

Alternative Patterns: a participatory project to put ethical design into practice within the professional HCI community

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Abstract

Context. The standardisation of digital interfaces, dominated by a few platforms, has structured interaction conventions and favoured 'dark patterns', design choices deliberately misleading in service of commercial objectives at the expense of user autonomy. Despite numerous ethical alternatives, their adoption remains marginal, hindered by structural incentives and designers' limited authority.

Aims. This article reports on a 22-month participatory action research (PAR) project and case study, 'Alternative Patterns', carried out with 19 design professionals to co-create an ethical alternative to the standard notification component, document the methodology and assess its practical impact.

Methods. Nineteen participants conducted 33 semi-structured interviews, carried out a thematic analysis and maintained process documentation. The deliverables include a decision tree, 10 best practices, a website licensed under CC-BY, and a traceability map linking each recommendation to its empirical sources.

Results. The analysis demonstrated empirical traceability of the recommendations and highlighted that the artefact primarily functions as an evaluation heuristic. Three structural barriers hinder adoption: commercial incentives, decisional asymmetry, and resource constraints.

Conclusion. The main contribution lies in a documented, transferable participatory methodology, showing that ethical patterns function as contextual evaluation heuristics. Their lasting integration requires organisational and regulatory levers alongside open-design resources. The project proves that the value of such alternatives is co-produced in the research process, generating both scientific knowledge and practitioner transformation.

1. Introduction

The standardisation of digital interfaces, accelerated by the hegemony of a small number of technological platforms (Google, Apple, Facebook/Meta, Amazon, Microsoft), has given rise to a restricted set of interaction conventions that dominate the design landscape. Within this standardised ecosystem, 'dark patterns' — 'instances where designers use their knowledge of human behaviour (for example, psychology) and users' desires to implement misleading features that do not serve the user's best interests' (Gray and al., 2018) — have become structurally entrenched. Their prevalence is not the result of individual negligence or lack of skills; on the contrary, dark patterns are effective by their very design. They enable businesses to reliably achieve their objectives— engagement, retention, conversion — at the expense of users' autonomy (Mathur and al., 2021). Their proliferation is sustained by three mutually reinforcing factors: an attention economy that monetises users' time (Citton, 2014; Crawford, 2015); the normalisation of deceptive techniques through widely reproduced interface components (Gray and al., 2018); and commercial performance indicators (click-through rates, session duration, daily active users) that do not account for user well-being (Eßmeyer and al., 2026).

In this context, numerous initiatives have proposed ethical alternatives: 'Bright Patterns' (Sandhaus, 2023), 'Fair Patterns' (Potel-Saville & Da Rocha, 2024), 'Radiant Patterns' (Filho and al., 2026) and 'Privacy Design Strategies' (Hoepman, 2014). Yet these alternatives remain marginal in everyday design practice. The reasons are structural. Firstly, ethical alternatives directly oppose the commercial incentives guiding product decisions: facilitating unsubscribing, limiting notification frequency, or removing auto-play are all decisions that reduce key performance indicators (Eßmeyer and al., 2026). Secondly, designers often lack the organisational authority to implement such

changes unilaterally; decisions about whether a notification even exists, and which performance indicators it should serve, are typically made by product leads, executives, or client stakeholders (Bødker, 2006; Stolterman, 2008). Thirdly, existing ethical pattern projects are largely undertaken in isolation, developed by individual researchers or small teams, presented as normative toolkits difficult to integrate into the iterative, context-dependent workflows of professional design teams (Gray & Chivukula, 2019; Madaio and al., 2020; Wong and al., 2023).

Although a number of studies on this subject have appeared in the literature on human–computer interaction (HCI) in recent years, they remain few in number at this stage. Most existing work focuses on identifying, classifying, or detecting dark patterns (Chen and al., 2023; Hasan Mansur and al., 2023; Mathur and al., 2021), or proposing static counter-measures. Few studies examine how a community of practitioners can collectively produce an ethical alternative, nor what impact this process has on their professional practice.

This article addresses this gap. We report on a 22-month participatory action research (PAR) case study project — ‘Alternative Patterns’ — led by a French digital design association and involving nineteen practising designers and researchers, including a core group of between 5 and 9 active participants depending on the phase. Using a participatory design methodology, the participants collectively designed an ethical alternative to the standard notification component, based on 33 semi-structured interviews with users, and published the results in the form of an open and reusable design artefact serving as a tool for legitimising the exercise of ‘soft resistance’ (Wong, 2021) in the face of commercial constraints. Our contributions are threefold:

1. **A documented and transferable methodology** for proposing ethical design alternatives through participatory action research, comprising the complete procedure, the data collection and analysis protocol, and the iterative co-design process.
2. **An empirical traceability map** linking each design recommendation (BP) to its empirical source (interview topics, number of participants, direct quotations and reference literature), demonstrating how user data directly influenced the final artefact.
3. **An analysis of the process’s impact on practitioners’ attitudes**, examined through the lens of reflective practice (Schön, 1983) and peer learning, accompanied by a

reflection on the organisational and commercial barriers that limit the adoption of ethical alternatives in real-world design contexts.

The remainder of this article is structured as follows. Section 2 reviews the relevant literature on ‘dark patterns’, ethical patterns and the terminological debate between ‘patterns’ and ‘heuristics’. Section 3 describes the research methodology, including the PAR framework, participant recruitment, the procedure, data analysis and research ethics. Section 4 presents the empirical results and the resulting design artefact, accompanied by a traceability table. Section 5 examines the results in the light of practitioner empowerment, organisational constraints and the debate on ‘patterns’ and ‘heuristics’. Section 6 presents the conclusions.

This project forms part of the contemporary debate on ethical design in HCI by proposing not a prescriptive framework (as in top-down approaches), but an empirical and participatory (bottom-up) process that generates both an artefact and a transformation among the practitioner-participants.

2. Theoretical Framework and Related Work

2.1 From ‘Design Patterns’ to ‘Dark Patterns’: A Conceptual Genealogy

The concept of ‘design patterns’ originates in architecture, where Alexander described patterns — at that time, known as pattern language — as descriptions of recurring problems and their solutions, usable ‘*a million times over without ever doing it the same way twice*’ (1977). In software engineering, Gamma and his colleagues (1995) formalised design patterns as ‘*descriptions of communicating objects and classes that are customised to solve a general design problem in a particular context*’. In HCI, Mor and Winters (2007) defined them as ‘a semi-structured description of an expert’s method for solving a recurrent problem, which includes a description of the problem itself and the context in which the method is applicable, but does not include directives which bind the solution to unique circumstances’. This movement gave rise to practical resources such as ui-patterns.com, which provided designers with catalogues of standard interface elements (navigation tabs, accordion menus, cards), and foreshadowed the component libraries (stand-alone, modular and reusable interface elements) that now dominate interface design.

