

Human Connection as the Design Goal:

A Value-Sensitive Design Approach to Reputation and Recognition in Multi-Community Collaborative Platforms

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Preface

In some sense, this thesis began in Argentina. When my MDP group and I were there for our elective project, some of them were already actively working on their thesis, sending emails to potential supervisors, and looking for interesting projects. That energy, a little bit stressful, but mostly motivating, pushed me to start looking for a project as well. It led me straight to Alkemio, which had a very broad and open question that the student could define, and to Professor Mark de Reuver as my supervisor before the second quarter had even started. For those who know me, it will come as no surprise that having a clear plan and a defined direction early on was exactly what I needed. Overall, I do appreciate some clarity.

Looking back, ending up with this particular topic was not coincidental. Throughout both my bachelor's in Technische Bestuurskunde and my master's in CoSEM, I have chosen the Information and Communication track. I was always drawn to the intersection of information technologies and our society. The question that for me kept coming back was not how to build the most efficient or profitable platform, but how to build one that actually fits the people and purpose of it. The course Digital Platform Design in my master's was something that really emphasized this, and what I enjoyed very much. So when I came across the Alkemio initiative, where I could be working on a collaborative platform trying to find a solution for societal challenges, it felt like a good fit.

Working with Alkemio is one of the highlights of this process. Neil received me with open arms from the very first moment and was always ready for a chat, whether about the research or just about how things were going. Robin, my daily contact, consistently brought sharp and genuinely thoughtful insights to our conversations and had an enthusiasm for the academic side of the work that was motivating me to think things through very well. I also want to thank the rest of the Alkemio team for making the office a warm and lively place. It made the whole process feel much less like working in isolation, which a thesis can be, and much more like being part of something. Especially with me being present for some of the adaptations Alkemio is going through.

I also want to thank my two TU Delft supervisors, Professor Mark de Reuver and Lavinia Marin. Who, due to their personal expertise, approached this research from very different angles. This sometimes meant getting contradicting feedback, but in reality, it always leads to stronger and better research. Mark kept the technical design grounded and practical. Lavinia sharpened the ethical dimensions and made sure that I was thinking carefully about what my research was actually claiming. The friction between their perspectives made the final work better, and both were always ready to help when I needed it.

To everybody who participated in the interviews and the focus group, I want to thank you. Thank you for giving your time and sharing your views with me. This research is built on what you shared, and I am very grateful for your help.

Finally, to the people who made this process liveable from the outside. To Gerlieze, my one CoSEM study friend also doing her thesis at this time. There is something very valuable about not having to go through this process alone and having someone who understands exactly what you mean. Being able to debrief after a meeting, compare notes, and know that someone else is in the same boat made a real difference. To my other friends, many of you equally deep in your own graduation process these last months, I want to thank you all for being able to study together and still have some fun in between. And last, I also want to thank my partner for being there through it all. For the listening ear, even when the stories were probably quite repetitive, for the patience, and for doing your best to make everything around me run as smoothly as possible, so I could focus fully on this.

*Marlise Verwijns
Delft, May 2026*

AI Statement

During the preparation of this thesis, ChatGPT-5.5 by OpenAI was used for Overleaf assistance. Claude.AI-4.6 was used to assist with writing flow, reduce the length of certain sections, and draft the summary on the basis of the main text. Grammarly was used for grammar and spelling checks. After using these tools, all content was reviewed and edited by the author, who takes full responsibility for the content of this thesis. These tools were never used to generate ideas or arguments.

Summary

Collaboration platforms are increasingly used to address complex societal challenges, enabling actors from different organisations and communities to work together across geographic and institutional boundaries. For these platforms to function effectively, they must sustain participation over time and build trust between contributors who often do not know one another. Reputation and recognition mechanisms are one response to this challenge. A reputation system makes past behaviour visible, so that trust between strangers becomes possible and recognition mechanisms acknowledge contributions in order to motivate participation on the platform. When a platform hosts multiple distinct communities with differing norms, goals, and value priorities, designing these mechanisms becomes significantly more complex. A reputation signal meaningful in one community may be irrelevant in another, and recognition calibrated to one community's standards may feel unfair in a second. This multi-community design challenge, and the absence of design principles that address it, is the knowledge gap this research fills.

Based on the identified knowledge gap and problem statement, the following research question was formulated: *What design principles are needed to support value-aligned reputation and recognition mechanisms in multi-community collaborative platforms?*

This thesis investigates what design principles are needed to support value-aligned reputation and recognition mechanisms in multi-community collaborative platforms. The research was conducted in collaboration with Alkemio, an EU-built platform for multi-stakeholder collaboration. In this study, Value Sensitive Design (VSD) is used as the research approach. VSD uses three different phases of research that keep human values central in the design process. The conceptual investigation drew on a structured literature review, the empirical investigation consisted of nine semi-structured interviews with three stakeholder groups and a focus group, and the technical investigation translated the findings into design requirements through value hierarchy specification. Given the novelty of the multi-community design challenge, this research is exploratory in nature, aiming to map the relevant values and produce initial design principles rather than to fully specify any single value or mechanism.

The conceptual investigation established that reputation and recognition are not independent mechanisms but deeply intertwined in practice. Recognition that is visible to others becomes a form of reputation signal, and a strong reputation leaves contributors feeling acknowledged. The conceptual investigation also found that VSD focuses on ethical values while reputation and recognition connect to psychological values as well, with a main role for Self-Determination Theory (SDT) focused around autonomy, relatedness, and competence. Since both inventories overlap substantially and VSD acknowledges no value inventory is exhaustive, a combination of ethical and psychological values is needed to design these mechanisms for positive collaborative rather than competitive individual behavior.

The empirical investigation confirmed and extended these findings across three stakeholder groups, identifying eleven values as relevant: accountability, authenticity, autonomy, competence, fairness, inclusivity, privacy, relatedness, respect, transparency, and trust. Three consistent findings emerged. First, participants described personal connection, intuition, and relational trust as more decisive than any formal reputation signal. Second, there was universal skepticism toward quantitative tracking and automated recognition, with participants describing such mechanisms as hollow and demotivating. What mattered was being acknowledged by someone who genuinely engaged with the contribution and understood its value. Third, privacy and autonomy were consistently the dominant values, with participants drawing a clear line between a platform that supports collaboration and one that controls it.

From the empirical and theoretical findings, eleven value hierarchies were constructed using the VSD value hierarchy method. Each value was specified in norms and then further into design requirements. The norms were found from the empirical research, producing a set of 28 design requirements. The specification process surfaced value conflicts, all clustering around the tension between privacy and the visibility that reputation mechanisms require. These were resolved through satisficing with a high privacy threshold, with an opt-out rather than opt-in approach largely preserving transparency in practice. The respect value, while essential, proved very difficult to operationalise.

Combining all these results produced five design principles. The first principle is that the platform makes the collaboration network visible, enabling trust through trusted third parties rather than formal credentials alone. The second is peer recognition over platform automation, prescribing that recognition must come from people rather than platforms, focused on the impact and usefulness of a contribution rather than on activity volume. The third is visibility as the default, privacy as the choice, giving contributors autonomy and accountability over what becomes visible about them outside their community. The fourth is that the platform enables, but the human chooses, meaning mechanisms are non-prescriptive and non-competitive, with the platform intervening only when legal or community boundaries are broken. The fifth is that respect matters, but design possibilities are limited, acknowledging that how someone treats others in a collaboration emerged as a highly valuable reputation signal, yet one that is very difficult to capture without harming privacy, autonomy, and fairness. The principle therefore, does not prescribe a mechanism but names an honest boundary of what platform design can achieve.

These five principles combined point to one distinct conclusion, human connection is the design goal, but is simultaneously also a design limitation. The most valuable reputation and recognition signals are inherently human and relational, and that platform technology is structurally limited in its ability to facilitate them. A platform can create the conditions that make human connection more likely, but it cannot produce human connection itself. This is not a limitation of the research but one of its most important findings. It establishes not only what design principles are needed but also where design reaches its limit.

The main limitations of this research are the small research sample, which limits generalisability, the exploratory depth of the value hierarchies, meaning each value was only partially specified, the fact that the proposed design features were not validated with users, and the reflexivity challenge that values stable during design may shift in implementation. Scientifically, this research contributes the demonstration that a purely ethical VSD value inventory is insufficient for motivational systems, the empirical confirmation that reputation and recognition should be designed as a coherent whole rather than independently, and evidence that the collaborative platform context explains when and why certain mechanisms from the literature succeed or fail. Societally, it shows that public interest platforms need a fundamentally different design logic from commercial ones. The design principles offer a theoretically grounded and empirically informed foundation for platform designers building multi-community collaborative platforms whose purpose is genuine societal collaboration rather than engagement metrics.

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Introduction

As a society, we can benefit from having opportunities to collaborate across organisational or geographical boundaries. This is because solving complex societal challenges, from climate change to public health, is rarely possible within the borders of a single organisation or sector, and finding solutions requires bringing together people with different expertise, perspectives, and resources. Ritala (2023) describes how the European Union, for instance, faces challenges that are multi-actor problems demanding coordination across sectors and disciplines at scale, and bringing all those parties together is a challenge (CEPS, 2025). Online collaboration platforms play a growing role in enabling this kind of multi-stakeholder work, as they remove the geographical difficulties. However, the success of these collaborations depends on the platform's ability to attract users, sustain participation over time, and build trust between contributors who often do not know one another (Khoros, 2025).

Platform owners can embed values and govern the public interest through platform architecture design (Boudreau and Hagiu, 2008; Farrell and Katz, 2000). Public-interest technology (PIT) is technology specifically designed to have a positive societal impact (Carayannis and Draper, 2025). Platforms that focus on enabling multi-stakeholder collaboration for addressing societal challenges can be seen as PIT. For those platforms, getting this design right is important to make sure the design elements contribute to the goal of the platform and the societal goal.

One possible design avenue to address this challenge is through reputation and recognition mechanisms, as these play a central role in building online trust and motivating users for participation and engagement. A reputation system captures feedback about a user's past behaviour, showing who is trustworthy and encouraging honest behaviour (Resnick et al., 2000). Reputation is called the online version of 'word-of-mouth' (C. Dellarocas, 2003). Recognition is the public acknowledgement of a user's contributions, often expressed through badges or titles, aimed at motivating continued participation (Campanella, 2024; Gainsight, 2025). When such a community platform has multiple distinct communities, it is called a multi-community platform. Each community has its own identity, goals, and norms, yet the platform encourages users to participate in more than one community.

1.1. Problem statement

How to design reputation and recognition mechanisms in a way that supports trust and real motivation across diverse communities remains unclear, because a reputation signal meaningful in one community may be irrelevant in another, or recognition given to one community's standards may feel unfair in a second. This is all because each community can be very different from another. Users whose contributions go unrecognised can lose motivation, users who are not able to trust the reputation score cannot assess the credibility of a contribution, all of which will do the value of collaboration no good. These mechanisms also function to protect the platform and its users from bad actors. By making past behavior visible, they allow contributors to assess the credibility of others and make informed decisions about who to collaborate or connect with. A strong reputation or visible recognition signals reliability, while not seeing those signals shows a doubtful picture and can be detected by the platform and avoided by its users.

So how should reputation and recognition work across contexts? Each community having their own completely independent mechanisms gives a high entry barrier and does not incentivize users to participate in more than one community. Just transferring reputation and recognition from one community to another might not give enough credit to the importance of context, community identity, or the chance of different values underlying each community.

1.2. Research scope

This research focuses on the design of reputation and recognition mechanisms for multi-community collaborative platforms, with Alkemio as the commissioning organisation and primary design context. It is a platform that combines a multi-community architecture with an explicit public-interest mission (Alkemio, n.d.). The research design, findings, and design outputs are not specific to Alkemio and the aim is to produce principles applicable to any multi-community collaborative platform with similar public-interest characteristics.

The research is limited to the design of reputation and recognition mechanisms and does not address other platform design elements. The empirical research involved users of various collaborative platforms and facilitators of multi-stakeholder collaborations, reflecting perspectives beyond the Alkemio context alone. The research does not include implementation or empirical validation of the proposed design requirements.

1.3. Research approach

For collaborative platforms to genuinely benefit society with both their outcomes and their design, rather than simply maximise engagement, design needs to take human values seriously from the outset. The research objective is to develop design principles for value-aligned reputation and recognition mechanisms in multi-community collaborative platforms. To achieve this, a methodology is needed that can both identify which values are at stake in this context and translate those values into design decisions. Therefore, a Value Sensitive Design (VSD) approach is adopted. This is a design methodology that accounts for human values in a systematic manner throughout the design process, ensuring these values are embedded in the design from the start (Friedman et al., 2013). This research is exploratory in nature, starting from identifying which values are relevant to reputation and recognition design in this context before translating those into design principles.

VSD works by combining three different phases of investigation, the conceptual, empirical, and technical strands (Friedman et al., 2002). In this research both the conceptual and empirical strands are exploratory, focusing on identifying which values are relevant to reputation and recognition design collaborative platforms. The technical investigation translates these findings into design requirements and design features, using a value hierarchy by Van de Poel (2013), and identifies value conflicts that emerge from the specification process, eventually synthesizing all these results into overarching design principles. The research methodology is further elaborated in Chapter 3.

This research is conducted in collaboration with Alkemio, a platform for collaboration in the spaces between organisations where communities can work together on challenges, innovations, and solutions (Alkemio, n.d.). Alkemio combines a multi-community architecture with an explicit public-interest mission, enabling collaboration across organisational and geographical boundaries. Alkemio currently has no explicit reputation or recognition mechanisms and is actively aware of the risks of designing them badly. Understanding how to approach this responsibly, in a way that serves contributors and the platform's societal mission, is what motivated this collaboration.

1.4. Relevance

1.4.1. Scientific relevance

This research aims to contribute to academic knowledge by identifying which values are relevant to reputation and recognition design in multi-community collaborative platforms from the perspective of users and facilitators of collaboration. An empirically grounded understanding of the values at stake can work as a foundation for any design work in this area. The research gap that motivates this contribution is identified in Chapter 2. For the practical development of public-interest collaboration technologies, it provides abstract design principles and more concrete design requirements and features that platform designers can apply when building or scaling multi-community platforms.

1.4.2. Societal relevance

As discussed in the introduction, collaborative platforms play an important role in addressing complex societal challenges by enabling coordination among diverse stakeholders across organisational and geographical boundaries. The design of their reputation and recognition mechanisms is not a neutral technical element only. How these mechanisms are designed influences how they are used and if users are able to trust each other and generate long-term motivation to participate on the platform. As more public-interest platforms are built and scaled, the need for design principles that genuinely serve contributors and society becomes urgent.

1.4.3. CoSEM relevance

This research project is performed to complete the MSc Complex Systems Engineering and Management (CoSEM) with a specialization in the Information and Communication (I&C) track. The CoSEM master's thesis project aims to design solutions for large and complex socio-technical problems. This problem constitutes a core socio-technical design problem. On one hand, the question is highly technical, to design reputation and recognition mechanisms for a multi-community collaborative platform. However, the question is also deeply societal, as the core need of such a platform is created by complex societal challenges that require a platform where people and organizations can come together. The question of value-sensitive mechanisms that adhere to ethical values is also deeply societal. We are in need of public interest technology, instead of big tech that extracts value for shareholders rather than building it for society. VSD was addressed throughout the programme as the method for ethical and responsible technology design through stakeholder involvement, and this thesis demonstrates that capability in practice by grounding design requirements in what stakeholders value, navigating complex value tensions, and translating them into a design artefact. Having this focus on human and values design instead of only technical elements further strengthens the CoSEM design. The specialization of information and communication comes strongly forward in this research, with the focus on platform technology and information technology. Reputation and recognition mechanisms are not neutral technical features. They are platform technology aspects that aim to influence behavior. Designing them well requires understanding how social dynamics, value systems, and platform architecture interact. So the design of reputation and recognition mechanisms for platform technology involves multi-actor dynamics, social structures, and digital architecture, all core elements of a CoSEM thesis.

1.5. Structure

Chapter 2 presents the literature study leading to the knowledge gap. Chapter 3 describes the research methodology. Chapter 4 examines the theoretical foundations of reputation and recognition mechanisms. Chapter 5 connects those foundations to value theory. Chapter 6 presents the empirical findings from the stakeholder interviews. Chapter 7 translates the combined theoretical and empirical findings into design requirements, design features, and a value constitution. Chapter 8 contains the discussion, where the results and their implications are interpreted, and finally Chapter 9 presents the conclusion.

Background of reputation and recognition in multi-community platforms

2.1. Introduction

In this chapter, the literature study conducted is elaborated. This results in a research gap, which helps in the formulation of the research question. To identify the current state of the art academic knowledge on reputation and recognition mechanisms in collaborative platforms, a structured literature review was conducted using Scopus. Scopus was selected because it provides access to peer-reviewed, high-quality academic literature. After refining the research focus, the final search was conducted on February 9, 2026 using the Boolean search query: (*"recognition mechanism"* OR *"recognition system"* OR *"social recognition"* OR *"peer recognition"* OR *"reputation system"* OR *"reputation mechanism"* OR *"reputation management"*) AND (*"collaborative platform"* OR *"peer production"* OR *"commons-based peer production"* OR *"online community"* OR *"community governance"* OR *"cross-context platform"* OR *"context-agnostic platform"*) AND (*design* OR *framework* OR *governance* OR *principle*). The search was applied only to title, abstract, and keyword fields, giving an initial set of 57 research articles. To refine the scope and maintain relevance to recent developments, two different filtering steps were applied, see Figure 2.1 for the complete overview of the selection process. no

First, the article type was defined as 'Conference paper' or 'Article', narrowing the search to 46 documents. Screening of the title, abstract, and keywords of the documents left 30 suitable documents. After reading the introduction and conclusions of the 30 articles, 8 articles were selected for this literature review. In this step, 4 academic research papers were added through snowballing from the already selected research papers. This leads to a final 12 papers that have been selected.

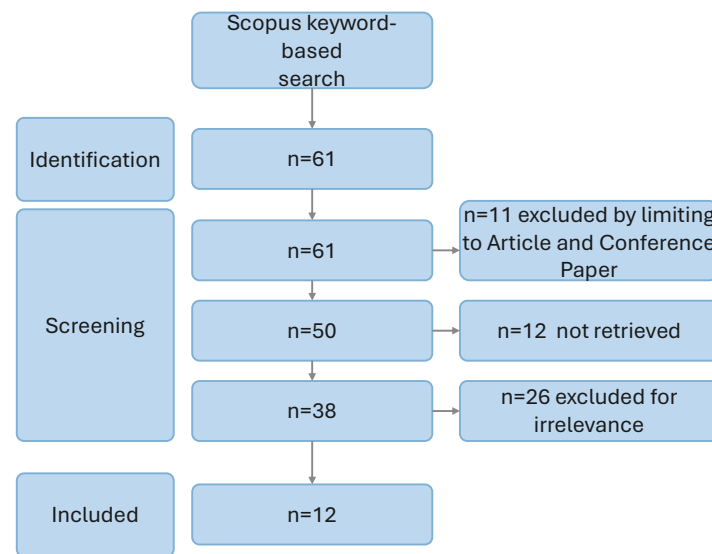


Figure 2.1: PRISMA flow diagram of search and selection process

2.2. Analysis of academic literature

After reading the 12 selected papers, three different discussion themes were identified. The role of reputation and recognition in motivating engagement and participation, the adverse effects that arise when mechanisms function differently than expected, and the critical gap in existing knowledge concerning multi-community platforms that host communities with differing norms and objectives. Table 2.1 gives an overview of the papers used and the themes they discuss.

2.2.1. Engagement motivation

A consistent finding across the literature is the role of reputation and recognition mechanisms in motivating user contributions and participation. Notably, the emphasis lies here in motivating the user to participate and engage, not the community as a whole (Bhattacharyya, Banerjee, & Bose, 2020; Gurtler & Goldberg, 2022; Vargo et al., 2023). Peer-recognition and reputation scores are consistently identified as key motivators, which reinforce participation and encourage long-time engagement (Chen et al., 2018; Jin et al., 2015; Shek & Sia, 2007). However, user motivation is not static, it changes over time, and the effectiveness of the mechanisms changes accordingly (Chen et al., 2018). Several studies emphasize that reputation and recognition mechanisms must be aligned with users' underlying values and engagement levels in order to support sustainable communities (Bhattacharyya, Banerjee, & Bose, 2020; Dong et al., 2020; Park et al., 2020). While Dellarocas (2010) emphasizes that instead of collaboration, reputation mechanisms can also harbor competitive behavior if there is a misalignment.

Additionally, status is also a clear personal motivator for voluntary contribution to build peer recognition and reputation within an online community. Dong et al. (2020) and Lampel and Bhalla (2007) show that low-status users are more responsive to peer recognition and virtual rewards, while that is not the case for high-status users. Further showing that the mechanisms must align with users' needs and underlying values.

Table 2.1: Overview of articles and discussion points

Author (year)	Reputation	Recognition	Engagement motivation	Adverse effects	Multi-community platform
Bhattacharyya, Banerjee, & Bose (2020)		x	x	x	
Chen, Wei & Zhu (2018)		x	x		
Dellarocas (2010)	x		x	x	
Dong et al. (2020)		x	x	x	
Gurtler & Goldberg (2022)	x		x		
Jin et al. (2015)		x	x		
Kassem, Lafourcade & Lakhnech (2015)	x		x	x	
Lampel & Bhalla (2007)	x	x	x		
Park et al. (2020)	x		x	x	
Shek & Sia (2007)	x	x	x		
Vargo et al. (2023)	x		x	x	
Windley et al. (2007)	x				

2.2.2. Adverse effects

While designed to motivate participation, reputation and recognition mechanisms can also have adverse effects. Reputation systems are built on accumulated histories of past behavior, meaning new users have no established record and therefore no visibility or credibility on the platform. This cold start effect creates a high entry barrier that can discourage newcomers from engaging (Dong et al., 2020; Vargo et al., 2023). A possible solution for this is adding offline credentials to accelerate trust building, but Park et al. (2020) demonstrates this disproportionately benefits users with high-status offline backgrounds, reinforcing pre-existing social inequalities and introducing value tensions around fairness and inclusivity. Additionally, Kassem et al. (2015) shows that mechanisms assuming honest user behavior are vulnerable to strategic manipulation, producing distorted reputation values when users do not value integrity as it is implicitly assumed. Bhattacharyya, Banerjee, and Bose (2020) demonstrates that uniform recognition mechanisms fail to accommodate different user behaviors even within a single-community setting. This discourages participation rather than supports it. If such misalignments already produce adverse effects on engagement in a single community context, these risks are likely to be even larger in multi-community settings, because across the communities, different values, norms, and goals will be present. These adverse effects reveal that reputation and recognition design is not value-neutral. In multi-community settings, where different communities may prioritize different values, these risks are likely to be even larger and harder to mitigate.

2.2.3. Multi-community mechanisms

A critical finding in the literature is the contextual limitations of existing reputation and recognition mechanisms. The previous two sections have established that reputation and recognition mechanisms function effectively when they are calibrated to the values, motivations, and goals of the community on which they are implemented. The literature, therefore, shows that context matters deeply. What has not been studied explicitly is what happens when context is no longer singular, but when a platform has multiple communities for collaboration, users are encouraged to participate in multiple simultaneously. In multi-community collaborative platforms, multiple collaboration spaces exist within a single platform, these spaces can differ significantly in terms of goals, norms, and community expectations, and therefore differ in what counts as reputation and recognition.

While the papers lack a concrete mention of mechanisms suitable for multi-community platforms, they do emphasize the importance of non-static user motivations and address the link between community goals and the effective mechanisms. Bhattacharyya, Banerjee, and Bose (2020) similarly emphasizes that one-size-fits-all recognition systems will fail to accommodate heterogeneous behaviors. Both Park et al. (2020) and Windley et al. (2007) focus on the importance of contextualized reputation and recognition mechanisms, as any community will have specific values and norms determined as important for their context.

It remains unknown which values should guide the development of these mechanisms. The values identified in the literature are grounded in single-community research and may not transfer directly to multi-community platforms. It can also be a possibility that they conflict differently across community boundaries, or may be incomplete for a multi-community setting altogether.

2.3. Knowledge gap and research question

While the papers reviewed do not explicitly discuss values, the findings do reveal that design choices in reputation and recognition mechanisms are not value-neutral. Alignment with user motivation, fairness concerns around the cold start effect, and the contextual dependence of what counts as recognition all point to underlying value considerations that have not been explicitly addressed. This is particularly true for multi-community platforms, where these value considerations are likely to interact and conflict in ways that remain unstudied.

The literature shows three important patterns. First, reputation and recognition mechanisms are widely acknowledged as influential in shaping trust, collaboration, and therefore incentivize long-term participation on a platform. Second, it gives insights into the importance of designing these mechanisms according to underlying values and context to enable long-term participation and not have adverse effects. Third, it offers very little guidance on how reputation and recognition should function in a multi-community platform, but the emphasis on context dependence and user heterogeneity indicates that it might need to work differently from what was designed for just a single-community platform.

It is unknown whether reputation and recognition can function similarly in a multi-community platform as in a single-community context. However, the literature does demonstrate that for single community platforms, the mechanisms need to be aligned with relevant values connecting to the context to foster participation. Whether these values operate the same way across community boundaries, whether they create new tensions when multiple communities with different norms coexist, or whether additional or other values become relevant in a multi-community platform, remains open. This knowledge gap motivates the research approach described in Chapter 3, which uses Value Sensitive Design to investigate what values should guide the development of reputation and recognition mechanisms in this context.

Therefore, the objective of this research is to develop design principles for value-aligned reputation and recognition mechanisms in multi-community collaborative platforms. This leads to the following main research question:

What design principles are needed to support value-aligned reputation and recognition mechanisms in multi-community collaborative platforms?

To answer this question, five sub-questions are formulated, each corresponding to one of the three Value Sensitive Design investigations and producing a specific deliverable that informs the next step. These sub-questions are elaborated in Chapter 3.

Research design and methodology

This chapter describes the approach for answering each of the research questions. A more detailed description and justification of the methodology in general is provided as well. Furthermore, the desk research, interviews, and focus group approaches will be described.

3.1. Research approach

This research adopts a design-oriented research, specifically Value Sensitive Design (VSD). A design approach is appropriate when a study aims to address a gap in the functioning of an information system and when the objective outlined in the question is to create a design artefact. A design artefact can be a framework, model, or set of design principles or guidelines to help the development of the information system.

VSD is a design methodology that accounts for human values in a principled and systematic manner throughout the design process, ensuring these values are embedded in the design (Friedman et al., 2013). It was originally developed in the context of information systems and human-computer interaction, making it well-suited to the design of socio-technical platform mechanisms. Rather than treating values as constraints to be accommodated after design decisions have been made, VSD positions values as primary inputs that actively shape the design from the outset.

VSD shares meaningful common ground with Design Science Research (DSR). Both are design-oriented, they aim not merely to describe or explain a phenomenon but to produce prescriptive knowledge in the form of a design artefact. The key distinction lies in emphasis. DSR focuses on the creation and evaluation of artefacts as solutions to organizational or societal problems (Hevner, 2007; Peffers et al., 2007), while VSD focuses more on the value landscape that should guide and constrain those design choices, and VSD also investigates how those values interact or conflict (Friedman et al., 2002). Given that the central challenge of this research is not a lack of technical solutions but a lack of value-sensitive knowledge for multi-community platforms, VSD provides a more appropriate primary framework.

VSD works by combining three different phases of research, conceptual, empirical, and technical, called investigations (Friedman and Hendry, 2019). The idea is that these investigations should not be seen as fully separate, but that they influence each other and work iteratively. Conceptual research identifies and defines the values concerned. Empirical research looks into the relevant stakeholders and users, how they experience these values, or how they are affected by the design choices. While the technical research dives into the current system features and how they support or undermine the identified values, and how design changes can improve the support of the values.

Van de Poel (2013) describes that in order to accurately translate the values into design requirements, a value hierarchy should be made. This hierarchy is determined by 'specification', the relation by which higher-level elements are translated into lower-level elements in the hierarchy. At the specification level, it becomes possible to identify value conflicts and tensions (van de Poel, 2015). According to him, there are six distinct ways to deal with those conflicts, ranging from cost-benefit analysis and direct trade-offs to respecification and innovation. The method most relevant to this research is satisficing, which does not require full comparability between values but instead sets threshold requirements for each value and seeks a solution that meets all thresholds simultaneously, accepting good enough rather than optimal.

While highly applicable for this research, VSD also has limitations that must be acknowledged. First, identifying and operationalizing values is highly interpretive. What a certain value entails is determined by the stakeholders' culture and context. Different stakeholders may articulate the same value differently or have very different values. A response to counter this could be to take an empirical basis for one's viewpoint (Borning and Muller, 2012). In this research, it is mitigated by combining multiple empirical methods, semi-structured interviews, and a focus group to try to triangulate perspectives and reduce the risk of overvaluing a single stakeholder's perspective and getting a more diverse result (Johannesson and Perjons, 2021). For this reason, the semi-structured interviews are also done on three different groups of stakeholders.

VSD requires a specific empirical context, as the empirical investigation is grounded in how real stakeholders experience the values at stake. This research is conducted in collaboration with Alkemio, which provides a design and platform context. Still, the empirical investigation involved users of various collaborative platforms and facilitators of multi-stakeholder collaborations, not exclusively Alkemio users. This broadens the empirical base beyond a single platform context. The conceptual investigation is grounded in a broad literature base, and the design principles are formulated at a level of abstraction that extends beyond any single platform implementation, supporting their transferability to other multi-community collaborative platforms with similar public-interest characteristics, though this transferability would need to be validated in future research.

