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Built, Not Bought: Identity Shift to Makers

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Introduction

This paper analyses whether an identity-based advertising strategy, developed for the group campaign “**Built, Not Bought**”, meaningfully addresses barriers that the open-source hardware (OSH) literature suggests can prevent *makers* (and maker-adjacent audiences such as repairers) from adopting an OSH vacuum cleaner. The campaign’s stated objective is an “identity shift from Repairer to Maker” using an **open-source, 3D-printed vacuum cleaner**.

The chosen product category is relevant because vacuum cleaners are a common form of small household electrical equipment and contribute to the broader e-waste stream. In Western Europe, empirical research on product replacement behaviour that explicitly includes vacuum cleaners suggests that product lifetimes are often “relatively short,” and that many consumers replace products even when they still function but show performance loss; moreover, repair is frequently not considered. This context strengthens the logic of an intervention aimed at moving people from “replacement culture” to repair and (ultimately) to localised rebuilding and redesign.

At the same time, OSH adoption is widely described as more challenging than adoption of open-source software because replication requires physical fabrication, materials, and equipment, not just downloading code. As a result, an identity-based strategy may be necessary (to motivate persistence) but not sufficient (because structural barriers can still dominate). The central analytical task, therefore, is to connect:

- (a) what the OSH literature identifies as adoption and replicability barriers, with
- (b) the specific psychological mechanisms and creative choices used in the “Built, Not Bought” campaign.

Theoretical background

The campaign is explicitly framed as “an identity shift from Repairer to Maker,” and it targets repairers as the primary audience. That framing aligns well with identity-based approaches in marketing research which argue that consumer responses depend strongly on whether a communication makes a relevant identity salient, associates behaviours with that identity, and supports identity verification (i.e., acting in ways that confirm “who I am”). In this project, the relevant identity move is not “become someone else,” but “recognise that what you already do positions you for the next step.” This matters because identity-laden appeals can backfire if the aspirational identity feels like a threat to the audience’s current group value or competence.

A first theoretical pillar is **social identity theory**, which explains how self-definition through group membership shapes attitudes and behaviour: people evaluate choices partly through what those choices signal about their group belonging, status, and norms. In this campaign, “repairers” are treated as a coherent in-group with shared practices (disassembly, diagnosing failures, tool use) and values (cost-consciousness and sustainability). The central slogan, “If you can fix something, you can build something.”, attempts to redefine the group prototype: being a repairer is presented as *already compatible* with being a maker. This is theoretically relevant because identity-consistent behaviours are easier to adopt when they feel like a natural extension of the in-group norm rather than an elite out-group activity.

A second pillar is **identity-based motivation (IBM)**, which argues that identities are dynamically cued by context, and that when an identity is salient, people become “action-ready” for identity-congruent behaviors. IBM is particularly useful here because the campaign is not simply asking for a purchase or a one-off trial; it is asking for engagement in a potentially frustrating multi-step process (finding files, printing parts, sourcing components, assembling, iterating). OSH scholarship repeatedly indicates that this replication process is sensitive to users’ contexts and capabilities. Under IBM, if “maker” is made to feel like an attainable and “for people like me” identity, then obstacles can be interpreted as expected effort on a meaningful path rather than evidence of failure or exclusion. This mechanism justifies the campaign’s insistence on “no maker elitism” and “no learning cliff,” because those phrases directly target the *meaning* that novices attach to difficulty: difficulty should signal progress, not disqualification.

A third pillar is **self-efficacy theory**, which predicts that behaviour initiation and persistence depend on beliefs about capability; people are more likely to start and sustain difficult actions when they expect they can succeed. Marketing research integrating identity constructs similarly argues that communications can facilitate identity-related action by providing “mastery experiences” and modelling “how, when and where” a behaviour can be initiated. This is directly mirrored in the campaign’s product framing: the “Vacuum Core Kit” includes ‘pre-sliced STL files, a minimal bill of materials, a repair-friendly assembly guide’, and “print this first” starter parts designed for “quick wins.” They are psychological scaffolds intended to increase perceived competence and reduce abandonment at the earliest friction points.