It was from these design patterns that the concept of anti-patterns emerged. It was defined almost simultaneously by Brown as *'software mistakes that most of us make frequently'* (1998) and then by Koenig as *'just like a pattern, except that instead of a solution it gives something that looks superficially like a solution but isn't one'* (1998). Anti-patterns thus reflect inadvertent design failures: poorly identified problems, bad compromises, and solutions that harm users by accident. Widdicks and his colleagues (2020) identified two processes leading to anti-patterns in HCI: 'backfiring' (solutions that initially address a problem but ultimately worsen the situation, as with social media platforms designed to connect people but contributing to misinformation and, in some cases, social isolation) and 'favouring' (improving user experience in one area while causing harm in another, such as infinite scrolling or auto-play, which increase screen time).

Brignull (2010) coins the term 'dark patterns' by distinguishing them from anti-patterns. He identifies dark patterns as deliberately designed patterns to mislead users: *'Normally when you think of "bad design", you think of laziness or mistakes. These are known as design anti-patterns. Dark Patterns are different – they are not mistakes, they are carefully crafted with a solid understanding of human psychology, and they do not have the user's interests in mind'*. The essential distinction lies in intention: a 'dark pattern' is an effective design solution that reliably serves commercial objectives (engagement, retention, conversion) by diverting user intent, and not a design failure (Mathur and al., 2021).

Since then, this field has grown considerably. Gray and his colleagues (2018) proposed a widely adopted taxonomy comprising eleven types of dark patterns (Bait and switch, Disguised ad, Forced continuity, Friend spam, Hidden costs, Misdirection, Price comparison prevention, Privacy zuckering, Roach motel, Sneak into basket and Trick questions). Later work focused on automated detection and identification (Chen and al., 2023; Hasan Mansur and al., 2023), user perspective (Bongard-Blanchy and al., 2021) and legal frameworks (Luguri & Strahilevitz, 2021). It should be noted that some earlier studies did not draw a distinction based on intention: Greenberg and his colleagues (2014) analysed dark patterns in proxemic interactions without differentiating dark patterns from anti-patterns, focusing rather on negative effects — a perspective that has become the norm in effect-based analyses.

It is also worth noting that the field has undergone a significant shift in terminology. Brignull himself renamed his website, changing it from 'Dark Patterns' to 'Deceptive Design', and the literature has increasingly adopted the terms 'deceptive patterns' or 'deceptive design' (Brignull and al., 2023; Monge Roffarello and al., 2023). We retain the term 'dark patterns' for the sake of consistency with the most widely cited literature (Gray and al., 2018; Mathur and al., 2021), but acknowledge the shift in the field towards the term 'deceptive design', which is considered a more precise and less colloquial formulation.

2.2 Ethical Patterns and the Terminological Debate on 'Patterns' and 'Heuristics'

In response to the harms highlighted by dark pattern research, several projects have proposed ethical alternatives. Sandhaus (2023) defines 'Bright Patterns' as *'tricks used in websites and apps that make you do things that you meant to do'*¹ — that is to say, thoughtful design choices that prioritise the user's well-being and autonomy over their impulses and the company's key performance indicators. The Amurabi agency² (Potel-Saville & Da Rocha, 2024) developed 'Fair Patterns', *'designed to counter dark patterns, addictive design and protect user autonomy'*, with the aim of *'empowering users to make free and informed choices online'*. Filho and his colleagues (2026) proposed 'Radiant Patterns' for digital game design, 'interaction patterns intentionally selected and implemented during the digital game design process to allow the pursuit of development goals while ensuring foundational player well-being is not significantly undermined'. Hoepman (2014) defined 'Privacy Design Strategies' as a *'fundamental approach to achieve a certain design goal'* (privacy). We collectively designate these elements under the generic term 'ethical patterns', noting that each project uses a distinct name (and, in some cases, a registered trademark).

A persistent limitation of these projects is their top-down and normative character. They are generally developed by individual researchers or teams, presented as lists of recommendations or checklists, and limited to specific domains (games, privacy, general web design). As a result, they are difficult to integrate into the iterative and context-dependent work processes

¹ <https://brightpatterns.org/>

² <https://www.fairpatterns.ai/resources/library>

of professional design teams. More fundamentally, their limited adoption is not primarily a documentation issue. It reflects a structural conflict: ethical alternatives, such as default minimal notifications, removing auto-play, or making unsubscribing as simple as subscription, directly reduce the engagement on which commercial models depend (Citton, 2014; Eßmeyer and al., 2026). The lack of widespread adoption is therefore due more to a mismatch between incentives than to a lack of methodological guidelines.

This observation leads us to a recurring terminological issue in the literature which, in our view, has not been explored in sufficient depth. The term 'patterns' has been used for over twenty years to refer to what would more accurately be called heuristics, in the sense given by Bastien and Scapin (1993) or Nielsen (2005): general principles of good (or bad) practice. A 'pattern', in its original sense derived from architecture and software engineering, is a concrete, context-specific problem-solution pair that can be instantiated. A heuristic is a rule or general principle used for evaluation purposes. A principle is a norm. The eleven categories presented by Gray and his colleagues (2018) — 'Bait and Switch', 'Forced Continuity', 'Roach Motel', etc. — are not context-specific patterns; they are poor design principles described as if they were patterns. Similarly, in ethical patterns, Bright patterns (2023) (e.g., 'dumb it down', 'cost transparency') are design heuristics: general rules that must be interpreted and adapted to each project's context.

We argue that this terminological confusion is not merely a matter of nomenclature. The conceptual framework of 'patterns' — likely motivated by marketing affinity with 'dark patterns' and the term's greater accessibility in professional contexts — presents ethical patterns as ready-to-reproduce solutions. In practice, however, the majority function as heuristics: principles requiring contextual judgment, stakeholder negotiation, and adaptation to specific product constraints. This distinction matters for how designers use and defend ethical alternatives in professional settings, and is examined in greater detail in section 5.4.

2.3 The Need for Participatory and Practice-Anchored Approaches

The limits identified above — top-down production, sector-specific scope, and structural conflict with commercial incentives — point to a different approach. Participatory design (PD), as

a collaborative design methodology, addresses these limits by integrating the design process at the heart of the people who will use and implement the outcomes. Bødker and his colleagues (2022) emphasise that what matters in PD is the *'empowerment of people not only as individuals but as part of their groups and communities, both as they are currently established and for the (possible) future'*. This methodology thus contributes not only to producing a design artefact, but also to transforming professional practice — a dual objective aligning with action research goals.