This research extends the standard VSD value inventory by including psychological values alongside ethical ones. VSD defines values broadly as what a person or group of people considers important in life, and Friedman and Hendry (2019) reinforce that no single inventory can be complete and that new technologies can surface new values implicated in design. Le Dantec et al. (2009) further argue that VSD's fixed classification risks overlooking values that emerge through empirical engagement with stakeholders, and that locally expressed values should be taken seriously in the design process. Pommeranz et al. (2011) demonstrate this in practice by combining Schwartz's value theory with VSD to account for the personal values stakeholders hold in their own lives alongside the ethical values of societal import. The specific context of reputation and recognition mechanisms makes this openness necessary. These mechanisms function at the intersection of ethics and motivation. A mechanism that is ethically sound but motivationally ineffective will not achieve its purpose, just as a motivationally effective mechanism that ignores ethical values can cause harm. The approach, therefore, remains VSD in its methodology and tripartite structure. The extension concerns only the value inventory, which VSD itself treats as open and context-dependent.

3.2. Sub-questions

Several sub-questions have been formulated to answer the main research question. Each corresponds to one of the three VSD investigations and produces a specific sub-deliverable that informs the next step. See Figure 3.1 for an overview of the research investigations and their corresponding steps.

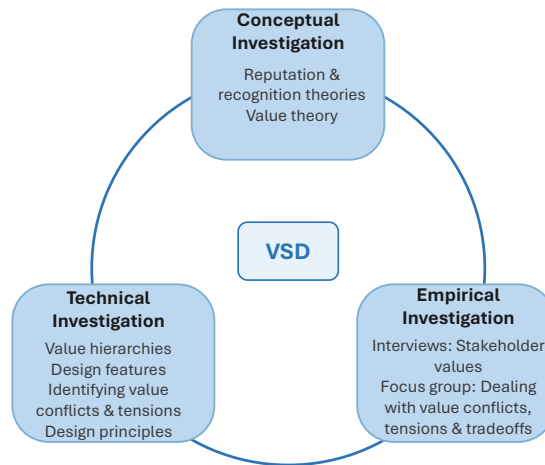


Figure 3.1: Research approach

SQ1: *What are the theories and practices currently used for reputation and recognition mechanisms in collaborative platforms?*

This sub-question establishes the theoretical and practical baseline through a desk study combining academic literature and platform documentation. The output is a structured overview of current theories and practices, which forms the foundation for SQ2 and informs the interview protocol for SQ3.

SQ2: *What are the values that are hypothesised to relate to reputation and recognition mechanisms in collaborative platforms?*

Building on SQ1, this sub-question constitutes the core conceptual investigation. A structured literature review identifies and defines values relevant to reputation and recognition mechanism design. The output is a preliminary value inventory that serves as the theoretical base for the empirical investigation.

SQ3: *What are the values of stakeholders regarding reputation and recognition mechanisms in multi-community collaborative platforms?*

This empirical sub-question investigates stakeholders' perspectives through semi-structured interviews with users of collaborative platforms and facilitators of multi-stakeholder collaborations. The output is an empirically grounded value inventory including the codes that describe how people experience those values and what undermines them, which inform the norms for the technical investigation.

SQ4: *What design requirements and features for reputation and recognition mechanisms in multi-community collaborative platforms emerge from specifying the identified values?*

This sub-question constitutes the technical research strand. A value hierarchy is constructed for each identified value, translating abstract values into concrete design requirements and platform features.

SQ5: *What design principles emerge from combining the design requirements, features, and value tensions identified for reputation and recognition mechanisms in multi-community collaborative platforms?*

This sub-question builds on SQ4, using the design requirements as the basis for identifying value tensions. A focus group is used to discuss how those conflicts can be navigated. The output is a set of design principles that synthesize the design requirements, features, and value tensions into higher-level guidance for reputation and recognition design.

3.3. Qualitative research methodology

3.3.1. Interviews

Interviews were the main source of data for the empirical investigation in this research. They were semi-structured, and the participants were encouraged to share their experiences on the subject. This was done by keeping the questions open and neutral, so as not to guide a response. The questions were asked to elicit stakeholders' perspectives on reputation and recognition, so the questions were not directly framed around values, but around what a platform should or should not do and how they experienced trust and acknowledgement. Because they were semi-structured, the questions were adapted to each participant, and there was room to differ from the interview guide and engage the participant in conversation when suited.

The interview participants were selected in three different roles. Those were facilitators, contributors on Alkemio, and contributors of other platforms. The participants were found through a combination of the network of Alkemio and desk research. The different stakeholder roles were identified for the interviews based on Friedman et al. (2004) distinction within VSD between direct and indirect stakeholders. Direct stakeholders are people who interact with the system directly, while indirect stakeholders are either affected by the system's design or work in the domain the system is intended to support without necessarily using the system themselves. Table 3.1 gives an overview of the participants, and Appendix A an elaboration of the stakeholder rationale and the interview questions.

Nine interviews were conducted across three stakeholder roles. The roles were facilitators of multi-stakeholder collaborations, contributors on Alkemio, and contributors on other collaborative platforms. The interviews were deliberately scoped to end-users and potential end-users of collaborative platforms, as the research focuses on how reputation and recognition are experienced by those who participate in collaborations, not by technical developers or platform builders. The participants were found through a combination of the Alkemio network and desk research. Similar themes emerged across all three roles, suggesting the sample captured the relevant perspectives within this scope. See Appendix A for the full stakeholder rationale and the interview questions.

Table 3.1: Overview of interview participants and their roles

Interviewee	Role	Specification
1	Facilitator	Facilitates on Alkemio
2	Facilitator	Facilitates outside Alkemio
3	Facilitator	Facilitates outside Alkemio
4	Contributor Alkemio	
5	Contributor Alkemio	
6	Contributor Alkemio	
7	Contributor other platform	Contributor/Moderator on Wikipedia
8	Contributor other platform	Contributor on Wikipedia
9	Contributor other platform	Participant on GIG platform

3.3.2. Focus group

In addition to the semi-structured interviews, a focus group was conducted to address the value tensions identified through the value hierarchy specification process. Where the interviews served to establish what values stakeholders consider important, the focus group was designed to present the value conflicts and tensions identified through the specification process to stakeholders, and explore with them how those conflicts could be navigated, and how it could be satisfied. The choice was made for a focus group because it reduces the risk of overvaluing a single perspective and getting a more diverse result, encouraging discussion and conversation among the stakeholder members, which seemed applicable in a situation where innovative solutions are needed to find a way to deal with value tensions.

The focus group consisted of three participants, all contributors on the Alkemio platform. Two participants had also taken part in the individual interviews as contributors of Alkemio, providing continuity with the empirical findings from Chapter 6. Another participant had not been interviewed previously, ensuring that the focus group was not limited to perspectives already captured in the interview data. Recruiting from both groups also allowed for a natural combination of participants who were already familiar with the research context and those who were not. The session was conducted in person at a single location and lasted approximately one hour. Audio was recorded with participants' consent. The focus group consisted of three participants, fewer than originally planned due to last-minute cancellations. While the group size was limited, the session produced rich and engaging discussions among the participants.

The session was structured in three parts. It opened with a brief introduction to the research and its findings, similar in content to the information sent to participants in advance of the session. The core of the session then addressed four value conflicts one by one, each framed as a concrete dilemma between two design requirements that pull in opposite directions. For each tension, participants were asked whether they leaned toward one guideline or the other, or whether they saw a middle ground. Discussion was actively encouraged throughout, and where participants struggled to identify concrete solutions, the researcher offered illustrative examples to prompt further reflection, for instance, suggesting that reputation information might not be shared between spaces by default, while a contributor's membership of a space could still be visible on their profile page as a soft signal. The session closed with a short discussion on two value tensions, cases where the values and their design requirements point to different directions, but do not necessarily contradict each other.

The focus group data were analyzed by reviewing the audio recording, identifying where participants converged or diverged on each tension and what solutions or middle grounds were proposed. These findings are reported in Chapter 7 and inform the final design artefact presented in the conclusion.

3.3.3. Coding procedure

Both the interviews and the focus group were transcribed, and the results were analysed.

Coding interviews

The interview data were analysed using thematic analysis as described by Braun and Clarke (2006). Thematic analysis is a flexible qualitative method for identifying, analysing, and reporting patterns within data. In this research, an inductive approach was taken in the first stage of coding, meaning that codes were derived directly from the data without being guided by the theoretical framework established in Chapters 4 and 5. This ensures that the analysis remained open to stakeholder perspectives and values that may not have been anticipated in the literature. In a later stage, the emerging codes were compared against the theoretical value inventory from Chapter 5 to be consistent with the abductive orientation of VSD research in which empirical findings are expected to both confirm and extend the conceptual groundwork (Borning and Muller, 2012).

A known limitation of thematic analysis is that it relies on the researcher's choices about what to code and how to group codes into themes, making the process inherently interpretive and potentially subjective. To mitigate this risk, the analysis was conducted iteratively, all interviews were coded at least twice, and the codebook was refined continuously throughout the process to ensure consistency and to account for adaptations made during coding.

The analysis followed the six phases of thematic analysis created by Braun and Clarke (2006). The six phases are visualised in Figure 3.2.

In the first phase, the audio recordings were transcribed and read thoroughly before coding began. In the second phase, all segments relating to values, norms, or harms were coded inductively, going through each interview twice to ensure consistency. It was known from the start that the themes were going to be values, but what values and what codes they would show up on was unclear. For the initial codes, the focus was on statements prescribing what should or should not be done to figure out what is important and what the norms are. Going through the interviews a second time revealed, for instance, that codes about respectful behavior, initially only found in the interviews of P7 and P8, were also present in earlier interviews. In the third phase, the codes were grouped into broader themes corresponding to values, with too-specific codes merged where applicable. Comparing the emerging

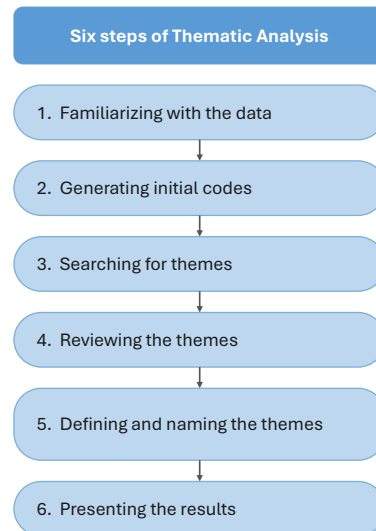
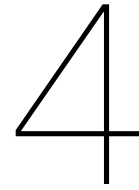


Figure 3.2: Six steps of thematic analysis adapted from Braun and Clarke (2006)

themes against the theoretical value inventory from Chapter 5 revealed that competence and relatedness appeared consistently in the data and were added to the inventory as separate values. In the fourth phase, the transcriptions were revisited to verify the themes against the data, which confirmed that reciprocity, while identified in the theory, did not emerge from the interviews. Some codes and themes were also refined during this phase, such as codes initially labelled as freedom from bias being recategorised as fairness and inclusivity, since the quotes were pointing more toward unfair results than to freedom from bias as a standalone value. The fifth phase produced the final codebook included in Appendix B, and the results are presented per value in Chapter 6.

Coding focus group

The coding process of the focus group was more straightforward than that of the interviews. Participants joined in direct conversation about which value or design requirement they prioritised, which of van de Poel (2015) strategies they found most appropriate, and what middle-ground solutions they identified.



Reputation and recognition in theory

4.1. Introduction

This chapter explores the theoretical foundations and current practices of reputation and recognition mechanisms in collaborative platforms. It aims to answer the first subquestion: *“What are the theories and practices currently used for reputation and recognition mechanisms in collaborative platforms?”* Understanding how these mechanisms function and why they are effective is a necessary first step that establishes the conceptual baseline of this research.

This theoretical chapter deliberately narrows its focus to the theories most directly relevant to intrinsic motivation and trust in collaborative platforms. The theoretical landscape is broad, and not all available frameworks are equally useful here. Theories that treat engagement primarily through behavioral conditioning or competitive incentives are acknowledged but set aside as poor fits for the collaborative context this research addresses. First, section 4.2 examines recognition through the lens of motivation theory, then section 4.3 looks at reputation through the lens of trust and signaling, and finally, section 4.4 synthesizes the two into the argument about why reputation and recognition are intertwined, further establishing why they must be designed together.

4.2. Recognition theory and practice

Recognition can be seen as an external reward, given by a platform, to motivate user participation and engagement in an online, collaborative community. To understand why recognition mechanisms work, or sometimes fail to work, it is necessary to start with what motivates people to contribute to an online collaborative community in the first place. The most comprehensive and empirically grounded account of intrinsic motivation in this context is Ryan and Deci (2000) Self-Determination Theory. It should be noted that contributors on collaborative platforms do not always participate on a purely voluntary basis. Sometimes contributors are paid to engage as part of their professional role, meaning extrinsic motivators coexist with intrinsic ones, for instance, on a collaborative platform like Teams. This research focuses primarily on intrinsic motivation as the foundation for sustainable long-term engagement, because even when a platform is used in a professional set-up, it is still important to engage its users intrinsically so that the platform becomes the preferred method of contribution rather than only something contributors engage with when strictly necessary.

4.2.1. Self-Determination theory

The effectiveness of recognition mechanisms lies in their ability to adhere to humans' intrinsic motivational needs, as explained in Ryan and Deci (2000) Self-Determination Theory (SDT). Their theory describes three core needs that everybody has, whose satisfaction leads to enhanced intrinsic motivation. They are the need of competence, autonomy, and relatedness. Competence describes the need to feel effective, to know that a contribution made a genuine difference and was recognized as such. Autonomy refers to the need to feel that actions are genuinely self-chosen, instead of coerced by external pressure or active surveillance. Relatedness is the need to feel valued and connected to the people one is working with. Not being just acknowledged by a platform's algorithm, but being seen by other human beings. When a recognition mechanism satisfies these needs, it leads to enhanced intrinsic motivation to participate and keep contributing to the collaboration. However, the other side of this theory is that if the mechanism does not satisfy those three needs, it actually diminishes the motivation of the user to engage and participate on the platform.

This observation deserves emphasis because it is frequently ignored in practice. Deci et al. (1999) shows that rewards that feel informational and meaningful tend to support intrinsic motivation, but rewards that feel controlling tend to reduce the intrinsic motivation instead of reinforcing it. For instance, a badge awarded automatically for crossing an activity threshold signals that the platform is tracking output, not that anyone noticed the quality or meaning of the actual contribution. Such mechanisms may produce a short-term behavioral response, but they do so at the cost of the three needs they were designed to support. Bhattacharyya, Banerjee, Bose, and Kankanhalli (2020) confirms this in the context of online communities, they show that first-time recognition functions effectively as a social reinforcer, but that repeated recognition suffers from satiation for the user. The reward loses its meaning if it is given very routinely. Recognition does not seem to be a simple sticker that needs to be given all the time, it requires more meaningfulness to sustain the motivational effect.

In this sense, SDT clearly implies how a platform should design recognition. Mechanisms need to communicate specific, meaningful information about the value of a contribution from someone who genuinely engaged with it and who did so out of their own accord to satisfy competence, autonomy, and relatedness needs. The focus on recognition design should be on what it communicates and where the reward comes from.

4.2.2. Behavioral theory and gamification

Where SDT shows how recognition mechanisms can harness the intrinsic motivation to participate, reinforcement theory explains the behavioral element of recognition mechanisms in practice. Reinforcement theory is focused on influencing behavior instead of personal motivations, it operates from the perspective that behavior can be encouraged or discouraged by the consequences that follow it and is based on the operant theory of Skinner (2014). The idea is that positive reinforcement increases the likelihood of repetition, while the absence of a reward gradually extinguishes the unwanted behavior. Recognition functions mostly as positive reinforcement in this framework, rewarding contribution behavior to increase its frequency (Farzan et al., 2008). These behavioral dimensions are worth acknowledging, as recognition mechanisms are designed to create wanted user behavior. A mechanism that produces behavioral compliance through rewards is not the same as one that sustains genuine motivation. That difference can matter significantly for the quality of collaboration.

This difference becomes visible in gamification. Gamification is defined as the use of game design elements in non-game contexts to motivate participation (Deterding et al., 2011). Common elements are points, badges, levels, and leaderboards, all of which function as recognition by showing user achievements and status. Sailer et al. (2017) shows empirically that badges and performance indicators positively affect users' sense of competence, directly linking gamification to SDT needs. However, its fundamental logic is competitive. As it ranks, scores, and compares contributors against each other. Meske et al. (2016) observed that most gamification implementations reward quantitative elements rather than the quality or value of contributions, causing contributors to optimize for metrics rather than genuine contribution.

Richterich (2014) illustrates this with Reddit's karma system, where users increasingly adjust their posting strategies to maximise karma points rather than contribute genuinely. From a collaborative platform perspective, gamification's emphasis on competition and individual ranking actively undermines the cooperative orientation these platforms uphold and risks eroding the intrinsic motivation that genuine collaboration depends on. For a collaborative platform context, gamification's emphasis on competition and individual ranking sits in tension with the cooperative orientation these platforms uphold and risks eroding the intrinsic motivation that genuine collaboration depends on

Nudge theory offers a more compatible perspective for recognition design in collaborative contexts. A nudge is any aspect of choice architecture that alters behavior in a predictable way, with the important addition that it should not be restrictive, for example, by forbidding options (Van der Heijden & Kusters, 2025). So it means suggesting, but not demanding, and prompting, but not tracking. For instance, setting a sharing toggle to on by default rather than off is a nudge, since it steers contributors toward sharing without forbidding them from turning it off. The boundary to watch is where nudging becomes coercive. When the choice architecture generates pressure through tracking, ranking, or comparison, it crosses from nudging into prescriptive steering. And when it is designed to maximize platform engagement instead of serving a contributor's own goal, it ceases to be a gentle nudge and becomes a prescriptive mechanism.

4.2.3. From theory to practice

The theoretical arguments mentioned map directly onto a distinction that is central to recognition mechanism design. There is a difference between platform-driven and peer-driven recognition (Zhou et al., 2023). Platform-driven recognition mechanisms are rewards or acknowledgements that are generated automatically by the platform for certain achievements. For instance, gamification elements like badges for the 10th or 100th contribution or being active on the platform for a certain amount of time. Where peer-driven recognition emerges through user interaction, such as likes or responses, with these recognition mechanisms, the quality of a contribution is implicitly assessed, as it reflects an actual judgment made by another contributor about the contribution.

From an SDT perspective, peer-driven recognition seems to be the way to go. It directly satisfies the competence need by communicating that another human being found value in the contribution. It satisfies the relatedness need by creating a moment of genuine human acknowledgement. And because it requires a human contributor to make a judgment without being coerced to do so, it also adheres to autonomy. Because there is a connection between two contributors necessary it seems to be more resistant to gaming than automated mechanisms. The challenge with peer-driven recognition is that it cannot be manufactured by the platform itself. The platform must create conditions in which it is encouraged, but it cannot produce it on demand. But recognition that requires genuine human judgement to generate is recognition that means something when it arrives at the receiver.

4.3. Reputation theory and practice

Where recognition mechanisms focus on motivating participation, reputation mechanisms address the challenge of trust. In online collaborative platforms, users typically do not know the other users, creating uncertainty about the other users. They cannot rely on shared institutional context, personal history, or physical co-presence to assess whether a potential collaborator is reliable, competent, or trustworthy. This creates a fundamental problem that, if unaddressed, makes collaboration between strangers difficult to initiate and sustain.

4.3.1. Trust and signaling theory

The theoretical framing of this problem comes from information economics. Akerlof (1970) concept of information asymmetry talks about why platforms can fail when the quality of other contributors cannot be observed. It suggests that without visible signals of quality, contributors on a platform are unable to make informed decisions about which other contributors they should collaborate with and who is less reliable. Reputation mechanisms are designed to reduce this asymmetry by making past behavior visible and interpretable.

Spence (1973) signaling theory explains how this process works. Reputation functions as an observable signal that allows users to infer the more unobservable qualities, such as expertise and reliability. A core element is that the reliability of a signal depends on how costly it is to fake. As the more difficult it is to manipulate the signal, the less it can be gamed and therefore the more reliable it is. For example, a reputation built through peer-assessed contributions is harder to game than one built on activity counts, where a user can just create a lot of low-quality activities, because it reflects the judgments of other users, and so the quality. This means that good reputation designs are mechanisms that are costly to fake and should reflect the quality of contributions instead of quantity.

4.3.2. What reputation should tell

From a design perspective, reputation systems rely on several core principles as defined by Resnick et al. (2000). Their work identifies three essential conditions that any reputation system must include to be credible. The contributor must have a long-lived identity, feedback must be collected and distributed across the community, and past behavior must inform future decisions. These principles ensure that reputation can accumulate over time instead of being fragmented or unreliable. A system without long-lived identities allows users to walk away from a certain reputation by just creating a new account. And a system that does not show the collected feedback does not allow other users to infer a certain reputation. But these three conditions still do not guarantee that what the mechanisms actually communicate is useful for making genuine trust decisions.

McKnight and Chervany (2001) provides a more precise account of what trust actually consists of in this context. They identify three distinct dimensions that need to be satisfied for trust to happen. The first is perceived competence, meaning can this person do what they claim. The second is about benevolence, it asks whether they will act in good faith. And the last aspect is integrity, which asks if the other user follows community norms and keeps their commitments. A reputation system that only speaks to one of these elements gives an incomplete picture of trustworthiness. For instance, showing activity counts but nothing about how someone is in a collaboration gives a potentially misleading picture of that contributor. A lot of common reputation mechanisms do not adhere to all three. For instance, activity counts signal something about competence at best, but nothing about benevolence or integrity. Written recommendations address all three dimensions, but are at the same time vulnerable to reciprocal inflation, where both parties give each other too positive recommendations and only give recommendations to friends or familiar contacts. Peer ratings are somewhere in between, depending on whether the rating criteria address behavioral dimensions or simply output volume. This suggests that the most useful reputation mechanisms reflect a contributor's broader community involvement over time rather than summarising a single type of feedback (Rough et al., 2021), a finding confirmed in research on Wikipedia and open source projects where trust requires a system of signals rather than a single aggregate score (de Laat, 2014). Designing reputation signals rich enough to communicate genuine trustworthiness instead of surface metrics is the goal to actually enable trust between unknown contributors.

4.3.3. The problem of distortion

Regardless of design, reputation systems face predictable distortion problems that deserve some explicit attention. C. Dellarocas (2003) identifies the most common of them. One of the most common is rating inflation, where users give overly positive feedback to avoid conflict or maintain social harmony. This is especially visible in platforms like Uber, where ratings tend to cluster near the maximum. Another issue is social influence bias, where users align their ratings with existing scores rather than forming independent judgments. This effect is particularly strong in systems where previous ratings are visible before giving feedback. In addition, strategic manipulation can occur, where users optimize their behavior to improve their ratings rather than the actual quality of their contributions. For example, contributors may focus on actions that are known to generate positive feedback instead of those that are genuinely valuable. There is also a negative bias in feedback behavior, users are often more likely to leave feedback after a negative experience than after a positive one. When giving feedback is optional, this can lead to skewed reputation scores that overrepresent negative interactions. Unfortunately, these problems are structural and not exceptional. They arise from the social dynamics of feedback whenever that feedback has visible consequences for the person being rated.

These problems are particularly pronounced in aggregated systems such as likes, upvotes, or view counts. While these systems assume that higher volume reflects higher quality, in reality, they are highly sensitive to visibility effects and popularity bias. Content that is already visible or trending is more likely to receive additional engagement, regardless of its actual quality. Reputation mechanisms for open collaboration serve both a descriptive role, providing information on content and contributor quality, and a prescriptive role, providing incentives for constructive behavior (Forte & Lampe, 2013). But when the prescriptive role becomes most important, when reputation becomes a mechanism for driving behavior, rather than showing the quality, the descriptive accuracy of the signal suffers and becomes less trustworthy. Contributors tend to optimize for the signal rather than the underlying quality it is supposed to represent, and the reputation system gradually loses its ability to distinguish between genuine quality and strategic performance.

The implication for design is that resistance to distortion must be a first-order design goal, not an afterthought. Two-sided review structures reduce the power asymmetry that makes one-sided systems vulnerable to inflation. Domain-specific signals reduce the gaming incentive because they require genuine domain investment to inflate. And as Spence (1973) established, signals that are costly to generate without the underlying quality are inherently more reliable than those that are cheap to produce.

4.4. Synthesis of theory

While the underlying theories of reputation and recognition differ, their design practices can overlap. In literature, they are treated as separate mechanisms, one addressing motivation, the other addressing trust. In platform design, the two concepts share similar underlying data, operate on the same contributor behavior, and shape each other's effectiveness.

The connection is most obvious at the level of individual mechanisms. For instance, peer-driven recognition, like a post receiving likes or upvotes, is a user receiving acknowledgement on the quality of that contribution, while at the same time, the amount of likes or upvotes can signal to other users that that contribution and that user are trustworthy and reliable. Similarly, badges serve as recognition of specific achievements while also signaling credibility and expertise to others. Badges illustrate the same overlap from the platform side. They serve as recognition of specific achievements, but as they accumulate on a user's profile, they also signal credibility and depth of involvement to others.

This overlap highlights an important distinction. The quality of a recognition mechanism and the quality of the reputation signal it produces are not independent. A platform that generates recognition through automated activity metrics does not just fail to motivate genuine contribution, it also produces a reputation signal based on quantity rather than quality, misleading others about what kind of collaborator they are dealing with. The other way around shows peer-driven recognition, from contributors with direct knowledge of a contribution, a satisfaction of the SDT needs that sustain motivation while simultaneously producing a reputation signal that is costly to fake, because it requires genuine positive judgments from real collaborators. Good recognition design and good reputation design converge on the same principles.

Besides the difference in underlying theory, there also seems to be a time difference. Recognition primarily functions as a short-term motivational mechanism focused on the individual user, providing immediate feedback and reinforcement at the moment the recognition element is given. Reputation represents a long-term mechanism that signals something to the other users, and that signal is based on past behavior. Both mechanisms feed into each other, recognition elements build reputation over time, and an established reputation, with positive ratings, shapes the intrinsic motivation a contributor feels to collaborate on the platform. Designing them together produces mechanisms that can serve both motivation and trust simultaneously.

This synthesis suggests a clear design position for the rest of this research. Current theories and practices show that recognition works when it satisfies the SDT needs of competence, autonomy, and relatedness. It must feel genuine, human, and specific rather than automated and controlling. Reputation works when it signals something meaningful about a contributor beyond activity counts. It should signal competence, benevolence, and integrity. The design of both should be evaluated not only by whether it produces the intended behavioral effects, but by whether it serves the values that make collaborative contribution meaningful in the first place. In the following chapter, this theory will be combined with human values to take a look at the values connected to reputation and recognition.

5

Values in recognition and reputation design

5.1. Introduction

This chapter aims to answer the second desk research question: SQ2: *What are the values that are hypothesised to relate to reputation and recognition mechanisms in collaborative platforms?* The chapter is structured into two sections. The first section takes a look at what values are and what the theory about them says, drawing on psychological and ethical value inventories. The second part takes this theoretical view to look at the content discussed in Chapter 4, identifying the values relevant to the design of reputation and recognition mechanisms.

5.2. Value theory

There are different value theories relevant to this research. The first comes from the field of psychology, where values are understood as personal beliefs that guide the behavior and decision-making of people, these values are based on personal preferences and motivations (Rokeach, 1973). From this perspective, values can explain what individuals find important in their own lives. This is also the tradition that underlies much of commercial platform design, where psychological values are used to drive individual engagement rather than serve a broader social good, as further discussed in Section 5.2.3. Schwartz (1994) is a key representative of this tradition and is discussed in Section 5.2.1. The second comes from the field of ethics. There, values are less focused on what an individual finds personally motivating, but more on what society as a whole should strive for to realize a good and just society. This theory, represented by Friedman and Hendry (2019) and Van de Poel and Royakkers (2011), is discussed in Section 5.2.2.

5.2.1. Psychological values

Schwartz (1994) created a framework of 10 Universal Human values. These are shown in table 5.1 with the elaboration and several values related to each type. These are not ten values, but value types, each type having a subset of different values below it. He makes the distinction between the types based on motivation and proves in his work that they are recognised across cultures and therefore universal. His framework is interesting because it does not just give an inventory of the ten types, but also elaborates on value conflicts and trade-offs. Some values are compatible and mutually reinforcing, while others are in direct conflict and serve opposite goals. The relationship between the ten types is shown in the last column of Table 5.1, which indicates which types are in direct opposition to each other.

Table 5.1: List of value types as developed by Schwartz (1994), P. 22

Value type	Elaboration	Values	Opposite value type
<i>Power</i>	Social status and prestige, control or dominance over people and resources	Social power, authority, wealth, preserving public image, Social recognition	<i>Universalism</i>
<i>Achievement</i>	Personal success through demonstrating competence according to social standards.	Successful, Capable, ambitious, influential, intelligent, Self-respect	<i>Benevolence</i>
<i>Hedonism</i>	Pleasure and sensuous gratification for oneself	Pleasure, Enjoying life	<i>Conformity/ tradition</i>
<i>Stimulation</i>	Excitement, novelty, and challenge in life.	Daring, varied life, exciting life	<i>Conformity/ tradition</i>
<i>Self-direction</i>	Independent thought and action-choosing, creating, exploring.	Creativity, curious, Freedom, Choosing own goals, Independent	<i>Security</i>
<i>Universalism</i>	Understanding, appreciation, tolerance, and protection for the welfare of <i>all</i> people and for nature.	Broad-minded, social justice, equality, Protecting the environment, a world of beauty, Unity with nature, a world at peace, inner harmony	<i>Power</i>
<i>Benevolence</i>	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact	Helpful, Honest, Forgiving, Loyal, Responsible, True friendship, A spiritual life, mature love, Meaning in life	<i>Achievement</i>
<i>Tradition</i>	Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide	Humble, devout, Accepting my portion in life, Moderate, Respect for tradition, detachment	<i>Hedonism/ stimulation</i>
<i>Conformity</i>	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms	Politeness, obedient, Honoring parents and Elders, Self-discipline	<i>Hedonism/ stimulation</i>
<i>Security</i>	Safety, harmony, and stability of society, of relationships, and of self.	National security, Social order, clean, Family security, Reciprocation of favors, Healthy, Sense of belonging	<i>Self-direction</i>

These psychological values concern elements that individuals find important and that influence their behavior. As the value definitions show, this concerns socially acceptable behavior, but is personally and behaviorally guided and not necessarily focused on the greater good. As Schwartz (2012) notes, values define which types of behaviors are socially acceptable, which links them to behavior rather than to societal norms in the moral sense. This distinction matters for this research. A platform designed purely according to these universal human values might be effective at influencing user behavior and addressing personal values, but that does not mean it is ethically grounded. For instance, Big tech platforms often design for psychological values to maximize attraction, using the motivational logic of those values to drive user behavior and enlarge the network effects and the probable capitalist goal of the platform. That is not the orientation of this research. Psychological values can be used to drive behavior toward any goal, including commercially exploitative ones, without ethical consideration of whether that goal is good for society. For public interest technology and the VSD methodology, the values addressed need to consider what is good for society as a whole.

