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## Deconstruyendo y rehaciendo las identidades de los Makers

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# De-constructing and re-making the Makers' identity(ies)

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## 1. Makers: a movement, a word, a narrative?

The *Maker* term is very generic and universal, but it has seen a lot of focus in the past ten years. Makers, broadly intended as people who design and manufacture artifacts with both digital and physical dimensions in collaborative places and processes, are considered a new movement with the potential to change the economy and the society. But who are the Makers? And what is a Maker? According to the Merriam-Webster dictionary ("Maker," 2016), a *maker* is:

1. "a person who makes something";
2. "a company that makes a specified product";
3. "a machine that makes something".

But the noun *maker* comes from the verb *to make*, which has 25 meanings as a transitive verb and 7 as an intransitive verb ("Make," 2016). It also comes from the noun *make*, which itself has 4 meanings ("Make," 2016):

1. "the manner or style in which a thing is constructed" or "brand";
2. "the physical, mental, or moral constitution of a person";
3. "the action of producing or manufacturing";
4. "the act of shuffling cards".

A Maker therefore could be a person, a company or a machine that makes something, and we could ask ourselves if nowadays there is always a clear distinction between the three meanings (and the noun *make* also refers to brand and to identity, again crucial issues regarding our first questions). But this *making* is a process that create a design, a brand, an identity, a manufacturing process and the process of mixing cards. All these meanings show two issues: 1) the term is very generic and universal; 2) however generic, the many meanings of the term can be related together, directly or indirectly, in order to form a definition of who are the Makers. This seems an academic, theoretical and abstract exercise, but its importance lays in the fact that there is no clear definition of who are the Makers. Or rather: there are quite few definitions, but they are very broad. The importance of the noun and verb *make* in the English language and the broadness of the definition of Maker have probably contributed to the success of the term, and maybe to the construction of the Maker Movement. It's not a coincidence that the verb *to hack* has only 3 meanings as a transitive verb, 4 as an intransitive verb ("Hack," 2016) and the noun *hacker* has only 4 meanings ("Hacker," 2016). The hack/hacker terms, even if famous, are not as universal as the make/maker terms; they are however their parents, at least in the contemporary definition of *Maker*, or at least in the *Make Magazine* vision. When the founder,

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Dale Dougherty, decided the name, he was about to call it *Hacks Magazine*, but discovered that it wouldn't have been properly understood or understood in a positive way, and opted for *Make Magazine* (The Blueprint, 2014).

But it's not only a question of popularity of a term: it is also a reaction to more than one historical trend. Before starting with this initiative the Maker Movement, Dale Dougherty worked at O'Reilly Media where, together with Tim O'Reilly, he contributed to the popularization of the *Web 2.0* term with the Web 2.0 Conference in late 2004 (O'Reilly, 2005). Dougherty noted that the dot-com bubble in the fall of 2001 did not crash the web, and that a new wave of applications and websites were emerging with a more participatory attitude. This brought more focus on bottom-up initiatives, but it also brought more interest in the physical dimension of the economy and innovation, since the bubble of the dot-com arrived as a consequence of the huge interest in only the digital dimension of software. The emergence of the Maker Movement and of its narrative is also the reaction to another phenomenon: the loss of craft skill and craftsmen during not only the Industrial Revolution but also during the post-WWII boom of many European Countries. During these decades of boom many people moved from their small town and community to the main cities of their countries, losing their sense of community and getting used to consumerism rather than a traditional DIY attitude dictated by a scarcity of resources. From the house with its own workshop to the house with a nearby shopping mall. Each country has passed through a different history, but this is a pattern I've seen in many countries, from Italy to Finland, when asking local makers if they perceive the Maker Movement as a new revolution. And in less rich countries, making is yet another rediscovery (for rich countries) of the art of solving problems, building and repairing artifacts, developing a community-based local economy with very little if no resources at all or even garbage (Kamkwamba & Mealer, 2009). An attitude that seems to be useful also for rich countries, not just for managing the huge amount of garbage that they produce, but also for making companies more innovative (Radjou, Prabhu, Ahuja, & Roberts, 2012): more innovative products and production, but at least we should know how to use the garbage coming from them in an innovative way now.