Participatory action research (PAR) concretises this dual objective. Defined by McTaggart (1991) as collaborative and iterative research in which researchers and practitioners jointly improve their knowledge, tools, and work methods. PAR is particularly well suited to HCI: Hayes (2011) argues that the cyclical and practice-anchored nature of action research naturally fits design processes, and Swann (2002) demonstrates structural homology between action research cycles and the iterative design process. In our project, PAR constitutes the overarching research framework; participative design is the methodology that implements the action phases; and the co-produced artefact (the alternative notification pattern) serves both as a research tool and as a research outcome. This three-tiered architecture — research framework (PAR), methodology (PD), instrument (alternative notification pattern) — is detailed in section 3.2.

3. Methodology

3.1 Background and Positioning

The project was conducted by a French association promoting ethical digital technology, linking university research and professional practice. The association's mission is to work towards sustainable, responsible, and empowering digital technology for individuals, society, and the environment through action research and participatory research projects. The two authors are association members, one was project lead for the association. This positionality is relevant for interpreting results: the first author was not a neutral observer but an active participant in defining, animating, and documenting the project. We recognise this asymmetry, which was particularly marked during the initial framing phase, when the project orientation was primarily shaped by the association's existing network and priorities.

The project was carried out entirely within the French-speaking design community. We do not claim the results are generalisable beyond this context; we situate it as a case study illustrating how ethical design alternatives can be developed within a specific professional community, and we discuss conditions under which the methodology could be transposed to other contexts (section 5.3).

3.2 Research Design

Epistemic Positioning

This article produces three types of knowledge. Firstly, procedural knowledge: the documented and transferable methodology enabling the production of an ethical design alternative through participatory action research. Secondly, design knowledge at an intermediate abstraction level: the alternative notification model itself, which Höök and Löwgren (2012) would qualify as a 'strong concept' — an artefact more specific than a theory but more general than a one-off implementation. Thirdly, empirical knowledge: a documented account of how the participative process transformed participants' professional postures.

Choice of Participatory Action Research (PAR)

Our central research question is: **how can a community of practising designers collectively produce an ethical alternative to a dark pattern, and what impact does this process have on their professional practice?**

This question cannot be answered from the outside. A controlled laboratory study would not capture professional posture transformation; a solitary design research project (Zimmerman and al., 2007) would lack the collective and action-oriented dimension. This question requires practitioners to intervene as co-producers, working within their own professional context over a prolonged period. Participatory action research (Kemmis and al., 2014; McTaggart, 1991) is the most appropriate approach to this issue, as it integrates research (the generation of knowledge) and action (the transformation of practice) within a single, iterative process, with participants acting as both the subjects and the agents of the research.

Within the PAR approach, participative design (PD) concretises the action phases: it is the methodology through which practitioners explore, design, and prototype the alternative collaboratively. We use the term 'participative design' rather than 'co-design', although we recognise these terms are often used interchangeably (Sanders & Stappers, 2008).

We retain 'participative design' because of its explicit normative commitment to democratic engagement and empowerment (Bødker and al., 2022), which is central to our conceptual framework. Foth and Axup (2006) articulate participatory action research and participative design similarly, showing that the collaborative design activity is the very engine of the approach (Action Research Design).

Implementation of Cycles

Conforming to iterative action research models (Kemmis and al., 2014; Lewin, 1946), our approach was articulated around two main macro-cycles, themselves subdivided into micro-prototyping cycles. Each cycle follows a spiral composed of four phases: planning, action, observation, and reflection.

Macro-cycle 1 — Problem diagnosis and understanding :

- Planning: Defining the methodological framework and selecting the interface component (the notification) through brainstorming, a vote and a discussion aimed at reaching a consensus.
- Action: Conducting the field study (literature review, screenshot collection, 33 semi-structured interviews).
- Observation: Thematic analysis of verbatim to identify ethical tensions.
- Reflection: Synthesis meetings summarising lessons learned to frame the design intentions of the next cycle.

Macro-cycle 2 — Participatory design for prototyping alternatives :

- This cycle was broken down into several two-week micro-cycles (individual or subgroup work sessions followed by collective evaluations).
- Planning & Action: Defining work session objectives followed by reflection sessions (on word-processing software) and design sessions (on Figma).
- Observation & Reflection: Critical evaluation of the decision tree and best practices worked during collective meetings. For example, during a debriefing, the team noted from feedback that some designers struggled to answer certain decision tree questions, such as one querying the notification's contribution to the organisation's business model. This collective reflection led to modifying the decision tree structure for the next micro-cycle, simplifying it and removing unnecessary questions.

The co-produced artefact — the alternative notification model — served a dual function. It was a knowledge instrument: a tangible manifestation of collective experimentation and ensuing knowledge. It was also a mediation instrument: a dialogue tool, allowing ethical questions to be concretised and discussed, as well as developing reflective practice (Schön, 1983). The design process was thus conceived so that the artefact would function as a reflection instrument; the question of whether this actually occurred is addressed in the results (section 4.4) and is not a method hypothesis.

Quality Criteria

In line with Herr and Anderson (2005), we evaluate the quality of this action research project based on process validity criteria (rigour in data collection and analysis, documented in section 3.5), catalytic validity (evidence of transformation in participants' practice, presented in section 4.4) and dialogical validity (quality of collaborative dialogue and shared appropriation of the process, highlighted by the project's open documentation and continuous participant engagement after its end). We do not claim results validity in the strict sense: the project has not produced measurable and generalisable impact across the design sector, and we explicitly mention this limitation (section 5.5).

3.3. Participants, Recruitment and Profile

The project gathered (within the design and research team) nineteen participants: eight UX designers, one UX researcher, three product designers, three UX/UI designers, one engineer, two lecturers and one project manager. Most were early- or mid-career professionals. We will use the term participant, in the rest of the article, to qualify the participants present in the design and research team of the project.

Participation was free and voluntary. The project was announced via the association's community channels (Mattermost, social media). There was no prerequisite for participation; any community member could join at any time. As participation was voluntary and unpaid, almost no participants remained for the full twenty-two months. However, once a participant started working on a specific project aspect (e.g., conducting interviews, prototyping a particular aspect), most remained until that aspect was completed. Some participants contributed to more specific and time-limited tasks, such as interview transcription.

