The Content of Freedom in Resources: The Open Source Model

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ABSTRACT. Today we are facing the rising of new needs for the firms, especially for the small ones; they find themselves acting in a context characterized by the great content of information technology. This paper wants to analyse some aspects tied to the use of some particular kinds of resources, such as knowledge and organizational culture. It's necessary, especially in the new economy, to add another attribute to the four set by Barney as elements able to make the resources sustainable competitive advantage sources in 1991: this attribute is freedom, essentially as freedom of reaching and using resources. This attribute, more than coming along with the four already set, can be considered in many cases as a precondition to the other ones in existence.

The theoretical part will be completed by the reference to a particular organizational model that is based on freedom, that is the open source model; we'll try to show how freedom is not an abstract concept in business.

KEY WORDS: community, freedom, knowledge, open source, organizational model, resources

Introduction

"The main man resource [. . .] is man himself". This is what John Paul II thinks and says in the *Centesimus Annus* encyclical (Giovanni Paolo II, 1991) and this is what many scholars, who are concerned to the firm for many reasons, are thinking. It's a thought that can be shared from many points of view – economical, social, ethical, religious – but, just because it can be analysed starting from different approaches, a small but meaningful thought must be made.

We see the renewed interest – coming from different sides – in men inside the firm and the economical organization (Tagliagambe and Usai, 1999),[1] particularly in their abilities, their competencies, their values system, their culture; at the same time we are running the risk of thinking men just as resources, critical as we want, of a different nature compared to the others, but resources that have to be acquired, used, valorized, in order to reach a sustainable competitive advantage.

In our opinion men are really more than the main resource of the firm: men are the beginners of every firm and the firm is created for satisfying their needs.

Men are the only deciding subjects inside the organization and so they are who we have to understand when we want to study and analyse the decisional processes and the rationality models.[2]

We want to suggest here a model of a man who can pursue his ends only and solely inside the economical organizations; so the ends can't be selfish and guided only by personal interests, but they must be seen from a point of view of co-operation among men who are in relation with each other, inside but also outside the organizations. In this sense, the ends that men pursue in co-operation with other men become the organizations' ends; they develop and change themselves through the continuous exchange of

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values, culture, learning and knowledge that happens inside and outside the organizations.

This introduction wants to offer some interpretation keys that have to be used in this paper: after a short analysis of the firm from an historical point of view in the passage from the oldest to the newest organizational model in the last century, and after giving a theoretical framework of the firm, according to the Resource-based and the Knowledge-based view, we want to outline some new possible organizational models that are based on freedom of reaching and using certain resources.

The great importance of men inside the firm must be seen not considering men only as resources, as human productive capital, but as men who have to be given the possibility and the "capability – in the sense of substantial freedom – of living those lives they have the reason to appreciate, and of widen the real choices they have at their disposal" (Sen, 2000).

The firm in transition: from the fordism to the post-fordism

It's now ten years since the firm has been seen in transition (Vaccà, 1991), particularly referring to its organizational and production models.

In order to understand the age we live in and the phenomena that characterizes it, it's necessary to put those phenomena into an historical path that must be linear and coherent, so to deeply understand them in the light of the past. We want to analyze the evolution of the organizational models that has characterized the firm from the industrial revolution until our days, in order to try to understand what must be the essential elements for a firm organizational model that can be able to answer to the challenge that the globalization puts forward (Brusco, 1997; Micelli, 2000; Rullani, 1994; Rullani, 1997; Vaccà, 1991; Vaccà, 1997).

The development of the big firms starting from the innovations happened through the nineteenth century has been characterized by the mass production. The organizational model born of the mass production needs was the fordism, theorized by Taylor and put in practice by Henry Ford: that was a hierarchical and centralising model where "the exponential increase of complexity that is realised by the mass production is controlled by using quasi-scientific optimisation methodologies, that try to find – operation by operation – the one best way" (Rullani, 1994).