But then, how do we define Makers? Make Magazine was launched in 2005 with the goal of being the technology, creativity and fun equivalent to DIY magazines for cooking and gardening (The Blueprint, 2014). According to Dale Dougherty, makers are people who make things, and therefore all of us are makers (Dougherty, 2011). This is of course a very broad framework, and the best way for understanding Makers, at least with Make Magazine's perspective, is to watch Dougherty's TED video (Dougherty, 2011), read Make Magazine, read books collecting the portraits of homebrew makers (Parks, 2005) or of successful maker entrepreneurs (Osborn, 2013), visit one of the many Maker Faires that Make Magazine has been organizing or supporting all over the world since 2006. Mark Hatch, CEO of TechShop, insists on the universality of making as well, stating that we are all makers, and that the Judeo-Christian tradition brings this idea, since that the Genesis show that God is a maker, and he made us in his image (and therefore, makers) (Hatch, 2014). Another very important author that helped the emergence of the Maker Movement is Chris Anderson (Anderson, 2012), and he defined Makers in a more structured way: Makers are taking the DIY movement to online communities and global networks, with three main important features:

1. use of digital desktop tools for design and prototyping projects;
2. the culture of sharing design projects and of collaborating with others in online communities;
3. the use of common design file standards that allow anyone to manufacture the projects.

This brings the definition of Makers close to the idea of people working in online communities or in Maker Laboratories (Fab Labs, Makerspaces, Hackerspaces and so on), working with both analog and digital technologies, with open source and p2p practices but also few times with proprietary and traditional business attitudes. But since the term has been chosen and communicated in a very generic and universal way, it can be defined in a different way in different contexts. From the Make Magazine-style maker, to the hacker-maker, to the indie designer-maker, to the

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craftsman-maker. This flexibility of the term has obviously contributed to its rapid spread and popularity, but has also led to endless discussions and sometimes to an impoverishment of its meaning: after all, if everyone is a maker, then no one really is one, or we have always been maker since the invention of the wheel or fire. And this universality has been important also on two more reciprocally reinforcing directions: for building a big enough market (i.e. people who would buy Maker-related products and services) and for building a social movement (i.e. people who would identify as part of the same social group and form a collective culture and action). Makers, with needs and willing to act, but still at least partially consumers: brought together by media and businesses, with the promise to revolutionize them (we are not there yet, if we will ever be).

Finally, the *Maker* term is so powerful, that it has not always been translated. In Spanish-speaking countries it is sometimes translated as *Hacedores*, but in many other countries like Italy it is never translated. A Maker therefore has many dimensions, shades and local adaptations and interpretations, between global and local contexts: so what is exactly a Maker? The question is important, because it is about the identity of persons that gather to create something together sharing the same identity. The Maker Movement is, at the moment, more a movement of people trying to find themselves and each other, building global and local communities, so the issue of identity of a Maker is critical not just for understanding the phenomenon, but also for contributing to its development.

## 2. Adding more terms, nuances and data to Makers' identity(ies)

The first step for understanding the Maker Movement was to explore the *Maker* term and the first contributions that defined it. The second step is to go further in its complexity by understanding the many differences that are present in it. For example, a traditional way for establishing a shared identity would be with a manifesto, and we already have manifestos for Makers (Hatch, 2014). But interestingly, we can see that *Maker* is not the only term used in manifestos for this movement: we also have *Fixers* (Sugru, 2012), or *Repairer* (iFixit, 2010; Mok, 2010; Platform21, 2009; Price, 2009) and even, universally, *Doers* (The Do Lectures, n.d.). And beside manifestos, we should add tenets for *Tinkerers* (Wilkinson & Petrich, 2014) and many definitions regarding especially open practices: *Free Software* (Stallman, 2002), *Open Source* (Perens, 1999), *Open Hardware* ("Open Source Hardware Definition," 2011), *Open Design*, which has several but not stable or complex enough definitions (Kiani, Nayfeh, & Vallance, 1999; Menichinelli, 2013b, 2013c; Villum, 2014). These are different approaches at trying to defining an identity and / or its practice, and are useful for building a more complex view of terms, roles, practices that are or could be part of the Maker Movement. If we add traditional terms related to creativity and the act of creation, a list of terms could be this:

- hack/hacking/hacker
- make/making/maker
- tinkering/tinkerer
- open source software / hardware / design
- DIY (Do-It-Yourself) / DIWO (Do-It-With-Others)
- design/designing/designer
- art/artist
- engineering/engineer
- fixer, repair...
- doer

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• ...