Table 1. Detail of the 19 participants, their role, experience level, session presence and participation detail and phase

No.	Role	Level of experience	Attendance at sessions and details of participation	Project phase
1	UX designer	10 years of experience	present at 25 meetings and participation in conducting 8 interviews and 15 transcriptions	1.Definition of scope and component selection 2.User research 3.Prototyping and publication
2	UX designer	25 years of experience	present at 3 meetings	1.Definition of scope and component selection
3	UX designer	10 years of experience	present at 1 meeting and participation in 2 interview transcriptions	2.User research
4	UX designer	5 years of experience	present at 4 meetings	3.Prototyping and publication
5	UX designer	10 years of experience	participation in re-reading	
6	UX designer	15 years of experience	participation in re-reading	
7	UX designer	15 years of experience	participation in re-reading	
8	UX designer	5 years of experience	participation in re-reading	
9	UX researcher	beginner	present at 3 meetings	1.Definition of scope and component selection

10	Product designer	10 years of experience	present at 1 meeting	1.Definition of scope and component selection
11	Product designer	10 years of experience	present at 5 meetings and conducting 2 interviews	2.User research
12	Product designer	beginner	present at 2 meetings and conducting 5 interviews	2.User research
13	UX/UI designer	beginner	present at 9 meetings and conducting 14 interviews and 7 interview transcriptions	2.User research
14	UX/UI designer	10 years of experience	present at 8 meetings	3.Prototyping and publication
15	UX/UI designer	10 years of experience	present at 1 meeting and participation in re-reading	2.User research
16	Engineer	10 years of experience	present at 3 meetings and conducting 4 interviews and 4 interview transcriptions	2.User research
17	Lecturer	5 years of experience	present at 5 meetings	1.Definition of scope and component selection
18	Lecturer	20 years of experience	present at 1 meeting	2.User research
19	Project manager	25 years of experience	present at 3 meetings and participation in 5 interview transcriptions	2.User research 3.Prototyping and publication

3.4. Procedure

The project ran over 22 months, from December 2023 to September 2025. The three phases and their key activities are summarised in Table 2 and described below.

Table 2. Project phase overview.

Phase	Duration	Key activities	Active participants	Produced documents	Phase results
1. Definition of scope and component selection	3 months	Brainstorming session (approx. 20 items listed) ; sticker voting (3 stickers per participant) ; discussion aiming at consensus	5 active participants	List of components ; voting results	Selection of 'notification'
2. User research	7 months	Screenshot collection ; targeted literature review ; interview guide elaboration ; 33 semi-structured interviews ; transcription ; thematic coding in a spreadsheet	9 active participants including 5 interviewers	Visual corpus ; interview guide ; 33 transcriptions ; synthesis table with coding	Synthesis (5 key learnings, 3 user profiles)
3. Prototyping and publication	12 months	Iterative prototyping cycles (approx. two weeks each) ; collective evaluation meetings ; decision tree design ; best practice formulation ; public publication	4 active participants	Successive artefact versions ; decision tree ; 10 best practices ; public website in September 2025	Alternative notification model published

Phase 1 – Definition of scope and component selection

The project began with a collective brainstorming session where participants listed interface elements they considered particularly harmful to digital usage. About twenty elements were identified, including terms of service, consent banners, news feeds, notifications, and account/connection creation features.

A vote then took place, where each participant placed 1 to 3 stickers on their chosen elements. The three most selected items were cookies, notifications, and terms of service. A discussion then reached consensus to focus on the notification. It was chosen due to its omnipresence on platforms.

Phase 2 – User research

Participants first gathered screenshots of notifications they encountered in their daily digital environment, establishing a common visual vocabulary for defining what a 'notification' is and determining aspects to address.

This was complemented by a targeted literature review on notification treatment, user interaction with notifications, notification impact, and design pistes (Fitz and al., 2019; Kushlev and al., 2016; LINC, s.d.; Morrison and al., 2017; Pielot and al., 2014; Sahami Shirazi and al., 2014), which served as the basis for developing the interview guide.

Five participants then conducted 33 semi-structured interviews with users. In the rest of the article, we will use the term users to qualify users interviewed in the interview. These users were voluntarily recruited from participants' acquaintances with attention to diversity in terms of age, socioeconomic category, and digital intensity, both professional and personal. They were required to have a smartphone. User profiles were varied, by gender (N=15 women; N=18 men), by age (N=1 person aged 0–17; N=8 aged 18–27; N=16 aged 28–37; N=2 aged 38–47; N=3 aged 48–57; N=2 aged 58–67; N=1 aged 68+), or by occupation (N=9 belonging to the category 'artisans, merchants and business owners'; N=6 belonging to the category 'intermediate professions'; N=12 belonging to the category 'senior officials and higher intellectual professions'; N=1 belonging to the category 'employees'; N=2 belonging to the category 'retirees'; N=1 belonging to the category 'not professionally active'; N=1 belonging to the category 'other'). Each interviewer could conduct as many interviews as possible, while ensuring diversity of user profiles. Interviews were transcribed and analysed (see section 3.5).

Phase 3 – Prototyping and publication

The design of the alternative notification pattern took place in iterative micro-cycles lasting around two weeks, based on data drawn from interviews and the participants' professional experiences. At each cycle, a participant or group worked on a specific aspect of the design (e.g., decision tree, specific best practice, visual design examples) and presented results during a collective follow-up meeting to discuss, critique, and revise. These meetings occurred every two weeks, from mid-October 2024 to end March 2025. The final output — a decision tree, ten evidence-based best practices and a published website — was made publicly available under a CC BY licence in September 2025.

3.5 Data Collection and Analysis

Data Sources

The project generated three types of data: (a) 33 transcribed semi-structured interviews with users; (b) targeted documentary analysis on notifications; and (c) project process documentation (meeting minutes, shared Mattermost posts, iterative artefact versions, participant feedback).

Participant Feedback Collection

Participant feedback was collected at two distinct moments after the project's end. An initial collection, carried out four months post-project, aimed to document participants' motivations and their experience of the project process. A second collection, carried out one year post-project, focused on perceived benefits with greater hindsight. In both cases, participants were contacted individually via message and their responses were collected over the weeks following each contact.

Interview Analysis

The 33 interviews were analysed using a thematic approach (Braun & Clarke, 2006), taking into account the iterative and inductive spirit of grounded theory (Glaser & Strauss, 1967), although we do not claim to have used the full apparatus of this methodology (theoretical sampling, constant comparison, and theoretical saturation were not systematically documented). Specifically: transcripts were read in their entirety; a coding table was devised, with interviewees on the vertical axis and interview questions on the horizontal axis; literal transcriptions were coded according to emerging themes; and codes were grouped into categories. This process yielded three user notification profiles (the Independent, the Normative, and the Rebel) and five key learnings (see section 4.1). Coding was performed by the first author.