That model bases itself on the possibility and the ability of decontextualising knowledge, moving it into standard technologies and processes that were applied inside the single firm. The big fordist firm is a structure inclined to put inside it all the activities that characterize the productive line, centralising the decisional, organizational and innovative power to the top level, and making the subjects that are on the lower levels in the organizational hierarchy just executors of scientifically structured works.

The fordist model doesn't consider the so-called local knowledge, placed in a certain working, social and territorial context as propulsive and essential element in the processes of knowledge creation and development, but delegates the innovation production to subjects that form a part of the scientific research system. That knowledge has never been cancelled, even if it was hidden and never valorized; in a greatly complex and dynamic surrounding context, as it has developed starting from the second after-war, the big fordist firm has been in difficulties in answering a more and more autonomous demand in a very quick and flexible way; that demand wasn't simply asking standard and homogenous products but was expressing specific, differentiated and changeable needs.

Therefore, new production organizational models, based essentially on network relational logics[3] (Aldrich and Dubini, 1989; Bastia, 1989; Benassi, 1993; Di Bernardo, 1989; Jarrillo, 1988; Lorenzoni, 1992), both inner and outer, have developed and succeeded; the main difference element compared to the fordist model is the different role and meaning given to the single individual, thought as a person who is able to think, communicate, learn, who is a holder of competencies, values, culture that are a heritage the firm can't renounce.

The first model we want to make reference to is the Japanese model; it's based on "directly involving a multitude of subjects among who

there are also those who work in contact with the line production. [. . .] The Japanese experience allows to radically rethink the innovation ways through involving and valorizing the peripheral experiences that become the raw material of a continuous process of learning and performance improvement" (Micelli, 2000, pp. 20–23).

This is a production system that uses the experiences and the professional capacities that are inside the firm at every level as propulsive elements for knowledge and innovation creation and development, so valorizing the contextual knowledge that the fordist firm had put aside. In particular, the Japanese model succeeds in avoiding the sense of alienation that the single worker has often felt and suffered in the fordist firm; on the contrary, the Japanese model tends to exalt and stimulate the individual capacities and competencies, through the implementation of an inner network organization that is able to catch and put into circulation every hint, proposal, idea coming from the single individuals; therefore it's a system that is able to produce, develop and feed knowledge[4] and innovations.

The second model we want to make reference to is the typically Italian model of the industrial districts. It's characterized by the implementation of network relations among a multitude of small and medium firms (Becattini and Rullani, 1993), that are all situated in the same and more or less limited territorial context, instead of network relational logics that are inside a single and often big firm. Inside the industrial district, mixed processes of competition and co-operation develop among the firms that so are taken to a continuous exchange of information and knowledge, thanks to the strong territorial rooting and the sharing of local culture, knowledge and languages. Those processes develop both in a vertical sense, that is among firms placed on different levels inside the productive line, and in an horizontal sense, that is among firms placed on the same level inside the productive line.

The industrial district model, has certainly been a strong alternative to the big fordist firm, filling the gap left by an homogenised and standardised production. It has bet on the local culture and knowledge valorization and on the differences existing among the single firms; it has also answered – in a greatly flexible way – to an environment characterized by a more and more complex and dynamic demand.[5]

Towards new organizational models of the firm

The rise of new information and communication technologies has been one of the newest elements from economy of the last ten years. The two models we have analysed before, on one side have been very important because they have given weight again both to the role of men inside the firm and to the local territorial cultures; on the other side they haven't yet shown to be able to entirely exploit the huge potential that is inside the new technologies.

The main problems that can be found in those models concern the processes of knowledge and innovation creation and development. The Japanese model, even if it has as a strength point "the group ability of systematically working out the knowledge risen inside the different work context", on the fact "limits the cognitive work division to a knowledge market that coincides with the organization owner languages" (Micelli, 2000). It has been noted in some cases that the big Japanese firm is quite closed to the outside world and that it is only partially able to implement network relational logics towards other firms and other economical systems.

On the contrary, the industrial district model, even if it has as a strength point a strong network structure among a multitude of small firms that are often able to better manage the environment complexity than a big organization, shows as a weakness point the difficulty in codifying and developing – at the territorial system level – knowledge and innovations produced inside, most of which are of a tacit nature that are expressions of the local culture.