This is, of course, an incomplete list: for example, if we have *Fixers*, why couldn't we have *Reusers* or *Recyclers*? Terms and roles can be neverending, but they show that the identity of Makers is not a monolithic one, but that it is rather made of different narratives. And the same person could adopt more narratives at the same time in order to build an identity. The narrative is here one of the two possible approaches for defining the identity of Makers: in this case we have a general narrative through storytelling by famous actors. This is an important factor: such a storytelling is global, is easy to understand thanks to its simplicity, it uses global media (social and traditional) for distribution. Therefore, this has been a very efficient strategy in spreading the idea of Makers, and the Maker Movement would probably not exist without it. The storytelling approach is very powerful, but it has been noted that it can be abused often (Salmon, 2010). See for example two fictional movie characters that can be considered icons for Makers, Hackers and Geek: V from *V for Vendetta* and Luke Skywalker from *Star Wars*, both heroes in the fight against an evil and oppressive government. Positive icons that, it has been argued, could be interpreted as not really positive, and this shows one of the dangers of abusing storytelling: Luke Skywalker could be seen as a terrorist (Smug, 2015) and the Jedis as religious extremists (Houghton, 2015); it has also been argued that Guy Fawkes, the inspiration for V's mask, was not a freedom fighter but a religious terrorist as well (Elledge, 2015). Storytelling is always true, but *from a certain point of view* (as Obi-Wan Kenobi said in *Star Wars*). Changes are a natural part of society, but how they are told and sold can be a tricky issue, which could tend to their normalization for commercial purposes (Heath & Potter, 2004). Makers still need media, business and resources to spread the revolution, and the revolution always ends in media, business and resources. Hackers often discuss if each new year will be the year when Linux will spread to all the desktop computers; many Makers often discuss if each new year will be the year of the end of Capitalism, thanks to making. The point of this article is not to discuss the eventual revolution brought by Makers, but to point the issues to address when defining, communicating and using a collective identity, which is really a critical issue. The possible pitfall of storytelling is not (just) the extremization or commercialization of an identity, but rather its oversimplification. Storytelling needs a simple narrative, but this tends too often to be too simple, abstract and universal in order to reach as many people as possible. From a certain point of view, Luke Skywalker is a hero and Makers are waging a revolution, but in real life there are much more nuances, differences and issues to consider. There have been few contributions that criticize how Makers are portrayed with an oversimplified identity regarding their work, their race or their gender. Debbie Chachra explains that the danger is of a culture that encourages taking on an entire identity, rather than expressing a facet of your own identity: "maker," rather than "someone who makes things". Furthermore, celebrating only making risks ignoring those who repair, study, teach, criticize, and take care of others, communicating that artifacts are important, and people are not, with a vision that is informed by the gendered history of who made things (Chachra, 2015). Leah Buchley has showed that women and minorities have been much less narrated in the Maker movement (Buechley, 2014), but we cannot ignore the body of Makers: as Sennett pointed out, the hands and bodies of craftsmen have an important role in their activity (Sennett, 2009), and therefore their identity. A further element is that people still tend to identify themselves with their education title, but education is still too contained in silos, it also takes place outside of school and universities and it is increasingly interdisciplinary, multidisciplinary or multidisciplinary: one cannot be defined only by the degree or by titles achieved. In the Fab Academy, the distributed digital fabrication course of Fab Labs, the focus is on mastering a little bit of all the technologies and processes, not on becoming a highly specialized professional that works only on one technology or process. Traditionally, many educational institutions make you a professional by making you a cog with limited reach; Fab Labs and other maker laboratories make you understand how to work together with other people and how to build your professional identity by mixing more disciplines together. And work and professions have a pivotal role in the construction of identity: in the current neo-liberal economy, your identity is not defined by your passion, but by your work (which ends up being, mostly, your passion), which is increasingly a 24/7 activity (Crary, 2014).

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Beside manifestos, definitions and books, another way of working with identity is on visual terms. One of the many meanings of the *make* noun is brand, another term strictly related to identity, since it is also referred or inserted into a broader visual identity for an organization, product or service (not just a logo, but all the visual aspects emanating from the logo and the identity it expresses). Brands are central in the Maker movement, even if the approach to their design, management and adoption may vary: one needs to sign a contract in order to being able to use the Maker Faire brand for organizing a Mini Maker Faire; the Fab Lab brand is informally open and anybody can use it, even if there are criterias for being called a Fab Lab (Fab Foundation, 2013); Arduino itself has been developing a complex brand, but the division among the founders also brought a legal battle around the ownership of the brand (Hackaday, n.d.); the case is interesting because it brings more questions: is the identity in the digital and global project, or is the identity in manufacturing, or is the identity in contracts or court discussions? The whole Maker movement could also be seen as an experiment in new practices in the development of brands, especially with distributed dynamics. Each Fab Lab could be seen as a local attempt to adopt (and adapt, to a certain extent) a global brand. But the main question regarding distributed systems is: how do we handle differences among all the actors in such distributed systems? And as we have seen before: how do we handle the different identities any person could have?

