Towards Accessible Design Knowledge

Opening up design knowledge and its production in industry and academia

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February 10, 2015

1 Introduction

The global pool of design knowledge is steadily growing. Both industry and academia contribute through design practice and intentional design research. However, there is a large gap between the knowledge that is produced and the knowledge that is published. Most of the produced knowledge is never made accessible to the design community outside the own organisation, less so in industry than in academia.

Not only is there an internal gap in design; there is also a difference between how much knowledge design and other disciplines make accessible (looking specifically at software development). According to Davis (2009), "the proprietary behavior of design practitioners will not make new knowledge widely available [...]". This is an unfortunate circumstance, as several examples show that both industry and academia would benefit from better access to existing knowledge.

In this essay, I present **two** examples from the areas of open source and open innovation, which successfully illustrate how open knowledge can contribute to innovation. I will further suggest ways forward for design, towards more accessible design knowledge.

2 The state of design knowledge publication

Much of the design knowledge in existence and production is never made widely available. This section looks at where design knowledge can be found, and how—if at all—it is made accessible to a wider audience of designers.

2.1 Where do we find design knowledge, and how does it look?

Where do we find design knowledge? Nigel Cross (1999) suggests three sources: people, processes, and products.

People, especially—but not exclusively—designers, know about the decisions they made while designing. They bring their past experience and their world view to the design process, influencing the outcome with everything they do. An extensive account of how design practice and practitioner are interdependent is given by Schön (1990).

Processes are the "tactics and strategies of designing" (Cross 1999). Looking at design methodology, knowledge resides in pattern libraries, design manifestos, and basically every method used to create and evaluate a design. But design knowledge can also be found in byproducts of the design process: in recorded interviews and user tests, in affinity diagrams and brainstorming session. It also becomes visible in the way we publish knowledge in academia: through magazines, journals, conferences and their proceedings.

Products are the most obvious outcome of design, "the forms and materials and finishes which embody design attributes" (Cross 1999).

Cross's idea also shows that design knowledge can be found way outside the traditional design discipline: in the people who make decisions about pricing and marketing, in governmental regulations, in the market, …

However, most of these instances of knowledge are not universally accessible. Of all those source of design knowledge, usually only two get published: industry published the product, which is most likely an artefact, whereas academia published a written account (which in itself can contain knowledge of different levels).

Companies keep their design and development proprietary for quite obvious reasons. They want to be first to market, outperform competition, and satisfy shareholder expectations. They do this by means of non-disclosure agreements, patents and other intellectual property means. LOOK FOR EXAMPLES IN (Davis 2009)

- exclusiveness

By not making the knowledge produced internally available—sometimes not even within the own organisation—others are not able to use it. This situation is unfortunate, as both the producer of knowledge and the general design community can benefit from sharing knowledge.

How would it be useful? like so: * if knowledge is hidden/invisible, it is not useful. the designer knows most about the artefact and design decisions. but if a second designer cannot recognise that knowledge, and thus put it to further use, is it really knowledge? We REINVENT THE WHEEL * there are examples where opening up the process leads to: innovation, trust, better products, quicker development * academia publishes in a linear format, which does not represent knowledge adequately

3 Examples of Open Knowledge in other Disciplines

Disciplines other than design have been quite successful in sharing knowledge amongst their communities. This section will present two cases, one from software engineering and one from electrical engineering.

3.1 The Eclipse Foundation

The Eclipse Foundation creates Eclipse, a general-purpose software development environment and software platform. Originally developed by IBM in a proprietary way, it was released under an open-source license and pledged to the foundation. Today, Eclipse is an ecosystem of stakeholders and products built around the Eclipse platform.

Eclipse is open-source, which means that anyone can view and modify its source code.

The Eclipse open source community is uniquely focused on achieving both goals associated with innovation networks:

- Open governance and development processes allow individuals and corporations to co-operatively develop product-ready software (value creation)
- Focus on ecosystem opportunities supports use of this technology in successful products (value capture)

  "Eclipse is a consortium of major software vendors, solution providers, corporations, educational and research institutions and individuals working together to create an eco-system that enhances, promotes and cultivates the Eclipse open platform with complementary products, services and capabilities." (The Eclipse Foundation 2015)

3.1.1 Transparency

"Project discussions, minutes, deliberations, project plans, plans for new features, and other artifacts are open, public, and easily accessible."

3.1.2 Still good ;)

- Shared implementations of infrastructure
- Save time to market
- Increase rate of standards adoption
- Reduce risk
- Provide thought leadership and first mover advantages

Vendors now create commercial products on top of the Eclipse platform — be it software products with their own USPs, service and support, or infrastructures and distribution channels. IBM has whole product lines based on the Eclipse platform—mostly Rational and Lotus.

Similar approaches can be found in the Linux Foundation, the Apache Foundation and the Mozilla Foundation.

3.2 GE and Quirky

Maggiolino and Montagnani (2013) put forward a framework for companies to pledge patents to the public, in order to foster innovation. So ein schöner Satz.

4 Ways forward

Design seems to lack such examples as we have seen from software development (The Eclipse Foundation) and engineering (GE).

- habits that we have to integrate into our practice and research

We should make use of open, interoperable standards (such as provided by ANSI, ISO, DIN, IEEE, IETF and so forth) as opposed to proprietary standards. We can release patents to the public, using a framework as was suggested by Maggiolino and Montagnani (2013).

All those activities are not specific to the design discipline at all, and companies are already following them. But most of these knowledge pieces describe the *what* rather than the *why*.

- Publishing non-critical internal documents - transparency
- Accompany the design & development process of a product with blog posts etc pp

4.1 How can DESIGN do this? Specific to design

If we look at the open source software community, we can find an example of the creation and distribution of knowledge that happens in a very *natural* way.

- dvs
- commit messages are annotations/explanations/documentation
- diffs are precise documentation

Open source processes are native to the discipline of software engineering. Developers document their work by creating self-explanatory code, accompanied by comments and API documentation. They have found a way to make their knowledge about the code obvious to other, properly trained developers. One of the main focus for program code nowadays is to be reusable—an attitude that we do not see in the design industry.

We can document the design process publicly. Many companies, design agencies and designers already do this, in the form of blog posts[1] or by describing their typical design process as a USP[2]. But these are efforts that do not provide too much detail, and are also quite 'artificial'—in the sense that those pieces of knowledge do not originate in the design practice itself. I believe that we can publish design knowledge in a way that is natural to the discipline, in ways that are integrated into our design practice.

I can imagine to publish byproducts of the design process—such as flow charts, affinity diagrams, and interview recordings—using appropriate representations of intermediate-level knowledge (Löwgren 2013). Such a representation could be an annotated portfolio, as suggested by Gaver (2012), or **bla bla bla** as put forward by Pierce (2014).

5 Conclusion

Design, as a discipline and an industry, can learn much from movements such as *open source* and *open innovation*. While software development is arguably, due to the very immaterial and digital nature of it, predestined and privileged to be taking place in the open, design practice often has material and informal components which are difficult to document in-the-moment. However, we can make use of existing, easy to create representations of knowledge that we share with the design community. Other disciplines show that sharing enables innovation and does not endanger economic streams.

1 See `http://bradfrost.com/blog/post/techcrunch/` for an example (accessed 09-02-2015)
2 See `https://teamgaslight.com/process` for an example (accessed 09-02-2015)

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