5.2.2. Ethical values in system design

Friedman and Hendry (2019) also develops a value inventory, however, these values are developed from a very different perspective. Technology systems are never value-neutral as their design always will prioritize certain values over others (Friedman et al., 2004). Therefore, they call for an explicit account of the values at stake in a system's design. Their definition of values is that which is important to people in their lives, with a focus on ethics and morality (Friedman & Hendry, 2019). Van de Poel and Royakkers (2011) defines moral values as beliefs about what is a desirable goal for a good society. They specify that these are not elements of individual preferences that are very flexible, but that these values are necessary elements for the entire society to have a good life, and so do not change. Moral values are matters that people feel should be strived for in general, as a society. They also write about a distinction between intrinsic and instrumental values. Intrinsic or terminal values are valued for their own sake, they show desired end-states such as freedom or security. Instrumental values are means to achieve those intrinsic values, to achieve that desired end-state. For example, a badge may signal respect or competence to a user, which can be a desired end-state, while simultaneously reinforcing certain behavior like helpfulness, which is an instrumental value, a norm for a good society. Norms are a step below values, they specify what behavior is required, permitted, or forbidden in a given situation, what you should or should not do to reach or adhere to the higher values Van de Poel and Royakkers, 2011. VSD is principally concerned with the moral domain, though Friedman and Hendry (2019) acknowledges that personal and conventional values can become morally implicated in certain contexts. *I prefer to use the broader term 'human values' instead of simply moral values to highlight the complexity of social life, and to provide a basis for analyses wherein personal and conventional values can become morally implicated. (Friedman, 1997, p. 5, as cited in Friedman and Hendry, 2019p. 23)* This quote shows that their value inventory is not necessarily limited to only ethical values, but it does focus on the moral elements of all values. Not the value for an individual is important, but the consequences of technological development for society, for ethical values like well-being and justice, are where the focus is. Where Friedman et al. (2004) has created a value inventory of 12 human values with ethical import often implicated in system design. Human welfare, Ownership and property, privacy, freedom from bias, universal usability, trust, autonomy, informed consent, accountability, courtesy, identity, calmness, and environmental sustainability. This is not an exhaustive list, but it provides a starting point for identifying relevant values when designing reputation and recognition mechanisms. Friedman and Hendry (2019) further reinforces that there is not one inventory encompassing all relevant values, as no list can be complete, and new technologies can show new values implicated in design.

5.2.3. Combining the value inventories

VSD focuses on moral values, elements that have a desirable goal for a good society, while psychological frameworks like Schwartz and SDT emphasize personal interests and motivational priorities. Big tech platforms typically design for those psychological values to maximize individual attraction and network effects. The goal of this research is different. VSD for public-interest technology should not focus on what drives engagement, but what serves the ethical and societal good. This does not mean that ethical design should not at all focus on what makes a technology able to use.

As established in Chapter 4, reputation and recognition mechanisms are inherently behavioral and motivational in their operation. A design process that attends only to ethical values without understanding the motivational logic of how these mechanisms function and the values important for the stakeholders using it could produce ethically sound mechanisms, but that would not address the content people actually value. The other way around, a design process that would only focus on the psychological values without ethical constraints risks producing mechanisms that are engaging for most but are not transparent, unfair, hurt privacy, and are not what a society should strive for. Hoth et al. (2024) make this point directly in the context of technology design, arguing that values such as privacy and trust, as well as basic psychological needs, are both embedded in technology by the way it is designed, and that both play an important role in shaping users' experiences and the societal consequences of a digital product. While SDT is initially seen as a psychological theory, Arvanitis (2017) notes that SDT is connected to the development of moral norms. Saying that fulfillment of those motivational psychological needs creates an environment in which ethical behavior and norms are truly upheld. Autonomy is the clearest illustration of this overlap. While Schwartz does not explicitly include it as a standalone value type, it is actualized in SDT as a core psychological need and appears in VSD as a human value with ethical import, showing that the distinction is not always as clear as it may seem.

This, together with the distinction of Friedman and Hendry (2019) that values are what is important to people in their lives, advocates for the inclusion of certain psychological values important to value-sensitive design of reputation and recognition mechanisms. The value inventory developed in the following section draws on both frameworks, making explicit which values derive primarily from the ethical tradition and which from the psychological, while arguing that for reputation and recognition mechanisms, the two are too closely intertwined to be separated. This value inventory developed only functions as a starting point for the empirical research, not as a completely set in stone value inventory for the rest of the research.

5.3. The value inventory

Drawing on the VSD framework supplemented by psychological values when called for and on the reputation and recognition theories discussed in 4, this section develops a preliminary theoretical value inventory that will guide the further empirical research investigations. This inventory presents all values as equally important design considerations, and possible trade-offs or conflicts will be discussed later. Every value in this inventory can be undermined by poor design, and every value must be actively upheld for the mechanisms to produce the desired positive outcome.

The importance of SDT for the design of recognition leads to the inclusion of autonomy, competence, and relatedness in the inventory. Autonomy appears as both a psychological and an ethical value. In recognition mechanisms, autonomy can be threatened whenever a mechanism creates pressure to behave in a certain unauthentic way, which undermines self-direction. Competence describes the need to feel effective and acknowledged for a genuine quality of contribution and is an important value for the design of recognition according to the theory. The last SDT value is relatedness, this value describes the need to feel connected to other humans to feel motivated to contribute and is therefore an important value for the design of recognition mechanisms. These three values are inherently psychological, but of ethical importance because a platform that honours these values not only motivates individual contributors, in this case, it encourages participation on a genuine collaborative platform, something that society should strive for.

Another value coming up in the theory of recognition and reputation is reciprocity. In theory, it is found as a norm that meaningful contributions deserve acknowledgement. When recognition is withheld or reputation signals are inaccurate, people do not receive the reciprocity they expect and deserve. Gouldner (1960) describes reciprocity as one of the most universal norms in human social life. It is about the expectation that something given will be returned in one way or another. In the context of collaborative platforms, this norm underpins both recognition and reputation. Reciprocity is also a psychological value. Individuals expect something back for their effort, which is not necessarily of ethical import. But its ethical importance lies in the fact that the absence of reciprocity is a matter of fairness and justice, if other contributors receive something back for their efforts, everyone should. Meaningful contributions deserve acknowledgement, and trustworthy past behavior deserves future collaboration opportunities.

When looking at the theory, several ethical values appear to be implicated in the design of reputation and recognition mechanisms. Reputation mechanisms are built on the value of trust, which McKnight and Chervany (2001) identifies as resting on three values. Competence concerns the belief that a contributor has the skills and knowledge to perform effectively. Benevolence concerns the belief that a contributor genuinely cares about the well-being of others in the collaboration. Integrity concerns the belief that a contributor adheres to honest and principled behavior. These three components are related to values in the Schwartz framework and together form the basis for interpersonal trust between collaborators. This would suggest trust need not appear as a separate value alongside its components, and it is acknowledged that including all four in the same inventory creates an implicit hierarchy. However, in the context of reputation design, trust also concerns the trustworthiness of the mechanism itself, whether contributors can rely on the reputation signal to accurately reflect past behavior, a concern that is not fully captured by competence, integrity, or benevolence alone, it is also identified as implicated in system design by Friedman et al. (2004). Therefore, trust is kept as a separate value in this inventory, while acknowledging that there is a link between these values.

Accountability requires that past behavior remain visible and credible so that contributors can be held responsible for their actions and the community can function reliably. Fairness requires that mechanisms produce just outcomes and do not systematically disadvantage less visible or less frequent contributors, as C. Dellarocas (2003) and Meske et al. (2016) show that reputation systems often fail to do. Inclusivity extends fairness to actively require that mechanisms are accessible to all contributors regardless of background or starting position, addressing the structural disadvantages that Morschheuser et al. (2017) identify in competitive design approaches. Transparency requires that the workings of mechanisms are understandable and that contributors have genuinely agreed to how their behavior is tracked and used, connecting to informed consent as identified by Friedman et al. (2004). Privacy requires that making behavior visible for reputation purposes does not violate contextual integrity, in Nissenbaum's (2004) sense that information should flow in ways that match the norms of the context in which it was originally shared. Authenticity and honesty require that recognition and reputation signals reflect genuine contribution rather than strategic performance, which Dellarocas (2003) identifies as one of the most persistent failure modes of reputation system design.

Looking across the thirteen values, they operate at two different levels. Some values, such as authenticity, competence, and relatedness, give demands on how reputation and recognition need to be designed and what properties they should have. Others, such as privacy, transparency, and fairness, give more restraints on how the overall platform should function and be governed.

5.4. Synthesis

This chapter aimed to answer SQ2 “*what are the values that relate to reputation and recognition mechanisms in collaborative platforms?*” Drawing on VSD, SDT, and Schwartz, a value inventory of eleven values was developed, shown in table 5.2. Four of these are primarily psychological, eight are primarily ethical, and autonomy sits in both. What connects all these values is the insight that reputation and recognition mechanisms can serve them when well designed and undermine them when poorly designed.

This value inventory is not a final set to design for, but serves as a starting point for the empirical research investigation, with the possibility for additions or removals if elements do not appear in the empirical strand. This answers SQ2 by producing a value inventory of values in theory related to reputation and recognition. Next, the results of the empirical investigation in Chapter 6 will show what empirical values are also found in the literature and vice versa. That investigation will test whether these values are confirmed by stakeholders in practice and whether any values not found in the theory emerge.

Table 5.2: Preliminary value inventory of values related to reputation and recognition design

Value	Mechanism	Rationale
<i>Accountability</i>	Reputation	Persistent identities and visible history create a norm of responsibility (Resnick et al., 2000)
<i>Authenticity</i>	Both	Genuine reputation signals and recognition reflect actual contribution quality and real acknowledgement rather than optimising for metrics (Dellarocas, 2003; Richterich, 2014)
<i>Autonomy</i>	Recognition	Recognition that feels informational rather than controlling supports intrinsic motivation (Deci et al., 1999)
<i>Benevolence</i>	Reputation	Benevolence needs to be visible to enable trust (McKnight & Chervany, 2001)
<i>Competence</i>	Recognition	Contributors need to signal and assess expertise before collaborating, making competence a central function of both reputation mechanisms and meaningful recognition (Ryan & Deci, 2000; McKnight & Chervany, 2001)
<i>Fairness</i>	Both	Visibility bias and quantity-over-quality metrics systematically disadvantage some contributors (Dellarocas, 2003; Meske et al., 2016)
<i>Inclusivity</i>	Both	Competitive gamification structures can enhance inequalities and exclude underrepresented contributors (Morschheuser et al., 2017). Mechanisms can create a high entry barrier
<i>Integrity</i>	Reputation	Integrity needs to be visible to enable trust (McKnight & Chervany, 2001)
<i>Privacy</i>	Reputation	Making past behaviour permanently visible can violate contextual integrity and so privacy (Nissenbaum, 2004)
<i>Reciprocity</i>	Both	The social norm that meaningful contributions deserve acknowledgement underpins both mechanisms (Gouldner, 1960)
<i>Relatedness</i>	Recognition	Peer-driven recognition creates a sense of being valued by the community, not just by an algorithm (Ryan & Deci, 2000)
<i>Transparency</i>	Both	Users should understand and meaningfully agree to how their behaviour is tracked and scored (Friedman et al., 2004)
<i>Trust</i>	Reputation	Reputation systems exist to produce trust between strangers by making past behaviour visible (McKnight & Chervany, 2001)

Values in practice: Stakeholder analysis

6.1. Introduction

This section aims to answer SQ3: *What are the values of stakeholders regarding reputation and recognition mechanisms in multi-community collaborative platforms?*

The empirical investigation of this research consists of nine semi-structured interviews with participants divided into three different stakeholder groups. The first stakeholder group consists of facilitators of multi-stakeholder collaboration, anonymized by P1, P2, and P3. The second group is current contributors on Alkemio, called P4, P5, and P6. And the last stakeholder group is contributors on other collaborative platforms, including Wikipedia and a gig platform, they are anonymized as P7, P8, and P9. The interviews explored how participants experience reputation and recognition in collaborative settings, how they feel about that, and what they think it should be like. Analyzing these interviews gives an overview of the different norms and harms that stakeholders associate with reputation and recognition mechanisms in collaborative stakeholders. These different codes were related to themes constituting of values.

In this chapter, these empirical results will be discussed. Section 6.2 discusses the values found as well as what norms and harms were identified by the participants, grounded in codes and paraphrases from the interviews. Section 6.3 examines whether there are differences in the findings per stakeholder group and connects some overall found patterns, and Section 6.4 connects these empirical findings to the theory in Chapter 5. Lastly, 6.5 will act as a conclusion, and look forward to what this means for the next phase.

6.2. Results per value

In this section, the key results of the interviews are described, see Table B.1 for the full codebook developed. All interviews were coded twice to limit the results to a momentary look. For instance, respect as a value was only found in interviews of P7 and P8, but once this was found and the other interviews were coded again, it was found that other participants also discussed how respect is a signal that shows reputation. Care was taken not to overdo it, to not try to fit the data to the code instead of the other way around, which is visible in appendix C, where, for instance, P2 has no single code for figure C.7, which shows the value privacy. The eleven values are worked out in alphabetical order, as there is no apparent hierarchy between them. There is no more or less important value based on how often the codes were applied. For instance, the value of privacy came up less often, as it was not discussed extensively, but when discussed, the participants were adamant about their statements that it is important. Therefore, frequency was not deemed appropriate as a method to gauge importance. Initially, the coding process was started too specifically, which resulted in several codes being merged or lost as it did not come up again. For instance, the code 'Collaborators should be free to contribute in their own way' is merged with 'Platform should be facilitator, not controller' and 'Collaborators should make their own choices' as they are three different versions of a similar norm that restricts the platform functionalities and emphasizes the autonomy of the contributor.

Accountability of actions

Across all participant groups, contributors expressed a clear expectation that behavior within a collaboration should have consequences. Participants felt that past actions should remain visible and that contributors should not be able to distance themselves from commitments they have made or feedback they have received. The platform should not enable people to erase or manipulate their history, as P8 said: *"That might well be one of the reasons why people tend to get quite upset when others start actively archiving or clearing their talk pages all the time. Because, of course, that's usually not a very good sign."* (Own translation). Even though participant P9 had experience with an unfair rating, he stated that it is important for the reputational value that elements like ratings are immutable. This would diminish the reliability and trustworthiness of such feedback. P7 reinforced this when discussing unaccountable actions: *"Yeah, in that way, anonymity is a curse, people do not feel responsible for their actions"*.

Authenticity of recognition signals

The second value identified as a theme is authenticity. In this case, authenticity is connected to honesty and truthfulness as it became clear from the interviews that recognition only holds value if it is sincere and reflects real acknowledgment, instead of a simplified automated like, for instance. P1 was clear on this: *"I'm always very careful not to give compliments just for the sake of it, but if someone does something, I always try to acknowledge it.... And for me, I always feel it, if it is genuine or if it is not, and that matters."* She also noted the risk of automated metrics that push people for unauthentic contributions: *"I'd be afraid that people start faking it, so that becoming active on the platform becomes an end in itself, and of course it should never be an end in itself. The aim should be to make progress through collaboration, because you're making an effective contribution."* Similarly, reputational elements like ratings should also be authentic and reflect the truth. Platform mechanisms should not be able to be gamed by the users, so as to no longer show authentic behavior and results. In most cases, the participants did indicate that when giving feedback, there can be an implicit pressure to be more positive, but that authentic feedback would be more insightful and valuable, and so ratings should reflect the truth. P6 confirmed what genuine recognition feels like in practice: *"Yes, it is for me most valuable when she actually says to me personally, 'That's really nice,' or 'It's really cool that you're taking all this on and that you've done this.'"*

Autonomy over own actions

Participants consistently expressed the need to feel free in the manner of participation and described tracking and activity display as controlling rather than supporting collaboration. P4 put it plainly: *"I find it difficult, because you don't want a platform to be pushy or anything like that, to be constantly telling you, 'Hey, you can contribute here.'"* P5 stated that extensive monitoring would reduce intrinsic motivation and trust in each other as well as in the platform. P3 elaborated on the consequences of visible activity data: *"I think I'd find that (tracking and displaying other contributors' activity) too distracting, because people might then feel pressured to contribute even though it might not always be the right time to speak. And that way, you end up creating a kind of pressure that might stop people from doing the right thing or making the right contribution."* The participants drew a clear line between a platform that facilitates collaboration and one that takes it over, and strongly preferred the former. Being able to act autonomously and not feel steered by the platform mechanisms is important for the best contributions, motivation to participate, and trust in each other.

Competence and impact signaling

The ability to signal and assess expertise was identified as a central function of reputation mechanisms across all groups. Track records and domain-specific reputation were valued as meaningful signals, with a clear preference for expertise over educational or work background. P4 made this explicit, emphasizing that what mattered was not whether her results were published but whether they were actually being used: *"So in that sense, I don't really mind whether it's actually published, but rather whether I get the impression that it's actually being used."* Other participants similarly described recognition as most motivating when it focused on societal impact and the actual use of their work rather than on formal acknowledgement of output. P2 made the consequences of the opposite explicit: *"That's right, you need to give them that explicit recognition on their capabilities and what they accomplished, because otherwise they won't enjoy working together either. It's as simple as that."* Recognition should make the contributor feel competent, which can be achieved by focusing on the societal use and impact of the work. On the other hand, a lack of recognition for contributions leads to a diminished feeling of competence and capabilities.

Fairness in mechanism outcomes

Participants across all groups expressed concern about whether reputation and recognition mechanisms produce fair outcomes. Visible or quantitatively active contributors tend to accumulate recognition regardless of actual contribution quality, while less visible work goes unacknowledged. P3 pointed to the structural disadvantage this creates for newcomers: *"And I also think that people who are still new to the field often bring a really fresh perspective or new ways of looking at problems. I wouldn't want them to have fewer opportunities to speak out simply because they haven't been doing it for as long or have less experience, because, yes, they may have less work experience, but they do have valuable input. And they may still have expertise, for example, through their studies."* P1 acknowledged the bias formal signals can introduce in either direction, and P5 noted that involvement in a project does not automatically mean contributing to it. Fairness therefore requires that reputation signals are presented as context rather than as criteria, leaving judgment to the contributor.

Inclusivity for all contributors

Closely related to fairness, inclusivity emerged as a concern about whether reputation and recognition mechanisms are accessible to contributors regardless of background or starting position. The most consistent finding was that newcomers face a structural disadvantage. Without an established reputation, it is harder to be trusted, recognised, or taken seriously. P6 reflected this from personal experience: *"On the other hand, these collaborations should also be open to people whose track record isn't quite perfect yet. ...Looking from my experience, I am a starter myself, so you hope that people don't get too hung up on experience."* Participants felt the platform should actively lower this barrier rather than amplify it. P3 argued that education and work history were not necessary to establish a reputation and that expertise alone is sufficient, noting that requiring formal credentials would exclude many valuable contributors.

Privacy as a right

All participants expressed a clear need to control what information about them is visible and to whom. This was framed not as having something to hide but as a fundamental right to determine the boundaries of one's own visibility. P5 summarized this: *"I'd prefer it if they couldn't show everyone exactly what individual contribution you've made to the collaboration; for example, you might share that with people, but you don't necessarily want it to be shared widely, so you should at least have to give your consent for that. For instance, who can see it, and ensuring that others can't just access it without you being aware of it."* Several participants found aggregated or anonymised data more acceptable than individual tracking and display. Information was fine to stay in the collaboration, not necessary to put it outside of that space, as P4 said: *"Yes, selling data. I just think it's really important to keep all data secure. So never share data that isn't licensed for sharing."* A hard boundary was the platform

sharing data without contributors being aware of it. Any tracking or display should be transparent and happen with consent.

Relatedness with other collaborators

Relatedness came up strongly across all groups. Participants described personal connection as an important condition for real trust, with P1 and P5 stating that personal intuition upon contact mattered more than reputation signals. P5 described the barrier: *"You don't just start working with someone you don't know yet, because that barrier is a bit higher."* And P5 also noted: *"I think there needs to be some sort of connection to get that collaboration off the ground. And that's the case for us too: you start a collaboration because you know someone or through an intermediary."* This became very apparent when the most common start of new collaborations with unknown parties was led through a trusted third party. P6 articulated that in the expression that a useful reputation signal to her would be the network of an unknown party, the content of the collaborations themselves would then not need to be known, but who they collaborated with would be very useful information to show reputation. Besides trust, the participants also discussed relatedness as a value that can be upheld through being recognized or acknowledged. Recognition builds the community feeling and the relatedness feeling with the other collaborators, which then creates long-term motivation. Recognition also felt more meaningful when it came from someone related to the receiver, rather than from an automated platform mechanism.

Respect as a reputation signal

Respect was not part of the theoretical value inventory developed in Chapter 5 and emerged as the only value identified exclusively through the empirical investigation. Respect surfaced through participants' accounts of how contributors treat each other in interactions, beyond their task contributions. P7 explicitly named it as an important value, and similar observations appeared across other interviews, motivating its inclusion as a separate value in the inventory.

Participants described respect as a foundational norm for good collaboration. Participants with extensive platform experience stated it was the most important reputation signal, describing how they barely looked at formal platform metrics but based their trust judgments primarily on how contributors interact with others. P8 captured this: *I think the reputation that really matters is the one that's actually shaped mainly by the discussions you have with people and how you behave in those moments. I think that plays a very significant role. So, how do you respond to criticism? How do you interact with others when they actually start reviewing your article and putting it into practice? How constructive are you when it comes to other people's articles? I think that sort of thing ultimately carries much more weight than if you've written five brilliant articles."*

He also noted the complexity when competence and respect come apart: *"Sometimes you also have a reputation in the sense that these are people who are always moaning, who are always causing trouble. And the tricky thing is that these reputations can sometimes be quite separate from one another. People can be very competent in their work, yet at the same time be a real pain when it comes to arguing and calling people names. And those are actually the hardest people to work with."* P7 described what shows respectful behavior: *"To some extent, it also depends on whether that person is able to handle feedback. Say, for example, 'I don't think this is right'. What happens then? You've got those who fall into the camp of 'No, I'm right', or you've got people who say, 'Oh dear, sorry. Thank you for pointing that out to me. They'll try to work out why he's saying that, and make the effort to understand one another. I get a lot of information from that, from how they interact with each other. I think that's also quite an important aspect. That's respect, or having respect for one another. That is indeed, yes, that's an important one."* And P3 discussed that contributors need to respect each other's expertise and role to collaborate well and take feedback: *"People tend to take you a bit more seriously than. So people also need to have a certain amount of respect for who you are and your expertise in order to be able to give and accept feedback. I do come up against that sometimes."*

Participants also observed that respect cannot be captured in metrics, making it both an important value and a difficult one to operationalise as a design requirement.

Transparency of platform mechanisms

The workings of reputation and recognition mechanisms should be clear and open to all users, and transparency also refers to the manner in which contribution history and behavior are visible on the platform. Several participants raised the importance of visible histories as a mechanism for accountability, while noting that transparency has its limits. Making everything visible does not automatically make it meaningful or correctly interpreted. P7 was clear on the ideal while acknowledging those limits: *"In principle, I'd actually like everything to be transparent, or for every possible metric and the like to be transparent. Yes, but there are also limits to what we can make visible."* He named privacy and practical constraints as those limits. A hard boundary named by participants was the platform selling or sharing data without contributors being aware of it. Within that boundary, transparency was consistently valued as something that contributes to both accountability and trust in the platform itself.

Trust through relational signals

Trust emerged as the most central and multifaceted theme across the interviews. Participants described trust as something that must be earned through demonstrated behavior over time, and that is easily lost. Personal relationships were consistently valued as a stronger basis for trust than formal reputation signals, with several participants describing reputation as a useful starting point that should inform but not determine judgment. P6 described how this played out when starting a new collaboration: *"When we started working with those designers, we didn't look at their CVs at all. It was more about what they said they did. I would find it important to know what someone's interests are, what they are good at, what they want to do, and what their motivation is. It's more about those personal things rather than just very impersonal facts."*

The role of trusted third parties was highlighted as a very important mechanism for establishing initial trust in the absence of personal familiarity. P1 summarized the attitude toward formal reputation signals across groups: *"Well, go on, I'll trust you, but we'll see how it goes,"* with participants remaining eager to form a personal connection to assess trust based on personal behavior directly.

6.3. Patterns across values and stakeholder groups

Several patterns emerged consistently across values and stakeholder groups that are worth discussing as standalone findings.

6.3.1. Value distribution across stakeholder groups

While the eleven values were recognizable across all three stakeholder groups, differences were more a matter of emphasis than fundamental disagreement, with all groups recognizing the same values but approaching them from different angles. See Appendix C for an overview of distributions of the values per participant.

Authenticity and respect were of less concern to Alkemio contributors than to the other groups. This makes sense given the context of Alkemio's current use, where contributors work in relatively small and familiar groups where authenticity is assumed, and formal recognition mechanisms do not yet exist. Among platform contributors, particularly P7 and P8, respect was the dominant theme. They described not looking at formal reputation mechanisms at all, but assessing contributors based on how they communicate with others. Facilitators similarly emphasised respect, noting that respectful interaction directly improves collaboration quality.

Trust and relatedness also showed a different distribution. P7 and P8 placed far less emphasis on formal reputation signals, focusing instead on interpersonal behavior, shared mission, and community belonging. P9, by contrast, placed more emphasis on professional track record and the fairness of rating mechanisms, reflecting the gig platform context in which formal reputation scores carry direct financial consequences. This suggests that the relative importance of formal versus behavioral reputation signals is strongly shaped by platform context. Fairness was most prominently discussed by facilitators, particularly P1 and P3, and only minimally brought up by the other groups. This reflects the facilitators' professional role of actively managing multi-stakeholder processes, which makes the fairness of recognition and contribution directly visible in a way it is not for contributors focused primarily on their own participation.

6.3.2. Findings across values

The most consistent finding across all interviews was a broadly skeptical attitude toward platform tracking of individual activity. Participants across all groups expressed concern about mechanisms that track and display what individual contributors do, because it enhances gaming, reduces autonomy, introduces bias, or simply gives a misleading picture of actual contribution quality. P5 put it clearly: *"With data it is often the case that it is more about quantity than quality. I would find it a shame if the emphasis fell there, because I think we sometimes lose sight of the fact that we want to measure everything without critically looking at what we are actually measuring, what we gain from it, and whether what we measure is actually the right thing"*. Several participants expressed support for the traceability of actual contributions, as this connects to the feeling of competence and meaningful recognition. The distinction participants drew was between tracking activity for its own sake, which was rejected, and making genuine contributions visible, which was welcomed.

A second pattern was the consistent emphasis on personal connection over formal reputation signals. Across all groups and all values, participants returned to the importance of human contact, personal intuition, and relational trust as more decisive than any platform mechanism. Reputation mechanisms were seen as useful starting points and efficiency tools, but the prevailing view was that they inform rather than determine trust and recognition judgments. P6 described a useful middle ground. She said that a social network view, showing who collaborated with whom on what type of project, would be more useful than detailed personal or professional information, precisely because it preserves the relational dimension of reputation without reducing it to a score. This preference is not coincidental. The elements that matter most in assessing whether a collaboration will work, how someone treats others, how they handle feedback, and whether their contributions are genuinely valuable are inherently human qualities that platform metrics struggle to capture. Using qualitative mechanisms like written reviews does not fully resolve this either, as the quality of the review then depends on the rater's perspective rather than on the individual being assessed. Personal connection remains important precisely because it is the one way to access these qualities in a contextually meaningful way.

The third pattern was the fragmented view of what background information should be visible. Most participants felt that a professional background would improve efficiency and make it easier to find suitable collaborators, while several raised concerns that this would lead to systematic bias against newcomers and less credentialed contributors. For the Wikipedia contributors, educational and work history was largely irrelevant, as it is normal in that environment to contribute expertise that falls outside one's formal specialization. For the facilitators, actual knowledge and experience in the relevant domain were considered important for assessing whether a collaboration would be productive. P3 drew an explicit distinction between educational and work history on the one hand and relevant expertise on the other, arguing that only the latter should be visible. This fragmented view reflects how context-dependent the value of background information is and suggests that the appropriate visibility of background information depends on the type of collaboration rather than being a universal design choice.

6.4. Comparing empirical and theoretical findings

The empirical findings broadly confirm the theoretical value inventory established in Chapter 5. Ten of the thirteen values identified through the literature to relate to recognition and reputation mechanisms were also identified by the stakeholders. Respect is the only addition not to have been found in the literature, but was strongly confirmed empirically and therefore included in the inventory. Reciprocity, integrity, and benevolence, on the other hand, were found in the literature but not confirmed in the empirical research phase, and therefore were removed from the inventory.