The transnational firms have assumed a preminent role in today's economy, often holding a power that has got over the economical one, and that exceeds in some cases the political institutions – both government and non government –

one. We need to understand if such a firm is able to, or at least tries to, recognise and valorize the contextual knowledge and the heritage of individual varieties and creative ideas that are in men, and also the cultural diversities that are rooted in the territories where it acts. If the need of this recognition and valorization is universally acknowledged, we see a wide range of positions, from the more optimistic to the more pessimistic, concerning the possibility that the transnational firm, as we know it today, can be really able to – and has the will to – push on this process (Silva, 1997, Rullani, 1997, Vaccà, 1991, 1997).

In our opinion (Ruisi and Faldetta, 2001) globalization, and the prominence of the transnational firms inside the world economy, brings with it two phenomena among others: marginalization and deterritorialization.

It's now necessary to find a firm organizational model that stimulates, favours and sets the premises for a true sharing of the local cultures diversities, for putting into circulation the ideas and the creative efforts of every single individual, in a view of sharing and cohesion instead of imposition and following acceptance of rules and models coming from the outside and so that can't be assimilable nor shared.

Resource-based and Knowledge-based view

Now we are going to give some short notes on the view of the firm according to the Resource-based theory,[6] in order to put the following considerations into a framework that is consolidated and can be shared.

If this research flow gains importance and greatness starting from the second half of the 1980's,[7] many of the authors who have mostly contributed to the development of this theory point out the work of E. T. Penrose – dated back to the end of the 1950's – as a forerunner.[8] For the Resource-based theory the competitive performance of a firm directly depends on and can be explained by resources that the firm has at its disposal. Reaching a sustainable competitive advantage (Porter, 1985) is tied to the presence, the combination and the use of resources, that can be physical, human or organizational (Barney, 1991). Among organizational resources we can find that kind of resources this paper wants to point out, that is knowledge and organizational culture.

Not all the resources can obviously be sources of a sustainable competitive advantage. In order to reach it, there must be – according to J. Barney – the presence at the same time of four attributes: they have to be valuable, rare, imperfectly imitable, and there must be no equivalent substitutes (Barney, 1991).

It's widely recognised that the intangible nature of immaterial resources can get them to have the attributes to make them sources of sustainable competitive advantage more easily (Podestà, 1999; Siano, 1993; Vaccà, 1997; Vicari and Verona, 2000). Resources like organizational culture, trust, entrepreneurial values (Coda, 1986; Sorci, 1986), knowledge, become more and more valuable; those are resources, belonging to single individuals or organizations, rare and hardly imitable just because deeply tied to the single and unrepeatable human being or to a specific organization made of single individuals and with a unique history, and so unrepeatable too.

Knowledge, meant not just as information or know-how but as ability and possibility for an individual of realising something, has more and more weight and becomes more and more valuable among immaterial resources. We are talking about a whole of values, competencies, abilities that can be sources of sustainable competitive advantage because they are rare, hardly imitable and not replaceable (Blackler, 1995; Bogetti, 1996; Coff, 1999; Conner and Prahalad, 1996; De Leo, 1996; Foss, 1996; Gravili and Turati, 2000; Iacono, 2000; Merlino and Unnia, 1996; Rullani, 1994; Scala, 1998; Silva, 1997; Sorge, 2000).

Knowledge probably is the resource that can make today's firm able to manage the inner and outer complexity more than others, because it's a resource that is intrinsically dynamic – and so it must be regenerated and developed continuously – and relational – because it arises from and develops only if it is placed in a network made of schemes, expectations, memories, sedimented in the individuals and in the social systems. It is

also a resource that is strongly tied to the contexts in which it is produced, and so it has a great content of local learning and cultures, coming from a single individual, or an organization or a socio-territorial system.

The content of freedom in resources as a pre-condition for a sustainable competitive advantage

In the light of the thoughts expressed in the introduction about the role and the nature of men inside the firm linked to the historical evolution of the firm organizational models and to the new needs that – from this point of view – arise because of the scenarios inside which today's firms are acting, now we want to show a model based on freedom in resources.