Finally, the campaign's channel strategy: repair cafés, repair forums, right-to-repair networks, and platforms like iFixit, can be interpreted through social influence and norm mechanisms: individuals infer what is "normal" and "approved" in a community by observing what peers do and endorse. Because repair café participants are often driven by environmental concerns and by access to community knowledge and tools, these settings can make "building" feel like a legitimate next step rather than a private eccentric hobby.

Documentation of group advertising product

The campaign deliverable is a concept presentation built around an **open-source 3D-printed vacuum cleaner** and the identity transition narrative “Built, Not Bought.” The group also presented a live demo of a 3D-printed vacuum cleaner (as specified in the assignment brief), which functioned as a tangible proof that “building” is not purely abstract but achievable.

Development process from concept to final deliverable

The initial stage of the project involved identifying the most relevant target group for investigation. After deliberation, the team determined that individuals engaged in repair activities represented the most suitable focus group. This decision was based on the premise that repairers occupy a transitional position between passive consumers and active makers, thereby presenting significant potential for progression toward maker-oriented practices. Following further discussion, the team established “Identity Shift” as the central conceptual framework guiding the study.

Subsequently, responsibilities were allocated among team members according to their respective interests and areas of expertise. Kamaljit Singh Sandhu assumed responsibility for designing the questionnaire instrument, identifying an openly accessible 3D-printable vacuum cleaner model, and overseeing its fabrication. Hilal El Aziz contributed to refining the questionnaire and conducted data collection within the selected target group. Emil Gasanov developed the structural framework for the final presentation, ensuring coherence and logical progression in the communication of the project’s findings.

Group-work documentation, individual contributions, and research workflow

A structured questionnaire was prepared in SoSci Survey format and includes: semantic differential evaluations of “3D printed products” (usefulness, ease of use, reliability, quality, desirability), familiarity with open-source software and hardware, plus evaluative judgements specific to the campaign prototype (ethicality, cost efficiency, adoption likelihood, environmental friendliness, and ease of use without prior knowledge). The questionnaire also includes informed consent and self-reported attention checks (completion integrity and distraction), enabling at least basic data-quality filtering.

While the survey component of this study was led by Kamaljit Singh Sandhu. The questionnaire was developed and the data collection process conducted by Hilal El Aziz. Due to time constraints, the volume of data obtained was insufficient to support a comprehensive in-depth statistical analysis. However, the dataset was adequate to provide preliminary directional insights into participants’ perceptions of the 3D-printed product.

Regarding the development of the prototype, responsibilities were distributed as follows: the visual design and copywriting were undertaken by Emil Gasanov, while the 3D printing process was managed by Kamaljit Singh Sandhu.

The final presentation of the project was delivered collaboratively by all three contributors before the project supervisor, Ms. Minh Phuong Phung, and external representatives from Open Source Ecology Germany e.V.

Data collection and analysis, and what the results imply for effectiveness

The survey dataset provided (SoSci export) contains 10 completed interviews, of which 9 granted permission for their data to be used in anonymous evaluation (per the consent item), and 6 indicated they completed the tasks as requested (a strict quality filter). The key descriptive patterns are strategically informative even with this small sample:

Familiarity with open-source is low: among consenting respondents, most reported they did not know about open-source hardware, and none indicated active use. This matters because OSH adoption work repeatedly highlights that adoption is constrained not only by technical hurdles but also by awareness, motivation, and community resources; low baseline familiarity increases the need for trustworthy framing and onboarding.

Attitudes toward 3D-printed products in general are roughly neutral rather than strongly positive, which is consistent with the broader observation that consumer-facing digital fabrication can evoke uncertainty about performance and reliability, especially when the fabrication method (e.g., fused deposition modelling) is associated with issues like slowness and potential warping/shrinkage. Against that backdrop, it is notable that respondents rated the specific 3D-printed vacuum cleaner moderately positively on ethicality, cost efficiency, and environmental friendliness, but showed weaker adoption likelihood.

This pattern, positive values-based evaluation paired with modest adoption intention, matches what the OSH adoption literature would predict: perceived ethical or sustainability benefits do not automatically overcome replication barriers related to input sourcing, documentation, equipment access, and perceived product quality. In other words, the advertisement appears directionally appropriate for a values-aligned audience (repairers), but the data suggest that *friction costs* remain salient enough to depress intention.