Reciprocity did not emerge in the norms mentioned by participants. Wikipedia contributors P7 and P8 articulated that receiving something back from their efforts was not really expected, and for the other participants, platform work is related to professional activities where financial compensation already covers that element. What did emerge was that a lack of recognition strongly undermines motivation and the sense of connection to the collaboration. These effects connect to competence and relatedness rather than reciprocity.

Benevolence and integrity, identified in the literature as core dimensions of trust, also did not emerge directly in the empirical data. Looking at the codebook, concerns pointing to honest and consistent behavior are captured under authenticity and accountability, and the concern that benevolence points to appeared to some degree through respect and relatedness, where participants described how someone treats others as the most meaningful trust signal. The underlying concerns are present in the empirical findings but expressed through values that were more directly meaningful to participants in a collaborative platform context. Unlike respect, which participants named and described explicitly from their own experience, benevolence and integrity did not surface as recognizable concepts in how contributors talked about trust. This suggests that in practice, contributors assess trustworthiness through observable behavior toward others.

As for the only addition compared to the literature, respect did not come up explicitly in the literature as an important value related to recognition and reputation mechanisms, but showed strongly as a value in the empirical data. Particularly among participants with extensive platform experience. P7 and P8 described respectful interpersonal behavior as the primary and most informative reputation signal, explicitly saying that they did not really look at the other formal reputation signals the platform offers. However, the other participants also made it clear that in order to trust someone, it was necessary to have some knowledge of the interpersonal behavior of that person. P2 made it explicit that if that behavior did not align, cooperation was impossible. Respect has therefore been added to the value inventory as an empirically grounded addition.

The empirical research also confirmed that competence and relatedness, derived from SDT rather than from VSD's ethical value inventory, are clearly relevant to both reputation and recognition mechanisms, reinforcing the decision to combine the two frameworks and to design the mechanisms together.

6.5. Synthesis

This chapter describes the empirical research strand that results in eleven identified values related to reputation and recognition in multi-community platforms. The findings confirm that the value inventory in Table 6.1 includes all values that stakeholders actively experience and care about, and that they connect to how reputation and recognition mechanisms should be designed. The results of this chapter not only led to the eleven values, but the codes also form the base for the relevant norms per value. The codes identified the relevant norms and harms of those values that will be translated into design requirements in the next chapter. In the next chapter, the codes and values found in the empirical research will guide the formulation of the value hierarchies and lead to subsequent design requirements.

Table 6.1: Empirically found value inventory

Values to design for
Accountability
Authenticity
Autonomy
Competence
Fairness
Inclusivity
Privacy
Relatedness
Respect
Transparency
Trust

From values to design principles

7.1. Introduction

This chapter addresses the fourth and fifth sub-questions of this research. SQ4: *What design requirements and features for reputation and recognition mechanisms in multi-community collaborative platforms emerges from aligning the identified values* and SQ5: *What design principles emerge from combining the design requirements, features, and value tensions identified for reputation and recognition mechanisms in multi-community collaborative platforms?* As Van de Poel (2013) describes, value tensions do not typically emerge at the level of abstract values, but at the specification level, that is, when the values are translated into norms and design requirements. Therefore both these subquestions are addressed through the technical strand.

All value hierarchies are discussed concisely per value in Section 7.2, with the full specification path from empirical codes to norms to value hierarchies with design requirements available in Appendix D. Section 7.3 then operationalizes the design requirements for competence and trust in more depth as a proof of concept for how the requirements can be translated into concrete platform features. Section 7.4 discusses the value conflicts and tensions that arise from the specification process and how the focus group navigated them. Section 7.5 synthesizes the results into five design principles and a value constitution.

7.2. Value hierarchies

To translate the values identified in chapters 5 and 6 into actionable design requirements, this research uses the value hierarchy approach described by Van de Poel (2013). A value hierarchy is a three-level structure in which abstract values are specified into norms, and these are in turn specified into design requirements that are concrete enough to inform design decisions. Figure 7.1 gives an overview of the structure. The relation between levels is one of specification, where each lower-level element is a more concrete expression of the step above.

For each of the eleven values identified in Chapter 6, a value hierarchy was constructed using the empirical codes from the thematic analysis as described in Appendix B as the starting point for the norms. Each value was interpreted according to its meaning as established in the codebook, meaning the scope of each value is grounded in how participants described and used it in practice. The norms follow from those codes, translated from what participants experienced into platform-level norms. The full value hierarchies with values, norms, and design requirements for all eleven values are included in Appendix D. It is important to note that the norms are not directly derived from the codes. The participants interviewed were not technical designers and approached the research from their own experience as collaborators and platform users. The empirical findings, therefore, describe what participants valued and experienced, not what a platform should technically do. The norms are an analytical translation of those findings into platform-level prescriptions, informed by the empirical codes but not identical to them.

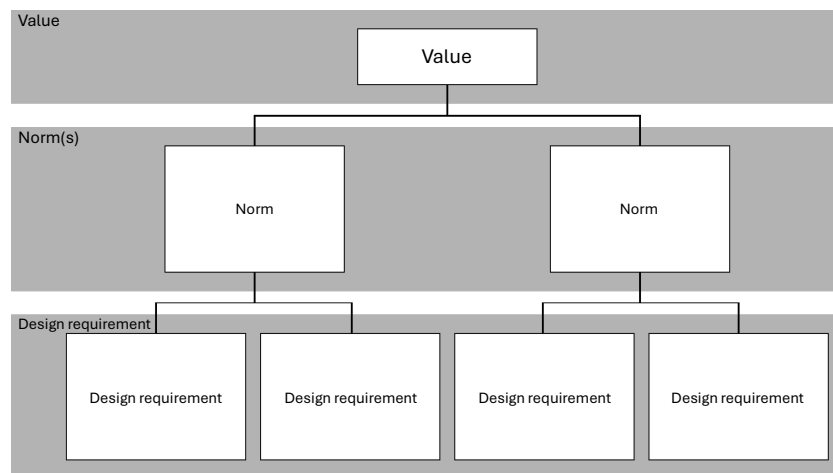


Figure 7.1: Example value hierarchy adapted from Van de Poel (2013)

The design requirements are then a top-down specification of those norms, using technical knowledge of platform design to identify what features or constraints can realize each norm. The full specification path from empirical codes to norms to design requirements for each value is included in Appendix D, with table D.1 presenting the norms and section D.2 giving an oversight of all the value hierarchies. An example of this process is, for instance, that it was clear from the empirical research that a personal relationship is important for accurately assessing how trustworthy someone is. While it is not within the platform's reach to enforce a personal relationship, this finding translates into a requirement that makes collaboration network and personal contributor information visible, creating conditions for relationship-building rather than prescribing the relationship itself.

The design requirements can be generalized into two types. Positive requirements specify elements of what a feature needs to contain or enable, pointing to a concrete platform element. Prohibitive requirements specify what a platform feature does not need to do, resulting sometimes in an architectural constraint rather than a named feature. Both types arise from the norms and are necessary to operationalize the values. Actualizing the norms across all eleven hierarchies produced 48 design requirements. Many overlapped, as the same norm was sometimes expressed independently from the perspective of different values. Where requirements expressed a similar platform requirement, they were merged or combined into the consolidated set of 28 requirements, listed in Table 7.1. For example, the requirement that expertise should be separable from formal credentials emerged independently from the competence, fairness, and inclusivity hierarchies. The full consolidation table showing how and what design requirements from the value hierarchy are merged is included in Appendix D Table D.2. The following sections describe, per value, what the design requirements are, what features or constraints they produce, and how those serve the value.

Table 7.1: Design requirements and design features

Value(s)	Design requirement	Design feature
Accountability	DR1 Feedback records cannot be edited or deleted after submission; feedback is displayed with a timestamp and submitter name as a permanent record	Feedback feature: no edit or delete option after submission; timestamp and submitter name displayed
Accountability, Authenticity, Fairness, Trust	DR2 Written feedback can only be submitted by contributors who were active members of the same community, is bilateral with both parties writing simultaneously, and only becomes visible after both have submitted	Feedback feature: submission restricted to verified community members, bilateral input, delayed visibility
Accountability	DR3 Contributor profiles display collaboration network, peer feedback, and domain expertise over time	Profile page: collaboration network, feedback, and expertise sections
Accountability, Fairness, Inclusivity, Trust	DR4 Collaboration network, peer feedback, and other profile information are not used as criteria for access to any platform functionality or community	Architectural constraint: no access gate checks profile state or feedback history
Authenticity, Autonomy	DR5 The platform does not display individual activity data, such as contribution and frequency counts, or rankings, like leaderboards, as comparative signals	Architectural constraint: no activity counters, contribution counts, or ranking elements
Autonomy	DR6 Notification feature shows contributors the oversight of new contributions within their communities, shown once per contribution, and can be turned off in notification settings	Notification feature: dashboard summary, single display per contribution, configurable in settings
Autonomy	DR7 Contribution artefact includes a field for linking to one or more earlier contributions that it builds upon	Contribution artefact: optional linking field
Competence	DR8 Notification feature shows contributors' recent contributions in their communities that may be of use to them, encouraging a response	Notification feature: dashboard overview of unchecked contributions
Competence, Fairness, Inclusivity	DR9 Contributor-defined expertise is shown as a separate feature on the profile page	Profile page: separate expertise field
Competence	DR10 Previous roles in collaborations are shown on the profile page, with community name, goal, and lead or member status	Profile page: collaboration roles section
Authenticity, Competence, Fairness, Relatedness	DR11 Response feature on contributions includes an impact question asking how the contribution was helpful, with a free-text field requiring genuine effort from the giver rather than a one-click reaction	Response feature: impact question on contributions
Competence	DR12 Contributors can send a direct message with the same impact question to privately express how a contribution helped them	Direct message feature: message interface with impact question
Fairness, Inclusivity	DR13 Response feature is available on all contribution types regardless of size, visibility, or contribution frequency	Response feature: available on all contribution types

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Table 7.1 – continued from previous page

Value(s)	Design requirement	Design feature
Inclusivity	DR14 New platform members are increased findable by existing contributors during an initial period on the platform	Platform newcomer section: discoverable overview of new platform members for a defined initial period
Privacy	DR15 Platform shows aggregated activity statistics at the community level, such as the number of contributors active over a time period, rather than individual activity logs	Community dashboard: aggregated community-level statistics only
Privacy	DR16 Platform requires explicit consent from contributors in privacy settings before contributor and community data is tracked or shared	Privacy settings: consent toggle before data collection
Fairness, Privacy	DR17 Privacy settings allow contributors to configure, per profile field containing personal information, whether it is visible platform-wide, within specific communities, or not visible at all, with no fields mandatory	Privacy settings: per-field visibility toggle, no fields mandatory
Respect	DR18 Platform terms and conditions, agreed to at sign up, define expectations for respectful interaction between contributors	Sign-up flow: terms and conditions agreement step
Respect	DR19 Community leads have moderation capabilities to flag, remove, or address contributions that violate community norms within their community	Community lead dashboard: flag, remove, and address contribution tools
Transparency	DR20 Privacy and profile settings include explanations of how each element, such as expertise tags, collaboration network, or feedback, contributes to a contributor's reputation and recognition	Profile and privacy settings: explanatory text per setting
Transparency	DR21 Feedback section on the profile page includes an explanation of how feedback is verified, specifically that only contributors who were active members of the same community can submit feedback and only used once given bilaterally	Profile page: explanatory text in feedback section
Transparency	DR22 Communities include a contribution history showing which contributor created or edited each contribution, contributing to community reputation	Community space: contribution history log with contributor name
Inclusivity, Trust	DR23 Profile page includes a static contact invitation encouraging human-to-human contact, communicating that a profile is only a partial picture, with a link to contact the contributor directly	Profile page: static contact invitation with contact link
Relatedness, Trust	DR24 Profile page shows previous and current communities the contributor has been a member of, with contributor names, organisations and community names	Profile page: collaboration network section
Respect, Trust	DR25 Profile page incorporates a section for written feedback from other contributors, with focus on how a contributor was to work with	Profile page: written feedback section

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Table 7.1 – continued from previous page

Value(s)	Design requirement	Design feature
Trust	DR26 Collaboration network, community names, and contributor roles displayed on the profile page are platform-verified	Profile page: platform-verified indicator on collaboration network
Relatedness	DR27 Profile page includes an optional field for personal interests, hobbies, or other subjective information about the contributor	Profile page: optional personal interests field
Relatedness	DR28 Response feature allows peer-to-peer recognition between contributors; the platform does not implement automated recognition rewards such as badges or points	Response feature: contributor-initiated only; architectural constraint: no automated recognition rewards

7.2.1. Accountability

The design requirements for accountability address two norms. DR1 and DR2 address the first norm that past behavior should be recorded permanently and verifiably. DR3 and DR4 address the second norm that past behavior should be visible but should not function as a permanent barrier. The first is that feedback records cannot be edited or deleted after submission, displayed with a timestamp and submitter name as a permanent record, and that feedback can only be given once the platform has verified that actual collaboration has happened. The second norm says that past behavior needs to be visible, but adds that past behavior shall not be permanently damaging. An addition prompted by P7's explicit statement that mistakes should be forgivable over time. This is why the requirements also specify that on one side, the contributor profiles do display collaboration network, peer feedback, and domain expertise over time, DR4 specifies that profile information is not used as a criterion for access to any platform feature or community.

7.2.2. Authenticity

The design requirements for authenticity address both how recognition is given and how reputation is signalled. The requirement is that the response feature include an impact question within the free-text field that guides the responder toward describing impact (DR11). Requiring genuine effort, rather than a one-click reaction. This reflects the finding that recognition signals that cost nothing to give, like a 'like' button, carry very little value for the recipient. The second design requirement focuses on the bilateral simultaneous feedback structure, which means neither party can see what the other has written before submitting, removing the incentive to give feedback based on feedback received (DR2). This is supported by P9's experience on the gig platform, where the bilateral structure reduced the incentive to give strategic feedback. Together, these two design requirements look to realize honest assessments reflected in a reputation and recognition mechanism, to encourage authentic behavior. Automated quantity metrics are a mechanism through which authentic contribution is undermined, because they can make performing for the metrics more rational than contributing genuinely. That is why limiting such metrics is a direct prohibition requirement that follows from this value (DR5). They serve authenticity by making genuine expression more likely and strategic performance less rewarded.

7.2.3. Autonomy

The design requirements for autonomy address two norms. The first concerns contributors not feeling steered in their actions. Participants drew an explicit line between platform support and platform control. Several participants described mechanisms that track activity or nudge behavior as undermining their motivation, even when those mechanisms were intended to be helpful. This suggests that the design should err strongly on the side of non-prescriptive mechanisms, and that any encouragement of participation should be gentle, infrequent, and easy to ignore. The requirements DR5 and 6, therefore, prohibit displaying individual activity data as that can come across as steering to engage more, and specify that any notification encouraging contribution is shown once per contribution on the dashboard and can be turned off, further emphasizing the control of the contributor. The second norm concerns the platform not fostering competition but collaboration. This also produces DR5, prohibiting ranking and comparative mechanisms platform-wide and within communities, as this can come across as a

way to push for more engagement instead of letting the contributor have control over their actions. DR7 specifies that contributors can link a contribution directly to an earlier contribution it is built on, to make the collaborative nature visible, further emphasizing collaboration instead of comparison and competition.

7.2.4. Competence

The design requirements for competence span both reputation and recognition. Competence in the codebook is specified primarily as a psychological need following SDT, meaning the need to feel effective and capable in one's work. The value is therefore focused on the contributor's internal experience of competence rather than on competence as an outward reputation signal visible to others. That is visible in design requirements that focus on recognition, which makes contributors feel their work had a genuine impact. The profile-facing requirements DR9 and DR10 address the secondary function of signaling domain expertise to potential collaborators, but the primary orientation of this value is inward rather than outward. These fields on the profile page reflect the consistent empirical finding, described by P3, that domain expertise should be visible independently of formal credentials such as education and work history. For recognition, the response feature on contributions includes an impact question asking how the contribution was helpful, with a free-text field, and a notification feature shows contributors which contributions they have not yet responded to. These design requirements reflect the finding articulated by P4, who described the publication of her work as meaningless compared to knowing it was actually being used. Competence as a value is served when the platform makes domain expertise visible and makes recognition about actual impact rather than passive acknowledgement. A more in-depth description of the design requirements and features is developed in Section 7.3.

7.2.5. Fairness

The design requirements for fairness reflect how broadly fairness concerns appear across different values, as there are no design requirements unique for fairness. DR4, 9, 11, 13, and 17 together are a specification of the norms that focus on how the mechanisms should work fairly for all contributors and how the mechanisms should reflect fair outcomes. The requirements specify that profile state does not restrict access to any platform functionality, that expertise is a separate signal, and that the response feature is available for all contribution types regardless of size or visibility. All pointing to the fact that all contributors should receive fair and equal treatment and not have different access compared to their profile or reputation status. The fairness of the signals produced is addressed by DR17, which requires that no profile fields are mandatory, and by DR2, which requires that feedback is bilateral and verified. These requirements do not mean that how other contributors interpret the information is no longer biased, but it does give the control of what signals to show and present to others into the hands of the contributor.

7.2.6. Inclusivity

Inclusivity focuses on actively creating conditions for equal engagement, while fairness focuses on not creating unfair outcomes. The distinction is that fairness looks at whether the structure is fair, while inclusivity asks whether everyone can actually participate. The norms produce requirements that converge with trust and competence, namely that the profile state does not restrict access and that expertise is a separate signal visible even for newcomers. This design requirement is specified as an answer for the contributors who are not only newcomers on the platform, but also people who, in real life, may not have as much professional experience. An issue raised explicitly by P3, but also reiterated by P5 and P6, noting that as a young person, it is impossible to have accumulated as much professional experience yet, while this does not reduce their potential contribution value. A requirement specific to inclusivity is that the platform communicates the limits of formal reputation signals, which is operationalized as a contact invitation on the profile page, communicating that a profile is only a partial picture, with a link to contact the contributor directly. Everyone has expertise, even newcomers, and a design that makes this visible independently of formal credentials is both fair and inclusive. Additionally, DR14 addresses this as well by specifying that new platform members shall be findable by existing contributors during an initial period on the platform. This is operationalized as a discoverable newcomer section showing new platform members for a defined initial period. This gives newcomers visibility before they have built up a collaboration history, actively lowering the barrier for first contact and acknowledgement.

7.2.7. Privacy

The privacy value has two norms in the value hierarchy. One discusses that individual activity data is not to be tracked or shared without explicit consent, which is specified by DR15, showing aggregated activity statistics, such as the number of contributors active over a time period, rather than individual activity, such as the last time a contributor accessed a community. It also creates the request for being given explicit consent within the privacy settings of a platform before data is tracked or shared (DR16). This concerns the data collection and visualizing it within a community. At the personal data level, DR17 requires privacy settings to allow contributors to configure per profile field whether it is visible platform-wide, within specific communities, or not at all, with no fields mandatory. The key implication for platform design is that the default is always protection rather than exposure. Sharing is optional across all contexts. The profile page is the one mechanism through which reputation information can travel between communities, and only because contributors actively choose what to share there. This directly addresses the multi-community challenge, as most cross-community reputation visibility happens through voluntary contributor choices, not through automatic platform-wide data sharing.

7.2.8. Relatedness

The design requirements for relatedness required a significant transfer from empirical findings about personal connection to platform-level features. The platform cannot create a human connection itself, but both reputation and recognition mechanisms can build conditions that make a connection more likely. To design for support of human connection, the profile page includes an optional field for personal interests, hobbies, and other subjective information, giving space for contributors to show who they are as people rather than just what they have produced (DR27). Additionally, DR24 is a design requirement that points to a feature showing the collaboration network, the network of those with whom was previously and currently collaborated is specified. While not creating a human connection, it makes human relationships visible, creating a possible bridge for contributors who do not know each other to see if there is a known intermediary in between. For recognition, the response feature, as developed from DR28, is focused on genuine peer-to-peer responses rather than platform-generated, no automated recognition rewards are implemented, and the feature requires free-text input rather than simplified predefined options. A recognition signal that costs nothing to give and requires no thought carries no human meaning. Relatedness as a value is served when the platform creates space for the human side of contribution to become visible and when recognition requires genuine human effort.

7.2.9. Respect

The design requirements for respect reflect the challenge that respect is primarily a behavioral value that is difficult to enforce through platform features. The requirements DR18 and 19 specify that platform terms and conditions agreed to at sign-up define expectations for respectful interaction, and that community leads have moderation capabilities to address violations. The verified written feedback section on the profile page, as described in DR25, which includes how a contributor was to work with, making interpersonal behavior visible as a soft reputation signal.

7.2.10. Transparency

The design requirements for transparency address both mechanism transparency and contribution visibility. Privacy and profile settings include explanations of how each element contributes to reputation and recognition alongside the toggle to turn it on or off (DR20). DR21 specifies that the feedback section includes an explanation of how feedback is verified, specifically that only contributors who were active members of the same community can submit. Because contributors can only make informed decisions about participation if mechanisms and data collection are understandable. Each contributor's profile within a community space also lists the contributions they created or edited there (DR22). This requirement serves two functions: it enables accountability, as contributions cannot be denied, and it builds within-community reputation as a visible track record. Transparency as a value is served when both the mechanisms and the record of contribution are open and understandable.

7.2.11. Trust

The design requirements for trust address the consistent empirical finding that participants treated reputation as a starting point only, and that personal connection and relational signals were more decisive than formal credentials. The profile page includes a contact invitation communicating that a profile is only a partial picture, with a link to contact the contributor directly, and the profile state does not restrict access to any platform functionality, so as not to make formal reputation definitive, both elements specified in DR23 and DR4. DR24 specifies that the profile page shows the collaboration network, and DR25 requires the incorporation of a section for verified written feedback from contributors who collaborated in the same community, making relational signals visible alongside formal reputation. Collaboration network, community names, and contributor roles shown on the profile page are platform-verified rather than self-reported (DR26). This is what makes relational signals trustworthy as reputation signals in the absence of formal rating mechanisms. Trust as a value is served when the platform makes relational signals accessible while ensuring that what is shown can be trusted. The design requirements for trust are further operationalized into concrete platform features in Section 7.3, alongside those for competence.

7.3. Operationalization of the value of competence and trust

This section looks in more detail at the design requirements and features of competence and trust. Competence was selected because it is the value most clearly connected to both reputation and recognition, both in the literature and in the empirical research. This is reflected in the design, where one set of norms focuses on reputation and another on recognition, resulting in design features for both reputation and recognition.

The value hierarchy for trust, in contrast, is primarily addressed through reputation-related mechanisms. The design requirements focus on making relational and human connection signals more visible, such as a collaboration network, to support the assessment of trust between users. This is one of the more challenging aspects to design for and, therefore, an interesting value to look into further. The design requirements for trust primarily concern interpersonal trust between contributors, supporting the ability to assess whether someone is a reliable collaborator before and during a collaboration. The privacy and transparency values address the dimension of trust in the platform itself, creating conditions for contributors to feel safe participating. While in section 7.2 all value hierarchies are developed, competence and trust are used here as illustrative examples of how these requirements can be operationalized within Alkemio's platform context, serving as a proof of concept for the broader approach.

7.3.1. Design features Alkemio

Alkemio currently has no explicit reputation or recognition mechanisms. That does not mean there are no design features already implemented that do signal it. The platform currently has a profile page with a bio and separate skills and keywords fields, a post section where a user can comment on with text and emojis, and respond with emojis on a comment, a notification system for contributor activity, configurable notification and privacy settings, and an email-based contact feature between contributors. The design requirements below sometimes adapt or extend this current architecture. This section functions as a proof of concept, showing one way the norms can be operationalized into concrete platform features. These requirements are not the only way to uphold the norms, but they are a worked example of how the norms can be translated into design decisions that are technically feasible.

7.3.2. Competence

Competence spans both reputation and recognition. The empirical findings showed that participants expected reputation to reflect genuine domain expertise rather than activity, and that recognition felt meaningful when connected to the actual use or impact of a contribution. An overview of the design requirements and their features is seen in Table 7.2. For the value of competence the value hierarchy that is developed in 7.2 can be seen in Appendix D., Figure D.4.

Table 7.2: Design requirements and design features for competence

Design requirement	Design feature
DR8 Notification feature shows contributors' recent contributions in their communities that may be of use to them, encouraging a response	Notification feature: dashboard overview of unchecked contributions
DR9 Contributor-defined expertise is shown as a separate feature on the profile page	Profile page: expertise field
DR10 Previous collaborations with self-described role are shown on the profile page	Profile page: collaboration roles
DR11 Response feature on contributions includes an impact question asking how the contribution was helpful, with a free-text field	Response feature: impact question on contributions
DR12 Contributors can send a direct message with the same impact question to privately express how a contribution helped them	Direct message feature: impact question

The notification feature is more complex than the other recognition features. Showing unresponded contributions risks feeling intrusive and could lead to non-genuine responses driven by the pressure the platform creates, rather than genuine acknowledgement. The feature should therefore be designed as a non-intrusive summary on the dashboard, showing recent contributions a contributor has not yet looked at and encouraging the contributor to let the maker know if it was of use. With a text along the lines of 'see if this is of use to you'. This statement is intentionally non-prescriptive, leaving the contributor free to ignore or not respond to the contribution, while creating the condition for genuine peer acknowledgement to occur. In large communities with many contributions, showing all unseen contributions would be overwhelming and impractical, especially in open communities where anyone can contribute. For these contexts, the feature could be further scoped, for instance, by only showing unseen contributions from contributors who share a subcommunity, making the feature targeted on seeing only relevant contributions.

The expertise field on the profile page builds directly on the existing skills and keywords field. The requirement specifies that this remains contributor-defined and is shown as a distinct section, separate from education or work history. This also addresses the inclusivity and fairness concerns that newcomers need to be able to signal relevant expertise, even without an extensive background or when that background can lead to bias.

The collaboration roles feature adds something that does not yet exist on Alkemio. The platform already distinguishes lead from member roles within a community. However, this distinction is operational rather than based on roles taken on within a collaboration, and therefore carries limited signal value for domain-specific track record on its own. The more meaningful signal comes from the optional self-described role contributors can add, which allows them to describe their actual function in a collaboration in their own words. The requirement makes those roles visible on the profile page, which shows experience.

The response feature transforms the existing comment section into a purposeful recognition mechanism. The addition is a question within the free-text field that guides the responder toward describing impact. The response feature is available on all contribution types regardless of size or visibility. Having this question that is not a completely filled-out statement, not ‘this was helpful, thanks’, but something along the lines of ‘tell @contributor how this was helpful to you’ or ‘how was this helpful?...’, or “thank you, I found this useful because....” This is more specific than a generic comment and more meaningful than a simplified button, while still leaving room for the contributor to respond in their own words. The same question is available through the direct email contact feature for contributors who want to express recognition privately. Recognition responses that are visible within the community also function as informal reputation signals, showing others that a contribution was found useful without requiring a separate reputation mechanism. AI-assisted drafting of responses is a possibility as AI tools become more integrated into platform workflows. They could make the prompted questions more directly related to possible uses of the contribution. A contributor who receives a response gets a notification, making the acknowledgement personal and direct. The primary function of recognition in this research is to signal to the contributor that their work had impact, whether that signal travels outward to inform others’ reputation assessments is a secondary effect that happens naturally through the visibility of responses within the community.

7.3.3. Trust

For the value of trust, the full value hierarchy that is developed in 7.2 can be seen in Appendix D, Figure D.11. An overview of the design requirements and their features is seen here below in Table 7.3.

Table 7.3: Design requirements and design features for trust

Design requirement	Design feature
DR2 Written feedback can only be submitted by contributors who were active members of the same community, is bilateral with both parties writing simultaneously, and only becomes visible after both have submitted	Feedback feature: submission restricted to verified community members, bilateral input, delayed visibility
DR4 Collaboration network, peer feedback, and other profile information are not used as criteria for access to any platform functionality or community	Architectural constraint: no access gate checks profile state or feedback history
DR23 Profile page includes a static contact invitation encouraging human-to-human contact, communicating that a profile is only a partial picture, with a link to contact the contributor directly	Profile page: static contact invitation with contact link
DR24 Profile page shows previous and current communities the contributor has been a member of, with contributor names, organisations and community names; contributors can remove specific communities	Profile page: collaboration network section
DR25 Profile page incorporates a section for written feedback from other contributors, with focus on how a contributor was to work with	Profile page: written feedback section
DR26 Collaboration network, community names, and contributor roles displayed on the profile page are platform-verified	Profile page: platform-verified indicator on collaboration network

The design requirements for trust focus on making relational signals accessible while keeping contributor control central. On a platform like Alkemio, where contributors often do not know each other before collaborating, formal reputation signals alone seem to be insufficient. The empirical findings consistently showed that relational signals and personal connection are what people focus on. The requirements address reputation features, but visible recognition can also signal reputation.

The verified written feedback section is a feature on the profile page where contributors who collaborated in the same community can leave written feedback about each other. The feedback mechanism is bilateral, meaning both parties are encouraged to write about each other simultaneously, and feedback only becomes visible after both have submitted. This prevents strategic adaptation of one assessment based on the other. The verification requirement ensures that only contributors who were active members of the same community can submit feedback, cross-referencing existing space membership records. This does not require new data collection.

The requirement that profile completion is not used as a criterion for access to any functionality or community is a governance constraint that should remain in place as the platform grows. Platforms such as Stack Overflow use reputation thresholds to gate access to features like voting or moderation, which can make sense for actions where trust needs to be established before giving someone power over others. For community participation and collaboration, however, this approach would be counterproductive. The goal is to attract and include as many contributors as possible, not to restrict entry based on prior reputation or create high entry barriers. It is a response to the fairness and inclusivity finding that reputation should be a starting point and not a gatekeeper.

The contact invitation on the profile page may seem like only a small addition, but it is important. It communicates to the platform contributor that a profile does not tell everything or paint a complete picture and invites contributors to reach out directly. Currently on Alkemio, the direct messages go through email, but adding a simplified chat functionality to enhance the simpler one-to-one connection can be a better solution, which lowers the barrier for contact.

