

If you can't open it, you don't own it**by Bas van Abel, Waag Society****Guimarães, Open City Project****July 2012**

Have you ever tried opening the casing of a Nintendo game console? You need special screwdrivers for it, as Nintendo deters people from opening up “their” game systems and possibly damaging the circuitry – or bending it to unintended use. And what about the iPhone? The iPhone, like most new smart phones, has an embedded battery system, so we can have a thinner phone design. But what if your battery dies? There is no way you can replace it, as embedded batteries are glued onto the casing and there is no opening in the phone to get them out. But, how often does the average phone owner actually tinker with the battery? Why should we be able to open up the products we own?

Open products

As with all tangible things, products are part of a bigger system. They are part of an industrial system based on market economics originating from the first industrial revolution, somewhere around the eighteenth century. This is the territory of prices and competition, accelerating globalization and free markets. A great essay “I, pencil” by Leonard E. Read illustrates this very complex self-regulating system through the eyes of a pencil. Read states that no single person knows how to make a pencil. That is, not one person has all the knowledge needed to do all the things involved in making pencils. It takes the combined knowledge and skills of countless people. The essay mentions saws, trucks, rope, axes, flat cars, rails, locomotives, ore mining, steel making, motors, raising of food, rope making, growing of hemp (for the rope), cooking, coffee, mess halls, beds and communications systems. The point Read makes is that we're all connected through this “invisible hand” that runs our global capitalist economy. It is the invisible connection of all these people that makes it possible that we have something as simple as a pencil or complex technological products like smart phones in our hands.

But however beautiful the poetic image of the invisible hand of the free market system may be, in practice it proves early critics like Marx right in the alienating effects it has on our

relation with products and our environment. In modern society production, the fabrication and making of products has moved away from our local environments into the outskirts of our cities, or even to other continents. The complexity of our economies, and the complexity of our products, has distanced us from the physicality of the products around us, the visible matter that is an essential part of the environment we live in. How can we expect people to understand these complexities and be actively involved in them, feel ownership and take responsibility? And does this synthesis of complexity and alienation find a direct mirror in how we feel about our cities?

In 2006 Makezine, a magazine aimed at people who enjoy making all kinds of things themselves, came up with the *owners manifesto*. The manifesto was introduced as: *"If you can't open it, you don't own it: a Maker's Bill of Rights to accessible, extensive, and repairable hardware."* The manifesto is a very practical statement aimed towards the manufacturing industry. This industry sells products as closed systems for all kinds of reasons - their business models, product aesthetics or product complexity. Makezine and likeminded people want to be able to repair and tinker with these products. In other words, make them their own.

And in this lies a very fundamental, almost political statement. It tells us something about the relations we have with the stuff we consume. In a way the Maker Bill of Rights states that we don't want to be mere consumers of industrial technological systems. It promotes a shift from the traditional, passive consumer to an active owner, who is involved in the process of creation, production and adaptation. A design process which is open, where the end product is the result of an iterative continuum (similar to the software releases in the development of open source software). The products it dreams of are always in beta.

Open design

Like these "makers" we think this active ownership, where there is space for adaptation, reuse and interpretation, is facilitated in the open character of the product. In other words, we have to "open source" these products. But what is the source of products and design and what are the tools we need to create this open continuum? With open source software it is the code that makes the source. With products it is not only the design blueprint, the design process or the visible matter but also the 'invisible', the organizational, almost political

context that produced the product, that makes a big part of this design source code. Dan Hill, a strategic designer from the Helsinki Design Lab talks about 'dark matter' in the context of design, which is similar to the notion of 'the invisible hand' in the context of the free market economy.

"The notion of 'dark matter' – just like in the universe, in the civic sphere there is dark matter – points to the systems and processes that make things happen but that we cannot see and only know about because of the effect on how things are done [...] The only way that dark matter can be perceived is by implication, through its effect on other things. With a product, service or artifact, the user is rarely aware of the organizational context that produced it, yet the outcome is directly affected by it."

Dark matter is the substrate that produces the visible matter, the "product, service or artifact". In the example of the iPhone the dark matter is the economic, political, cultural and social system around it.

