant tool for driving change.

Finally, future investigations will explore a particular area related to participatory stakeholder identification. Research in the field of biases and noise in predictions suggests that, once stakeholders are identified, forecasting their impact in terms of value can be better done individually by different team members rather than together, for example, in a workshop. When people make predictions together, there is a real risk that one (or some) member of the team strongly influence the other, potentially leading to inaccurate predictions and conformism-driven consensus.⁵⁶ In other words, when a team has to make predictions and the stakes are high, participatory design methods show serious limitations. However, the Stakeholder Mapping Cone is designed to be used speculatively both in groups and individually, thus potentially overcoming the limitations of collective predictions.

Acknowledgments

None.

Funding

None.

Conflict of interest

The authors declare they have no competing interests.

Author contributions

Conceptualization: Davide M. Parrilli

Formal analysis: Davide M. Parrilli

Investigation: Davide M. Parrilli

Methodology: Davide M. Parrilli

Project administration: Davide M. Parrilli

Writing – original draft: Davide M. Parrilli

Writing – review & editing: All authors

Ethics approval and consent to participate

Consent to participate is not required because the research uses data that have been fully anonymized.

Consent for publication

Consent for publication is not required because the research uses data that have been fully anonymized.

Availability of data

Data used in the research can be made available to readers on request, subject to privacy restrictions.

References

1. Rittel HW, Webber MM. Dilemmas in a general theory of planning. *Policy Sci.* 1973;4(2):155-169.
doi: 10.1007/BF01405730
2. Papanek V. *Design for the Real World*. United Kingdom: Thames and Hudson; 2019.
3. Ceschin F, Gaziulusoy İ. *Design for Sustainability: A Multi-Level Framework from Products to Socio-Technical Systems*. England: Routledge; 2020.
4. Bijl-Brouwer MVD, Malcolm B. Systemic design principles in social innovation: A study of expert practices and design rationales. *J Design Econ Innovat.* 2020;6(3):386-407.
doi: 10.1016/j.sheji.2020.06.001
5. Tromp N, Hekkert P. *Designing for Society: Products and Services for a Better World*. London: Bloomsbury Visual Arts; 2019.
6. Aligica PD. Institutional and stakeholder mapping: Frameworks for policy analysis and institutional change. *Public Organiz Rev.* 2006;6(1):79-90.
doi: 10.1007/s11115-006-6833-0
7. Styk K, Bogacz P. A method for stakeholder mapping in connection with the implementation of a development project. *Energies.* 2022;15(4):1592.
doi: 10.3390/en15041592
8. Freeman RE. *Strategic Management: A Stakeholder Approach*. United Kingdom: Cambridge University Press; 2010.
9. Catzín-Tamayo A, Frausto-Martínez O, Arroyo-Arcos L. Stakeholder mapping and promotion of sustainable development goals in local management. *J Environ Stud Sci.* 2022;12(3):611-626.

- doi: 10.1007/s13412-022-00761-1
10. Payne A, Ballantyne D, Christopher M. A stakeholder approach to relationship marketing strategy. The development and use of the “six markets” model. *Eur J Mark.* 2005;39(7-8):855-871.
doi: 10.1108/03090560510601806
 11. Rivera-Camino J. Re-evaluating green marketing strategy: A stakeholder perspective. *Eur J Mark.* 2007;41(11-12):1328-1358.
doi: 10.1108/03090560710821206
 12. Olander S, Landin A. Evaluation of stakeholder influence in the implementation of construction projects. *Int J Project Manage.* 2005;23(4):321-328.
doi: 10.1016/j.ijproman.2005.02.002
 13. Varvasovszky Z, Brughla R. A stakeholder analysis. *Health Policy Plan.* 2000;15(3):338-345.
doi: 10.1093/heapol/15.3.338
 14. Freeman RE, Reed DL. Stockholders and stakeholders: A new perspective on corporate governance. *Cal Manage Rev.* 1983;25(3):88-106.
doi: 10.2307/41165018
 15. Mitchell RK, Agle BR, Wood DJ. Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Acad Manage Rev.* 1997;22(4):853-886.
doi: 10.2307/259247
 16. Marie S. Stakeholder profile and stakeholder mapping of SMEs. *Littera Scripta.* 2016;1:123-139.
 17. Clifton D, Amran A. The stakeholder approach: A sustainability perspective. *J Bus Ethics.* 2011;98(1):121-136.
doi: 10.1007/s10551-010-0538-6
 18. Harrison JS, Wicks AC. Stakeholder theory, value, and firm performance. *Bus Ethics Q.* 2013;23(1):97-124.
doi: 10.5840/beq20132314
 19. Freudenreich B, Lüdeke-Freund F, Schaltegger S. A stakeholder theory perspective on business models: Value creation for sustainability. *J Bus Ethics.* 2020;166(1):3-18.
doi: 10.1007/s10551-019-04112-z
 20. Freeman RE. Managing for stakeholders: trade-offs or value creation. *J Bus Ethics.* 2010;96(1):7-9.
doi: 10.1007/s10551-011-0935-5
 21. Breuer H, Lüdeke-Freund F. Values-based network and business model innovation. *Int J Innov Manage.* 2017;21(03):1750028.
doi: 10.1142/S1363919617500281
 22. Argandoña A. Stakeholder theory and value creation. *SSRN J.* 2011;922:15.
doi: 10.2139/ssrn.1947317
 23. Bridoux F, Stoelhorst J. Stakeholder theory, strategy, and organization: Past, present and future. *Strateg Organ.* 2022;20(4):797-809.
doi: 10.1177/14761270221127628
 24. Jones TM. Instrumental stakeholder theory: A synthesis of ethics and economics. *Acad Manage Rev.* 1995;20(2):404.
doi: 10.2307/258852
 25. Donaldson T, Preston LE. The stakeholder theory of the corporation: Concepts, evidence, and implications. *Acad Manage Rev.* 1995;20(1):65-91.
doi: 10.2307/258887
 26. Scrich VM, Elliff C, De Andrade MM, Grilli NM, Turra A. Stakeholder analysis as a strategic tool in framing collaborative governance arenas for marine litter monitoring. *Mar Pollut Bull.* 2024;198:115799.
doi: 10.1016/j.marpolbul.2023.115799
 27. Reed MS, Graves A, Dandy N, et al. Who's in and why? A typology of stakeholder analysis methods for natural resource management. *J Environ Manage.* 2009;90(5):1933-1949.
doi: 10.1016/j.jenvman.2009.01.001
 28. Cross N, ed. *Proceedings of the Design Research Society International Conference, 1971: Design Participation.* London: Design Research Society; 1972. Available from: <https://dl.designresearchsociety.org/conference-volumes/1>
 29. Bødker S. Creating conditions for participation: Conflicts and resources in systems development. *Hum Comput Interact.* 1996;11(3):215-236.
doi: 10.1207/s15327051hci1103-2
 30. Bødker S, Dindler C, Iversen OS, Smith RC. What is participatory design? In: *Participatory Design. Synthesis Lectures on Human-Centered Informatics.* New York: Springer International Publishing; 2022. p. 5-13.
doi: 10.1007/978-3-031-02235-7-2
 31. Sanders EBN, Stappers PJ. Co-creation and the new landscapes of design. *CoDesign.* 2008;4(1):5-18.
doi: 10.1080/15710880701875068
 32. Prahalad CK, Ramaswamy V. Co-creation experiences: The next practice in value creation. *J Interact Mark.* 2004;18(3):5-14.
doi: 10.1002/dir.20015
 33. Buchanan R. Design ethics. In: Mitcham C, editor. *Encyclopedia of Science, Technology, and Ethics.* Vol 2. United States: Thomson Gale; 2005. p. 504-510.