The collaboration network feature shows previous and current communities on the profile page, including contributor names and organisations, to display with whom the contributor has collaborated before. This responds to the finding that trusted third parties are among the most informative trust signals. If contributor A is considering working with contributor B, seeing that B has previously collaborated with people A already knows provides a relational signal that formal credentials cannot.

Finally, the collaboration history, community names, and roles shown on the profile page are platform-verified rather than self-reported. This means contributors can curate what they show, but cannot fabricate a history, which is what makes these relational signals trustworthy as reputation signals.

7.4. Value conflicts, tensions and their trade-offs

The specification process revealed several value conflicts and value tensions. Value conflicts refer to cases where requirements are not simultaneously possible. A value tension refers to a situation where two values point in different directions at the platform level, but their design requirements can technically coexist, requiring deliberate navigation on how to design for both values simultaneously. These tensions and conflicts cannot be resolved by choosing one value and one design requirement over the other, as both values hold importance, but must be actively navigated with design choices. To identify these systematically, all 28 design requirements were checked against each other in a conflict matrix, included in Appendix E. To identify the value tensions, the values and their platform design directions are stated in table E.1 in Appendix E. The platform design directions follow directly from the value hierarchies. Both are worth discussing because they inform the design principles developed in Section 7.5.

The conflict matrix shows that the conflicts in this research all cluster around DR17, which is the requirement that privacy settings allow contributors to configure per profile field whether information is visible platform-wide, within specific communities, or not at all, with no fields mandatory. This requirement, which follows from the privacy value, makes all profile information optional and sharing information in the hands of the contributor. Several other requirements, which follow from accountability, trust, relatedness, and respect, produce information that the platform makes visible to achieve that value. DR17 makes that visibility voluntary, which is the source of the conflicts. The tensions, by contrast, do not arise from specific DR pairs but from the underlying directions of the values themselves, as described in Appendix D, Table D.3. Three tensions were identified through that review. A tension of autonomy versus accountability, autonomy versus respect, and inclusivity and fairness versus trust. The identified value conflicts and tensions were discussed in a focus group. The focus group participants received the dealing with value conflict strategy sheet as Appendix E shows. Participants discussed the identified conflicts and how they could be navigated. The results consistently pointed toward satisficing with high thresholds for privacy and autonomy as the appropriate strategy.

7.4.1. Privacy versus visibility

All value conflicts can be summarized as a privacy versus visibility issue, as all conflicts cluster around the privacy design requirement that privacy settings allow contributors to configure, per profile field, whether information is visible platform-wide, within specific communities, or not at all, with no fields mandatory (DR17). While those design requirements do not come from the specification of the value of transparency, the conflicting element with these design requirements is that these design requirements reflect information that needs to be visible on the profile in order to specify that value and that the privacy requirement makes it clear that whether or not information is even visible is up to the contributor. The specific design requirements that conflict with privacy were derived from accountability, that the feedback records cannot be edited or deleted (DR1), and that different profile information is displayed (DR3), competence, where the design requirement is displaying collaboration roles (DR10), trust and relatedness, collaboration network (DR24), respect and trust, feedback on how a contributor was to work with (DR25), all of which produce norms that require certain information to be visible outside of the community to signal reputation.

One design requirement specifically aimed at making less formal reputation visible is the written feedback section on the profile page (DR25), which focuses on how a contributor was to work with. Unlike formal credentials or collaboration history, this requirement aims to surface interpersonal and soft skill signals that contribute to reputation but are rarely visible through other means.

The focus group discussed these conflicts and produced a clear distinction between the different kinds of profile information and how to deal with it, with profile information like previous collaborations and connections deemed as factual and the written feedback seen as subjective.

For the written feedback section (DR3, DR25) and the immutable feedback requirement (DR1), the discussion leaned strongly toward privacy. The focus group pointed toward satisficing, with a high threshold of upholding privacy and quite a low bar for the written feedback sections. They agreed that contributors being able to receive recommendations from past collaborators was valuable, as long as they can choose themselves whether or not it is visible on their page. FG2 acknowledged the potential value of soft skills being visible but concluded that "such signals are too context-dependent and carry too high a risk of negative impact to be reliably facilitated by the platform." They all agreed

that a single negative recommendation could disproportionately damage a contributor's reputation, with FG2 additionally noting: *"a negative signal has too large an effect, you never really recover from it."* to While the focus group acknowledged the importance of immutability as a principle of accountability, they deemed the risk of negative impact too high to make feedback mandatory to display. The conclusion was to alter the first design requirement and saying that feedback remains immutable as a platform record once submitted, but display on the profile page is contributor-controlled. A contributor either displays a piece of feedback or does not. There is no option for selective sharing of parts of a feedback entry, as this would introduce new complexity and potential for strategic presentation. The platform must then also communicate clearly that displayed feedback is contributor-selected and may not represent the full picture.

The discussion also surfaced the issue of the name of the feedback giver being visible and if that was a privacy issue. FG1 suggested it would be easy to verify feedback while keeping the giver anonymous, but FG3 observed that "being anonymized but verified would still be different from having a person's name there" and suggested showing the organisation instead of a name as a possible solution, further showing the importance of human connection in that a name was seen as more trustworthy than a verified anonymous review.

For the collaboration network and community history (DR3, DR10, DR24), participants drew a sharp distinction compared to the feedback segment, as this was seen as more factual and relevant information. FG3 also stated a preference for "relying on trusted third parties rather than behavioral signals when assessing someone outside a known network," which the collaboration network feature directly enables by making shared connections visible. FG2 described collaboration history as "information that already feels public" in a professional collaborative context and noted that "recognizing similar organizational networks increases perceived trustworthiness." FG3 agreed that knowing what collaborations someone has been part of and what communities they joined is useful for both potential collaborators and contributors themselves. The focus group converged on a solution where collaboration history is visible as an opt-out rather than opt-in, so still adhering to the privacy design requirement that nothing is mandatory, having the option to remove certain collaborations or information. FG1 noted: *"in practice, most people will share it anyway,"*. Preserving the benefit of the feature, while those who prefer privacy retain the choice. It was also acknowledged that in some cases, communities contain sensitive subjects, meaning even this factual information can be deemed too private to share, and that contributors should be able to remove specific communities from their visible history.

Consistently across both the interview and focus group phases of this research, privacy emerged as a dominant value. A clear distinction was visible between objective and subjective information, with objective information, such as collaboration history, feeling more acceptable to share precisely because it is already largely public in a professional collaborative context. However, even for factual information, contributors maintained the right to limit access across the focus group discussions.

A noteworthy observation from FG1 across all conflicts was that when visibility is optional rather than mandatory, in practice, only a small number of contributors will choose not to share anything at all. This would mean that making sharing information opt-out rather than opt-in largely preserves the visibility benefit while respecting the autonomy and privacy of those who prefer not to share. Additionally, FG1 pointed out that the overall opt-out strategy for all the elements carries its own risk, noting that "the privacy of people who are not paying attention is not protected," and argued that a platform needs to actively protect less tech-savvy users by clearly explaining the privacy implications before enabling visibility.

7.4.2. Value tensions

The following tensions do not arise from specific DR pairs but from the underlying directions of the values. The platform design directions for all eleven values are included in Appendix D Table D.3, from which these three tensions were identified as requiring explicit discussion.

Autonomy versus accountability

Autonomy requires that the platform remains non-prescriptive and contributor-controlled, while accountability requires that history is visible and has consequences, and therefore puts more importance on the platform. These pull in different directions because making history permanent and visible inherently constrains contributor control over their own narrative, and any mechanism that tracks behavior to ensure consequences sits in tension with a platform that lets contributors decide for themselves. Interview participants across all groups drew a clear line between platform support and platform control and consistently described tracking and steering mechanisms as demotivating, even when well-intentioned, where accountability pulls into platform control and tracking. The focus group confirmed this orientation with FG2 stating that autonomy should be the priority and the platform should only intervene when strictly necessary. The resolution this points to is prioritizing autonomy in everyday operation, with accountability mechanisms reserved for situations where clear norms have been broken.

Autonomy versus respect

Respect aims to establish and actively maintain behavioral norms across the platform and within communities, reflected in requirements for terms and conditions at sign-up (DR18) and community lead moderation capabilities (DR19). These sit in tension with autonomy because any enforcement of behavioral norms involves the platform making judgments about acceptable conduct, which constrains contributor freedom. Actually designing for respect results in a tension with autonomy. Having norms for respectful interaction might be necessary to ensure people handle each other with dignity. In reality, enforcing such a norm is actually very difficult, because what is respectful interaction? If the focus is on the kind of language people use, and on that the platform intervenes, it can soon feel like extensive monitoring that restricts people's autonomy.

P8 articulated this challenge directly, answering the question if there was anything that could be done about the disrespectful behavior happening on Wikipedia: *"Yes, I think so. But that also has disadvantages if you do something about it. Look, you can put a dictator in place, and that solves it for a few months. I think you just move the problem to another corner, because then you will lose your editors in the long run. So that could be a solution. Just put a dictator in place, fine. Then you are rid of it for a while. But then you also lose the community."* Describing how active moderation creates a feeling of a dictatorship with too much control.

The focus group confirmed that enforcing respectful behavior beyond legal obligations is too much platform control. FG2 stated that *"autonomy on platform level is important, so only for extreme scenarios some action will be undertaken,"* and that responsibility should rest with community administrators. FG3 noted that *"respectful behavior is more a plight of the community itself"*. At the same time, all participants agreed the platform should take a clear stance on racism and legally prohibited behavior, with FG3 noting they *"would see it really in the best interest of the platform to take a stance that this is not tolerated."* FG2 raised the deeper question of *"even if you moderate with good intentions, should it be the role of the platform?"*, noting that active monitoring would itself constitute a privacy violation. The extent and difficulty of this discussion reflect how genuinely hard respect is to design for. Everyone agreed it matters deeply, yet every design option either crosses into platform control or falls short of actually guaranteeing respectful behavior. The resolution is a threshold approach. The platform enforces legal obligations, while responsibility for everyday behavioral norms is delegated to community leads with clear guidelines. This strongly limits what platform design can achieve for respect, making it both the most important and the least designable value in this research.

Inclusivity and fairness versus trust

Trust places strong emphasis on the importance of past information, with collaboration history and relational signals supporting credibility assessment between unknown contributors. Inclusivity requires that newcomers are not structurally disadvantaged and can participate without a prior track record. Fairness reinforces this by requiring that signals are unbiased and not distorted by structural advantages. These pull in different directions because the more trust relies on visible track records, the more it structurally disadvantages contributors without one, even though none of the DRs directly conflict. Interview participants consistently identified high entry barriers for newcomers as a structural harm and described reputation signals as a starting point rather than a determining factor. FG2 suggested that *"it seems more a human problem than a platform issue"* and that the platform needs to promote newcomers but cannot solve the underlying human tendency to prefer known collaborators. FG3 partially disagreed, arguing that *"a digital platform can create something good here"* by showing newcomers and making sure that trust comes faster than in offline settings. FG2 also raised the broader challenge that *"having a specific set of users to design for is not inclusive for others, but designing for everyone is also designing for no one."* The platform can lower the barrier for newcomers, but cannot resolve the underlying human tendency to prefer known collaborators, just as it cannot possibly design for everyone.

7.4.3. Synthesis

The value conflicts, all clustering around DR17, can be navigated through satisficing with high thresholds for privacy and autonomy, producing workable resolutions where contributors retain control over what is visible. The focus group concluded that feedback remains immutable as a platform record once submitted, but display on the profile page is contributor-controlled. This minimises the risk of lasting negative impact while also minimising the reputational signal the feedback produces. An important finding that runs through both the conflicts and the tensions is that the soft signals participants identified as the most valuable reputation information, how someone collaborates, how they treat others, and what it is actually like to work with them, are simultaneously the most difficult to facilitate. They are highly subjective, deeply context-dependent, and carry a significant risk of negative impact when taken out of context, which is why they require contributor control rather than platform-determined visibility.

The value tensions do not arise from specific DR pairs but from the underlying directions of the values themselves, and cannot be fully resolved through platform design alone. The platform can create accountability, but should err strongly on the side of non-prescriptive mechanisms. It can establish norms for respectful behavior, but cannot enforce them without crossing into the platform control that autonomy rules out. It can make collaboration history visible to support trust, but it cannot eliminate the structural disadvantage this creates for newcomers. For a public interest platform, this makes it all the more important to design actively for inclusion and fairness, ensuring mechanisms do not structurally disadvantage newcomers and that reputation signals remain a starting point rather than a gatekeeper. These value conflicts, tensions, and their limitations directly inform the design principles developed in Section 7.5.

7.5. Design principles

The design requirements, value conflicts, and tensions developed in the preceding sections can be synthesized into five design principles. These principles are normative statements about what reputation and recognition mechanisms on multi-community collaborative platforms should do and how they should be designed. They are not derived from any single source but emerge from the combination of the conceptual investigation, the empirical findings, the value hierarchy specification process, and the value conflict analysis. They emerged from looking across all eleven value hierarchies and the 28 consolidated design requirements, identifying patterns in what different requirements were collectively trying to achieve at the platform level, and taking into account the value conflicts and tensions discussed in Section 7.4. It is worth noting that the number of design requirements or values mapping to a principle is not an indicator of its importance, as an important finding can have been developed in one design requirement. Table 7.4 shows the grounding of each principle. Each of the principles is elaborated on below.

Table 7.4: Design principles traceability

Design principle	Grounding	Values
The platform makes the collaboration network visible	Relational signals identified as an important trust signal across all stakeholder groups. This principle allows relational signals to become visible in a privacy-respecting way as they concern factual collaborative connections rather than subjective behavioral signals	Trust, Relatedness, Fairness, Inclusivity
Peer recognition over automation	Participants described genuine peer acknowledgement as more meaningful than platform-generated recognition. P4 on knowing work was used rather than published. Autonomy versus accountability tension navigated by keeping recognition non-prescriptive	Competence, Authenticity, Relatedness, Autonomy, Fairness
Visibility as the default, privacy as the choice	Both interview and focus group phases consistently placed privacy as the dominant value. Direct result of value conflict analysis where all conflicts cluster around the privacy requirement that no fields are mandatory and display is contributor-controlled	Privacy, Autonomy, Accountability, Transparency
The platform enables, the human chooses	Participants drew a clear line between platform support and platform control. Tracking and steering mechanisms consistently described as demotivating. Autonomy versus accountability tension and respect versus autonomy tension both point toward platform restraint as the appropriate stance	Autonomy, Accountability, Transparency, Inclusivity, Fairness, Competence, Relatedness
Respect matters, but design possibilities are limited	Respect emerged exclusively from empirical research. P8 on active moderation creating a dictatorship effect that ultimately destroys community. Respect versus autonomy tension resolved through legal threshold approach with community lead responsibility	Respect, Autonomy, Privacy, Trust

7.5.1. The platform makes the collaboration network visible

The principle of making the collaboration network visible emerged from the consistent empirical finding that in situations where there is no prior relationship, contributors across all stakeholder groups identified trusted third parties as an important reputation signal, prioritizing relational connection above formal reputation signals. Importantly, this is a relational signal that does not harm personal privacy or require subjective judgment, as it concerns factual collaborative connections rather than behavioral assessments. This principle is reflected in design requirements of accountability, trust, and relatedness. As FG3 stated during the focus group: *"Even if I have access to other reputational information, I would be most interested in seeing with whom was previously collaborated, seeing those connections and seeing if there are commonalities between those, to make my judgment using that information."*

This principle allows trust to form through other human connections, where it builds up the relatedness value. Fairness and inclusivity are somewhat taken into account through this principle, because it does not require formal reputation signals, like educational history, which can result in bias. The limitation is that newcomers have a smaller or non-existent collaboration network, which means this principle structurally advantages established contributors, a tension acknowledged in Section 7.4. This principle also directly prescribes the multi-community challenge, detailed information about the content of communities does not have to be shared, just the record of who collaborated with whom.

7.5.2. Peer recognition over platform automation

The second principle concerns how recognition mechanisms need to function within a community. This principle emerged from the consistent empirical finding that genuine human acknowledgement matters far more than platform-generated signals. As P4 described, knowing her work was actually being used mattered far more than any formal publication or platform-generated acknowledgement. This is further supported by the competence, authenticity, and relatedness value hierarchies, which all point toward recognition that requires genuine human effort and reflects actual impact rather than automated counting of activity. What matters for contributors is receiving human appreciation and acknowledgement that recognises their actual contribution. A platform-automated mechanism will not accomplish that. Recognition focused on impact and usefulness directly serves the competence need, while the genuine human connection it creates between contributor and acknowledger serves the relatedness need.

This principle means that recognition is focused on impact and usefulness rather than activity volume, requires meaningful effort from the giver to carry informational value, and is accessible for all types and sizes of contribution, regardless of frequency or visibility. Recognition in this research is focused on the contributor who receives it, satisfying the need to know their work mattered, rather than being a public reputation signal. Where recognition is also visible to others, it can additionally build reputation as an informal signal. The principle also addresses the authenticity value, because by not being pushed by the platform to acknowledge someone else's contribution and by requiring effort, the received recognition is authentic and meaningful.

7.5.3. Visibility as the default, privacy as the choice

The principle of visibility as the default and privacy as the choice emerged directly from the value conflict analysis in Section 7.4, where all conflicts clustered around the privacy requirement that no profile fields are mandatory and display is always contributor-controlled. The focus group consistently placed privacy as the dominant value while acknowledging that visibility serves important functions for reputation and trust. The resolution was satisficing with a high threshold for privacy, producing this principle as the appropriate stance for the platform. For reputation signals on collaborative platforms to function, information needs to be visible. For contributors to feel safe and in control, visibility should be their choice.

Contributors want control over what is shared on a platform, especially outside a community. This results in this design principle giving the contributors the autonomy to decide for themselves what becomes visible outside the community on their profile page and what not. This principle also prescribes that the platform informs its contributors of the possible consequences of sharing or not sharing their information. Sharing is positive in terms of visibility and collaboration opportunities but carries privacy implications, and it is the contributor who should weigh that trade-off with the help of clear platform communication. Giving the contributors autonomy and accountability over their own actions.

7.5.4. The platform enables, the human chooses

The fourth design principle prescribes the overall stance the platform needs to take with the design of its mechanisms. This principle emerged from the consistent empirical finding that participants drew a clear line between platform support and platform control, consistently describing tracking and steering mechanisms as demotivating even when well-intentioned. It is further shaped by the autonomy versus accountability tension and the respect versus autonomy tension identified in Section 7.4, both of which point toward platform restraint as the appropriate method. This principle is reflected in design requirements from autonomy, accountability, transparency, inclusivity, fairness, competence, and relatedness. The platform should create conditions and provide tools that make genuine collaboration and reputation assessment possible, while leaving decisions to contributors. The platform enables contributors to receive and give peer recognition, but it does not force contributors to use the feature and it does not give benefits to those who use it. The platform should not prescribe behavior.

The platform needs governance tools to ensure terms and conditions and legal obligations are upheld, but using those tools in ways that track, monitor, or steer everyday contributor behavior conflicts with the autonomy that makes genuine contribution possible. Non-prescriptive features sit within this principle because they create awareness without removing choice. The transparency requirements about how mechanisms work sit here too, because informed choice requires understanding what you are choosing. This principle acknowledges that every platform mechanism shapes contributor behavior in some way, since the decision to surface certain information over other information is itself a form of steering. The condition is that features are gentle, infrequent, and easy to ignore, and that they steer toward genuine collaboration rather than platform engagement. One clear limit that falls under this principle is that mechanisms are non-competitive, as competition drives certain behavior too much and undermines the collaborative orientation of the platform.

7.5.5. Respect matters, but design possibilities are limited

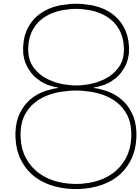
The fifth and last design principle created is built upon the finding that respect is essential in reputation building for large-scale platforms. Respect emerged as an important empirical finding not anticipated in the theoretical inventory. Participants with extensive platform experience described respectful interpersonal behavior as the primary and most informative reputation signal, yet the focus group discussion showed that enforcing respectful behavior beyond legal obligations crosses into governance that undermines autonomy. This principle is reflected in the design requirements of respect, autonomy, privacy, and trust. Operationalizing respect through design mechanisms is very difficult without harming autonomy, privacy, or fairness. For instance, allowing contributors to write recommendations or feedback on how a person is in a collaboration will lead to highly subjective and context-dependent reviews, where one negative text could have a disproportionate impact.

The platform can establish norms for respectful interaction through its terms and conditions, but actually enforcing what is respectful behavior is too subjective and too intrusive for a platform to govern without crossing into the prescriptive control that the enabling principle rules out. The written feedback section showing how a contributor was to work with is the closest the platform can get to making behavioral reputation visible. Active platform monitoring of behavior within communities would constitute a privacy violation. The resolution is a threshold approach. The platform establishes legal obligations such as prohibiting racism and incitement to violence. Responsibility for everyday behavioral norms is delegated to community leads with clear guidelines and contractual obligations. For interactions that do not reach the legal threshold, the platform relies on the terms and conditions and the community lead structure rather than active intervention. This principle is therefore both a normative statement about what the platform should do and an honest acknowledgement of what platform design cannot achieve for this dimension of collaborative life.

7.5.6. Constitution

A value constitution is a document that translates the values and commitments of a design process into accessible language, making explicit what a platform stands for and how it navigates the priorities that emerged from the research. Rather than a technical specification or a legal document, it serves as a normative foundation that can guide platform development, inform contributors about what they can expect, and hold the platform accountable to the values it claims to uphold. In Value Sensitive Design, producing such a document is a way of making the outcomes of the design process transparent and communicable beyond the research context (Friedman and Hendry, 2019).

The results of this research are brought together in a value constitution for value-sensitive reputation and recognition design, included in Appendix F. The constitution is structured around the five design principles developed in Section 7.5, each of which reflects one or more of the eleven values identified through the conceptual and empirical investigations. Together, the principles and values it draws from capture the priorities that emerged consistently in this research. Together, the five design principles and the value constitution answer SQ4 and SQ5. The full specification path from empirical codes to norms to design requirements for all eleven values is included in Appendix D, and the conflict matrix and value tensions are included in Appendix E.



Discussion

Designing value-aligned reputation and recognition for multi-community collaborative platforms is not only a question about what people want to know and want to receive, but also what they want to share, and about the limits of what platform design can achieve.

Chapter 7 produced 28 design requirements from eleven value hierarchies, addressed the value conflicts and tensions that emerged from the specification process through a focus group, and synthesized the findings into five design principles and a value constitution. This discussion interprets those results in light of the research question, reflects on the limitations of this work, and addresses the scientific, societal, and practical implications that follow from it. It concludes with recommendations for further research.

8.1. Interpreting the results

The conceptual and empirical research phases produced an extensive list of eleven values related to reputation and recognition. This is logical given the exploratory nature of this study, and this reflects the complexity of the value landscape around reputation and recognition in multi-community collaborative platforms. The exploratory approach was necessary precisely because no prior work had mapped these values in this context, and the scope of what emerged confirms that the choice to explore broadly before specifying deeply was the right one. Taking all eleven values into account meant that each value was specified according to the norms found in the empirical research, producing 28 consolidated design requirements. The result is a comprehensive picture of what values matter and why, which provides a grounded foundation for the design principles that follow from it. This is not a limitation but a reflection of how extensive the value landscape around reputation and recognition actually is.

Interpreting the results also requires looking back at the theoretical frameworks that grounded this research. The trust literature treats trust as a hierarchical construct built from competence, benevolence, and integrity. According to the literature, competence is a dimension of trust rather than a standalone value, sitting hierarchically beneath it. In the empirical research, however, both emerged as distinct and prominent values in their own right. Contributors articulated concerns about competence and concerns about trust separately, suggesting that in practice these two constructs are experienced as separable even when theory positions one as a component of the other. Of the remaining trust dimensions, only competence was strongly confirmed in this way. Benevolence and integrity did not disappear but appear to have been absorbed into other values. Looking back, some aspects of the value integrity surfaced through authenticity and accountability, and benevolence through relatedness and respect. Respect itself was not predicted by the trust literature but emerged as one of the most empirically prominent values, suggesting that in a collaborative context, trust is experienced less through personal assessment of another contributor's intentions and more through observable social behavior toward others in general. That is a more public and verifiable signal, which may explain why it proved more of an important value than benevolence or integrity in this setting.

The motivational frameworks showed a different picture from the trust literature. SDT held across the full empirical investigation, with all three psychological needs confirmed. Competence and relatedness, the two distinctly psychological values that the standard VSD inventory would not naturally have included, were among the empirically prominent findings. Autonomy appeared in both frameworks simultaneously, as an ethical value meaning non-coercion and as a psychological need meaning genuinely self-chosen contribution, pointing to different and complementary design requirements depending on which lens is applied.

Human connection

When interpreting the results across the conceptual findings, the empirical investigation, the value hierarchies, and the five design principles, one observation ties them all together. The most valued reputation signals are the ones that show how someone actually collaborates with others. The most meaningful recognition comes from someone who genuinely engaged with the work. The value conflicts that proved hardest to resolve all concerned the same underlying challenge, that the signals contributors find most valuable are also the most difficult to facilitate without harming other values. Human connection is therefore the design goal the combined results point toward, and simultaneously, the element that is most difficult to capture with design features. This shows up in all developed design principles.

First, it becomes apparent in the findings concerning formal reputation. The platform makes the collaboration network visible, which is developed as a first principle, so that contributors can find a trusted third party rather than relying on formal signals alone. Across all three stakeholder groups, participants consistently described personal connection, intuition, and relational trust as more decisive than any formal reputation elements. The most useful signal identified was the collaboration network, because it shows whether there is a trusted third party who can help bridge the gap. The design requirements respond to this by making the collaboration network and personal contributor information visible on the profile page, creating conditions for relationship-building rather than prescribing the relationship itself. This raises a question about what reputation mechanisms on collaborative platforms can achieve. They can inform the initial contact between unknown contributors, but they do not replace the need for those contributors to actually engage in some form of contact. The principle that the platform makes the collaboration network visible is therefore not a claim that the platform produces trust, but that it makes the relational path to trust more accessible.

Second, this shows up in recognition. Peer recognition over automation follows from the finding that what motivates contributors is being seen by another person, not acknowledged by an algorithm. As the empirical findings made clear, motivation is far more than being thanked for a contribution. It sits in the personal relationship, in the sense of being genuinely known and valued by specific people, and in the experience of doing meaningful work together. The design requirements respond to this by specifying a response feature with a free-text impact question, a direct message option for private acknowledgement, and a notification feature that surfaces unresponded contributions to make peer acknowledgement more likely without prescribing it. The principle of peer recognition over automation follows directly, prescribing that the platform creates the conditions for genuine human acknowledgement rather than replacing it with algorithmic processing.

Third, this is clear from the respect value and from what the value conflict analysis revealed more broadly. The fifth principle, that respect matters but design possibilities are limited, acknowledges that the most informative reputation signal, how someone actually treats others, is also the one least available to platform design. Participants with extensive platform experience described respectful behavior toward each other as the primary and most informative reputation signal, yet this is also the signal most difficult to design for. How someone communicates, how they handle feedback, and how they treat others in a collaboration are deeply context-dependent and cannot be translated into objective categories without distortion. The value conflict analysis in Chapter 7 resolved this by making behavioral signals optional and contributor-controlled rather than mandatory. What the conflict analysis revealed as a finding in itself is that the tensions between what would be most informative and what contributors can reasonably be asked to share are not accidental design problems but limits of what platform design can achieve for this dimension of reputation. Therefore, the fifth principle, that respect matters but design possibilities are limited, names this boundary honestly rather than designing around it.

The same logic runs through the third and fourth principles, even if less directly. Visibility as the default with privacy as the choice, and the platform enables, but the human makes the choice, are both built on the idea that genuine human contribution requires genuine human choice. A contributor whose information is shared without consent or who feels steered rather than supported is not contributing freely, and a contribution that is not freely given carries less of the human meaning that makes it valuable to others. These principles are therefore not only about protecting autonomy as an ethical value but about preserving the conditions under which human connection through contribution remains possible at all.

What all five share is the acknowledgment that a platform can create conditions that make human connection more likely, but it cannot produce human connection itself. While also showing how important that human connection is. The design goal is therefore not to replicate or replace human judgment, but to make the conditions for genuine collaboration as accessible as possible. Human connection is not just the overarching design goal but also the honest boundary condition, and every design decision following from this research should account for both sides of that finding. This finding is also shaped by the research approach. Starting from what contributors actually value rather than from what is technically feasible or measurable creates the conditions to surface results like this. At the same time, the collaborative platform context amplifies this finding, as it is not a short interaction but a sustained collaboration it tries to create. This finding takes on additional urgency as AI-generated content and AI agents become more prominent in collaborative platforms. As the influence of AI increases, understanding what it means to be human and to interact as humans becomes more rather than less important (Johar, 2026), and the design principles in this research are oriented precisely toward preserving that human dimension.

8.2. Limitations

A limitation that follows directly from the breadth of the result is that each value was only specified according to the focus found in the research. For instance, the inclusivity value is not specified in design requirements regarding accessibility for all, like disabled contributors, but focuses on limiting newcomer barriers, as that was the focus revealed by the empirical investigation, and that codebook informed the development of the value hierarchy. Each value could be researched more deeply to identify exactly what norms and harms are related to that value, to develop a more detailed design specification per value rather than across all values simultaneously.

A related limitation is that some values that interact closely with the eleven identified were not treated as standalone values deserving their own hierarchies. Values like integrity and honesty have some overlap with the way authenticity and respect are specified in this research, but the breadth of the investigation meant they were not developed independently, as those values did not come up standalone in the coding process. Similarly, VSD values like freedom from bias and informed consent have close relatives in this research. Fairness maps onto freedom from bias, and privacy largely results in either the power to remain private or having informed consent about what is shared. A more detailed investigation might develop separate value hierarchies for each of these and develop a more explicit treatment of those connections that would strengthen the theoretical grounding.

