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# Design History: Exploring Corporate Communities

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**Abstract.** A design history is a narrative involving a multitude of social groups, interpretive flexibility, and eventual stabilization of shared understanding. Design history surfaces the practices that help shape and define engagements and can increase not only our theoretical understanding of what design is, but also our capacity to realize this understanding in practice. We use a design history perspective to examine how corporate technology initiatives establish and support open source communities and the crafting of relevant design practices that enable their advancement. We foster an evolving expression of design research that treats artifacts not as stable objects to be singularly evaluated, but as evolving systems contingent on historical trajectories.

**Keywords:** Design History, Corporate Communities, DSN, Open Source

## 1 Introduction

Design is an argument that a specific goal is worthy of pursuit and that routines involving specific artifacts provide an appropriate means to accomplish that goal. Design persuades through technical reasoning, the scientific premise for its functions, as well as the human premises by which functions make sense within material, social, and linguistic practices of people [4]. Further, design is a practice that entails a convergence of values and modes of thinking to accomplish a worthy goal.

However, design does not spring full-grown into the world but rather originates as a vision of how patterns of action could be, such that needs of people are met through new practices. Design persuades through people imagining a future in narratives, and metaphors, and the practices through their lives are shaped and interconnected. Thus, design entails much more than a particular form or function; it entails the social groups, interpretations, and stabilized environments that shape its history. Thus the aim of this research is to better understand how design trajectories are understood as historical constructions.

Sociological perspectives conceptualize design as a mangle in an eco-system of actions, competing perspectives, and value identification (Pickering, 1995). Design has fluid and constantly changing character shaped by an ongoing engagement with social groups [1]. To better understand this view of design as an evolving process, we examine data from a three-year engagement with open source community members and corporations involved in the development of license compliance standards and

tools. We navigate and explain the complex obligations that corporations accept as they engage within open source communities, illustrating the interpretive flexibility and stabilization actions taken to evolve design practices in the advancement of open source software.

## **2 Design History**

In placing design in the context of history, we contend that design is “charged with making the material culture conducive to engagement” [2, p. 18], such that artifacts themselves do not carry intrinsic properties of efficiency or effectiveness. Instead, artifacts are designed within the ongoing practices of the world and are positioned into the lives and actions of individuals and groups.

Our research responds to a call to engage with industry practices of design [5]. Organizations engage in design as part of a history in which they shape the technical and social environments within which design unfolds. In this, design becomes an evolving endeavour, grounded in competing ideas of control, values for human well-being, and the improvement of material and social conditions [4]. Within this evolution, design is shaped by both material and societal histories, positioning design as occurring because of an environment within which it is situated [7].

Thus, design does not begin with an identified problem but rather with an engagement to the world, in which people envision what the world can be. All participants in the design bring unexamined assumptions about the nature of the world, the opportunities worth attending to, and the ideals and values worth pursuing. Design history reveals the eco-system in which design occurred (e.g. configurations of organizations, foundations, designers, and governance).

As design history unfolds, it reveals differences in the meaning of lived situations, the stabilization of the social ecosystem of people who interpret their world, and the background of values against which actions are considered reasonable. To illustrate this point we shift attention to the specific social constructions, interpretations, and stabilizations that are present in design, arguing for a depth of design by considering design as an evolving history of shared practices.

### **2.1 Design History: Social Groups**

Design history results from interrelated social and material actions of people. The actions of planning, problem creation and solution, and the construction and evaluation of artifacts, are only comprehensible in relation to shared social practices. Design integrates styles of thinking and ways of doing, against the shared background in which a problem and its solution make sense.

Design involves a multitude of social groups: those whose practices will be affected; those who develop patterns of action to address needs; and those who seek stabilized processes associated with design. Each social group has different practices enfolded what is most pragmatic, engaging, or aesthetic. People attach different meaning to technical artifacts, both current and historical, and have different

experiences of encountering artifacts. Thus design itself occurs through practices by which social groups struggle discursively and materially to comprehend and to construct their future reality [9]. As the objects and actions to which design points do not yet exist, this socio-historical view recognises the collective construction toward an agreed upon problem of an imagination composed of “specific forms, functions, and reinventions that might, or ought to appear” [9, p. 2] as well as an articulation of a social potential .

## **2.2 Design History: Interpretive Flexibility**

Design is contested [4] through the interpretation of meanings and the translation of multiple worldviews into a shared understanding. Interpretive flexibility is necessary as design involves developing common concepts and language which are adequate to envisioning something that does not exist [3]. Interpretive flexibility results in the integration of thinking styles and reconciling the tensions between materials, controls, and ideals. Design is positioned within “an unsettled region, a zone of potential, that nonetheless contains the real material or content, and above all the idea of what will become the technology-enabled innovation” [9, p. 4].

People are not blank slates reacting to features of technology but rather have their own interpretive frames through which they translate the meanings and capabilities in design. Interpretive flexibility is critical because people create problems they will solve against a taken-for-granted background. In its earliest form, the problem-state and the design solution may be nebulous, difficult to communicate, and shifting even for the people who envision it. It is likely that design will not appear to other social groups in the same way – given different worldviews and activities, the problem or the design may not appear important, relevant, of value, or even possible. As such, design only becomes comprehensible as people gain an understanding of particular situations such that alternative worlds appear desirable.