From a psychological-mechanism standpoint, this is precisely the kind of gap identity-based messaging is meant to reduce: by making “builder” action feel identity congruent, the campaign aims to increase persistence and trial. Yet the remaining intention gap also indicates that identity cues alone cannot substitute for concrete supports that reduce perceived difficulty and uncertainty; the supports that the “Core Kit” concept is designed to provide.

Post-presentation elaboration

The post-presentation question asks whether the campaign's identity-based marketing strategy addresses barriers to adopting open-source hardware, while considering the barriers for vacuum cleaners, that are suggested by the OSH literature, and why.

A coherent way to answer is to distinguish identity-and-motivation barriers from replicability and infrastructure barriers, while recognising that real adoption decisions intertwine both.

Barriers emphasized by open-source hardware research

Across OSH scholarship and standards-oriented discussions, a consistent claim is that OSH is not "open" solely because of a license; success depends on whether documentation and process structures actually enable replication and modification. One influential analysis argues that what counts as the "source" of OSH is not obvious, and that hardware is frequently less well documented than software; sharing "atoms" is simply more complex than sharing "bits," partly because hardware documentation requires specialised file formats and toolchains.

Replicability-focused research makes the same point more operational: a license that permits making does not guarantee that people *can* make it. Replication depends on information quality, materials, and equipment, and barriers that differ across the context of the replicator.

Adoption-oriented OSH research similarly concludes that uptake is often modest and depends on factors that are underemphasized in optimistic discourse: the quality of self-manufactured products, the motivations of adopters, the availability of production inputs, and resources available through open-source communities.

Finally, comparative replication studies and reviews of open hardware in adjacent domains point to the embodied nature of barriers: sourcing and manufacturing constraints can require extensive modifications and higher skill/dexterity; limited digital literacy can block use of documentation; and physical replication requires access to fabrication equipment.

What the identity-based strategy addresses well

The "Built, Not Bought" strategy clearly targets one of the most important *soft* barriers: the possibility that repairers do not see "making" as an in-group behaviour. The campaign explicitly states that the target audience "don't identify as 'Makers'" and sets the goal as "shift identity, not just behaviour." That is strongly aligned with identity-based marketing principles: when a message makes a valued identity salient and links a behaviour to that identity, the behaviour becomes more psychologically available and easier to justify.

The creative execution is also designed to prevent an aspirational backfire. The campaign avoids technical bravado and frames making as "one step forward" from

repair, rather than a jump into an elite subculture. This is consistent with research noting that aspirational advertising can implicitly threaten collective self-esteem; when an out-group ideal is presented as superior, the in-group can feel devalued, leading to resistance rather than conversion. By telling repairers they are “already halfway there,” the campaign reduces the threat and preserves dignity.

The strategy also plausibly increases self-efficacy by combining identity language with scaffolding: “pre-sliced STL files,” a “minimal bill of materials,” repair-language assembly instructions, and “starter parts” designed for quick wins. This maps directly onto self-efficacy theory and identity-marketing guidance that emphasize mastery experiences and action relevance as bridges from intention to action. In OSH terms, it targets the “documentation and onboarding” component of replicability, which is repeatedly flagged as central.

Channel selection further supports identity and norm mechanisms. Repair cafés and right-to-repair communities align with repairers’ environmental motivations and movement identity, which can make “building” feel socially endorsed rather than deviant.

What the strategy does not fully address, and why

Despite these strengths, the identity-based strategy only partially addresses OSH adoption barriers because several decisive barriers are structural and material rather than primarily psychological.

First, OSH adoption often hinges on the availability of production inputs and fabrication infrastructure. Adoption research explicitly highlights production input availability and community resources as determinants, and open hardware reviews emphasise that propagation is difficult because replication requires access to fabrication equipment and sufficient familiarity to use it. The campaign assumes access to a home printer or makerspace (“fully buildable at home or makerspace”) but does not operationalise this into a concrete provisioning model (e.g., partner makerspaces offering print credits, scheduled print sessions at repair cafés, or a distributed parts-printing network). Identity cues may encourage motivation, yet motivation cannot print parts without a printer, nor source parts that are unavailable locally; exactly the kind of barrier documented in replication comparisons across contexts.