Process Data Analysis

The project's process documentation (meeting minutes, Mattermost posts, participant feedback) was examined by the first author to elaborate the narrative of participant transformation presented in section 4.4. This analysis was of an interpretative nature and did not undergo the same level of systematic coding as interview data. We recognise this asymmetry and consider this transformation narrative as a documented interpretation rather than a quantified result.

3.6 Research Ethics

The project's ethical framework relied on ACM Code of Ethics principles and the General Data Protection Regulation (GDPR) in the absence of an ethics committee within the structure carrying the project.

For the field study, all interviewed users received a detailed information note explaining the research objectives, data reuse, and their right to retract at any time. Free and informed consent was obtained orally before each interview. Data underwent strict anonymisation before any analysis phase: pseudonymisation (assignment of alpha-numeric identifiers) and systematic removal of any directly or indirectly identifying data from the corpus.

With regard to the action research approach, the participating designers (volunteers on one of the association's projects) gave their formal consent for their contributions, feedback and outputs to be analysed and documented for research purposes. Their attribution appears in the public artefact credits, while the analysis of their professional posture evolution (section 4.4) is presented in anonymised form. Raw research transcripts and data were stored on a secure restricted-access space, accessible only to research team members.

3.7 Data Availability

All project documentation, comprising the anonymised coding spreadsheet (available at [anonymised link to be replaced upon acceptance]) and the decision tree, as well as the ten best practices accompanied by supporting evidence (available at [anonymised link to be replaced upon acceptance]), is made available to the public under a CC BY licence. Meeting reports and shared posts relating to the project are available on request.

3.8 Methodology Transferability

The transferability of this methodology rests on preserving certain structuring principles, while several parameters can be adapted to the application context.

The approach is intended for implementation within a community or association of designers with a sufficiently large collective and a collaborative platform enabling information sharing and centralisation. In our experiment, the collective comprised between twelve and twenty participants and the process ran over eighteen to twenty-four months. Implementation modalities can be adjusted during the project: the component selection, number of interviews conducted, and prototyping iteration stop

criterion are progressively determined based on context and results obtained. Thus, methodology transfer does not rely on strict protocol reproduction but on adapting its parameters while maintaining its structuring principles.

4. Results

4.1 Empirical Conclusions from the User Study (N = 33)

The thematic analysis of 33 interviews, combined with targeted documentary analysis, yielded five key conclusions:

1. **The concept of 'notification' is difficult for users to define.** Participants struggled to explain what a notification is, due to its multifarious use: warning, reminder, etc. This ambiguity reflects the heterogeneity of this feature across platforms and contexts.
2. **Current notification parameters are complex and poorly understood.** Most participants did not know how to configure notifications in detail. This was reinforced by some notification settings being buried.
3. **The volume of notifications is high.** Participants reported receiving on average about 81.1 notifications per day on their smartphones (median: 76 notifications per day).
4. **Most notifications are perceived as useless.** Participants expressed discomfort with the volume and uselessness of notifications.
5. **Notifications are perceived both positively and negatively.** While they address legitimate needs (reminders, alerts, communication), their reception constitutes an attention-overloading interruption (Kushlev and al., 2016). Evaluation of this interruption varies greatly among individuals and activity context (Sahami Shirazi and al., 2014), but the feeling of being compelled to react immediately remains predominant.

Three dominant user profiles emerged from the analysis:

- The Independent: rarely has phone at hand; uses notifications very little; values control. (N=5)
- The Normative: always has phone on hand, responds quickly, keeps default settings; follows group norms. (N=15)
- The Rebel: actively resists notification pressure; configures settings to reduce interruptions; seeks alternative practices. (N=13)

These profiles and results directly influenced the design of the alternative notification model, as detailed in the traceability mapping (section 4.2).

4.2 Traceability: From Empirical Results to Design Recommendations

One of this article's main objectives is to make explicit the link between empirical data and design recommendations. Table 3 establishes a link between each of the ten best practices (BP)

of the alternative notification pattern and its empirical and/or bibliographic source. We distinguish confirmatory elements (when empirical results confirm a principle already documented in literature or professional practice) and original elements (when the recommendation mainly stems from empirical data).

Table 3. Traceability mapping: empirical sources for each best practice.

BP	Recommendation	Empirical source (interview theme, N, textual citation)	Bibliographic reference	Type
BP1	Design notifications by default at minimum	Themes: FOMO, overwhelming notifications and minimal notifications by default N : 21 (FOMO: n=9 ; Overwhelming: n=11 ; Minimal notifications by default: n=9) Key citations: <i>'At one point, it was really the FOMO, the Fear of Missing. I absolutely had to read everything and tick everything and get everything right.'</i> ³ (U28) ; <i>'There are way too many notifications, we get them all the time, to the point where we are drowning.'</i> ⁴ (U22) ; <i>'By default notifications should not be enabled.'</i> ⁵ (U11)	Kushlev and al. (2016) ; Pielot and al. (2014, 2018) ; LINC. (s. d.)	Confirmation
BP2	Propose a complete global notification centre	Theme: Current setup dissatisfaction and full configurability possible N : 13 (Current setup dissatisfaction: n=12 ; Full configurability possible: n=4) Key citations: <i>'I was surprised yesterday or the day before to get a notification I don't even know the source of.'</i> ⁶ (U21) ; <i>'Ideally I'd want all notification settings from all apps and all sites to be uniformised. So that, every time, one doesn't have to figure out how to disable them.'</i> ⁷ (U7)	Van Dantzych and al. (2002) Bastien & Scapin (1993) — Flexibility	Confirmation
BP3	Limit red badges	Theme: Decentring, deletion, stressful notifications and less aggressive notifications N : 22 Decentring: n=9 ; Deletion: n=7 ; Stressful notifications: n=11 ; Less aggressive notifications: n=11) Key citations: <i>'Those little red dots too [...] they also push you to go look.'</i> ⁸ (U22) ; <i>'I delete them without looking.'</i> ⁹ (U5) ; <i>'It can anxiety me, when I have lots of notifications on my phone.'</i> ¹⁰ (U6) ; <i>'Rather than red, make it another colour.'</i> ¹¹ (U19)	Kushlev and al. (2016) ; Abello and al. (2024)	Confirmation
BP4	Configure notifications at installation	Theme: Current setup dissatisfaction and full configurability possible N : 13 (Current setup dissatisfaction: n=12 ; Full configurability possible: n=4) Key citations: <i>'I don't find this obvious and it's never the right time to configure them.'</i> ¹² (U33) ; <i>'Really being able to configure everything right from the start. It's like the</i>	Bastien & Scapin (1993) — Guidance	Hybrid