The design requirements and principles produced in this research are grounded in interviews with collaborative platform users whose experience of problematic behavior was largely limited to disrespectful interpersonal conduct, which tended to result in the collaboration being ended. As a result, the requirements provide limited design guidance for handling bad actors at a large scale. As collaborative platforms grow and face the same adversarial dynamics that affect large commercial platforms, the design of mechanisms that are robust to gaming and manipulation becomes increasingly important. This research provides a value-grounded foundation for such mechanisms but does not resolve the technical challenge of implementing them at scale. Furthermore, the value conflicts and tensions which result in visibility as the default, privacy as the choice, and the platform enables, the human chooses principles, meaning contributors control what is visible on their profile page, which has a direct consequence for handling bad actors as well. If a contributor can choose not to display recommendations or feedback, negative signals become effectively invisible, which weakens the accountability function of the system. This research implicitly assumes community administrators and reporting mechanisms as the primary safeguard, which may not scale well on larger platforms. Future research on large-scale collaborative platforms, or on how the design guidelines perform as platforms grow, would be valuable to address this limitation.

A limitation that affects the generalizability of this research concerns both the sample and the stage of design reached. The empirical research comprised nine interviews and one small focus group, which is appropriate for the exploratory nature of the study but means the findings reflect the values and experiences of a relatively small group of contributors. The patterns were consistent across participants and confirmed across different platform contexts, which supports the credibility of the findings, but broader generalizability to all contributors on multi-community collaborative platforms would require a larger and more systematically varied sample. Furthermore, while the design requirements were discussed in the focus group in terms of value conflicts and trade-offs, the specific design features proposed in Chapter 7 were not validated with users. The design features, therefore, remain conceptual proposals rather than empirically validated solutions, and their generalizability cannot be established until they are tested with contributors interacting with implemented mechanisms.

A final and more fundamental limitation concerns the scope of the research question itself. Reputation and recognition are already solution-oriented directions toward the underlying challenges of long-term engagement motivation and trust on collaborative platforms. They might not be the only possible responses to those challenges, and this research does not ask whether they are the right ones. Given that the central finding is that genuine trust and motivation sit in the personal relationship and in the actual experience of doing meaningful work together, and that both are largely beyond the reach of platform design, one might rightfully ask whether these mechanisms are the right solution at all, or whether entirely different approaches are suitable to foster engagement and trust between strangers on a collaborative multi-community platform. This is especially relevant for public interest technology, where the goal is not to maximize engagement but to enable genuine collaboration.

8.3. Implications

8.3.1. Scientific implications

The most significant scientific contribution of this research is the demonstration that for systems designed to support collaboration and contribution, a purely ethical VSD value inventory is insufficient. VSD is primarily oriented toward values of moral and ethical import. This research found that the values most directly relevant to how reputation and recognition function are not only ethical but also psychological. A mechanism that only attends to ethical values without understanding the motivational logic behind how it functions risks being ethically sound but ineffective in practice. This created a departure in the application of the method as the standard VSD value inventory does not naturally include competence and relatedness, yet these values were among the most empirically prominent findings.

Combining the two frameworks was not straightforward. VSD asks what values a technology should uphold for society. SDT asks what needs a person must have met to feel motivated. Autonomy appeared in both frameworks. As an ethical value, it means not coercing contributors. As a psychological need, it means actively creating conditions where contributions feel genuinely self-chosen, which is a more demanding and different design goal. Relatedness shows a similar ambiguity, as it can be understood as a personal motivational need as well as a collaborative value pointing to community belonging. The value hierarchies were built from empirical norms found in the interviews, which grounded the specification process but also meant that the distinction between the ethical and psychological dimensions of these values was not always explicitly resolved. Future researchers combining VSD with motivational theory would benefit from making this distinction explicit from the start, as it affects what counts as a sufficient design requirement.

A second implication is that while reputation and recognition are treated as separate mechanisms in the literature, with one addressing trust and the other motivation, this research consistently showed that they are far more intertwined in practice than the literature suggests. The values that shape how recognition functions are not limited to recognition mechanisms, and the same applies to reputation. A positive feedback mechanism, for instance, leads simultaneously to a contributor feeling acknowledged in that community and to a reputation signal visible to future collaborators. The SDT values from Ryan and Deci (2000) that the literature connects primarily to recognition were empirically prominent in discussions about reputation, too, and the trust dimensions that McKnight and Chervany (2001) associate with reputation mapped onto empirical findings about recognition as well, with integrity connecting most clearly to the respectful interaction norms. The scientific implication is that these mechanisms can and should be designed simultaneously as a coherent whole rather than independently.

A third implication follows from the collaborative and multi-community nature of the platform and what it means for the type of trust and recognition that matters. On a transactional platform, a single interaction is typically the full commitment, meaning a formal credential or score may be sufficient to reduce uncertainty for that one exchange. On a collaborative platform, contributors can join a community with the idea of a longer collaboration process with someone, which raises the relational stakes considerably. Respect and relatedness become more prominent values under those conditions because contributors are not just assessing whether someone can deliver but whether they can work together over time. This also explains why the collaboration network emerged as the most prominent design mechanism and why it maps onto the first design principle. Relational and personal information outweighs formal credentials, especially under the prospect of sustained collaboration, because what contributors need to know is not whether the other person is credible, but whether a productive and comfortable collaboration is likely. A trusted third party who bridges two contributors can speak to that relational dimension in a way that formal signals cannot. The multi-community structure amplifies this further because contributors often come from different institutional contexts, and collaborate in very different communities simultaneously, meaning a shared connection across those boundaries carries more weight than a credential that may not travel across communities or can mean less in a different community. This also explains why automated recognition and quantitative metrics proved inadequate. They were designed for a logic of engagement volume and transactional efficiency that does not match what contributors on a collaborative platform are trying to assess or achieve. Participants from Wikipedia confirmed that this pattern extends to other non-competitive platforms with intrinsically motivated contributors, suggesting that the collaborative goal rather than the specific platform is what drives it.

8.3.2. Societal implications

The findings of this research further emphasized that reputation and recognition mechanisms are there to create trust and make people feel acknowledged in their efforts, both essentially human questions, not just technical ones. Pointing to the importance of human value-focused design for such human mechanisms. They deserve a design process that takes into account the end-users rather than defaulting to quantitative metrics that are designed to coerce quantity over quality. Optimizing for engagement through likes, points, badges, and leaderboards has proven poorly suited to the collaborative context. Participants in this research consistently described such mechanisms as either meaningless or actively demotivating, and the literature confirms that they tend to undermine the intrinsic motivation they are intended to support. The societal implication is that as collaborative platforms are increasingly used to address complex societal challenges from climate adaptation to public health to democratic governance, the design of their reputation and recognition mechanisms becomes a matter of public interest. These collaborative platforms need a fundamentally different design logic to ensure their mechanisms enable what they stand for. A reputation system that creates bias against newcomers, enables gaming or undermines autonomy does not just affect individual actions, but diminishes the use of the platform and the collaborative impact of the community. The design requirements produced in this research show this difference. They are not optimized for maximum information visibility or engagement maximization, but for the conditions under which genuine human collaboration can develop and be sustained.

A more practical implication follows from the central finding for platform owners and designers. The finding that the mechanisms most needed for genuine trust and motivation are also the ones least available to platform design is not a reason for pessimism but a clarification of where platform design can and cannot add value. Platforms cannot produce human connection, but they can reduce the friction that prevents it. Making the collaboration network visible so that a trusted third party is accessible, surfacing unresponded contributions so that peer acknowledgement becomes more likely, and designing profile pages that put relational signals in the contributor's own hands, encourage one-on-one connections, are all meaningful contributions even if they do not guarantee the outcomes contributors ultimately value. Knowing that formal credentials and automated metrics are poor substitutes for relational trust also tells platform owners where not to invest design effort, which is equally valuable. For platforms serving contributors who will never meet, the design of trust and recognition mechanisms is an important tool as it has to replace and account for the human connection that helps create positive collaboration. The design principles can also be supported by human roles within the platform itself. Community administrators who actively welcome new members, acknowledge first contributions, or flag unresponded work are performing exactly the kind of peer-driven human connection that this research shows matters most. It should be noted that the alternative to engagement maximisation is not zero engagement. Collaborative platforms also need engagement, but engagement oriented toward genuine collaboration rather than attention, clicks, or content volume. The design principles in this research are oriented precisely toward that different kind of engagement.

8.4. Suggestions for further research

The most direct recommendation for further research is to test the design principles and the preliminary proposed design features with users who are actually using the mechanisms in practice. This research produced conceptual design principles grounded in empirical interviews about values and experiences, but the ultimate test of whether those principles produce the intended effects of more meaningful recognition, stronger trust, and sustained motivation requires empirical research with users interacting with implemented mechanisms. VSD is applied during the design phase of a technology, this research identified values and translated those into design requirements and design principles. However, the concept of reflexivity is that the values that emerge during design do not always remain stable through implementation and use, and that therefore there should be an extra strand to VSD to see how it adapts in real implementation and use. When the technology is used in practice, new value tensions can surface that were not visible now or not taken into account now, and the value prioritization of different stakeholders can change when using the reputation and recognition mechanisms instead of discussing them in a future context. This means the design principles produced in this research should be understood as a starting point, and once implemented, they should be seen as a process instead of a finished product. An extra investigation into how values and, importantly, value tensions play out in actual mechanisms used, after implementation, is an important next step.

A specific area for further research is the design of soft interpersonal reputation signals. Behavioral and interpersonal signals were consistently identified as the most valuable reputation information, but displaying them outside of communities raises serious privacy and fairness concerns, given their subjective and context-dependent nature. Future research could investigate innovative ways to capture and represent these signals that are less vulnerable to bias, misinterpretation, and are signals that people want to share on a platform, particularly for larger platforms where such signals have an important role in managing trust at scale. Related to this is the broader question of how feedback mechanisms can be designed for collaborative platforms that steer away from platform-generated quantitative elements while remaining privacy-sensitive. The current research provides a value foundation but does not resolve the design challenge of how to make behavioral signals meaningful without making them manipulable or biased. Answering this would enable this design to become better by having a way to deal with bad actors.

A further direction for research concerns the relationship between platform steering and contributor autonomy. Every platform mechanism shapes contributor behavior in some way, since the decision to surface certain information or create certain features is itself a form of steering toward desired collaborative behavior. The design principles in this research respond to this by requiring that features are non-prescriptive and dismissible, steering toward genuine collaboration rather than platform engagement. However, given the breadth of this research, the exact boundary between legitimate steering and autonomy-undermining prescription was not investigated in depth. Further research into what forms of platform steering contributors experience as autonomy-preserving versus autonomy-undermining would strengthen the foundation for implementing the design principles in practice.

Finally, the increasing presence of AI-generated content and AI participants in collaborative platforms introduces design challenges that this research did not address. This research positions human connection as the design goal and peer recognition as the mechanism that carries motivational value precisely because it comes from a person rather than an algorithm. AI-assisted drafting of responses to the impact question is already a realistic possibility, and whether that preserves or undermines the authenticity that makes peer recognition meaningful is an open question. More broadly, how reputation and recognition mechanisms should distinguish between human and AI contributions, what trust means in the context of AI collaborators, and how the design principles should be adapted for contexts where bad actors may include automated systems rather than only human contributors are urgent questions for future research as AI becomes an increasingly prominent feature of collaborative platform environments.

9

Conclusion

This research set out to answer the following question:

What design principles are needed to support value-aligned reputation and recognition mechanisms in multi-community collaborative platforms?

To answer this question, a Value-Sensitive Design approach was taken, combining a conceptual investigation through literature review, an empirical investigation through nine semi-structured interviews, a focus group to discuss the value tensions, and a technical investigation through value hierarchy specification.

The conceptual investigation answered SQ1 and SQ2. It established that reputation and recognition are not independent mechanisms but deeply intertwined in how they function, and that a purely ethical VSD value inventory is insufficient for motivational systems like these. Supplementing VSD with SDT produced a preliminary value inventory of thirteen values. The empirical investigation answered SQ3, confirming ten of those values across three stakeholder groups, adding respect as an empirically grounded value not anticipated in the literature, and removing benevolence, integrity, and reciprocity because they did not emerge in practice. This resulted in a final value inventory of eleven values: accountability, authenticity, autonomy, competence, fairness, inclusivity, privacy, relatedness, respect, transparency, and trust.

The technical investigation answered SQ4 and SQ5 simultaneously. The specification process translated these values into eleven value hierarchies, producing 28 distinct design requirements for the platform. The design features connected to the value hierarchies of competence and trust were further discussed to show how this could work on Alkemio, proving the operationalization abilities. The specification process also made several value conflicts and tensions visible. The three most concrete conflicts all concerned the tension between privacy and transparency, as reputation mechanisms need a certain visibility of past behavior in order to function. These conflicts cannot be resolved by choosing one value over the other. The results show that dealing with those value conflicts means sacrificing with a high threshold for privacy, finding solutions that meet that threshold while preserving as much transparency as is practically possible within it. The respect conflict further emphasized how difficult a value it is to operationalize for a platform. The value tensions further emphasize the importance of the platform to have boundaries, but to give most responsibility and accountability to the contributors.

These results lead to five design principles. The first principle is that the platform makes the collaboration network visible, enabling trust through trusted third parties rather than formal credentials alone. The second is peer recognition over platform automation, prescribing that recognition must come from people rather than platforms, focused on the impact and usefulness of a contribution. The third is visibility as the default, privacy as the choice, giving contributors autonomy over what becomes visible about them outside their community, with the opt-out approach preserving transparency while respecting those who prefer privacy. The fourth is that the platform enables, but the human chooses, meaning mechanisms are non-prescriptive and non-competitive, with platform intervention reserved for situations where legal or community boundaries are broken. The fifth is that respect matters, but

design possibilities are limited, acknowledging that the most informative reputation signal is also the one least available to platform design.

When looking at these principles, they can be united by one overarching conclusion: value-aligned reputation and recognition design has human connection as its goal. Because an important finding running through all five principles is that the most valuable reputation and recognition signals are inherently human and relational, and that platform technology is structurally limited in its ability to facilitate them. The design requirements acknowledge this by making behavioral and interpersonal signals optional and contributor-controlled rather than mandatory, which means the picture they provide will always be incomplete. A platform can create the conditions that make human connection more likely, but it cannot produce human connection itself. This is not a limitation of the research but one of its most important findings. It establishes not only what design principles are needed but also where design reaches its limit.

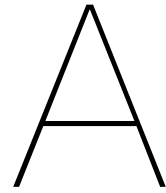
On collaborative platforms designed to serve public interest goals, the design logic of reputation and recognition mechanisms needs to be fundamentally different from that of engagement-maximising commercial platforms. The design principles produced in this research are oriented toward the conditions under which genuine human collaboration can develop and be sustained, conditions that require meaningful peer acknowledgement, privacy protection, and the kind of trust that can only be earned through personal experience. The collaborative and multi-community nature of the platform is not a minor detail but it is the determining explanatory factor for the findings. Under the prospect of sustained joint work with someone, relational and personal information outweighs formal credentials, the collaboration network matters more than a score, and automated metrics fail not incidentally but structurally. Any platform whose purpose is to enable collaboration between contributors from different organisations and communities who do not necessarily know each other, and who need to develop trust across community boundaries, faces the same fundamental design challenge and therefore needs to uphold the same design principles.

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Interview protocol

A.1. Rationale stakeholder groups

A.1.1. Facilitators

The indirect stakeholders in this study are the facilitators. Their work is focused on enabling a multi-stakeholder collaboration, with or without the assistance of an online platform. Facilitators are business developers or (project) managers whose work centres on bringing different parties together, not necessarily through an online platform. They are included as indirect stakeholders because their professional role is the real-world situation of what reputation and recognition are needed to accomplish digitally. Because their perspective is grounded in practice rather than any specific platform, they can speak about what a platform should or should not do without a platform-specific lens. These collaborations are work-related instead of voluntary, which speaks to the actual use of the Alkemio platform. Some facilitators do use a platform or online community to help bring the stakeholders together.

A.1.2. Contributors on Alkemio

The direct stakeholders are contributors, who are divided into two categories of participants. The contributors on Alkemio are people who collaborate in the settings facilitated by the facilitators. Alkemio is currently primarily used for collaborative projects within organisations, with some projects involving multiple organisations as well. These participants have experience in collaborative projects in a work-related context. While these collaborations are not always multi-stakeholder in the sense of involving different organizations, they do reflect real-life collaborative work settings in which coordination, contribution, and recognition play a role. This group represents the current primary users of the Alkemio platform.

A.1.3. Collaborators on other platforms

The second group of contributors consists of participants with experience on other collaborative platforms, such as Wikipedia. These contributors have experience with voluntary participation, as well as with reputation and recognition mechanisms on those platforms. This provides a different perspective that current Alkemio users cannot yet offer, since the platform has not implemented any formal reputation or recognition mechanisms. This variation within the contributor group is a conscious choice that reflects the anticipatory nature of this study. As mentioned, Alkemio currently does not use any reputation or recognition mechanisms, and in its current use, there may be a limited need for such mechanisms due to the relatively small scale, existing familiarity between participants, and the work-related nature of collaborations. This study does not evaluate an existing system, it investigates how stakeholders currently experience reputation and recognition in collaborative settings and what they would want or need from such mechanisms in the future. This aligns with VSD's anticipatory design orientation, which holds that surfacing values before implementation is more effective than trying to add these considerations in a later stage. However, supplementing this with interviews of contributors on voluntary multi-community platforms who already have experience with reputation and recognition adds empirical depth. These contributors are not seen as a different group because they are, in essence, still contributors to collaborations with multiple stakeholders and are the possible future users of the

Alkemio platform. This also adds the possibility of Alkemio to grow into a platform where collaborations do happen with unknown, voluntary participants. In table 3 the list of the final set of participants is shown.

Interview questions

This framing also has direct implications for how interview questions are posed. Rather than asking participants to evaluate existing features, questions are grounded in participants' lived experiences of collaborations with lesser-known or unknown other participants. For contributors who are current Alkemio users, questions are framed in terms of expectations and preferences. What participants would want such mechanisms to do, or what they would be concerned about. This approach follows VSD's recommendation to elicit values indirectly through experience and imagination rather than through direct reflection on abstract principles (Friedman et al., 2004), and is consistent with the anticipatory orientation of the study as a whole. For the contributors who already have experience with reputation and recognition mechanisms on collaborative platforms, the questions will focus on their experience and their perspectives as well. See Appendix A for the three interview protocols used.

A.2. Interview protocol facilitators

1. Could you briefly tell me what your facilitating work involves, and what role collaboration plays in it?
 - (a) Does everyone involved (always) know each other? To what degree?
 - (b) How many people/parties are involved?
 - (c) Do you play an active role in these collaborations (or are you just the person that brings them together)?
2. Can you give me an example of a collaboration that worked very well?
 - (a) Why did it work so well?
3. How do you find the people and organizations to bring together?
 - (a) Do you just know them, how do you look for them?
4. When you are bringing parties together who don't know each other, how do you help them to start collaborating?
 - (a) What information do you supply or is there an initial (face-to-face) meeting you arrange?
5. In your experience, what signals make someone come across as credible or reliable to others in the online world?
 - (a) Are there signals that tend to be misleading or overrated?
 - (b) Does that differ depending on the type of collaboration or the parties involved?
6. In the collaborative processes you facilitate, how are contributions from the different parties, or individual people, acknowledged, is that something you think about explicitly?
 - (a) Do you notice a difference in how people engage when their contribution is acknowledged versus when it is not?
 - (b) What do you think makes acknowledgment feel meaningful rather than just a formality? (How do you feel valued and acknowledged in your work?)
7. In your experience, what motivates people to contribute beyond what their role formally requires, especially in multi-party collaborations?
 - (a) Is that something you actively try to create as a facilitator?
 - (b) What tends to work, and what tends to backfire?
8. Has there ever been a situation where the collaboration was unsuccessful or there were extensive issues between stakeholders? What happened?
 - (a) What could have prevented it?
 - (b) If applicable; How did it affect further collaboration?
9. Have you seen situations where someone disengaged or pulled back from a collaboration? What do you think caused it?
 - (a) Was acknowledgment or recognition part of the picture?
 - (b) What would have needed to be different to keep them engaged?
10. In multi-party collaborations, do you find that contributions from all parties, and each individual, tend to be valued equally or is there sometimes a contribution more visible than others?
 - (a) Can you give an example of a situation where the credits/acknowledgement felt unequal?
 - (b) What did you do?
 - (c) What could have been done differently?

11. If a digital platform were to automatically track and display each participant's expertise, history, education etc, what do you think the tradeoffs (or risks and benefits) of that would be in your collaboration context?
 - (a) Is this the same for every collaboration?
 - (b) Would there be a privacy risk or bias risk?
 - (c) How much do you think people should know about each other's backgrounds, track records etc before working together?
12. If a digital platform were to automatically track and display how much each participant has contributed, for example through scores or rankings, what do you think the risks and benefits of that would be in your collaboration context?
 - (a) Is this the same for every collaboration?
 - (b) Who might benefit from that kind of visibility, and who might not?
 - (c) What would make this fair?
13. Is there anything that a platform supporting multi-party collaboration should simply never do, a line it should not cross?
 - (a) Why is that line important to you?
14. Is there anything we have not talked about that you think is important?

A.3. Interview protocol Alkemio contributors

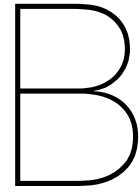
1. Could you briefly describe your role and what collaboration looks like in your work?
 - (a) Does it involve people from different organisations or backgrounds?
 - (b) How many people/parties are (usually) involved?
 - (c) Is collaboration something you actively choose to do, or more something your role requires?
 - (d) How often do you end up working with people you don't already know?
2. When you start collaborating with someone you don't know yet, what helps you decide whether to trust them enough to work together?
 - (a) Is there something specific you look for, or does it come more from a gut feeling?
 - (b) Has there been a situation where that trust turned out to be misplaced? What happened?
3. Have you ever felt you had to prove your own reliability or credibility to others in a collaborative setting? What did that look like?
 - (a) Was there a moment where you felt that had been established, what created that feeling?
 - (b) Was there anything frustrating about that process?
4. Can you recall a moment or project where you really felt your contribution was appreciated? Can you tell me about this?
 - (a) How did they acknowledge you or your work?
 - (b) What specifically made it feel meaningful?
 - (c) Did it affect how you engaged with the project afterwards?
5. Can you also think of a time when your contribution felt overlooked or undervalued? What happened?
 - (a) How did that affect your motivation?
 - (b) What would have needed to be different?
6. What motivates you to contribute to collaborative projects?
 - (a) Is there a difference between what gets you involved and what keeps you engaged over time?
 - (b) Have you ever stopped a collaboration? Why?
7. What do you think makes someone feel like they genuinely belong to a collaborative community, as opposed to just being one of many participants?
 - (a) Have you experienced that sense of belonging? What created it?
 - (b) Have you experienced the opposite? What was that like?
8. In your experience, do contributions in collaborative projects tend to be valued fairly, or are some contributions or people more visible than others?
 - (a) Can you give an example where recognition felt unfair or unbalanced?
 - (b) What do you think caused it, and what could have been done differently?
9. If a digital platform were to automatically track and display each participant's expertise, history, education etc, what do you think the risks of that would be in your collaboration context?
 - (a) Is that the same for every collaboration?
 - (b) Privacy risk, or bias risk?
 - (c) How much do you think people should know about each other's backgrounds, track records etc before working together?

10. If a platform were to automatically track and display how active or how much each participant has contributed, what do you think the tradeoffs, risks and benefits of that would be?
 - (a) Is that the same for every collaboration?
 - (b) Who might benefit, and who might not?
 - (c) Is that something you would want to see on Alkemio as it grows?
 - (d) Are you concerned about privacy or any other risks?
11. Is there anything a platform supporting collaboration between people who don't know each other should never do, a line it should not cross?
 - (a) Why is that line important to you?
12. Imagine a platform designed to help you collaborate with people you don't know, across different projects or organisations. What would it need to do well for you to feel comfortable participating through it?
 - (a) What would make you feel that your contributions were being treated fairly?
 - (b) What would concern you about that kind of platform? E.g. privacy issues
13. Is there anything we have not talked about that you think is important?

A.4. Interview protocol platform contributors

1. Could you tell me a bit about your involvement with the platform? How long you have been contributing, what kind of work you do there, and what drew you to it in the first place?
 - (a) Has your involvement changed over time?
 - (b) Do you contribute to other platforms or communities as well? E.g. Reddit, GitHub etc.
2. Can you tell me a bit about how reputation and recognition work on your platform, what systems do they use?
3. When you encounter someone new on the platform, what gives you a sense of whether they are reliable or credible as a contributor?
 - (a) Is there information on the platform that helps with that and do you actually use it?
 - (b) Has that judgment ever turned out to be wrong? What happened?
4. Has there ever been a situation where your own credibility or standing on the platform felt unfairly assessed or where you felt you had to prove yourself in a way that didn't feel right?
 - (a) What caused that, and how did you respond?
 - (b) What would have felt more fair?
5. What keeps you contributing to the platform voluntarily, especially given the time and effort it takes?
 - (a) Is there a difference between what drew you in initially and what keeps you going now?
 - (b) Have there been moments where your motivation dropped? Do you know what caused that?
6. Can you think of a time when you felt your contribution was genuinely acknowledged by the community? What happened?
 - (a) What made it feel meaningful rather than just automatic or formal?
 - (b) Did it change how you engaged with the platform afterwards?
7. Can you also think of a time when a contribution felt overlooked or undervalued, either yours or someone else's? What happened?
 - (a) What do you think caused it?
 - (b) What would have needed to be different?
8. The platform has specific mechanisms for acknowledging contributions, things like edit histories, barnstars, or community elections. Which of those actually feel meaningful to you, and which feel more like background noise?
 - (a) Is there a difference between what the platform tracks and what the community actually values?
 - (b) Are there contributions that you feel deserve more recognition but don't get it?
9. Do you feel that contributions on the platform are valued fairly, or are some types of work or some contributors more visible than others?
 - (a) Can you give an example of a situation where recognition felt unfair?
 - (b) What do you think causes that, and is it something the platform could address?
10. The platform makes a lot of activity publicly visible, contribution histories, community standing, past decisions. How do you feel about that level of transparency?
 - (a) Is there anything that is visible that you think should be more private?
 - (b) Is there anything that you wish were more visible?

11. Have you ever seen the platform's recognition or reputation mechanisms produce an outcome that felt wrong? (E.g. where someone's standing didn't reflect the quality or value of what they actually contributed?)
 - (a) What caused it, and how did the community respond?
 - (b) What would need to change to prevent that?
12. Is there anything the platform does in terms of how it tracks, scores, or displays contributions that you think it should not do? A line it crosses that it shouldn't?
 - (a) Can you explain why this is so important to you?
 - (b) If no, is there a future line that it should not cross, something it should never track or make public?
13. Based on your experience, what has worked well about how the platform handles trust and recognition, and what would you change if you were designing it from scratch?
 - (a) Is there something the community has figured out that platforms without that history tend to get wrong?
14. If you imagine a new platform trying to support the kind of voluntary multi-community collaboration you are part of, what would it need to get right from the start in terms of how it handles trust and acknowledgment?
 - (a) What mistakes do you think it would be most likely to make?



Codebook

Table B.1: Codebook

Theme	Meaning	Codes
Accountability	Both the users and the platform itself can be held responsible for their actions and decisions within reputation and recognition mechanisms	• It is important to hold users accountable for their behavior and actions • Users should take responsibility for their actions • Contributors should be reliable
Authenticity	Reputation and recognition mechanisms should reflect genuine contributions and assessments, and users should behave authentic and not perform for platform metrics	• Collaborations should be authentic • Ratings should reflect the truth • Recognition should be sincere and come from related peer to be meaningful • Contributors should not be able to game or manipulate platform mechanisms
Autonomy	The right of users to make their own choices about their actions and not feel pushed in a certain direction.	• Users should be able to make their own choices • Platform should not foster competition • Platform should not just track and display any kind of individual activity as it reduces freedom to contribute genuinely • Supervision reduces autonomy
Competence	Reputation and recognition need to accurately signal and acknowledge the quality of expertise and contributions for users to feel meaningful	• Professional trackrecord signals competence • Reputation should be built on demonstrated past behavior • Reputation should be domain specific • Recognition should be on (societal) usefulness and impact • Lack of recognition undermines feeling competent

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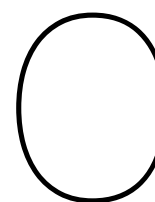
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Theme	Meaning	Codes
Fairness	Reputation and recognition must produce outcomes that are fair for every user and unbiased. This includes visibility bias, quantity over quality and structural disadvantage	• There should not be an unfair disadvantage for newcomers • Users should not be able to game or manipulate platform mechanisms • Reputation should be no more than a starting point • Reputation can lead to inequality • Recognition should be fair • Platform information can be misleading, or create bias in how it is read • Feedback can have social pressure
Inclusivity	Reputation and recognition should be accessible and fair to all users, regardless of experience so that it improves engagement and inclusion in the collaboration of every user	• Platform should improve inclusion of users • Reputation should be no more than a starting point • Reputation should not lead to bias • Reputation should improve inclusivity
Privacy	The right of users to control what personal information and activity data is visible to others and to whom.	• Platform should honor personal privacy • Tracking and displaying of activity data should not happen without consent • User data should not be shared outside platform or outside space without consent
Relatedness	The need for genuine human acknowledgement and connection within a collaboration. Also shows the need for human connection before being able to trust and the need for human connection before you feel recognised in your contribution	• Personal relationship is a precondition for trust • Personal relationship is valued over reputation as trust signal • Lack of recognition undermines community feeling • Trusted third party is needed as base for trust
Respect	Users of the platform should treat each other with respect. Reputation and recognition mechanisms should support respectful interaction	• Users should respect each other • Respectful behavior should be an important credibility signal
Transparency	The workings of reputation and recognition mechanisms should be clear and open to all users, and contribution history and behavior are visible on the platform	• Platform functionality should be transparent and open • Professional trackrecord should be available for trust • Transparency of past behavior improves trust

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Table B.1 – continued from previous page

Theme	Meaning	Codes
Trust	The degree to which contributors can rely on each other and on reputation signals to make collaboration possible. Includes how trust is built, maintained and lost, and what role reputation and recognition mechanisms play in enabling trust between unknown collaborators.	• Respectful behavior should be an important credibility signal • Transparency of past behavior improves trust • Trust only happens after collaboration • Trusted third party as base for trust • Personal relationship is base for trust • Reputation should be domain specific



Distribution of values

This appendix shows the eleven value distributions per participant. This helps to gain insight in the differences per stakeholder and per stakeholder group.