When we move from the abstract concepts and terms to real people, we understand the limits of the storytelling approach, which should be complemented with research and data from real people: both are important and need to be balanced for a sustainable identity for Makers. If storytelling could be considered as a top-down approach (identity built from the visions of famous authors), then a research-driven approach could be considered bottom-up (identity reconstructed from data gathered from people, communities and places). Data can be gathered from interviewing people or from many sensors and databases: qualitative and quantitative approaches are possible, and new possibilities are increasingly emerging. For example, researchers have been working on the issue of understanding or reconstructing identity by analysing data from human motion patterns (Neverova et al., 2015), the victory sign of terrorist videos (Hassanat et al., 2016), geographic location of work and life places like in the case of Banksy (Hauge, Stevenson, Rossmo, & Comber, 2016), networks of transactions and discussion in the Bitcoin community (Reid & Harrigan, 2011). With machine learning and big data it is now increasingly possible to identify people regarding their body, geography, work, economic activity, political communication and so on. These cases show that we can discover more about identities now, but that there are also many more critical issues regarding privacy as a consequence and about ethical approaches to research.

Beside big data analysis, many researches based on surveys and interviews have shed light on the identity of Makers. For example, one research found that the formation of the Maker identity is informed by 1) the development of a tool and material sensibility; 2) the cultivation of an adhocist attitude as an approach to making in general; and 3) engagement with the maker community, both in the space and on a larger scale (Toombs, Bardzell, & Bardzell, 2014). A series of surveys by Eric von Hippel and his team (von Hippel, Ogawa, & PJ de Jong, 2011) investigated the size and features of lead-users (people who hack existing product or develop their own products) in UK, USA e Japan, with interesting results in terms of dynamics of such phenomenon and in terms of how many Makers exist. Another example is the Makers' Inquiry research project<sup>1</sup> (Bianchini, Menichinelli, Maffei, Bombardi, & Carosi, 2015), that tries to investigate the social, economic and technical nature of Makers; the project started in Italy, but it is expanding to more countries in order to understand also the differences among the national Maker communities. Other researches investigated the structure of the Maker communities, identifying different sub-communities and different architectures for the social networks of Maker communities, pointing out more nuances in the distribution of trust and of collaboration among Makers and Maker laboratories (Menichinelli, 2013a, 2016).

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<sup>1</sup> <http://makersinquiry.org/>



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### **3. Making the Makers' identity(ies), in order to make the Maker Movement**

The identity of Makers is a recent phenomenon, shaped by storytelling on media and by practice in communities and laboratories, and both strategies are useful for building such identity, or rather the many identities that constitute what Makers are. This is one of the main challenges but also one of the important experimentations of the Make movement: a distributed experimentation on building a collective and global identity that includes and respects many different identities. Makers are not only making physical objects, but also communities and identities and both are useful in keeping the movement together and strengthening it. The challenges is moving from identity as a source of conflicts, to conflicts solved through a more open identity that appreciates diversity, which many studies have shown to be an important element for society and single humans (Phillips, 2014). Each Fab Lab is different, each Maker is different, since they operate in a different local context with different history, culture, economy, body, mind, ... Even Autodesk have realized that there are many kind of Makers, and have published an online quiz for enabling Makers to find their own kind (Autodesk Inc., 2015).

We have seen that a huge discussion is going on regarding whether automatization, robots and machine learning will replace all or most of the jobs in the future. If work is a key element in a person's identity, it is important to understand, explore and show that the identity of a person and of a community are richer than the identity of a robot or algorithm. If we want Makers to be colleagues of robots and algorithms in the future (and not being replaced by them), we need to discover how to develop an identity for building global and local identities, communities and economies. If we look at the meanings of the maker word, it could represent a person, a company or a machine that makes something, and we could ask ourselves if nowadays there is always a clear distinction between the three. This is increasingly relevant, since there are already patents regarding how a robot could determine the identity of a user in order to develop its own identity, which can be shared online or with other robots (Anthony G. & Thor, 2015).

But algorithms, robots, machines and processes could also be useful in the development of such identity, and while the struggles of society and economy of the future are still to be fought, Makers could have a role in this, and there are two interesting examples in this direction by two women, who are not only makers but also designers, bio-hackers, information artists (and of course, even more). Heather Dewey-Hagborg<sup>2</sup>, within the *Stranger Visions*<sup>3</sup> (2012–2014) project, reconstructed and 3D printed faces of anonymous people by analyzing traces of DNA found in the street, as an example of the potential misuse of DNA profiling, privacy, and genetic surveillance. Iona Inglesby<sup>4</sup> launched a company called *Dot One*<sup>5</sup>, that designs scarves, posters, family trees as visualizations of users' DNA (the name of the company is a reference to the fact that only 0.1% of DNA differentiates each person). Furthermore, the scarves are hand manufactured by another maker, Helen Foot.

Consumerism might be less important in defining identities in the future, but if we want Making to take that role, we need to understand that we can design this definition of identities as a social, open and distributed process and that identities are just another project we can work on together.

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<sup>2</sup><http://deweyhagborg.com/>

<sup>3</sup><http://strangervisions.com/portraits.html>

<sup>4</sup><http://www.ionainglesby.com/>

<sup>5</sup><http://www.dotone.io/>

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