Freedom we are talking about can be assimilated to the concept of capability (Sen, 2000), that is the possibility of making acts fully responsive to human nature; in this sense, a man is not free when he simply does what he wants, paying attention only to his will and his ego, being conditioned by inner pressures or outer elements; a man is free when he can authentically choose to make one act rather than another, when he is able to discern what is good for realizing his own humanity; the distance between the person he is and the person he should be, reduces through freedom.[9]

In this sense freedom is important for two kinds of reasons, one substantial and one instrumental. From the first point of view freedom is important for itself as an absolute value for men because we can judge the development of a society through the valuation of the liberties the individuals living in it enjoy. From the other point of view freedom meant as capability is "one of the main determinant element of an individual initiative and social efficiency. A greater freedom stimulates the ability of finding a way out by yourself and also of influencing the world, that is capabilities that are in the centre of the development process" (Sen, 2000, p. 24).

Freedom is first of all an essential and preliminary element to make men able to express and develop everything their human nature can create, wherever they are. Immaterial resources directly tied to men, specifically values, culture, knowledge, will surely have a greater and otherwise unrealisable content of creativity and innovation if they are produced by free – in the sense we said before – men; those resources will be unique and unrepeatable, surely inimitable, because they come from a human being who is unique and unrepeatable, an individual who is free to entirely express his nature.

Freedom is also an essential and preliminary element in order that the organizations, and so the firms, enable men who act inside them to place the resources they own at their disposal; they also activate circuits of production and development of those resources, inside and outside them, according to network relational logics. The resources we are talking about are not only a single man products but they grow rich and develop inside the organization through the sharing of common aims, sometimes sacrificing the selfishness in order to reach the unity of the organization.[10]

In this way freedom becomes a content of those so generated resources which become free in their access and use.[11] A so meant freedom can be considered a pre-condition to reach a sustainable competitive advantage.

The so produced and developed resources have to get into circulation and mix with those produced by other systems and organizations; so the presence of network relations is necessary both inside and outside the firm. It's evident that freedom, besides being a preliminary element for the development of men and of the single organization, it's also an element for the development of the entire system; this development can happen only if freedom is spread and shared, so that the relational network among single individuals, between individuals and organizations, and among single organizations, can really carry out its task of being instrument for the resources circulation.

New organizational model

Now we need to try to find new organizational models and, particularly, models that are able to

safeguard and, most of all, to favour and stimulate the presence of freedom inside them; so models that put men in a high place, men who are creators and innovation bearers, men who must be free in the sense we explained before; models that consider freedom of acquiring, using and developing resources as the essential element inside the organizations; models that put into circulation inside them resources with high content of freedom.

The community model

A model that answers to those characteristics could be the community, that is an organization with strong social characteristics and that is characterized by three distinctive attributes: "a common initiative, an engagement for the reciprocity among the members that compose it, a shared complex of knowledge and routines" (Micelli, 2000, p. 96). The community is a cognitive work division structure, more or less formal, inside which the subjects that are members of it acquire, produce, develop, share and spread knowledge thanks to the presence of a thick network of social relations among the members themselves, thanks to the common recognition of the value of the aims the community proposes to itself, and thanks also to the participation and the active engagement of single individual.

The strength point of the community model is the real possibility given to a single man of contributing to the renewal of knowledge through the collective confrontation: so the individual member of the community has capabilities, he is free to create and innovate, to express his own nature, and he grows rich thanks to other individuals contribution.

It is plain that the community has inside it members with strong motivations[12] and a strong sense of belonging because it is a deeply free organization. "The distributed nature of knowledge represents a distinctive characteristic of the community compared with the traditional organizational models based on the opposition between an elaborating centre and an executing periphery. The community knowledge continuously grows rich thanks to the experience that its members accumulates in the different experience contexts" (Micelli, 2000, p. 98).