³ « À un moment, c'était vraiment la FOMO, la Fear of Missing. Il faut absolument que je lise tout et que je coche tout et que j'aie tout bien fait. »

⁴ « Il y en a beaucoup trop, on reçoit des notifications tout le temps, au point où on est noyé. »

⁵ « Par défaut les notifications ne devraient pas être mises »

⁶ « Je me suis surpris justement hier ou avant-hier à avoir une notification de je ne sais même plus d'où. »

⁷ « Idéalement j'aimerais que tous les paramètres de notification de toutes les applis de tous les sites soient uniformisés. Pour que, à chaque fois, on n'ait pas besoin de chercher comment les désactiver. »

⁸ « Les petits points en rouge aussi [...] ça pousse aussi à aller voir »

⁹ « Je les enlève sans les regarder »

¹⁰ « Ça peut m'angoisser, quand j'ai plein de notifications sur mon téléphone »

¹¹ « Au lieu d'être rouge que ce soit une autre couleur »

¹² « Je ne trouve pas cela évident et ce n'est "jamais le bon moment" pour les configurer »

BP5	Have a complete and readable notification summary	Theme: Addictive and need for quick content view N : 7 (Addictive: n=6 ; Need for quick content view: n=1) Key citations: <i>'On LinkedIn if I have a connection notification, I click it.'</i> ¹⁴ (U14) ; <i>'A quick look at the first words allows me to identify the sender and subject of the last messages to assess urgency.'</i> ¹⁵ (U26)	Pielot and al. (2018) Brochier (2023)	Hybrid
BP6	Have a notification summary	Theme: Oversolicitation, deletion before reading and notification hub need N : (Oversolicitation: n=12 ; Deletion before reading: n=9 ; Notification hub: n=4) Key citations: <i>'I'm drowning in it, I don't have time to do it (process them) [...] so I put it off, etc., etc.'</i> ¹⁶ (U27) ; <i>'Sometimes, when there are too many notifications [...], there are so many I can't. I hit delete and I don't even look at them all.'</i> ¹⁷ (U26) ; <i>'Rather having a place where you can go and see your notifications.'</i> ¹⁸ (U1)		Original
BP7	Be able to set reception times	Theme: Acceptance times and notification packages N : 7 (Acceptance times: n=5 ; Notification packages: n=3) Key citations: <i>'Having moments where we can really choose what kind of notifications we receive, which are truly important and which are not.'</i> ¹⁹ (U22) ; <i>'It would be cool to receive all notifications at once.'</i> ²⁰ (U3)	Morrison and al. (2017); Fitz and al. (2019) Okoshi and al. (2017)	Confirmation
BP8	Be able to configure notifications according to profiles	Theme: Difficulty separating professional and personal lives, even mixing and desire to create profiles N : 20 (Professional/personal separation difficult: n=8 ; Professional/personal mixing: n=16 ; Profile configuration: n=3) Key citations: <i>'It kind of mixes up [...] it's in the same place, but not really the same channels. And it's starting to mix.'</i> ²¹ (U25) ; <i>'Making categories and being able to label them as I want, that's hyper precious.'</i> ²² (U19)	Morrison and al. (2017)	Confirmation
BP9	Do not push the user to enable notifications	Theme: App deleted or limited if too many notifications and desire for more control N : 16 (App deletion or limitation if too many notifications: n=5 ; having more control over notifications: n=12) Key citations: <i>'If an app nags me too much with notifications, it pushes me to uninstall it.'</i> ²³ (U7) ; <i>'It's up to the user to decide how they want to live with the tool.'</i> ²⁴ (U8)	Gray and al. (2018) — Forced Continuity; Mathur and al. (2019) ; Brignull (2010) ; Bastien & Scapin (1993) — Explicit Control LINC. (s. d.)	Confirmation
BP10	Have ephemeral notifications	Theme : Useless notifications N : 6 (Useless: : n=6) Key citations: <i>'There are notifications we receive, 2 hours later they are useless, because they are outdated.'</i> ²⁵ (U2)	Bastien & Scapin (1993) — Guidance & Workload	Hybrid

¹³ « Être capable de vraiment paramétrer tout dès le départ. C'est un peu comme la page d'entrée. »

¹⁴ « sur LinkedIn si j'ai une notification d'ajout, je vais cliquer (dessus) »

¹⁵ « un coup d'œil aux premiers mots me permet d'identifier l'expéditeur et le sujet des derniers messages pour en évaluer l'urgence. »

¹⁶ « je me noie dedans, je n'ai pas le temps de le faire (les traiter) [...] donc, je remets à plus tard, etc., etc. »

¹⁷ « Des fois, quand il y a trop de notifications [...], il y en a tellement que je ne peux pas. Je fais "supprimer" et je ne les regarde même pas toutes »

¹⁸ « Ce serait plutôt d'avoir un endroit où tu peux aller et voir tes notifications. »

¹⁹ « avoir des moments où on peut vraiment choisir quel genre de notifications on va recevoir, lesquelles sont vraiment importantes et lesquelles ne le sont pas »

²⁰ « Ça serait cool de recevoir toutes les notifications d'un coup. »

²¹ « Ça se mélange pas mal [...] c'est au même endroit, mais ce n'est pas vraiment les mêmes canaux. Et là c'est en train de se mélanger »

²² « faire des catégories et de pouvoir les labelliser comme j'ai envie, ça c'est hyper précieux. »

²³ « Si j'ai une appli qui m'embête trop avec les notifications, ça me pousse à la désinstaller »

²⁴ « C'est à l'utilisateur de décider comment il veut vivre l'outil. »

²⁵ « Il y a des notifications que l'on reçoit, 2 heures plus tard, elles sont inutiles, car dépassées »

The decision tree complements these best practices as a series of evaluation questions ('Is the information essential? Useful? Urgent?') guiding the designer towards the appropriate notification type. We note, as discussed in section 5.2, that the decision tree presupposes the designer has some leeway regarding a notification's very existence, a hypothesis that does not always hold in commercial contexts.

4.3 The Ethical Notification Pattern (Deliverable)

The final published document includes: (a) definition of the notification component, including its formats, display modes and legitimate uses; (b) summary of the user study (methodology, participants, results, personas); (c) decision tree; and (d) ten best practices, each accompanied by the problem it addresses, suggested solutions, interface examples, examples to follow and examples to avoid. This document was published, in September 2025, under a CC BY licence, making it reusable and modifiable (available at this URL: [anonymous link to be replaced after acceptance]). The decision tree is available on Figma, allowing other designers to adapt it to their own context.