34. Manzini E. *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. United States: The MIT Press; 2015.
35. Poulsen S, Ipsen C, Gish L. Applying the chronicle workshop as a method for evaluating participatory interventions. *Int J Hum Factors Ergon*. 2015;3(3-4):271.
doi: 10.1504/IJHFE.2015.073002
36. Malpass M. Critical design practice: Theoretical perspectives and methods of engagement. *Design J*. 2016;19(3):473-489.
doi: 10.1080/14606925.2016.1161943
37. Dunne A, Raby F. *Speculative Everything: Design, Fiction, and Social Dreaming*. United States: The MIT Press; 2013.
38. Manzini E. *Politics of the Everyday*. United Kingdom: Bloomsbury Visual Arts; 2019.
39. Bauman Z. *Liquid Modernity*. United Kingdom: Polity Press, Blackwell; 2000.
40. Simonse L. *Design Roadmapping: Guidebook for Future Foresight Techniques*. Delft: TU Delft OPEN Publishing; 2024.
doi: 10.59490/tb.84
41. Bokulich A. Rethinking thought experiments. *Perspect Sci*. 2001;9(3):285-307.
doi: 10.1162/10636140160176152
42. Barendregt L, Vaage NS. Speculative design as thought experiment. *She Ji J Design Econ Innovat*. 2021;7(3):374-402.
doi: 10.1016/j.sheji.2021.06.001
43. Penin L. *An Introduction to Service Design: Designing the Invisible*. United Kingdom: Bloomsbury Publishing; 2017.
44. Meroni A, Sangiorgi D. *Design for Services*. United Kingdom: Gower; 2011.
45. Morelli N, Götzen A, Simeone L. *Service Design Capabilities*. Germany: Springer; 2021.
doi: 10.1007/978-3-030-56282-3
46. Skarlatidou A, Suskevics M, Göbel C, et al. The value of stakeholder mapping to enhance co-creation in citizen science initiatives. *Citizen Sci Theory Pract*. 2019;4(1):24.
doi: 10.5334/cstp.226
47. Covey SR. *The 7 Habits of Highly Effective People: 30th Anniversary Edition*. United States: Simon and Schuster; 2020.
48. Carnegie D. *How to Win Friends and Influence People*. New York City: Pocket Books; 2010.
49. Aguirre M, Agudelo N, Romm J. Design facilitation as emerging practice: Analyzing how designers support multi-stakeholder co-creation. *She Ji J Design Econ Innovat*. 2017;3(3):198-209.
doi: 10.1016/j.sheji.2017.11.003
50. Norman DA. *The Design of Everyday Things. Revised and expanded edition*. New York City: Basic Books; 2013.
51. Archer LB. Systematic method for designers. In: Cross N, editor. *Developments in Design Methodology*. United States: John Wiley and Sons Ltd.; 1984. p. 68-82.
52. Alexander C. The determination of components for an Indian village. In: *Conference on Design Methods*. United Kingdom: Pergamon Press; 1963.
53. Dorst K. Design beyond design. *She Ji J Design Econ Innovat*. 2019;5(2):117-127.
doi: 10.1016/j.sheji.2019.05.001
54. Simon HA. The science of design: Creating the artificial. *Design Issues*. 1988;4(1-2):67-82.
doi: 10.2307/1511391
55. Malpass M. Between wit and reason: Defining associative, speculative, and critical design in practice. *Design Culture*. 2013;5(3):333-356.
doi: 10.2752/175470813X13705953612200
56. Kahneman D, Sibony O, Sunstein CR. *Noise: A Flaw in Human Judgment. First Little, Brown Spark paperback edition*. Auckland: Little, Brown Spark; 2022.