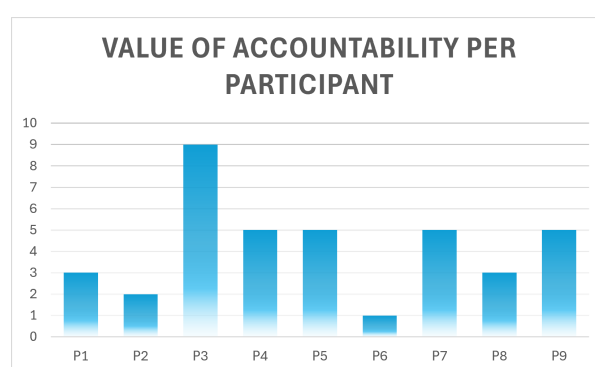


Figure C.1: Value of accountability per participant

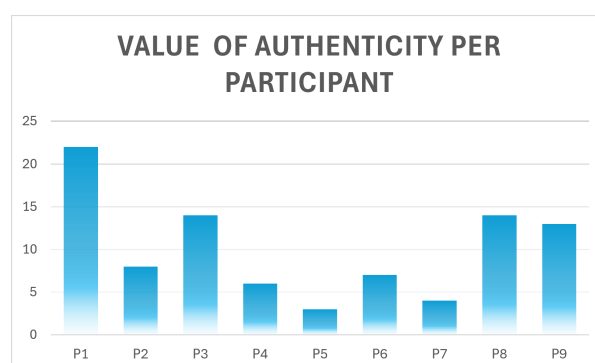


Figure C.2: Value of authenticity per participant

Authenticity was a value that came up extensively by facilitators and platform contributors, but was barely mentioned by Alkemio contributors. This is explainable when looking into the context of Alkemio's current use, contributors now work in relatively small, familiar groups where authenticity is assumed and formal recognition and rating mechanisms do not yet exist, as there are no unknown collaborators. The concern about gaming and less sincere recognition is therefore not yet very relevant for this group, and so does not come up.

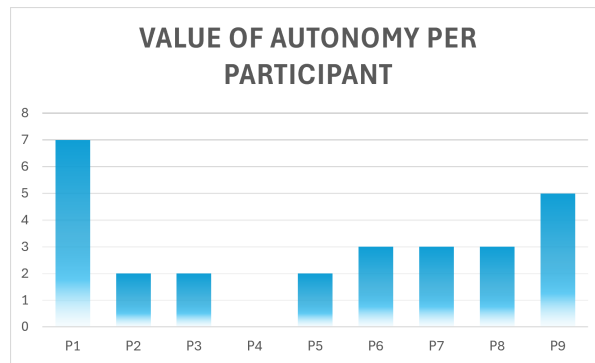


Figure C.3: Value of autonomy per participant

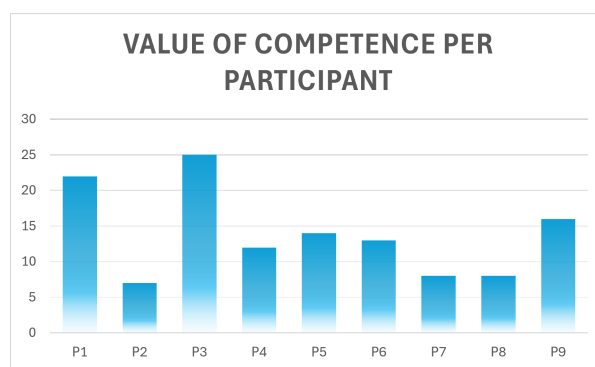


Figure C.4: Value of competence per participant

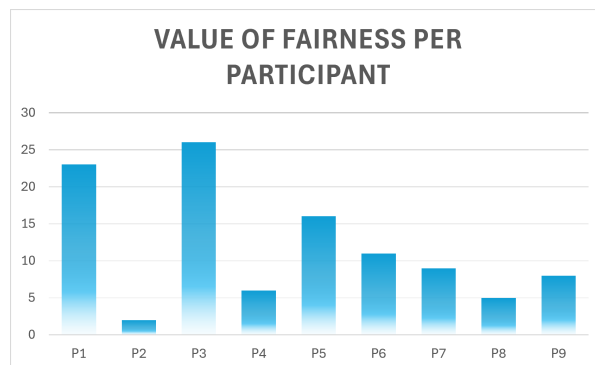


Figure C.5: Value of fairness per participant

The second value that shows a difference in distribution is Fairness C.5. Fairness was most prominently discussed by the facilitators, particularly P1 and P3, and was barely mentioned by P2 and only minimally by the platform contributors. This may reflect the facilitators' professional role of having to actively manage multi-stakeholder processes. This makes the fairness of recognition and contribution directly visible in a way that it is not for contributors who focus primarily on their own participation. Both those facilitators were quite clear on how reputation signals can lead to bias, both positive and negative, but noteworthy did P1 see it as a good thing to have more information, while P3 was adamant only expertise and not other formal reputation signals were necessary.

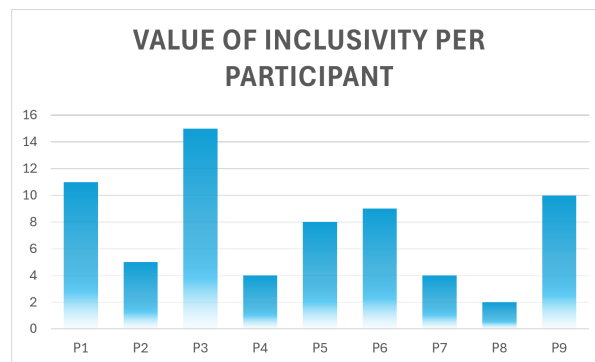


Figure C.6: Value of inclusivity per participant

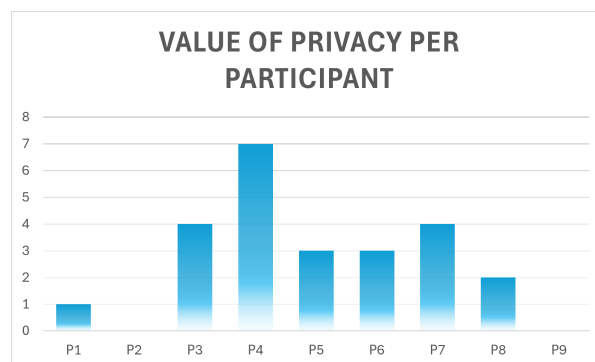


Figure C.7: Value of privacy per participant

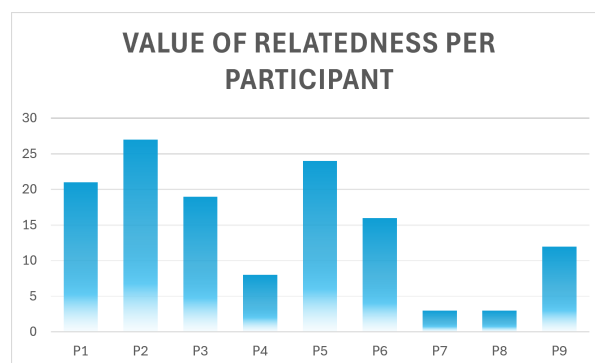


Figure C.8: Value of relatedness per participant

The value of relatedness shows a different distribution among platform contributors compared to the other groups. P7 and P8 described relatedness primarily through the lens of shared mission and community belonging rather than through trusted third parties or personal intuition. The trusted third-party code was correspondingly less prominent among platform contributors.

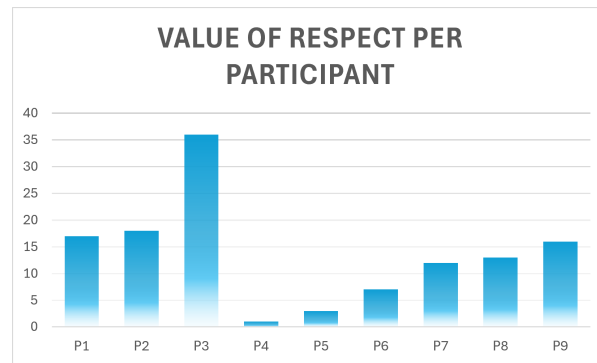


Figure C.9: Value of respect per participant

Respect did not emerge as a concern among Alkemio contributors, which is consistent with the context of the current scale and use of the platform, with an implicit familiarity within the user base. Most contributors have somewhat of a connection and relationship, making respect an immediate assumption, after all, it is also a normal social norm. Among platform contributors, particularly for P7 and P8, it was the dominant theme. They described not really looking into any formal reputation mechanisms, but assessing another contributor on how they communicate with others. Underscoring how important respect and social norms become as platforms grow and contributors have less personal interaction with strangers at scale. Facilitators also had an emphasis on respect as having that positive, respectful interaction within a collaboration improves and enhances the quality of the collaboration.

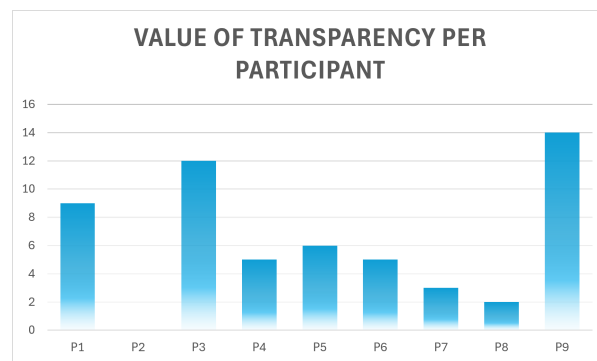


Figure C.10: Value of transparency per participant

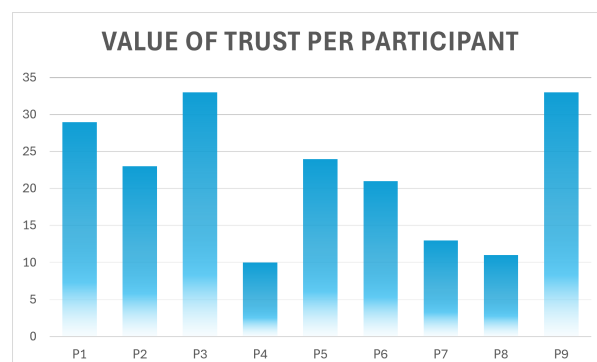
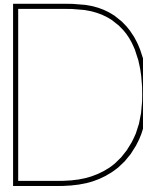


Figure C.11: Value of trust per participant

Finally, trust showed a notably different profile for the Wikipedia contributors compared to the other groups C.11. P7 and P8 placed far less emphasis on professional background and formal reputation

signals, focusing instead on interpersonal behavior and respect as the primary indicators of trust. P9, by contrast, placed more emphasis on professional track record and the fairness of rating mechanisms, reflecting the gig platform context in which formal reputation scores carry direct financial consequences. This difference suggests that the relative importance of formal versus behavioral reputation signals is strongly shaped by the platform context and the stakes attached to reputation outcomes.



Value Hierarchies

D.1. Codes to norms

Table D.1: Translating codes to norms

Theme	Norms	Codes
Accountability	(1) Contributors shall be held responsible for their behavior (2) Past behavior shall remain visible, but not permanently damaging	• It is important to hold users accountable for their behavior and actions (1, 2) • Users should take responsibility for their actions (1, 2) • Contributors should be reliable (1, 2)
Authenticity	(1) Contributors shall contribute genuinely and not perform for metrics (2) Recognition and reputation signals shall reflect honest assessments	• Collaborations should be authentic (1) • Ratings should reflect the truth (2) • Recognition should be sincere and come from related individual to be meaningful (2) • Contributors should not be able to game or manipulate platform mechanisms (1, 2)
Autonomy	(1) Contributors shall be free to contribute genuinely, without being steered towards certain actions by platform mechanisms (2) The platform shall not foster competition, but collaboration	• Users should be able to make their own choices (1) • Platform should not foster competition (2) • Platform should not just track and display any kind of individual activity as it reduces freedom to contribute genuinely (1) • Supervision reduces autonomy (1)

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Table D.1 – continued from previous page

Theme	Norms	Codes
Competence	(1) Reputation shall signal domain-specific professional trackrecord (2) Recognition shall acknowledge genuine impact and usefulness	• Professional trackrecord signals competence (1) • Reputation should be built on demonstrated past behavior (1) • Reputation should be domain specific (1) • Recognition should be on (societal) usefulness and impact (2) • Lack of recognition undermines feeling competent (2)
Fairness	(1) Reputation and recognition mechanisms shall not structurally disadvantage contributors (2) Reputation and recognition signals shall not be distorted	• There should not be an unfair disadvantage for newcomers (1) • Users should not be able to game or manipulate platform mechanisms (2) • Reputation should be no more than a starting point (1) • Reputation can lead to inequality (1) • Recognition should be fair (1) • Platform information can be misleading, or create bias in how it is read (2) • Feedback can have social pressure (2)
Inclusivity	(1) Reputation mechanisms shall not create barriers for newcomers (2) The platform shall actively support engagement of all contributors	• Platform should improve inclusion of users (1, 2) • Reputation should be no more than a starting point (1) • Reputation should not lead to bias (2) • Reputation should improve inclusivity (2)
Privacy	(1) Individual activity shall not be tracked or shared without consent (2) Contributors control what personal data is visible and to whom	• Platform should honor personal privacy (2) • Tracking and displaying of activity data should not happen without consent (1) • User data should not be shared outside platform or outside space without consent (1, 2)

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Table D.1 – continued from previous page

Theme	Norms	Codes
Relatedness	(1) Reputation mechanism shall support human connection (2) Recognition shall feel genuinely human and personally directed	• Personal relationship is a pre-condition for trust (1) • Personal relationship is valued over reputation as trust signal (1) • Lack of recognition undermines community feeling (2) • Trusted third party is needed as base for trust (1)
Respect	(1) Contributors shall respect each other (2) Behavior shall be a credibility signal	• Users should respect each other (1) • Respectful behavior should be an important credibility signal (2)
Transparency	(1) The workings of reputation and recognition mechanisms shall be open (2) Contribution history shall be visible to support accountability	• Platform functionality should be transparent and open (1) • Professional trackrecord should be available for trust (2) • Transparency of past behavior improves trust (2)
Trust	(1) Formal reputation signals shall not only be used as definitive assessments (2) The platform shall make the relational and behavioral signals of contributors visible and accessible (3) The platform shall not undermine the credibility of reputation signals (by enabling manipulation or gaming)	• Respectful behavior should be an important credibility signal (2) • Transparency of past behavior improves trust (3) • Trust only happens after collaboration (2) • Trusted third party as base for trust (2) • Personal relationship is base for trust (2) • Reputation should be domain specific (1)

D.2. Value hierarchies

This section shows the eleven value hierarchies and the rationale of how these hierarchies are developed.