4.4 Impact on Participating Practitioners

The project's impact on participating designers is documented through their post-project experience feedback, subsequent professional activities and observation, by the first author, of changes in their work practices. We present these elements specifying they are interpretative and do not lend themselves to systematic quantification.

Methodological skill development.

Participants reported improvements in a series of technical and methodological skills, notably interview design and conduct, project management and oral presentation. One participant notably stated: 'This research was all the more motivating because it was collective: the ideas, experiences, skills of the others enriched the ideas of the others.'²⁶ This testimony illustrates the impact of the collective dimension on designers' engagement throughout the project.

²⁶ « Cette recherche a été d'autant plus motivante qu'elle a été collective : les idées, expériences, compétences des uns enrichissaient les idées des autres »

Ethical reflection and professional attitude.

Several participants reported a change in their approach to designing notifications in subsequent professional work. This change was not only cognitive; it was concrete. Three examples illustrate this transformation:

1. A participant thus expressed refusal to integrate harmful persuasive mechanisms: 'If the fruit of my profession adds to the list of side effects, I refuse to do it.'²⁷
2. Another modified their own digital habits after the project, noting 'Actually I'm addicted like many people and I find that responsibility lies with designers.'²⁸, after switching their screen to grayscale and setting screen time controls.
3. A third integrated the objective of ethical standardisation into their professional practice: '*We try to take the positive from digital... to standardise it for more reasoned digital consumption.*'²⁹, aiming to sensitise and give control to the user.

Artefact as a reflection tool.

The alternative notification model served as a professional reflection anchor. Participants explained using it as a reference in subsequent designs, not as a copy-paste model but as a framework allowing them to question their own notification design decisions. This fits Schön's (1983) reflective practice concept: the artefact provided a concrete object around which participants could articulate and question their assumptions. We note, however, that this is an interpretation of the process, not a measured result.

Limited re-use of the artefact as-is.

Conforming to the observation formulated in section 2.2 that ethical patterns mostly function as heuristics rather than copy-paste patterns, participants did not primarily re-use the alternative notification pattern as a visual element in their designs. They rather integrated the principles (e.g., default minimal notifications, proposing a notification centre) into their design choices. This suggests the project's impact operated at the level of professional judgment

²⁷ « Si le fruit de mon métier rallonge la liste des effets secondaires, je refuse de le faire »

²⁸ « en réalité je suis accro comme beaucoup de gens et je trouve que la responsabilité est du côté des concepteurs »

²⁹ « On essaie de tirer le positif du numérique... qu'on arrive à les standardiser pour créer une consommation plus raisonnée du numérique »

and ethical reasoning rather than at the level of visual design elements.

4.5. Community diffusion and engagement.

The project's web page recorded 2,165 visits between late September 2025 and February 2026, testifying to some reach within the French-speaking design community. We consider this figure a measure of reach, not impact: visits do not indicate whether content was read, understood, or practised. The project was also disseminated on social media and presented at five French professional events. The most tangible sign of community engagement was the number of participants who, post-project, continued to refer to the project's resources in their professional work. No formal evaluation of the participative design process was conducted by the lead organisation, due to time constraints. This is a common limitation in participative projects relying on volunteering (Bossen and al., 2016), and we recognise it weakens the force of our claims regarding impact.

5. Discussion

5.1 Practitioner Empowerment and Peer Learning

According to our analysis, **the project's most significant contribution does not lie in the alternative notification pattern as an artefact, but in the process through which it was developed and in the effects this process had on participants' professional attitudes.** The shift from an intuitive design practice to a reflective one corresponds to Schön's (1983) description of the reflective practitioner: the artefact served as a 'focal point for reflection', allowing participants to articulate, question, and revise their hypotheses about notification design. This evolution confirms that ethical alternatives function more as principles or heuristics requiring contextual interpretation than as directly reproducible visual patterns (Bastien & Scapin, 1993; Nielsen, 2005).

The peer learning dynamic that characterised the project — in which participants with varying experience levels taught and learned from each other — can be interpreted in light of the French *compagnonnage* tradition, where transmission covers both artisanal skills and ethical values. We do not claim the project reproduced the *compagnonnage* system; we observe that its fundamental dynamic — transfer of artisanal

know-how and ethical judgment between peers in an activity context — offers a useful interpretative framework for understanding ethics in practice (Lindberg and al., 2021; Osys, 2026; Öz and al., 2026).

5.2 Organisational and Commercial Barriers to Ethical Solutions Adoption

The results also explicitly show that ethical alternatives adoption is hindered by structural factors a design artefact alone cannot resolve. The analysis highlights three major barriers: commercial incentives, decisional asymmetry, and resource constraints.

Commercial Incentives

The attention economy relies on engagement indicators (session duration, click-through rates, daily active users), creating a structural incentive to use dark patterns or attention-interference motifs (Monge Roffarello and al., 2023). Many ethical alternatives — such as default minimal notifications or simplifying unsubscribe modalities — directly reduce short-term engagement indicators (Eßmeyer and al., 2026). In this context, a designer proposing to remove a deceptive or intrusive pattern essentially proposes degrading a key performance indicator (KPI). Documentation and empirical data from the project (interviews, thematic syntheses, literature review) then constitute a legitimising resource: factual elements practitioners can mobilise when negotiating with product leads and stakeholders. Nevertheless, such evidence alone cannot outweigh an economic model whose viability rests precisely on behaviours induced by these solicitations.

Decisional Asymmetry

The decision tree integrated into the artefact implicitly assumes the designer has authority to decide a notification's existence, content, and triggers. Or, in most professional contexts, these strategic choices are made by product leads, executives, or clients, not designers (Stolterman, 2008). Thus, this artefact should be re-conceptualised not solely as a design tool but as a negotiation and ethical mediation tool (Gray & Chivukula, 2019; 2024): a structured and evidence-backed framework allowing designers to question, argue, and attempt to reorient product-related decisions. This requalification directly aligns with documented work on 'soft resistance' tactics and values work mobilised by practitioners to defend ethical principles within organisations (Wong, 2021; Wong and al., 2023).

Resource Constraints

Implementing ethical features — such as complete notification management centres, granular settings, or guided configuration steps at first use — requires substantial development time and maintenance effort. In practice, these projects are frequently sidelined in favour of features judged to have 'higher commercial impact'. While the best practices identified in the project appear simple individually, their systematic integration represents a collectively significant workload. This is not an intrinsic limitation of the artefact, but an empirical observation of real adoption conditions by development teams.