So, in order to create open source products, we have to get this dark matter to the surface and understand it. According to Dan Hill a starting point is by challenging the visible matter, the product itself, with which we unfold the complex systems around them. In this way we can fundamentally change complex systems and come up with better solutions. For Hill, *"understanding the 'missing mass' of dark matter is the key to unlocking a better solution, a solution that sticks at the initial contact point, and then ripples out to produce systemic change"*.

A good example of putting this into practice is Waag Society's FairPhone project, which aims at creating a fairer production chain for mobile phones and the electronics industry as a whole. In order to design, create and market a fair phone we have to pry open the systems behind it and dive into the conflicts around mineral mining in Congo and the business models that create 'designed for the dump' products. We started making the phone before we could even comprehend all of the complexity around it. The goal is clear and we don't have to know every step we have to take. The phone becomes a storytelling artifact, and as it tells the story it creates dialogue between all the stakeholders, from policymaker to

consumers, from designers to marketers. It surfaces the dark matter attached to it and makes us understand what actions are needed to change the system that produced the phone. The phone becomes a political object, in which we have to balance the interest of all stakeholders and come to a shared value.

This design approach is “strategic”. The method is “doing things”. The principle is “open”. The form is “dialogue”. The goal is “to solve problems”. Let’s call this open design.

Open City

What if we take this open design approach into the urban context, in order to create an open source city? Our city is probably the most complex system we deal with. Cities are constantly in tension - they are intrinsically unbalanced systems reflected in our changing urban environment. As with our products, in our cities we have to deal with dark matter on a daily basis. In a way our urban environment is the visible matter that is being produced by the dark matter of the city, its political, social and cultural systems.

Open Cities need tools for collaboration, storytelling and knowledge sharing: the invisible matter. But Open Cities also need tools for tinkering, creating and making: the visible matter.

By opening up and tinkering with the city’s visible matter, we can create the ripple effect Dan Hill is talking about. As with products, we have to step out of our role as consumers of the city and its political systems and be actively involved in the process of creation and adaptation. A lot of innovation starts with the need to change something close to us. By designing our urban environment we are also co-designing our society, our economies, our culture. Urban planners look at our cities and what they see are the transport services, local communities, healthcare and energy systems, but what most people see are the trains, parks, streets and buildings. By tinkering with the visible matter of our city we create relations with it and see the impact of our actions in our direct environment.

Open Cities need tools with which we can combine the practical with the strategic, the tangible with the virtual and the short term with the long term.

Networks of people

We have all kinds of new tools available; online platforms for knowledge sharing, information access, exchange systems and social networks. One of the great results of that is open content. Open Content offers a glimpse of what networks of people are able to do, as can be seen in the case of Wikipedia. Its users are building an encyclopedia that anyone can get involved in and can change or add information to.

Other examples of openness are found in websites that make it possible to share content, like YouTube or Flickr, and sites that make recommendations based on the purchasing behavior of consumers such as Amazon and Last.fm. All show a quality that is described by James Surowiecki as *Wisdom of the Crowds*: the sum of the parts is greater than the individual contributions.

A vision (or movement you might say) based on the principles of Wikipedia is that of Wikicity. The concept of Wikicity is posed by MIT as *“creating a new platform for storing and exchanging data which are location and time-sensitive, making them accessible to users through mobile devices, web interfaces and physical objects. This platform enables people to become distributed intelligent actuators, which pursue their individual interests in cooperation and competition with others, and thus become prime actors in improving the efficiency of urban systems.”* The concept builds strongly on the open source analogy, with a vision that follows the same logic as that of the smart cities.

An interesting approach to the idea of the Wikicity is that of Zef Hemel, deputy director of the Spatial Planning department in Amsterdam. He stresses the importance of storytelling in creating a dialogue between the city planners and its citizens. To create a civil society, he says, you need a storytelling platform in which we exchange not the big stories, but the small personal stories - the stories that trigger our imagination and that can lead to policies in which we can recognise ourselves. Open Cities have to go beyond the technical infrastructure and possibilities to become a meaningful storytelling platform.

