Cooperatives: an emerging mode of organizing in a digitized world?

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TRACK - PROCESSES: Information Systems & Innovation

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The subject of this short paper (a research proposal) is the cooperative enterprise model, how it is affected by the digital world, and - at the same time - how it can positively affect both the Internet and its users. The aim of the paper is twofold: (i) to consider the extent and the way in which co-operative principles are going to be affected by the transition of these firms towards 'digital materiality' (Leonardi 2010); (ii) to outline the potential implications of a diffusion of co-operative "modes of production" to Internet organizations and users.

1. Background and the issues addressed

According to the United Nations Committee for the Promotion and Advancement of Co-operatives (COPAC 2008) the co-operative sector worldwide has about 800 million members in over 100 countries. Co-operatives contribute to GDP from 45% in Kenya to 25% in New Zealand. They are present in all industries and in some of them their weight is overwhelming: e.g. 80 to 99% of milk production in Norway, New Zealand and the USA. Consumer co-operatives are market leaders in Italy, Switzerland, Singapore, and Japan. The European bank co-operatives have shown better performance than other types of financial institutions in the present unstable financial systems (Ayadi et al. 2010). In general, cooperatives have shown resilience to the world economic crisis (Birchall & Ketilson 2009).

The evolution of co-operative enterprises has been regarded with fluctuating interest (and favour) by famous economists (Whyman 2012) from Adam Smith (who thought that this form was bound to decline) and Karl Marx (who sympathized with producers co-operatives) to Alfred Marshall (who considered cooperation a "difficult thing but worth doing") and to John Maynard Keynes who showed broad sympathy for co-ops and mutuals. They certainly pointed out the potential weaknesses of this model but also its positive effects due to its basic traits. To-day they are summarized in the definition of a cooperative which can be found on the site of the International Cooperative Alliance (ICA)[1]:

> "An autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations, through a jointly owned and democratically controlled enterprise."

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[1] www.ica.coop

These distinctive characters identify the co-operative as a different organizational form compared to the company, the civil organization, and the public organization. They converge to build the three pillars upon which the performance of a cooperative can be based: its economic capacity, its organizing capacity, and its capacity for change (van Oorschot et al. 2013). For example, recent research has shown that cooperatives have a driving role not only in the traditional industries mentioned above but also in emerging areas such as the diffusion of renewable energy technologies in highly developed countries such as Canada, the US, UK, Denmark, and Germany. They successfully overcome barriers to adoption by means of community-based social marketing initiatives (Viardot et al. 2013)(Nolden 2013).

Given the spreading of digitization, the research question addressed in this conceptual paper is therefore: what are the implications of digitization for cooperatives?

2. The research strategy adopted

At the 'macro' level one of the consequences of the information revolution is the 're-ontologization' of the world, a neologism introduced by Luciano Floridi (2010, p. 6) "to refer to a very radical form of re-engineering that not only designs, constructs or structures a system (e.g. a company, a machine or some artefact) anew, but one that also fundamentally transforms its intrinsic nature, that is, its ontology or essence". At both macro and micro level the work by Wanda Orlikowski is relevant because her research has convincingly shown the entanglement of technology (including information technology) and organization: "Materiality is not an incidental or intermittent aspect of organizational life; it is integral to it" (Orlikowski, 2007, p. 1436).

Furthermore, building on the concept of generativity put forth by Jonathan Zittrain, which "denotes a technology's overall capacity to produce unprompted change driven by large, varied, and uncoordinated audiences" (2006, p. 1980), Hanseth and Nielsen (2013) show that platforms can both limit and spur innovation according to the aims and strategies of their promoters and, of course, on the programmability of terminals (to harness the so called end-to-end principle). Here we refer to their work to show that if the promoter of a platform is a cooperative, then (because of its characteristics) it is more likely (in comparison with other organizational forms) that it is designed both to promote and protect the interests of its members in an "open" way. Thus, exactly because Lawrence Lessig (2006) envisages the hampering of innovation and creativity through a *de facto* regulation of the

Internet by governments and by large, powerful commercial enterprises, Yochai Benkler (2006) supports the idea that an effective alternative to strict cyberspace regulation can come from solutions "commons based". Indeed, protection of rights (e.g. personal data and intellectual property) and security can come from participating to a commons where relevant tools and information are managed collectively by members who have free access to what has been generated individually.

This short paper is divided into two main parts. In the first, building on the preceding work of one of the co-authors of this abstract (hidden for anonymity), we examine the literature on virtual enterprises (VEs) so that both the consequences of the 'entanglement' of technology and organization and the traits of cooperative firms are considered with respect to the challenges raised by virtualization ('digital materiality'). In the second part, we explore and outline the potential implications of a diffusion of co-operative "modes of organizing" to Internet organizations and users.

3. Preliminary results and implications

3.1. The cooperative form and the challenges posed to virtual enterprises

A virtual enterprise (VE) can be defined as "a temporary alliance of enterprises that come together to share skills, core competencies and resources in order to better respond to business opportunities, and whose co-operation is supported by computer networks" (Camarinha-Matos & Afsarmanesh 1999). Basically, the strengths of a VE are related to the complementary expertise of the firms involved. Such capabilities can be organized to exploit an emerging temporary opportunity in a given market without the constraints of geographical proximity and by leveraging appropriate communication technologies and techniques. VEs potential weaknesses (risks) are the reverse of the coin. They have to do, mainly, with: (i) the organization and integration of different competences, resources and management styles from creation to decommission (relying fundamentally on 'diffused leadership' rather than authority); (ii) the probably different familiarity of members with a set of production and communication technologies to be shared.

