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05 October 2026

by **Luigi Bistagnino**

SYSTEMIC DESIGN
SISTEMICO

designing the productive and environmental sustainability

2nd edition

with notes and comments by
Carlo Petrini

essays by
C. Bastioli
F. Capra
G. Giovannetti
A. Khosla
K. Khosla
C. Olmo
G. Pauli
C. Petrini
M. Settis
F. Valpreda
D. Vannoni

OUTPUT of a system

INPUT of another

Slow Food® Editore

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He attends to eco-compatibility of industrial products and components.
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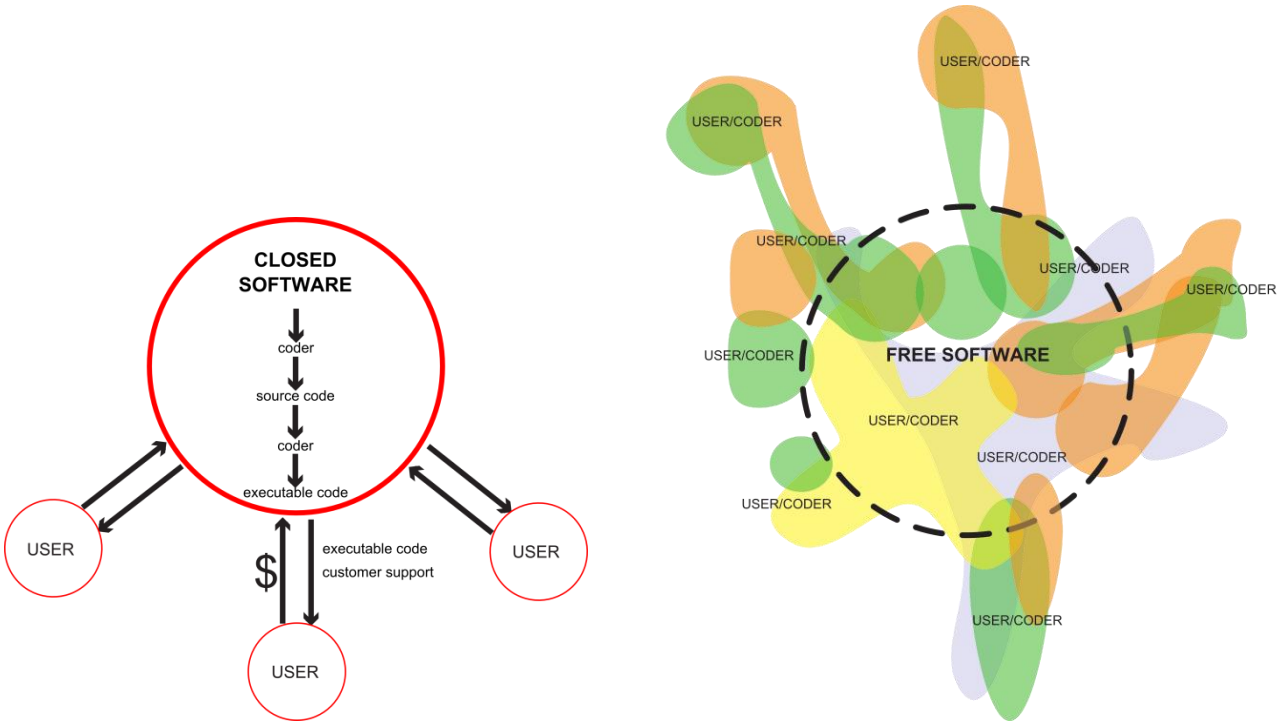
Open Design Networking