The weakness point that could characterize this organizational model until today was the high running cost paid for the knowledge accumulation circuit; the implementation of an efficient relational network that enables the knowledge spread and continual moments of true confrontation among the individuals is rather onerous. The new information and communication technologies (Migliarese and Ferioli, 1997) have surely helped to change this scenario, drastically cutting down those running costs.

The open source model

We could ask ourselves if a model like the community can really be a production organizational model, and also if the community can be thought as an economical subject that is really productive and working. A first answer comes from the more and more, great success and development that the model had and has till now in the software production area according to the so-called open source model.

It is a model of production organization that needs the more or less voluntary participation of developers and hackers – who interact through a network – to a project that arises from real needs, rather than being determined by a structured organization. On the fact anyone who is interested in taking part to a specific software project can, if he is able to, offer his own contribution to the building and development of the codes; so that the codes are free to circulate in the network, on condition that he spreads and releases his corrections or extensions.

The so produced and developed software is a free software[13] in the sense that everyone can copy, study, modify and release it (Chassel, 2001). Who decides to participate in a project that already exists in the network, and so to become a member of the virtual community, does it freely and with strong motivations based on the wish to contribute to a certain product development; he doesn't have any immediate return but he knows that even the small knowledge contribu-

tion he can offer will be used to satisfy the needs of himself and of many others.

It's a production model that is based on the gift culture (Raymond, 1999) rather than on exchange logics as the models that are the strongest in our economy: it means that the members of the community participate to a project voluntarily and offer their contribution of creativity, innovation, competence and ability without asking something in exchange for it. This is possible because there is resources abundance and not scarcity: they are the immaterial resources we talked about, that in such a model can freely circulate – so there is a free organization –, they are free themselves – so there is a high content of freedom in resources – and they come from free men, in the sense of men who don't suffer conditionings from a hierarchical structure and are able to, they have the capability to, freely express their human nature.

A model based on the gift culture can be the best way to generate a high quality creative work. The work made to order can often be less creative of the work based on the motivations of a single individual.

The open source model surely produces software that is better than software produced in a closed model like in the bigger software houses, Microsoft above all. The free software is trustworthy, because the users want a good product and the developers stake their reputation: there is no subject that comes between them, so there is nobody who, due to profit logics, often leaves some mistakes inside his own software in order that he can release and sell future versions that are better, but always to be bettered, than the previously released ones. The free software user will never have post-sale problems, because he won't depend on a single subject who can impose his own conditions; the fact that the codes are free and shared allows the user to ask any competent developer to correct or develop his own product.

The most famous open source project is surely that tied to the creation of the Linux operative system.[14]

The quality of that operative system was developed and then maintained not by rigid standards but by the simple strategy of releasing new codes versions every week and getting a continuous feedback from the users, "creating a sort of rapid Darwinian selection on the mutations introduced by developers" (Raymond, 1999, p. 16). The great development of the Internet has then favoured Linux success so that it can now compete with the most important operative system in the world, that is Microsoft Windows.

Conclusions

What we want to offer in this paper are some brief thoughts on the used models of production organization, and on the fact that today new models exist, models that are, at least in some areas, efficient from a productive point of view but also, and it's not a minor aspect, respecter of men and their own dignity. We've seen how immaterial resources as knowledge, can be greatly competitive if they have a high content of freedom.

There is obviously a long way to go in order to understand if an organizational model based on freedom is fit for a firm or if it will always be a model kept for communities that are not structured and in some way transversal to the firms.

We would need to confront some problems regarding for example the ownership right and the economical sustainability of this model.

About the ownership right in the open source model, at the moment they think that the owner of a specific project is the person who has the exclusive right, recognised by the community, to distribute modified versions. There are three ways to acquire this right: to be the founder of the project, to receive the ownership right from the previous owner, to observe that the project needs to be modified or developed and that the owner has disappeared or has lost interest. It is plain that in the open source model the ownership right is tied to the usage coming from the culture it is based on.

About the economical sustainability we can say that today most of the developers who freely contribute and place their competencies and efforts at disposal for a project are people who find their means of sustenance elsewhere. The

problem is to understand how a productive open source organization can earn and gain profits that enable it to grow. The way to go is probably that tied to the supply of services together with a free product.