## **2.3 Design History: Stabilization**

Design entails a collective effort from which shared understandings – the shared background - can emerge. Without shared understanding, a collective realization of design is not likely to emerge from across social groups. Design translates different interpretations into shared understandings, shifting design in new and interesting ways [8] as elements from different interpretations are brought together. As these shifts occur, social interpretations undergo modification as translation continues [11]. For example, a kernel theory will not directly determine how an artifact is instantiated. A theory is first translated from its linguistic form into a principle that is then further informed as it is reified into material components of a system. These translations, from interpretations of the situation, enable the situated goals to be articulated, social groups in design to be enrolled, and ideas to materialize as action patterns as they become stable across people and groups.

Design occurs through the situated actions among people in a world. As people come from different social, political, and material worlds with unique viewpoints, power structures, and embedded meanings, design may be undertaken by disparate and heterogeneous groups of consultants, technical experts, business management, and employees who act with varying degree of involvement. These intersecting social groups comprise an ecosystem that shapes design practices, often with a focus on becoming stabilized for clear and cogent interpretation and translation from all [6]. As design includes heterogeneous participants and worldviews, design becomes recognizable and approachable “as systematic disciplines of integrative thinking, within which diverse techniques and methods are given direction and purpose” [4, p. 37]. Stabilizing the interpretive flexibility of social groups allows design to be an engagement between people, objects, and practices, supporting a deeper picture of what design is [7].

### **3 Methodology**

As open source ecosystems become increasingly relevant in corporate development strategies, the clarification of license information remains a complex endeavour. To understand design history, we examined a specific corporate-communal engagement in the context of open source software development. Participant observation was used in working with corporations engaged within open source communities to advance open compliance standards and establish the SPDX (Software Package Data Exchange) community in 2011.

The SPDX community is a Linux Foundation workgroup, comprised of 32 organizational participants advancing open compliance standards. Members of the research team have participated with the SPDX open source community in developing open compliance standards, open compliance tooling, and open compliance literature. Our involvement allowed us direct access to the member base, strategic decisions within the community, and value creation activities by community members. In all, we have gathered an extensive set of interviews, recorded communications, meeting minutes, listserv mail exchanges, and conference notes.

In approaching our corporate-communal data set, we used the principles of social groups, interpretive flexibility, and stabilization as our descriptive framework to discover insights regarding design history. We believe that these principles provide necessary but not sufficient descriptions of design history considered across a temporal period. We use the principles to present design as involving not just configurations of the material but also the social and technological issues regarding what problems are important, what values are held, what technology means, and how goals should be accomplished.

### **4 Findings**

Design history reveals that designs are not fixed configurations with specific functions that solve specified problems but are open to interpretations that may result

in the same object being interpreted and translated differently in different practices. We found that design history within the SPDX corporate-communal setting, based on social groups, interpretive flexibility, and stabilization, revealed three considerations of design as an ongoing, negotiated, and shared activity.

#### **4.1 Fixture Groups**

Design science research has accounted for a diversity of social groups that are present in design. However, a closer examination into the nature of these social groups reveals that membership can be comprised of groups having long-term strategic and economic interest in the advancement of design activities. Economic interest can stem from organizations selling fixtures that both inform and result from stabilized design practices.

Fixture groups are evident across sectors including light pole manufacturers selling fixtures based on light bulb standards [1] and telecommunications companies selling fixtures based on wireless standards. In the SPDX community, organizations are engaged to understand the emergence, evolution, and evaluation of open compliance standards in an effort to align communal and corporate practices. The nature of the relationship carries ongoing design activities forward in the development of practices, technologies, and services (i.e. fixtures) provided by community participants.

#### **4.2 Fixtures as Power**

Naturally, fixtures can instill directional control over communal design. If communal and corporate practices become divergent, stabilizing mechanisms may be required to align the two. In the case of corporate-communal engagement, communities are not often responsive to the stabilizing needs of individual members. In response, the most sensible solutions are to be respondent to communal decisions or to shape and influence the community itself.

Within the SPDX community, organizational participants take contributory and advisory roles to maintain a voice within the community, participating in the ongoing design activities, and controlling the direction of SPDX technologies. More importantly, organizational participants seek to shape the direction of open compliance by situating communally guided design into organizationally defined fixtures. This allows others to observe design-in-practice, reducing the interpretive flexibility (and advancing stabilization) around design practices, enabling fixtures to become powerful representations for organizations.

#### **4.3 Fixtures as Practice**

The socio-historical view discloses how design invokes new practices oriented toward “shaping society, changing the course of individuals and communities and

setting patterns for new action” [4, p. 6]. Our perspective helps us understand design as entailing the routinized ways of discovering, understanding, and acting [10] in regards to licencing, open source compliance, and organizational commitments to the ethos of open source communities. The SPDX artifact enforces interpretation, information, and language which constitute the practice of compliance with the aim of routinizing compliance activities and goal.

Challenges remain as organizations modify their software management practices to accommodate the intake and egress of open source software. In response, the implementation of SPDX has been increasing as membership in the community grows and organizations find ways to incorporate the standard into daily activities. In these instances, SPDX serves as one fixture in growing practices of open source compliance.

## 5 Discussion

Design history incorporates technology into the broader argument about the lives and actions of individuals and groups by shifting focus from the production of artifacts to the creation of patterns of thought and action. The view developed in this research essay highlights the contingent aspects of design (what may occur) rather than what must necessarily occur. Recognizing the practices in a design history reveals the manner in which participants initiate and maintain design as part of routinized work and creates a sensitizing framework and vocabulary in the investigation of design as deeper than any single artifact. By decentering the focus on artifacts and instead locating design in the ways people enact and discuss design in relation to their world, we seek to provide insight into how corporations engage open source communities to negotiate practices. Ongoing analysis must illuminate the political, structures upon which design practices are navigated and negotiated and how the corporate-community engagements change over time.

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