Fabrizio Valpreda

Talking about design means talking about project, that is to say teamwork, because “project”, in its most noble meaning, arises from different types of knowledge that have the same result through shared choices. This matter, which is considered as a golden rule by those who want to start on design, takes on a wider value, almost a universal one, when it comes to its application using the typical criteria of global networking. Internet’s value increases intrinsically by the possibility of spreading the knowledge and it is the place where everything that is shared is available for whomever instantly. This chance, for the first time reachable by man in his path towards knowledge, is expressed in the most various ways and on different levels of depth and quality; all of them, infinite, of course. In fact, online you can find almost everything that you need to do your daily job and you can do it at home or at work, or while you move from a place to another; so many are the tools that can be linked to the Network. All this, obvious and well-known by now, still hides a potential that is expressed in a minimum way even today: people and their ability to produce and increase knowledge. For the first time in human history, thanks to the spreading of Social Networks, humanity endows itself with a means of global communication integrated and spread by every single user. The meaning and the importance of such innovation are not even included in the same Social Networks, but they pass the borders of these means and they take the meaning of global agora. Everything can be said about these new “places”, but no one can hide the fact that they contain the key word of a new model of sustainable socio-economic development: sharing.
With the advent of the Industrial Revolution a new belief spread and deeply took root: the intellectual property right is the key to success and economic development. This belief was valuable until people realized that it was possible and, in many cases even better, to publish and so, to share and make the contents of knowledge freely available.
There are some clear proofs of this in the Network, such as the HTML code (Hypertex Markup Language[114]), that is used to make websites, or the SMTP protocol (Simple Mail Transfer Protocol[115]), all of them freely modifiable and available to anyone.
Failing freedom to use these tools, Internet would not exist.
In fact, the reason of its success does not lie in the technical performance of these very same tools, which were very simple if not rudimentary at the beginning; it lies in their free availability, that is to say in their possibility of being exponentially spread in the network and modified in order to improve them.
A closed product, sold on the market even at a low price, could not be spread because that would mean that the base condition linked to sharing had failed: any product created by the human mind linked in an indissoluble way to technological contrived bonds, more frequently legal or fiscal, linked to a person or administrative or business entity, does not allow a free use and obliges whoever to refer in a compulsory way to whom holds these rights[116].
Without getting into the twists and turns of a debate started years ago about the reasons why we should or should not adopt an open or a closed model, we point out that the approach we want to talk about is the one that arises for the first time thanks to the development of the Open Source software; making clear right away that we deal with a strategic approach, not with a product[117].
The OS is based on the assumption that creative works can be released with right of use, adjustment and re-distribution keeping intact the origin of the first creator; this way, his name stays linked to the work, yet without the negative consequences linked to the ownership of the work itself.
Such position, theorized by Richard Matthew Stallman in 1985, releases the market of creative works from the profit earned from the sale of the very same works; this is anything but crazy as for the products, such as software or, more simply, the written texts. It also releases the market from the allied activities generated by

[114] http://en.wikipedia.org/wiki/HTML
[115] http://en.wikipedia.org/wiki/SMTP_protocol
[116] Richard M. Stallman, Lawrence Lessig (introduction), Joshua Gay (editor), Free Software, *Free Society: Selected Essays of Richard M. Stallman*. GNU Press, www.gnupress.org Free Software Foundation Boston, MA, USA, 2000.
[117] *Open Source vs Closed Source -- Its about investing in People*: http://www.o3magazine.com/0/7.html

the free spreading of the creative works in favour of the original creator and the users who have integrated and improved the work later on.
From an economic point of view this type of strategy is an easy prey to critics by those who think that the market loses its reason for existence failing a direct economic profit: this is true only if we consider the market in its traditional configuration. That is to say leaving out the obvious wrong ideas that this old approach points out when facing a global market where the open competition and the spreading of a greater awareness among the people have laid bare the limits linked to the concept of "idea sales".
In order to understand better the difference in terms of productive process we can schematize, for example, the development and the distribution of software in two ways. The first one traditional and linear while the second one free and made of open relationships among the different parties interconnected in the Network, where the software arises from the shared action of whomever has a personal or a professional interest.
Further on you can check the difference between the development process of linear software (on the left) and the one based on the open approach (on the right).