What we want to underline is that freedom can and must be an essential element for the development of men, of organizations and of the whole economical system, and that "freedom is not an abstract concept in business" (Raymond, 1999, p. IX).

Notes

[1] For the two authors the individuals are "the inevitable and central element; they are the necessary premise for the formation and the keeping in practice of every organization".

[2] As Peter F. Drucker says, "men decisions are the definitive – maybe the only – way to control an organization. Men determine the performance capacities of an organization. There isn't any organization that can do better than men that constitute it. [. . .] Every organization develops men, they have no choice. They either help them to grow or block them. They either form them or deform them" (Drucker, 1990).

[3] About the network organizations in general, and particularly about the overcoming of the hierarchy and market trade-off, see the literature quoted in Ruisi, M.: 1999, *I consorzi alberghieri. Problemi economico-aziendali* (Giuffrè, Milano).

[4] The role of tacit knowledge is very important. "There is knowledge that the individuals can own without being able to offer an articulated description of what they know; the tacit nature of knowledge characterises not only the individual knowledge but also the organizational one: there is knowledge that is strongly rooted in the organization collective acting that can't be brought back to an explicit form, but that greatly contributes to the organization running. That knowledge, both the individual and the organizational one, is what it seems harder to acquire or reproduce inside a complex organization, and so it represents the premise for a sustainable competitive advantage at the firm strategy level" (Micelli, 2000, pp. 25–26).

[5] "When the mass production big firm has proved itself incapable of facing a dynamic and very complex scenario in a competitive way, the local systems made of small firms were read as the new arisen model because they were able to act upon that culture and that heritage of local cultures the big firm seemed to inexorably let disappear" (Micelli, 2000, p. 30).

[6] For an overall view about the main theoretical lines of the Resource-based Theory see Ruisi, M.: 1998, *Su taluni contributi teorici allo studio delle fonti del vantaggio competitivo sostenibile* (Working Paper Servizio Studi Banca di Roma). For a wider analysis about the different views concerning the firm theories see, among others, Boschetti, C. and M. Sobrero: 1996, 'Risorse e vantaggio competitivo: ricorsi storici o nuove prospettive di analisi', *Economia e politica industriale*, n. 91.

[7] Above all see Wernerfelt, B.: 1984, 'A Resource-based View of the Firm', *Strategic Management Journal* **5**. This author gives us also a definition of resource: "By a resource is meant anything which could be thought as a strength or weakness of a given firm. More formally, a firm's resources at a given time could be defined as those (tangible and intangible) assets which are tied semipermanently to the firm". See also Wernerfelt, B.: 1995, 'The Resource-based View of the Firm: Ten Years After', *Strategic Management Journal* **16**.

[8] According to this author the firm is a "combination of resources whose using is organised inside an administrative structure" (Penrose, 1959).

[9] About this concept of freedom, see the thought of John Paul II, particularly his most important philosophical work that is *Persona e atto*; for a brief note on this work see Weigel, G.: 1999, *Testimone della speranza* (Mondadori, Milano).

[10] On the unity concept and the motivations that the individuals must have in order to achieve it, that are the transcendental motivations, see Pérez López, J. A.: 1993, *Fundamentos de la dirección de empresas* (Ediciones Rialp, Madrid, España).

[11] As free resources we mean again resources that, acquired, used and developed by single individuals or organizations, increase their capabilities, that is they enable them to realise, produce and create what they really need and what is really useful and helpful for them.

[12] Motivations that – according to Pérez López – we can call transcendental.

[13] It's noteworthy that the concept of free software is often confused with the concept of a software you don't have to pay for; it happens because of the double meaning the word "free" has in English. As free software we mean a software that owns the freedom attribute.

[14] It is a project started in the half of the 1980's and called the GNU project, with a licence called GPL (General Public License) that settles the rights and the

duties of the potential codes users. The GNU project would failed if it wasn't be open source, because the development of the GNU/Linux operative system was possible only thanks to the great contribution of a young Finish developer, Linus Torvalds.

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