The political theorist Hannah Arendt argued that the "political" is best understood as a power relation between private and public realms, and that *“storytelling provides a vital*

bridge between these realms - a site where individualized passions and shared views are contested and recombined". Stories allow transformation and development over time. They are passed from parents to children, from neighbour to neighbour. Stories are open systems by definition. They manifest themselves as an ongoing creative process of giving meaning to visible matter and abstract complexities.

Open spaces

Wikicity describes an interesting vision of how we can interact with the city and become active citizens, though to create an open city we believe we need spaces that bridge between the city's visible and invisible matter.

An example where the real and the virtual come together is the Fabrication Laboratory (Fab Lab). Fab Labs are small-scale connected factories scattered around the world, from Indonesia to Norway, from Afghanistan to New Zealand. The machines in the labs are computer controlled, digital fabrication machines, which make it easy to share the designs with other labs internationally in order to adapt and produce locally. On an industrial level digital fabrication is at the forefront of what some already call the next industrial revolution. A model merged with our networked society, in which the flow of information is connected with the production of the visible matter around us.

On a cultural level the Fab Labs are part of a bigger phenomenon, including 'techlabs' and 'hackerspaces' - the culture of the people behind the 'makers manifesto'. These 'makerlabs' provide access to anyone who wants to realize his or her own ideas, or build upon existing ones. It is a place where we can learn to understand technology. A place where people come together to share experiences, ideas and stories through making things, collaboratively. In makerlabs around the world people have been building together personally fabricated houses, equipment for monitoring air quality and climbers designed for wheelchairs in cities where they have old houses with high doorsteps. In a collaboration between The Netherlands and Indonesia a \$50 "Do it Yourself" prosthetic leg is being developed.

Most importantly in a makerlab we are not mere consumers. In a makerlab you can open anything, tinker with it and make it your own.

Open is a verb

We have all the ingredients ready for creating Open Cities – data and technology, systems to share content, platforms for dialogue, tools to co-create - but we still have to define an overall strategy.

We can learn a lot from open source practice and we can use it as an analogy, but our cities are far more complex systems, and there is all this matter we've become alienated from. We have to get out of our consumer cocoon and get actively involved in shaping our economic, cultural and societal systems - we have to start to open up our cities, tell its stories and work up all the way to the politics around it.

An Open City creates space for adaptation, reuse and interpretation. It facilitates in creating meaningful experiences and it provides us with the tools to change the matter around us, the matter that makes the city.

To face the complex challenges of our cities, our societies, our culture, our world, we have to take responsibility. The feeling of ownership helps us to feel responsible. For ownership we not only need openness, but we also need 'to open'.

If you can't open it, you don't own it.

Bas Van Abel, Waag Society, with thanks to Frank Kresin and Marleen Stikker.

Bas van Abel is passionate about developing a wide variety of projects based on open design principles. As co-founder of Waag Society's Fablab (a community fabrication laboratory) and the Instructables Restaurant (an open source restaurant), he is an active member of the international maker and digital fabrication community.

As head of Waag Society's Open Design Lab he researches the interface between production technologies and network cultures. Bas is co-editor of "Open Design Now", a book on the

transformation of design into an open discipline. In this new paradigm, designs are shared and product innovation is a collaborative and world-spanning process. www.waag.org/en

This paper (If you can't open it, you don't own it by Bas van Abel – Waag Society) has been commissioned by Watershed as part of Open City, a project that is part of the Cidade (City) Programme for Guimarães, Portugal – European Capital of Culture in 2012.

As part of the Open City strand, [Watershed](#) has curated a series of [artistic interventions](#) as well as commissioned [think pieces](#) which will explore the concept of openness in relation to city development. Open City provides the opportunity for Guimarães to establish a leadership role for open city development. It is a knowledge exchange programme that will help to re-draw approaches to city-making and change the ways we plan, deliver services and engage communities.

This work will be both published online and presented in Guimarães, providing the context and the content for a symposium to be held in the city in November 2012.

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