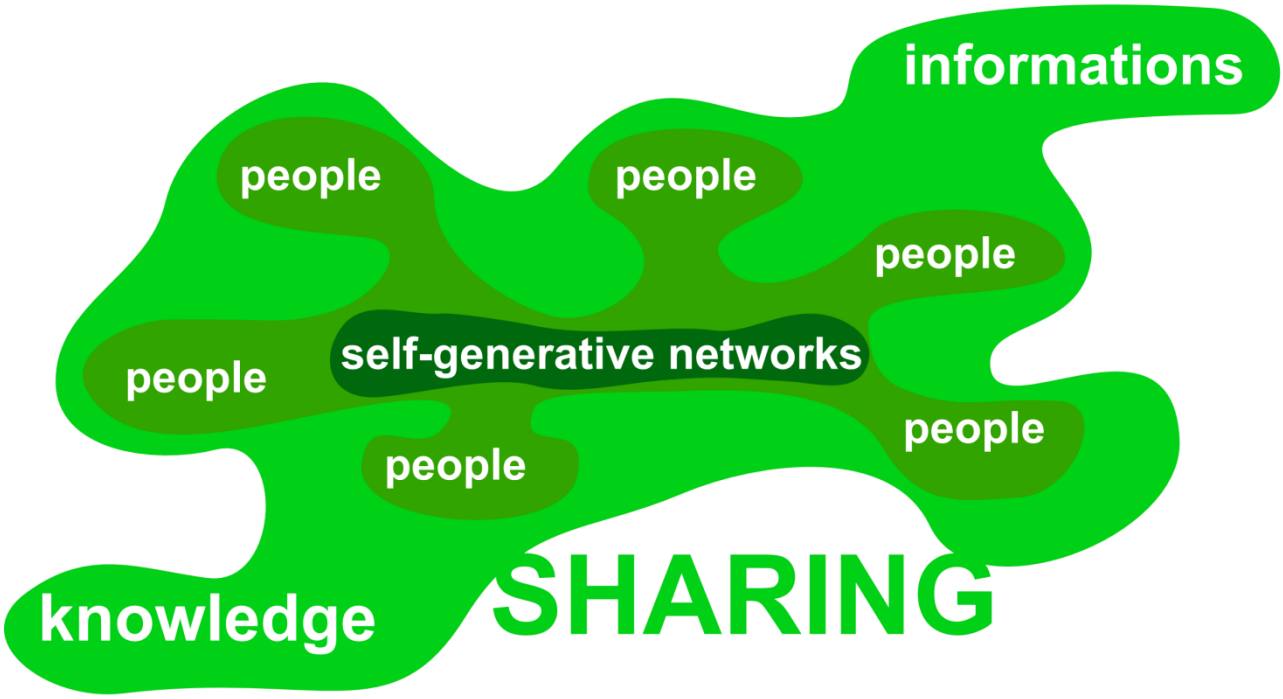


The difference between the linearity of the Closed pattern and the multi directional spreading of the possible innovations of the Open pattern is obvious.

At this point Social Network has decreed the defeat of the market approach linked to the sale of the creative product[118], at least in some areas. A positive example is the music industry that had to face a deep reorganization due to the songs' download: e-shops that sale single songs and also the proliferation of websites that offer the work of up-and-coming artists for free. These artists manage to get themselves known and they bring themselves to the fore as authors very quickly, very often in an independent way, rather than as factories of musical products. The sale price of big artists' work has fallen due to the contemporaneous review of the way live performances are organized and due to the severe action of sponsors.
At this point we can ask ourselves what relationship there is with System Design, whose essential characteristics have been defined elsewhere in this volume. The key word in this case is again sharing and participating.

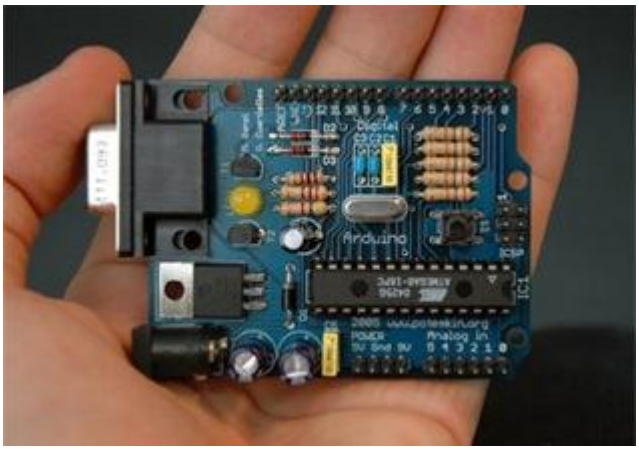
[118] Don Tapscott, Anthony D. Williams, *Wikinomics: How Mass Collaboration Changes Everything*, Portfolio, USA, 2006.

System Design means multi level relationships of the input-output kind, it means elaborate network connections and so it means that the knot that has to be kept quite loose is the knot of sharing information, that has to be free from bonds of any kind as much as possible.
This is not enough though. Another key element is needed, the only one that, thanks to its own personal, local and specific characteristics, can trigger the chain reaction needed to the working of the network: man.
Another scheme can be used to understand better the environment in which it is possible to develop these new ways of working, in every area of human knowledge. We tried to simplify and sum up the different hierarchical levels of this structure.
In the centre there is the place that is the auto-generative Network, virtual and technologic place with its free tools. Right after that it follows the level of *who* will be the main character of the events, people, followed by *what*, that is knowledge and information. The scheme is closed by the key idea, summarized in sharing *what* by *who*.