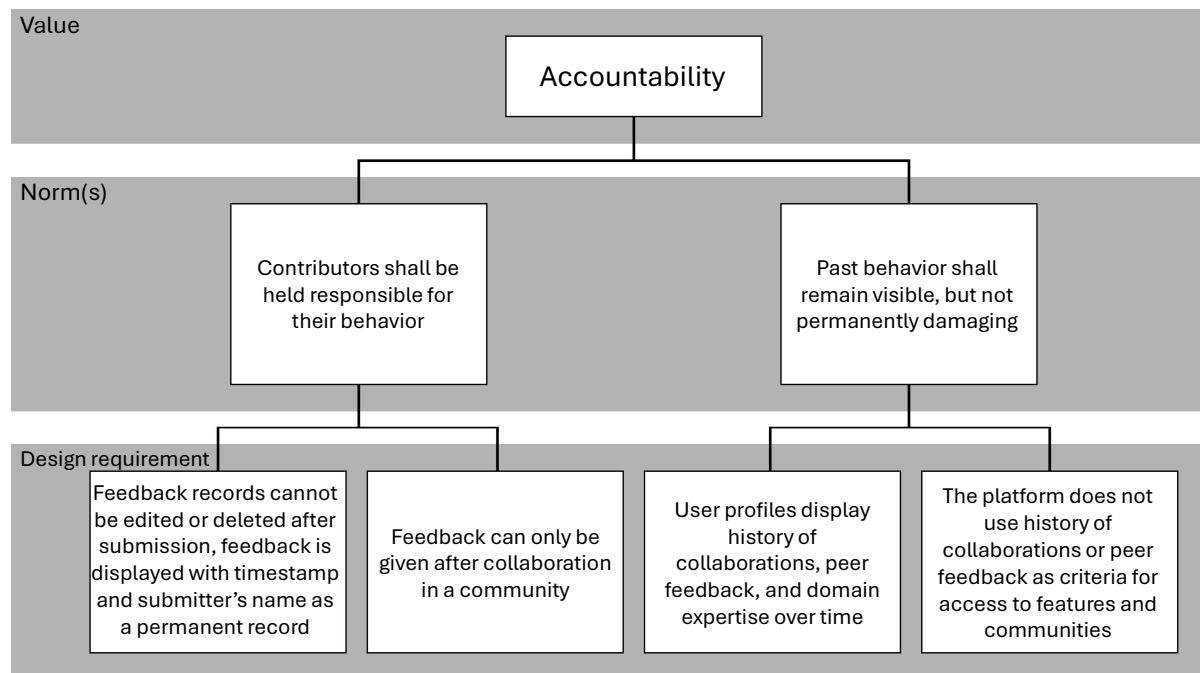


Figure D.1: Value hierarchy accountability

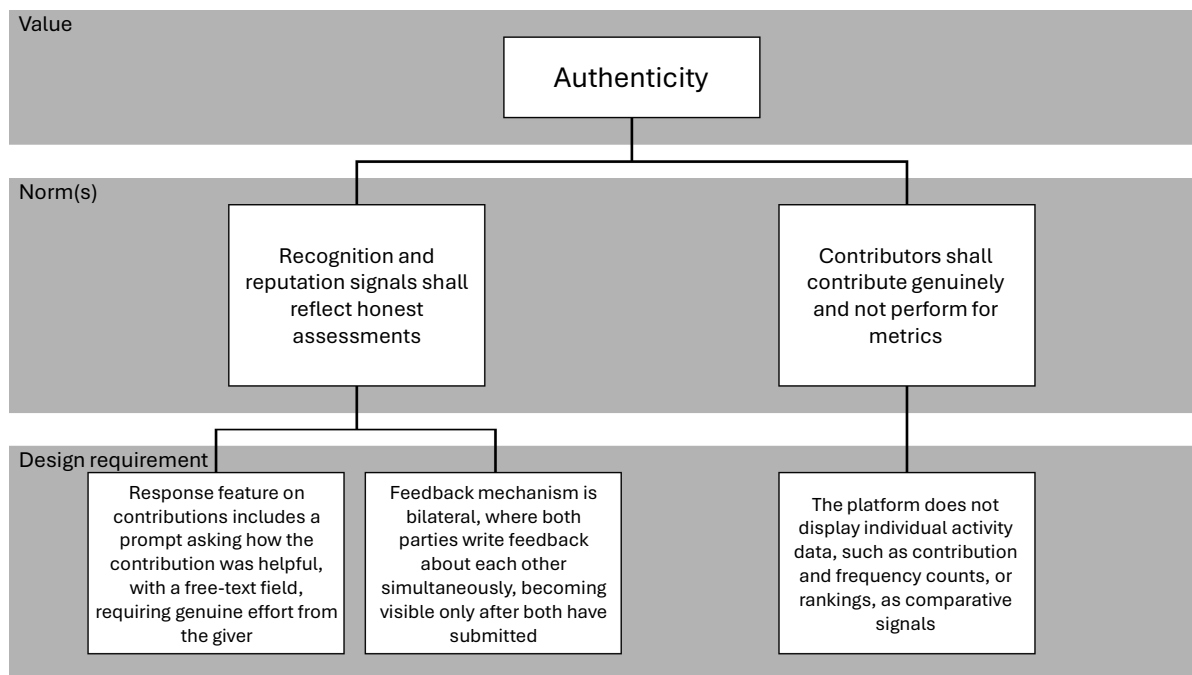


Figure D.2: Value hierarchy authenticity

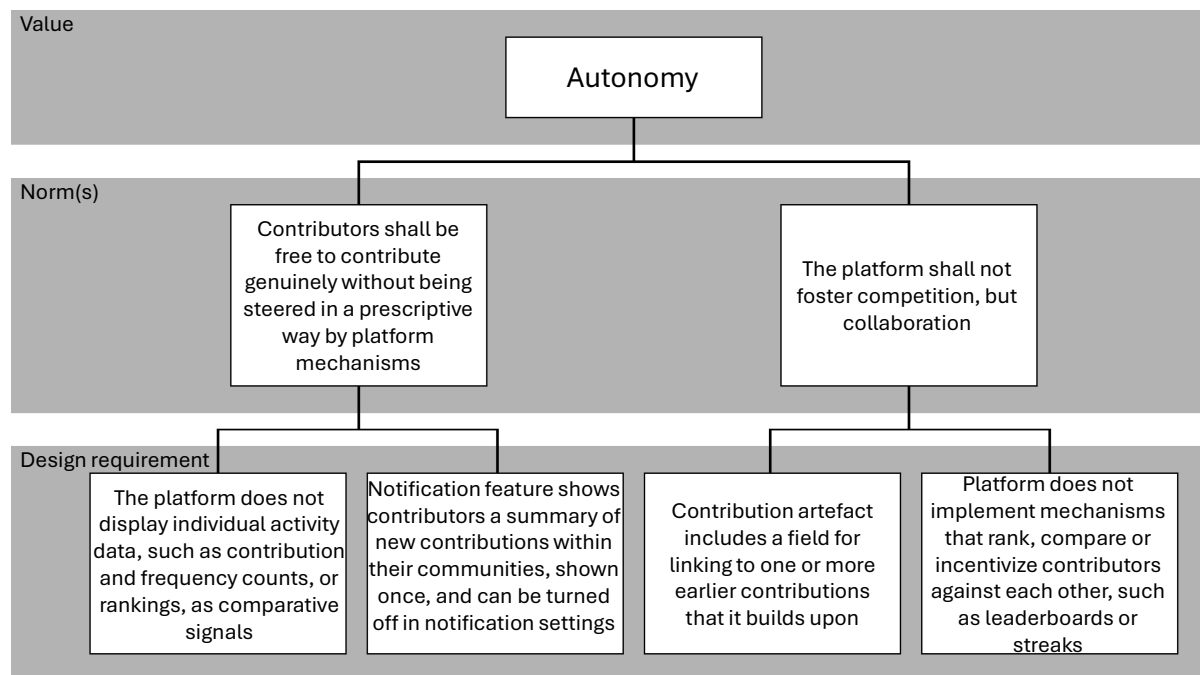


Figure D.3: Value hierarchy autonomy

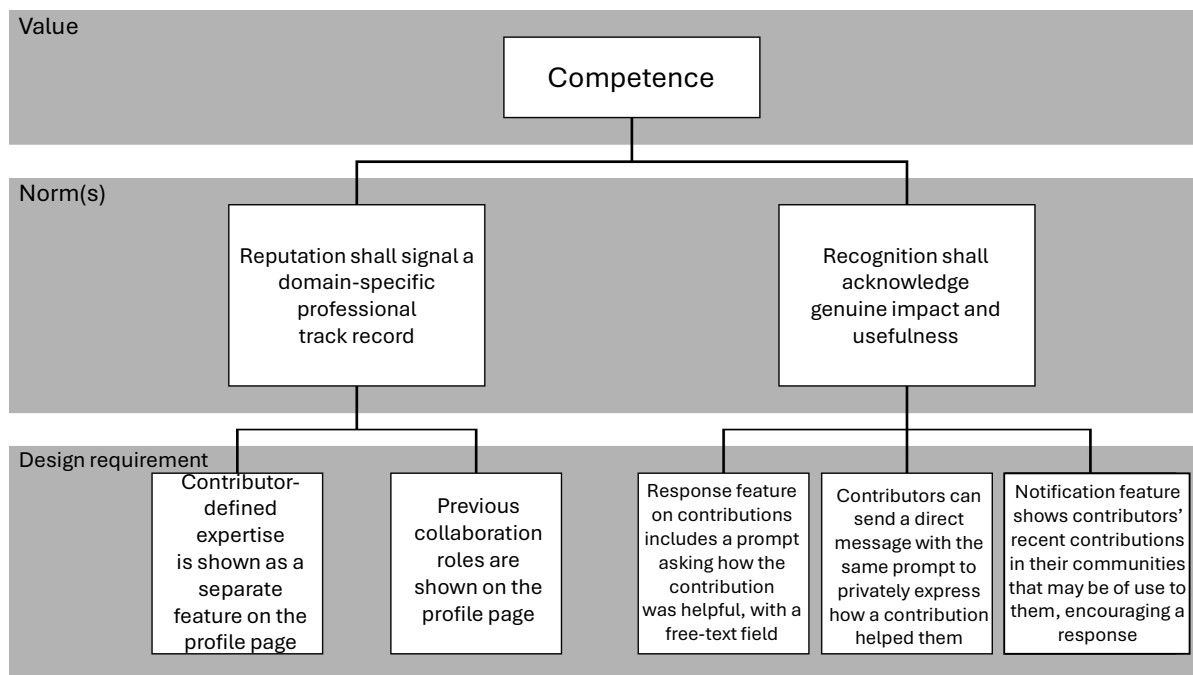


Figure D.4: Value hierarchy competence

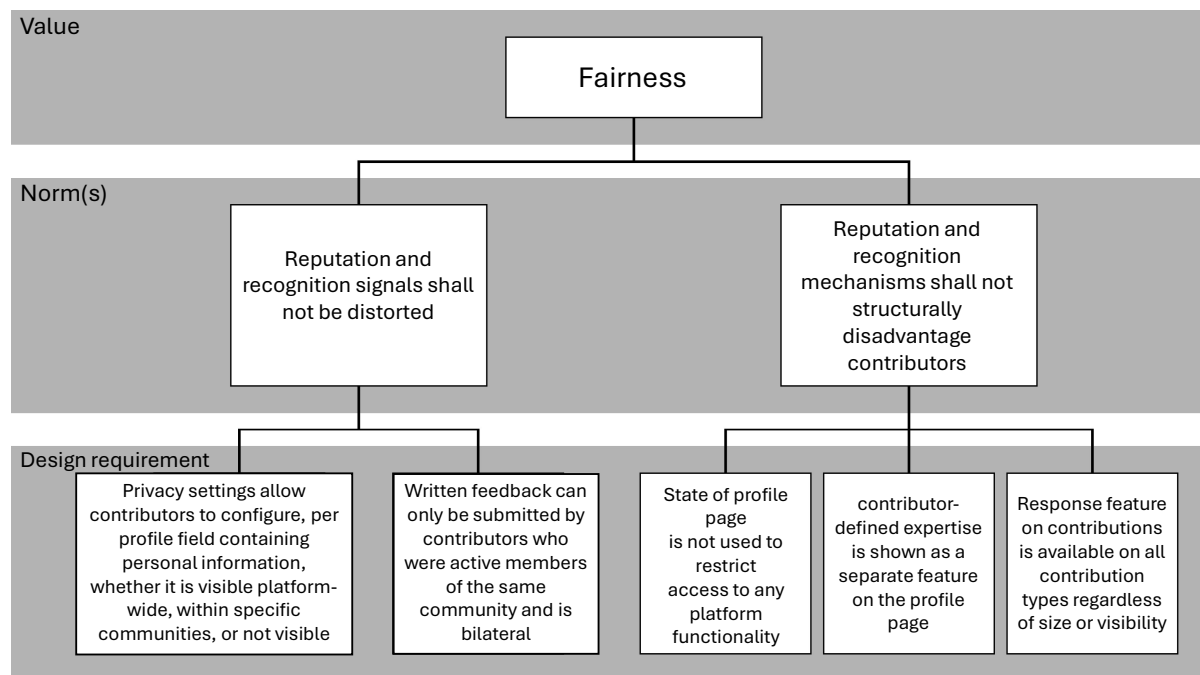


Figure D.5: Value hierarchy fairness

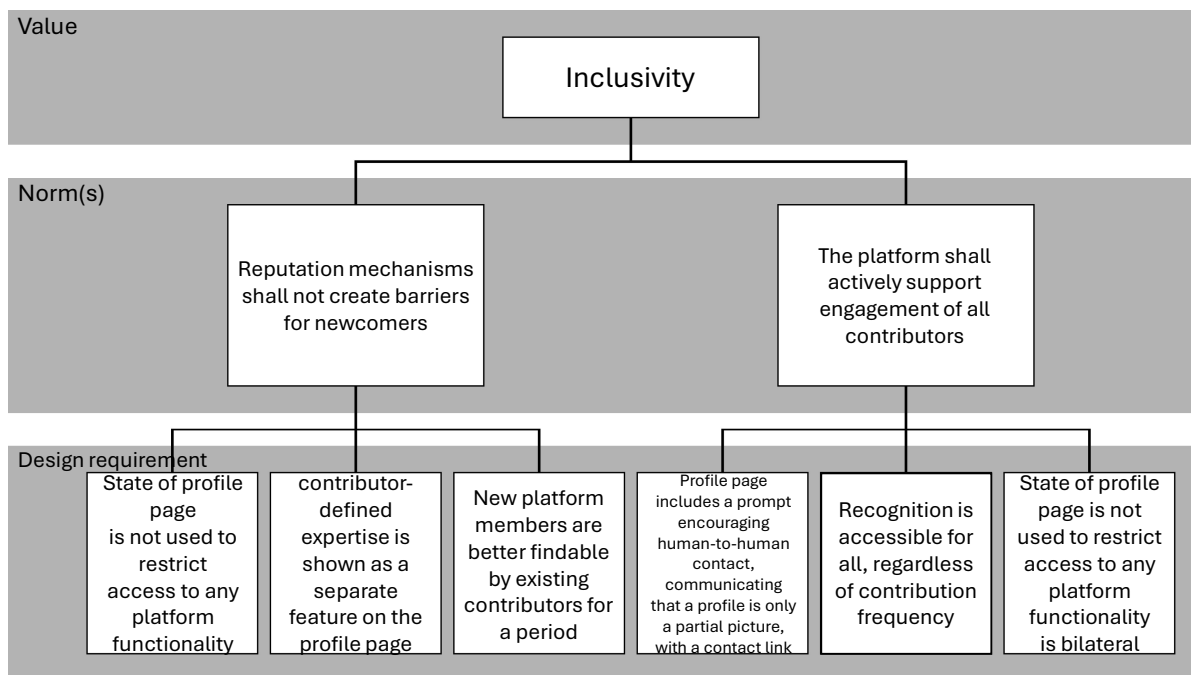


Figure D.6: Value hierarchy inclusivity

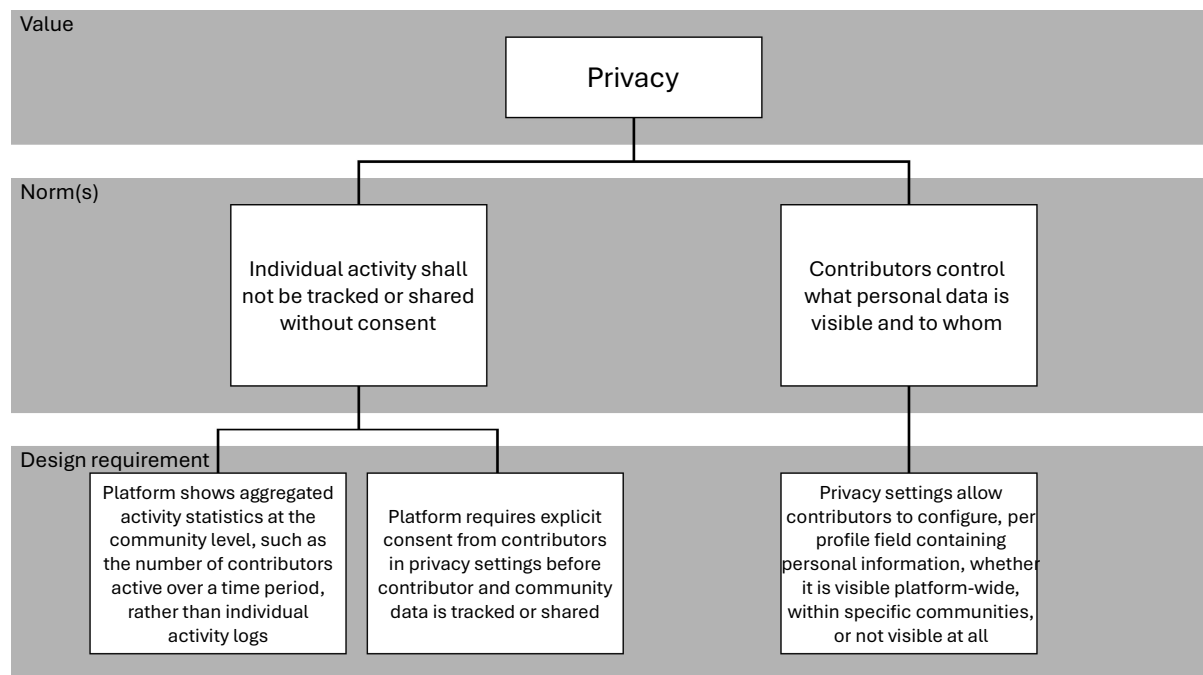


Figure D.7: Value hierarchy privacy

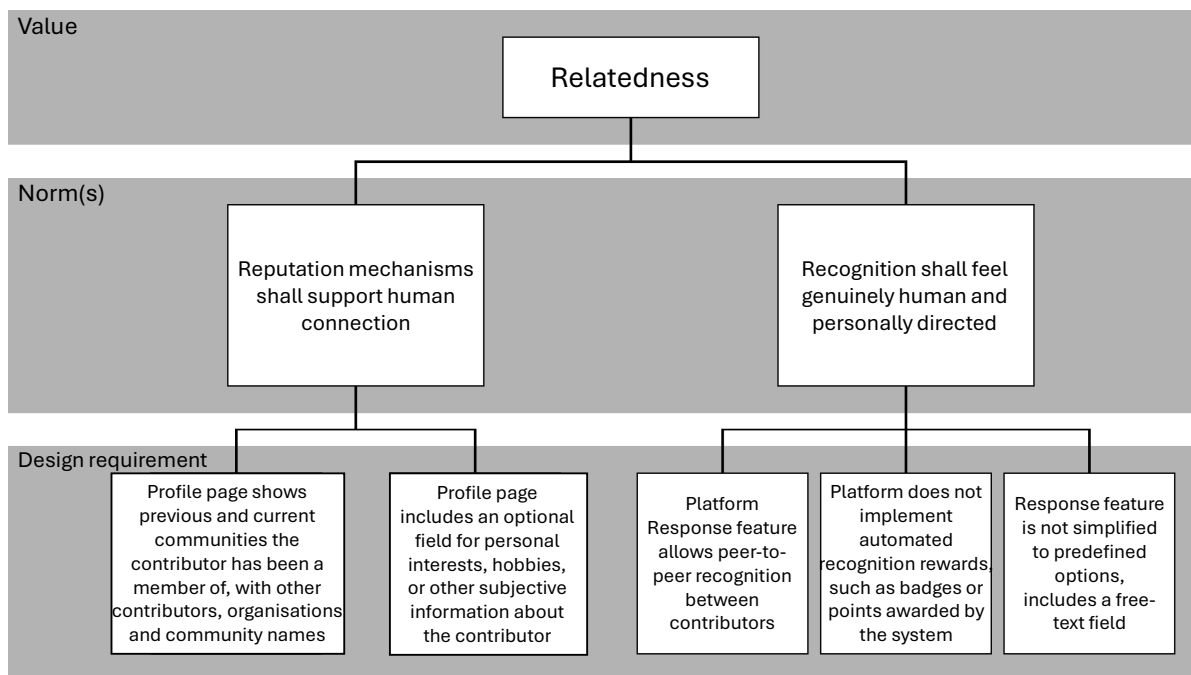


Figure D.8: Value hierarchy relatedness

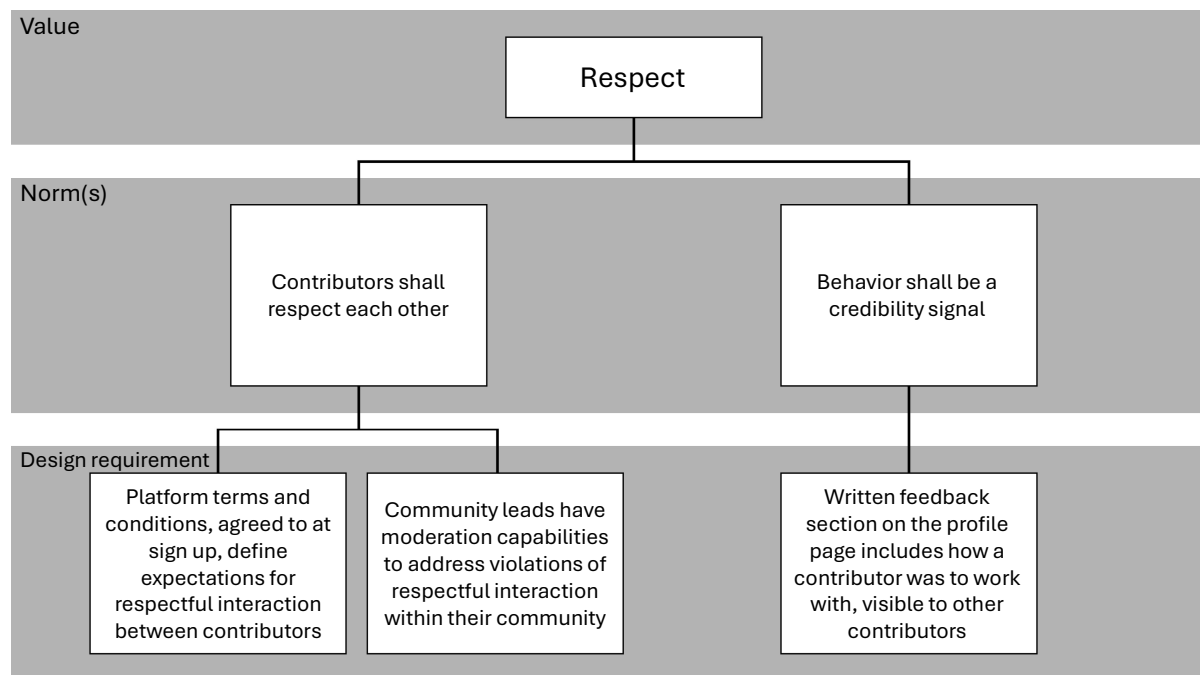


Figure D.9: Value hierarchy respect

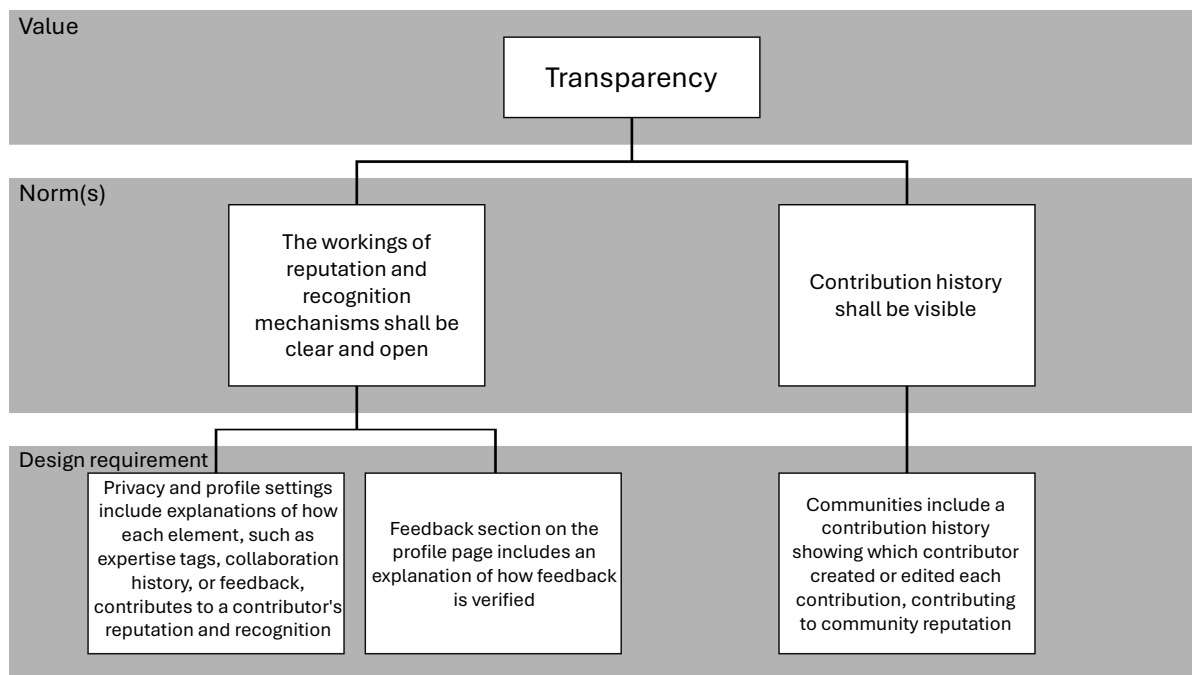


Figure D.10: Value hierarchy transparency

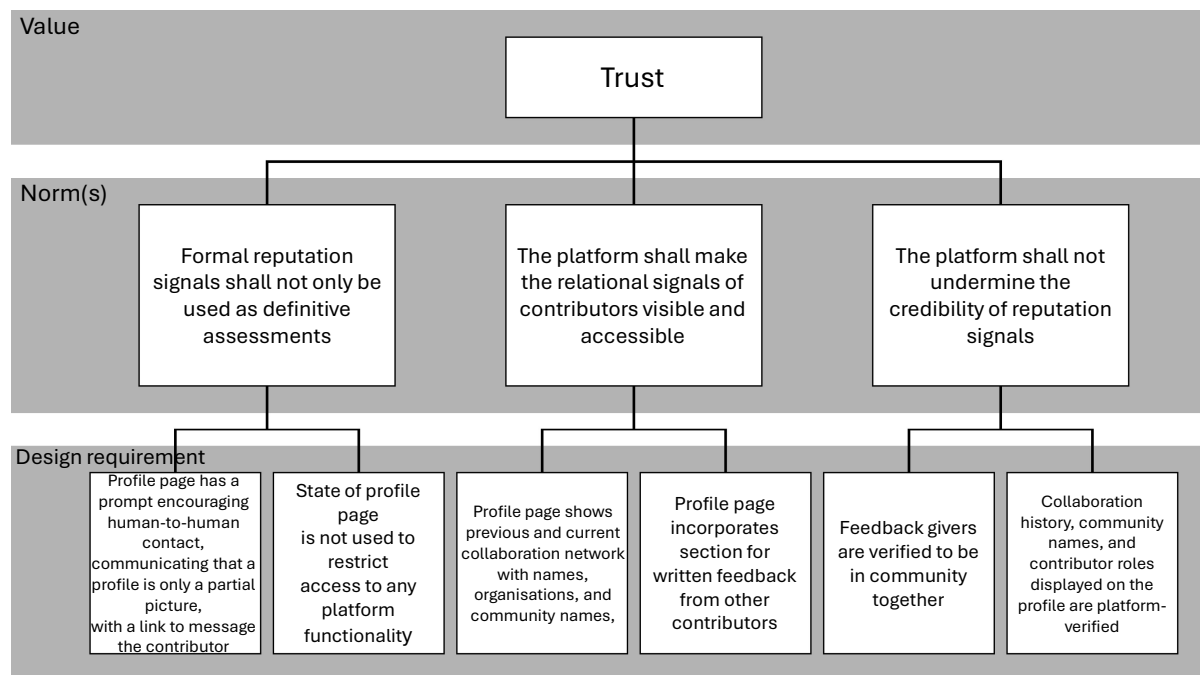


Figure D.11: Value hierarchy trust

D.3. Design requirements merged from value hierarchies

Table D.2: Convergence of design requirements from value hierarchies to consolidated set

Value(s)	Consolidated design requirement	Merged from
Accountability	Feedback records cannot be edited or deleted after submission; feedback is displayed with a timestamp and submitter name as a permanent record	
Accountability, Authenticity, Fairness, Trust	Written feedback can only be submitted by contributors who were active members of the same community, is bilateral with both parties writing simultaneously, and only becomes visible after both have submitted	Feedback can only be given after collaboration in a community (accountability). Feedback givers are verified to be in community together (trust). Written feedback can only be submitted by contributors who were active members of the same community and is bilateral (fairness). Feedback mechanism is bilateral, where both parties write feedback about each other simultaneously, becoming visible only after both have submitted (authenticity)
Accountability	Contributor profiles display collaboration network, peer feedback, and domain expertise over time	
Accountability, Fairness, Inclusivity, Trust	Collaboration network, peer feedback, and other profile information are not used as criteria for access to any platform functionality or community	The platform does not use history of collaborations or peer feedback as criteria for access to features and communities (accountability). State of profile page is not used to restrict access to any platform functionality (trust). State of profile page is not used to restrict access to any platform functionality (fairness). State of profile page is not used to restrict access to any platform functionality (inclusivity, 2x)
Authenticity, Autonomy	The platform does not display individual activity data, such as contribution and frequency counts, or rankings, like leaderboards, as comparative signals	The platform does not display individual activity data, such as contribution and frequency counts, or rankings, as comparative signals (autonomy). The platform does not display individual activity data, such as contribution and frequency counts, or rankings, as comparative signals (authenticity). Platform does not implement mechanisms that rank, compare or incentivize contributors against each other, such as leaderboards or streaks (autonomy)

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Table D.2 – continued from previous page

Value(s)	Consolidated design requirement	Merged from
Autonomy	Notification feature shows contributors the oversight of new contributions within their communities, shown once per contribution, and can be turned off in notification settings	Notification feature shows contributors a summary of new contributions within their communities, shown once per contribution, and can be turned off in notification settings (autonomy)
Autonomy	Contribution artefact includes a field for linking to one or more earlier contributions that it builds upon	
Competence	Notification feature shows contributors which contributions they have not yet responded to	
Competence, Fairness, Inclusivity	Contributor-defined expertise is shown as a separate feature on the profile page	Contributor-defined expertise is shown as a separate feature on the profile page (competence). Contributor-defined expertise is shown as a separate feature on the profile page (fairness). Contributor-defined expertise is shown as a separate feature on the profile page (inclusivity)
Competence	Previous roles in collaborations are shown on the profile page	
Authenticity, Competence, Fairness, Relatedness	Response feature on contributions includes a prompt asking how the contribution was helpful, with a free-text field requiring genuine effort from the giver rather than a one-click reaction	Response feature on contributions includes a prompt asking how the contribution was helpful, with a free-text field (competence). Response feature on contributions includes a prompt asking how the contribution was helpful, with a free-text field, requiring genuine effort from the giver rather than a one-click reaction (authenticity). Response feature on contributions includes a prompt asking how the contribution was helpful, with a free-text field, available on all contribution types regardless of size or visibility (fairness). Response feature is not simplified to predefined options, includes a free-text field (relatedness)
Competence	Contributors can send a direct message with the same prompt to privately express how a contribution helped them	
Privacy	Platform shows aggregated activity statistics at the community level, such as the number of contributors active over a time period, rather than individual activity logs	
Privacy	Platform requires explicit consent from contributors in privacy settings before contributor and community data is tracked or shared	

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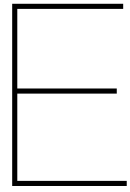
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Value(s)	Consolidated design requirement	Merged from
Fairness, Privacy	Privacy settings allow contributors to configure, per profile field containing personal information, whether it is visible platform-wide, within specific communities, or not visible at all	Privacy settings allow contributors to configure, per profile field containing personal information, whether it is visible platform-wide, within specific communities, or not visible at all (privacy). Privacy settings allow contributors to configure, per profile field containing personal information, whether it is visible platform-wide, within specific communities, or not visible at all (fairness)
Respect	Platform terms and conditions, agreed to at sign up, define expectations for respectful interaction between contributors	
Respect	Community leads have moderation capabilities to address violations of respectful interaction within their community	
Transparency	Privacy and profile settings include explanations of how each element, such as expertise tags, collaboration network, or feedback, contributes to a contributor's reputation and recognition	
Transparency	Feedback section on the profile page includes an explanation of how feedback is verified, specifically that only contributors who were active members of the same community can submit feedback and only used once given bilaterally	
Transparency	Communities include a contribution history showing which contributor created or edited each contribution, contributing to community reputation	
Inclusivity, Trust	Profile page has a prompt encouraging human-to-human contact, communicating that a profile is only a partial picture, with a link to message the contributor	Profile page has a prompt encouraging human-to-human contact, communicating that a profile is only a partial picture, with a link to message the contributor (trust). Profile page includes a static prompt encouraging human-to-human contact, communicating that a profile is only a partial picture, with a link to contact the contributor directly (inclusivity)

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Table D.2 – continued from previous page

Value(s)	Consolidated design requirement	Merged from
Relatedness, Trust	Profile page shows previous and current collaboration network with names, organisations, and community names of the communities a contributor is and was in	Profile page shows previous and current collaboration network with names, organisations, and community names of the communities a contributor is and was in (trust). Profile page shows previous and current communities the contributor has been a member of, with other contributors, organisations and community names (relatedness)
Respect, Trust	Profile page incorporates a section for written feedback from other contributors, with focus on how a contributor was to work with	Profile page incorporates a section for written feedback from other contributors (trust). Written feedback section on the profile page includes how a contributor was to work with, visible to other contributors (respect)
Trust	Collaboration network, community names, and contributor roles displayed on the profile page are platform-verified	
Fairness, Inclusivity	Response feature on contributions is available on all contribution types regardless of size or visibility, or contribution frequency	Response feature on contributions is available on all contribution types regardless of size or visibility (fairness). Recognition is accessible for all, regardless of contribution frequency (inclusivity)
Relatedness	Profile page includes an optional field for personal interests, hobbies, or other subjective information about the contributor	
Relatedness	Response feature allows peer-to-peer recognition between contributors and so does not implement automated recognition rewards such as badges or points	Platform does not implement automated recognition rewards, such as badges or points awarded by the system (relatedness). Platform response feature allows peer-to-peer recognition between contributors (relatedness)
Inclusivity	New platform members shall be findable by existing contributors during an initial period on the platform	



Value conflicts

E.1. Design requirements conflicts

	DR1	DR2	DR3	DR4	DR5	DR6	DR7	DR8	DR9	DR10	DR11	DR12	DR13	DR14	DR15	DR16	DR17	DR18	DR19	DR20	DR21	DR22	DR23	DR24	DR25	DR26	DR27	DR28
DR1																	C											
DR2																	C											
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DR23																												
DR24																	C											
DR25																	C											
DR26																												
DR27																												
DR28																												

Figure E.1: Conflict matrix showing all design requirements against each other and signaling the conflicts

E.2. Value tensions

Table E.1: Value platform design directions

Value	Platform design direction
Accountability	The platform takes an active role, tracking what happens, keeping records visible and permanent, and ensuring behavior has consequences
Authenticity	Signals reflect genuine assessments rather than metric optimization, removing quantitative comparisons and requiring meaningful effort from recognition givers
Autonomy	The platform lets contributors decide for themselves and does not push them in a direction through its mechanisms, keeping everything non-prescriptive and contributor-controlled
Competence	Domain-specific expertise and the impact of contributions are made visible, allowing contributors to signal and assess capability independently of formal credentials
Fairness	All contributors are treated equally and the signals the mechanisms produce should be fair and unbiased, regardless of background or contribution history
Inclusivity	All contributors are able to participate equally, with newcomers specifically not facing structural disadvantages or biases that limit their opportunities
Privacy	Individual data remains local and contributor-controlled by default, with sharing requiring explicit consent and no mandatory fields
Relatedness	Human connection and genuine peer acknowledgement are made possible, creating conditions for personal relationships to develop
Respect	Behavioral norms for respectful interaction are established and actively maintained across the platform and within communities
Transparency	The workings of reputation and recognition mechanisms and contribution records are open and understandable to contributors
Trust	Places strong emphasis on the importance of information about the past, with collaboration history, relational signals, and verifiable track records supporting credibility assessment between contributors who do not know each other

E.3. Focus group information sheet

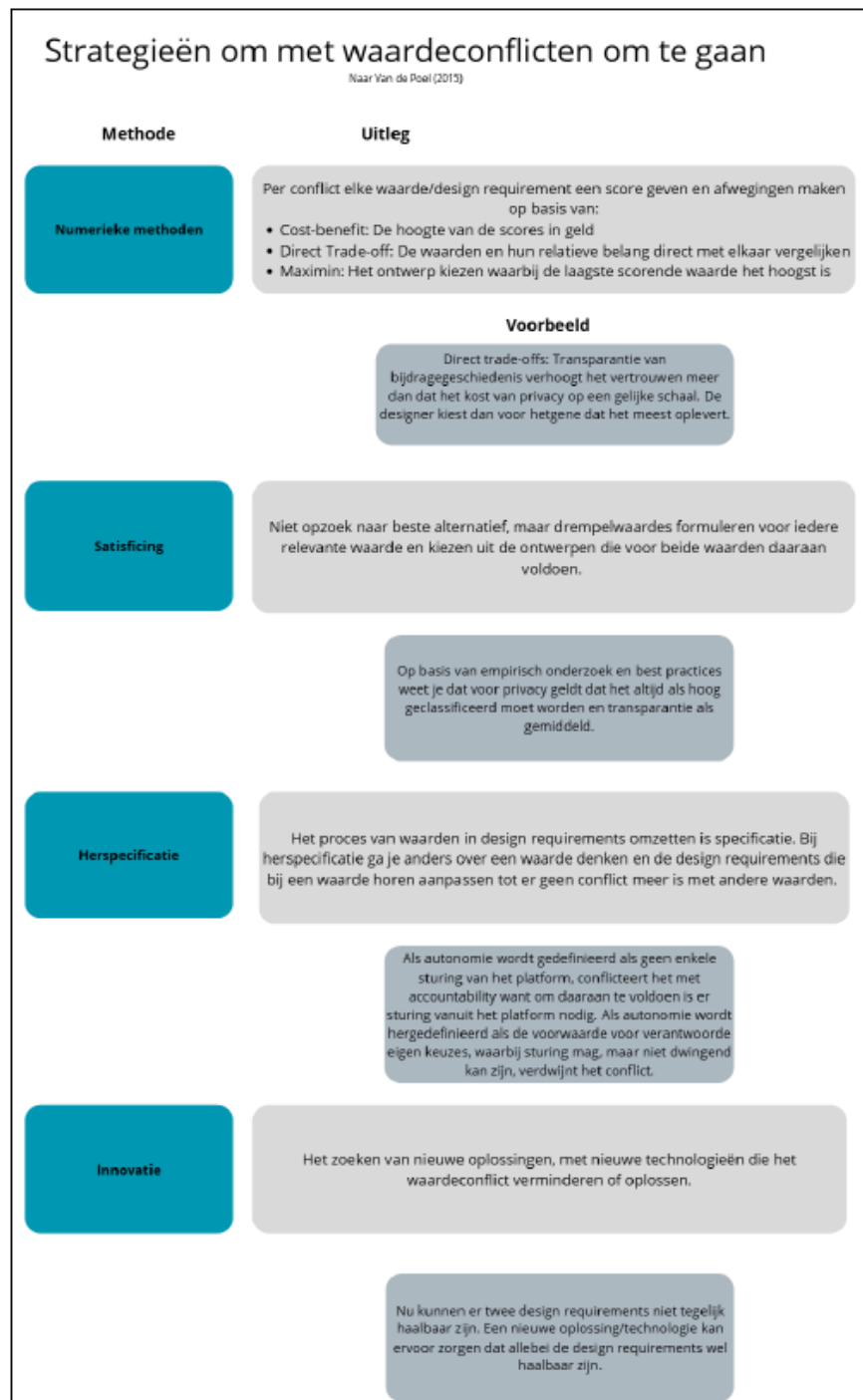


Figure E.2: Value conflict strategies information sheet Dutch, adapted from van de Poel, 2015



Constitution for reputation and recognition mechanisms

This constitution sets out the values and commitments that guide how reputation and recognition should be designed on a multi-community collaborative platform that adheres to public interest. It establishes 5 design principles grounded in 11 values, identified through research.

F.1. Your collaboration network matters

The most meaningful thing others can see about you is not a score or a badge. It is who you have worked with and what communities you have been part of. This platform makes your collaboration history visible on your profile, because a shared connection or a recognizable organization is the most practical way to build initial trust with someone you have not yet worked with.

You are always in control of what is shown. You can remove specific communities from your visible history at any time. The content of your communities is never shared outside of them. Only the fact that you collaborated, in what community, and in what role is visible to others.

F.2. Recognition comes from people

No automated system can tell you whether someone genuinely found your work useful. That can only come from the person who actually engaged with your contribution. This platform does not generate recognition automatically. There are no badges, no points, and no activity counts that reward how often you participate.

Instead, the platform creates the conditions for you to acknowledge each other's work in ways that are genuine and personal, focused on the impact and usefulness of what was done. Recognition is available for all types and sizes of contributions, regardless of how often or how visibly you participate. Recognition is not reduced to a sticker or a button, but people are encouraged to tell each other what they think.

F.3. Your participation, your terms

You decide what information about you is visible and to whom. This is not about having something to hide. It is about genuine control over how you present yourself. The default is that your profile information is visible, because visibility helps others find and trust potential collaborators, but you can always choose to limit what is shown.

Every element of your profile is optional. Individual activity is not tracked or displayed in ways that create pressure to participate in a specific way. Information shared within one community does not travel to others. The platform will always be clear about what data is collected and why, and will explain the implications of sharing or not sharing so you can make an informed choice.

F.4. The platform creates conditions, you make the choices

This platform is not here to tell you how to collaborate or to measure how well you do it. Its role is to create the conditions that make genuine collaboration and trust-building possible, and then get out of the way. It provides tools and features you can choose to use. It does not prescribe when or how you use them.

Reputation information is always presented as context and a starting point, never as a verdict on who you are as a collaborator. The platform does not use your profile or history to restrict what you can do or which communities you can join. Newcomers are as welcome as established contributors. Any mechanisms that encourage participation are gentle, infrequent, and easy to ignore. You decide how and when you engage.

F.5. Respect starts here

Respectful interaction is essential for genuine collaboration. This platform is committed to maintaining an environment where contributors treat each other with dignity. The terms and conditions make clear what is expected. Community administrators take primary responsibility for maintaining respectful collaboration within their spaces and are given clear guidelines and the tools to act on them.

The platform reserves the right to intervene when terms are violated, in particular in cases of discrimination, harassment, or content that violates legal obligations. Beyond that, the platform community will not monitor how contributors interact within communities, that is the communities responsibility. Autonomy is the default. The governance tools exist to protect contributors when things go seriously wrong, not to constrain how people collaborate day to day.