Synthesis

These three barriers demonstrate that adopting ethical design alternatives cannot result solely from making design artefacts available. It requires convergence of three complementary levers:

1. **Design artefacts** providing evidence, structure, and argumentation framework (what this project contributes to);
2. **Organisational change** altering how product decisions are made and evaluated within companies; and
3. **Regulatory and legislative frameworks** (such as the European Digital Services Act) capable of transforming the very structure of economic incentives.

If this project directly contributes to the first lever (a), the organisational (b) and regulatory (c) levers exceed its scope while constituting its systemic condition.

5.3 Methodological Transferability and Open Design

The project was conducted in a situated context: a French digital design association, a group of nineteen practitioners, and a targeted interface component (notifications). While specific results do not claim statistical generalisability, the deployed methodology offers strong transferability: the documented process in section 3 (open recruitment, component selection by consensus, user research, iterative prototyping, open publication) can be replicated by other communities for other interface components. It is in this sense that the project contributes to open design (van Abel, 2011): not as an ideological posture but as a documented and reusable methodological protocol for producing ethical alternatives.

Making the artefact available under a Creative Commons (CC BY) licence, sharing the decision

tree on Figma and opening research data (meeting reports, coding grids) constitute the material conditions for this transferability. The project thus participates in the constitution of 'design commons' (Hess & Ostrom, 2007; Teli, 2015) — open, reusable, and adaptable knowledge resources. Finally, facing technological platforms' interface standardisation, co-producing — even modestly — alternatives contributes to reopening the conceptual spectrum and supporting a plurality of interface norms.

5.4 The Terminological Debate: Patterns, Heuristics and Principles

As introduced in section 2.2, the literature on ethical design frequently uses the term 'pattern' to denote what is in fact heuristics or principles. This terminological porosity is largely explained by professional framing logic: the designation imposed in a stand-up meeting or during a product manager negotiation is not necessarily the one prevailing in an academic article for the HCI community. Even Harry Brignull's vocabulary evolution — historically from 'dark patterns' (Brignull, 2010) to 'deceptive design' (Brignull and al., 2023) — illustrates this search for a framing both communicable to practitioners and scientifically more rigorous.

To clarify this debate, it is useful to distinguish three often-confused notions:

- A **principle** relates to a normative or moral posture (to which one adheres or not);
- A **heuristic** constitutes an operational and testable evaluation rule in a given context (that can be verified, adapted, or rejected based on observations); and
- A **pattern** designates a structured design model directly instantiable (Gamma and al., 1995).

The ten best practices formulated in this project are **heuristics** rather than moral-order principles: they are backed by empirical data and established literature (Table 3), allowing teams to test, evaluate, and put them to the test of their design constraints.

In a reflective posture, we observe that our own artefact — organised around these ten best practices and a decision tree — aligns more with a set of evaluative heuristics than with a strict visual patterns library. The project thus illustrates the slippage it analyses. Rather than a contradiction, this observation sheds light on the reality of design work: the primary utility of these alternatives does not lie in providing components to copy-paste, but in making

available a testable and argued evaluation framework, capable of orienting practitioners' reflective judgment (section 5.1).

5.5 Limits and Future Perspectives

Our study presents three main limitations related to its methodological design, which outline as many perspectives for the HCI community.

Study Limits

Firstly, the nature of engagement — based on volunteering within a professional association — led to a progressive participation decline over the 22 months of the project. If this reflects the realities of community action and Open Design, it required regular readjustments in the co-production dynamic. Secondly, the produced artefact focused on visual notifications on smartphones. It does not integrate digital accessibility (A11y) specifics or non-visual interaction modalities (haptic or auditory), which are nonetheless critical dimensions of ethical design. Finally, practice transformation measurement (section 4.4) relies on participants' reflective and declarative accounts. The absence of in situ longitudinal follow-up does not allow quantifying the real long-term adoption of these principles in their professional outputs.

Research Perspectives

These limits open three promising research avenues:

1. **Sociological evaluation in professional settings:** Conducting organisational sociology enquiries within digital companies to observe how ethical design approaches (Alternative Patterns, Bright Patterns, Fair Patterns, Privacy Design) are concretely negotiated, adopted, or rejected by multidisciplinary teams (Eßmeyer and al., 2026; Öz and al., 2026)
2. **Modalities replication and extension:** Applying the participatory action research methodology described in section 3 to other interface components, other practitioner communities, or targeted accessibility and multimodal interface problems to test and enrich the transferability grid.
3. **Post-project longitudinal practitioner impact study:** Conducting follow-up studies over one to two years post-project to measure, through analysis of actual artefacts and workshop observations, the persistence of reflective capacity and the effective evolution of design practices.

6. Conclusion

This article reports on a 22-month participatory action research project, during which nineteen digital design professionals collectively co-created an ethical alternative to the standard notification component. Faced with a literature where ethical frameworks are often top-down and disconnected from professional realities, our main contribution does not reside solely in the visual result obtained, but in the demonstration of what makes an ethical alternative truly relevant and actionable. This novelty rests on an indissociable triad:

1. **A practice-anchored co-production process:** Collective elaboration by peers transforms the artefact into a reflection instrument (Schön, 1983). The project shows that the value of an ethical alternative lies as much in the learning process and professional judgment development that brings it into being as in its final deliverables.
2. **Rigorous empirical traceability:** The traceability mapping (Table 3) demonstrates that each recommendation rests on specific research data or established literature. This factual base fills a major gap in ethical patterns literature, where the link between evidence and recommendations is often implicit.
3. **An open and equipped adoption context:** For alternatives to be transferable, ethical design needs material reappropriation conditions. Free licence publication (CC BY), component availability on Figma and open process documentation constitute the indispensable vectors enabling the artefact to be adapted by other communities.

This structuring invites transcending the terminological debate: it shows that these ethical alternatives actually function as **evaluation heuristics** requiring contextual interpretation, not as visual patterns to be mechanically copy-pasted.

Equipping practitioners with such a framework makes the artefact a genuine **negotiation tool** face to structural constraints (commercial incentives, power asymmetry, resource scarcity). The project recognises that no design artefact alone can resolve the tensions of an attention-based economic model; it provides the argumentative underpinning necessary to complement future organisational and regulatory changes.

Finally, this project demonstrates that participatory action research, when embodied in co-production of artefacts (Research through

Design), **generates double value: scientific knowledge on how to design ethical alternatives, and direct transformation of the designers who produce them.** Alongside academic downward approaches, this upward pathway offers a necessary perspective for the emergence of a truly reflective, sustainable, and ethics-based design practice.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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