Second, OSH adoption depends on perceived and actual product quality. The OSH adoption literature highlights product quality as a determinant, and 3D printing discussions note technical limitations that can affect reliability and performance, which are salient for a utilitarian appliance like a vacuum cleaner. The campaign asserts “real cyclonic vacuum” and “replaceable, printable parts,” but it does not communicate verification standards, performance benchmarks, or safety guidance beyond general “repair-friendly” framing. In OSH terms, this leaves uncertainty about whether replication leads to a consistently functional result across users; an uncertainty that replicability research treats as core. Identity-based messaging can reduce fear of trying, but it does not remove reasonable doubts about reliability.

Third, OSH projects require sustained investment in public documentation maintenance and community management. The OSHW Weather Report stresses that open hardware “requires real investment,” identifying documentation and community collaboration as major cost centres and also as the foundation enabling collaboration and diffusion. The campaign’s “Core Kit” is a strong start, but the campaign narrative does not show an ongoing governance structure: version control, issue tracking, contribution guidelines, or pathways for newcomers to become contributors. Yet these are precisely the process structures that openness measurement frameworks treat as signals of maturity and trustworthiness. Without these, identity-based marketing may successfully create *interest* but fail to sustain a contributor ecosystem that makes adoption easier for the next wave.

Fourth, the strategy may not fully account for boundary and inclusion barriers inside “maker” environments. Research on makerspaces documents barriers such as intimidation due to perceived technical skill norms and social identity-linked marginalisation. The campaign explicitly rejects elitism, which helps. However, if adoption is channeled through spaces that already exhibit power differentials (e.g., technician hierarchies in repair cafés), novices may still experience implicit exclusion. A purely identity-uplifting message does not automatically restructure local social dynamics; it must be reinforced by inclusive facilitation practices (e.g., structured beginner roles, buddy systems, and explicit norms that discourage gatekeeping).

Overall assessment

The identity-based advertising strategy addresses adoption barriers **substantially but selectively**. It is well matched to barriers that are psychological and cultural: low maker identification, fear of incompetence, and perceived elitism. The campaign's creative choices, continuity framing ("already halfway there"), anti-elitism messaging, quick-win scaffolding, and repair-community channels, are theoretically coherent with identity salience, self-efficacy development, and community norm effects.

However, OSH research indicates that replication and adoption are often constrained by documentation quality, equipment access, input sourcing, and product quality, and that these constraints vary significantly by user context. The campaign partially addresses documentation and onboarding through the "Core Kit," but does not fully address infrastructure provisioning, quality assurance, or long-term community governance.

Therefore, the best interpretation is: identity-based marketing is a *necessary ignition system* for OSH adoption among repairers, but it must be paired with operational interventions that lower structural replicability barriers if adoption is the outcome metric rather than only awareness and positive attitudes.

Conclusion

This analysis supports a mixed answer to the post-presentation question. The “Built, Not Bought” campaign is theoretically well grounded because it uses identity continuity (repairer → maker) to reduce threat, increase identity congruence, and support self-efficacy through “quick win” scaffolding and familiar community channels. These design decisions align with identity-based marketing principles and motivational psychology, and they address major barriers that concern *belonging, competence, and legitimacy*.

Yet open-source hardware research consistently indicates that adoption is often limited by replicability constraints: documentation standardization, sourcing and manufacturing feasibility, access to fabrication infrastructure, and assurance of product quality. The campaign’s identity-based strategy partially addresses these via the “Core Kit” concept but does not fully cover the material and governance conditions necessary for broad OSH diffusion.

In short, the strategy resolves the “*Why would someone like me do this?*” problem more convincingly than the “*Can I actually do this here, with these resources, at this quality level?*” problem, and OSH adoption depends on both.

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Appendix

List of contributions:

Project group members: Kamaljit Singh Sandhu, Hilal El Aziz & Emil Gasanov.

Questionnaire: Kamaljit Singh Sandhu & Hilal El Aziz

Additional Data & Resources

<https://unidocu.space/> (Password for Questionnaire Data may be requested separately)