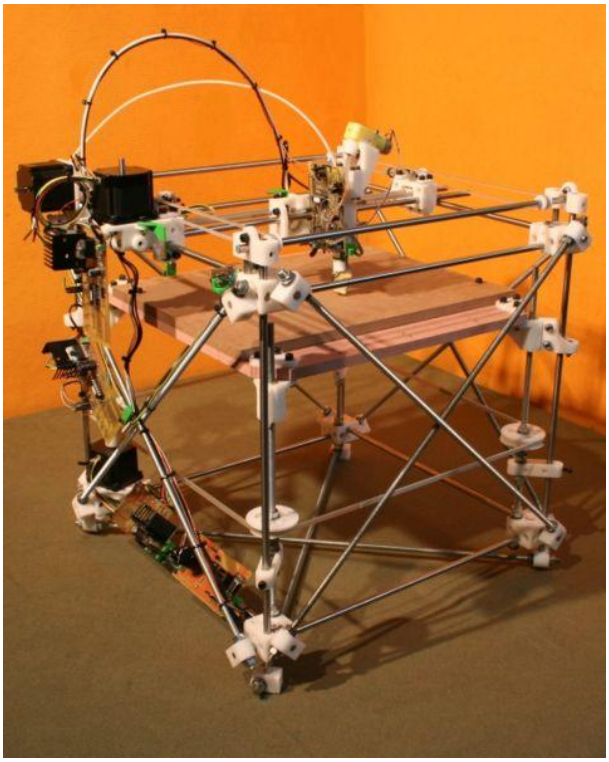


At this point one can legitimately wonder if such strategy has already been applied with success.
There are some reliable and important examples.
For example, Red Hat provides the biggest multinationals but also small companies with support services with its Linux version, an operating system used in companies but also at a desktop level. In 2009, it invoiced 748.2 million $ thanks to the subscriptions of the licences and to the services associated.
Google, among other things, financing itself through the supplying companies with advanced web services and through publicity, provides the final users with free services. Facebook and Twitter, started with little money by keen students, are among the biggest economic realities online: they gather millions of users who share fresh and personal contents, through which, quite often, they manage to get in touch with unexpected professional circles, generating new connections.
At the end we can mention two interesting cases of physical product released with an Open Source licence. The first one, Arduino[119], is the first example of hardware-software platform released freely, including the specific techniques that decline its functioning.

[119] http://www.arduino.cc/



The second one, RepRap[120], is the first 3D printer whose diagrams, included in the rights freely released, can be used to reproduce the printer itself to freely re-distribute it in further copies, as well as to duplicate spare parts in case of maintenance.



The scenario defined is a valid basis to what (hopefully?) might happen in the following years. One more time Don Tapscott helps us understand these predictions by setting them in economy's river-bed from which no society can hide.
The authors' right matter and the alternative freedom as regards them will represent, in fact, one of the knots to undo to allow the definite improvement to our successors' society.
Part of the work is actually already under our very eyes, where big, at times spectacular[121], examples make us understand how sharing, closely related to consciousness, is one of the most effective key of the next development. Companies are already open to the new opportunities offered by sharing knowledge: creative contents and what used to be considered as something to be protected. This process is likely to be only the

[120] http://reprap.org/wiki/Main_Page
[121] http://www.businessweek.com/innovate/content/feb2007/id20070201_774736.htm

beginning of a bigger phenomenon that tends to destroy the argument that makes register, patent, practically makes unavailable, even the simplest colours perceived by our visual system, possible; just as in the case of a particular shade of the magenta colour, patented by Deutsche Telekom[122].
Actually it doesn't seem as a real battle between who is in favour and who is against of this or that vision, it's more as a natural passage to new approaches that hopefully will find in the next generations a more fertile ground to development: who starts facing new development models, new and more effective strategies at an early age finds it less difficult to apply these approaches to their own life, personally and professionally.
To make this happen all we have to do is spread a conscious use of the Network and of its tools in order to allow the new generations to experiment the ways of sharing in all-level schools. This way they will generate participation and awareness that is the true value to protect and spread.

Fabrizio Valpreda is an architect and researcher at the Politecnico di Torino where he works in the field of new technologies, participating, planning and digital communication.
He is also involved in the different aspects of sharing creative contents through the strategic approach of Open Source and of the tools provided by Creative Commons licences.
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[122] http://www.repubblica.it/2007/11/sezioni/scienza_e_tecnologia/magenta/magenta/magenta.html