Given the decisive character of coordination and integration of resources, to avoid the risks of excessive centralization (one partner that becomes indispensable), of inefficiencies in the exploitation of the market (only one associate searches the market looking for new opportunities), and of heterogeneous activities conducted by one actor (marketing and pro-

duction management), further research (D'Atri & Motro 1999) has proposed a 'multi-role architecture'. Besides a 'broker' (which still controls and manages the virtual process enactment and coordinates tasks and applications) the new venture should be based on a 'catalyst' (in charge of new business scouting and relations with customers) and on an 'enabler' (responsible of supporting workflow schema design, of building inter-organizational trust and negotiation, and of VE reconfiguration for new businesses).

The challenges faced by VEs can be facilitated if the VE partners are cooperatives because of the principles inspiring these firms: voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training and information, co-operation among cooperatives, concern for the community (as stated by ICA). Yet, some specific difficulties come from how digital technology is conceived and developed by the parties involved. This brings our discourse to the second part of the issue addressed in this paper.

3.2. The cooperative form: a possible driver for safeguarding Internet users

Besides the inefficiency of their organizational configurations, one obstacle to the development of VEs has been identified in the limits of their supporting cooperation platforms, (Spagnoletti & Za 2013). Indeed mechanisms aimed at increasing trust and security in these online communities are not sufficient (Åhlfeldt et al. 2007; Spagnoletti & Resca 2012). In general, trust has to do with the identification of the information to be shared, a critical element in the implementation process of inter-organizational systems Further, since the Internet is considered to be an insecure environment (Jing et al. 2014; Ratnasingam 2002; Olden & Za 2010), information security plays a crucial role as an enabler of trust (Spagnoletti et al. 2007; Za et al. 2011). This issue is particularly relevant when there are no ownership relations among the partners, and a strong integration is required (Bachmann & Inkpen 2011; Ford & Baum 1997; McKnight et al. 1998; Pavlou et al. 2007; Ray et al. 2011). Here, the concept of trust is multidimensional: a combination of social, institutional, and technological trust (Olden & Za 2010). In such cases the use of 'federated systems' (for providing federated authentication and authorization) is considered to be an appropriate solution to support digital transactions among the actors involved. In these systems each partnering enterprise has the control of what kind of information is to be shared by the other partners. This solution allows a shared view only of certain "data" con-

cerning relevant sources such as, for example, customers and employees. (Spagnoletti & Za 2013; Spagnoletti et al. 2007).

It is thus apparent that the handling of (and the access to) information is one of the main assignments of information security. This concerns also what users do in a digital environment: an emerging problem is in fact related to 'profiling'. Some research has highlighted that "potential consumers are increasingly profiled to detect their habits and preferences in order to provide for targeted services" (Hildebrandt 2012). It is becoming common for governments, service providers, and specialized data aggregators to systematically collect this kind of information without the user's knowledge or approval (Brecht et al. 2011).

Therefore, because of the discourse developed so far, cooperative contexts seem to be effective also in protecting these crucial data (real assets, actually). Provided of course that their collection and use is governed by means of pertinent agreements among all the actors involved and that a 'federated system' is adopted throughout the partnering organizations. This way, decisions concerning how and for what purposes the information generated can be used, can be discussed and supported in an organized way. Should a commercial exploitation be envisaged, for example, the members of a digital environment cooperative are able to define what relationship with their service providers (SP) should be established, thus regulating the quality and the costs of the services on the basis of the amount and of the kind of personal information shared with them.

In sum, when considering an active participation in the digital world, the characteristics of the cooperative form seem to contribute to further develop digital networks by exploring and exploiting the opportunities that have been highlighted by Benkler's *The wealth of Networks* (Benkler 2006) and which can be grouped in 'information sharing', 'collective action', and 'collaboration' (Shirky 2008).

Conclusions

Bringing together digitization and the cooperative form of organizing, this paper marks a first step in showing that, because of their specific traits, cooperatives are appropriate ways to explore both the opportunities offered (and the drawbacks entailed) by the 're-ontologization' of the world that digital technologies are bringing about. Cooperatives are well suited to face the challenges concerning VEs and they can also be drivers for enhancing the security and protection of personal data.

While there is an extensive literature concerning the cooperatives present in traditional industries such as banking, agriculture, or retail, new fields and sub-fields where they are emerging (e.g. microfinance, fair trade, renewable energy) need to be given appropriate attention (Huybrechts & Mertens 2014). The digitized world affects both old and new areas of interest for cooperatives because its artifacts cut across sectors and change the environment where these organizations operate, cooperate, and compete by innovating processes, products and services (Yoo et al. 2012).

Recent research has shown the relevance and vitality of the Italian cooperative sector (Battilani & Zamagni 2012). The institution that represents at the national level the cooperative movement (Legacoop) has started to evaluate the opportunities linked to the 're-ontologization' of cooperatives in the digital world. This example shows the growing awareness coop-operators in digital materiality: monitoring the evolution of the project will offer interesting research opportunities.

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