

# Digital transition via co-operative meta-organizations: The role of inter-organizational information systems

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**Abstract:** As the platform co-operativism movement is gaining momentum, management scholars focus increasingly on such emerging models that are attempting to provide suitable alternatives to capitalist platforms. Yet, to our knowledge, no conceptual framework has been proposed to study strategic choices performed by co-operatives when establishing digital infrastructures of collaboration, i.e.: inter-organizational information systems (IOIS). Our essay intends to raise awareness about IOISs as important strategic features, conditioning both the co-operative movements' ability to perform its digital transition and to produce positive social impacts. We intend to set preliminary foundations to a framework aimed at studying co-operative IOISs, by combining elements of social justice according to Nancy Fraser, standards, and meta-organizations. We mobilize these theoretical foundations to uncover possible contradictions which may emerge when co-operatives operate strategic choices between proprietary and open interoperability standards.

**Keywords:** platform co-operativism; inter-organizational information systems; digital innovation; interoperability standards; social justice.

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**Résumé:** Les chercheurs en gestion démontrent un intérêt croissant envers les modèles de plateformes coopératives qui tentent de fournir des alternatives aux plateformes capitalistes. Pourtant, à notre connaissance, la littérature scientifique n'a pas encore proposé de cadre conceptuel destiné à étudier les choix stratégiques effectués par les coopératives lors de la mise en place de structures numériques de collaboration inter-organisationnels, appelées systèmes d'information interorganisationnels (SIIO). Notre essai propose d'envisager les SIIO en tant que structures numériques stratégiques, conditionnant à la fois la capacité des coopératives à conduire leur transition numérique et à produire des impacts sociaux positifs. Nous posons les premières fondations d'un cadre théorique pour étudier les SIIO coopératifs, en combinant des éléments de justice sociale selon Nancy Fraser, des standards et des méta-organisations. Nous mobilisons ensuite ces fondations théoriques pour révéler certaines contradictions d'ordre identitaire qui pourraient émerger lorsque les coopératives opèrent un choix stratégique entre des standards d'interopérabilité propriétaires ou ouverts.

**Mots-clés :** coopérativisme de plateforme ; systèmes d'information interorganisationnels; innovation numérique; standards d'interopérabilité; justice sociale.

# **Digital transition via co-operative meta-organizations:**

## **The role of inter-organizational information systems**

### **INTRODUCTION**

The development and democratization of information and communication technologies (ICT) has supported a trend consisting in the intensification of inter-organizational collaborations. The ability to exchange more information, quicker and at lower costs, allows organizations to focus on their core functions by increasingly delegating complementary activities to external partners (Gulati et al., 2012). In this perspective, some organizations have collectively equipped themselves with inter-organizational information systems (IOIS) automating the exchange of data among autonomous parties (Robey et al., 2008).

An IOIS offers a social structure of inter-organizational collaboration. Relations among organizations are structured around norms and ideas, stemming from the balance of power among organizational actors (Reimers et al., 2014). The social structure is translated in standardized processes, themselves integrated to digital artifacts (user interfaces, databases, data exchange protocols, etc.) used to facilitate inter-organizational collaboration. At the same time, by automating the exchange of certain information, IOISs stimulate the emergence of new practices of inter-organizational collaboration. Thus, an IOIS contributes to stabilizing and redefining the social structure shaping relationships among organizations (Rodón & Sesé, 2010).<sup>1</sup>

Companies have used IOISs to build up a dominant position on an international market within a few years.<sup>2</sup> This relatively new phenomenon represents a paradigm shift for co-operatives, which are struggling to develop appropriate policy responses (König et al., 2012). Uber offers a well-known example: created in 2009, the company now operates in 310 cities around the world (Wikipedia, 2021). While platform co-operatives are emerging around the world (e.g.,

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<sup>1</sup> One example is Booking.com: the platform has positioned itself as an intermediary between hotels and consumers. Its added value (compared to traditional travel agencies, for instance) is based on an IOIS automating reservation processes. Since the technical structure provides that customer data is stocked and processed by the intermediary, the IOIS contributes to strengthening hotel establishments' dependence towards Booking.com which acquires a power to unilaterally impose its pricing conditions (Luczak-Rougeaux, 2021).

<sup>2</sup> One example is Amazon Marketplace, an IOIS gathering more than 2 million merchants around the world (Faconnier, 2015). Thanks to the automated transmission of data, consumers can simultaneously consult, compare, and order products offered by this network of merchants.

EVA and Taxi Coop Mtl in Montreal), their ability to offer a viable alternative to unicorns remains unclear (McNamara, 2020).

IOIS emergence is not the first paradigm shift faced by co-operatives. Studying co-operative associations provides a better understanding of their collective resilience to paradigmatic changes (König et al., 2012). Co-operative associations are meta-organizations: their members are organizations, rather than individuals (Ahrne & Brunsson, 2005). Their main function is to provide their members, co-operatives, with a social structure of collective action (Harter & Krone, 2001) which is usually referred to as *the co-operative movement*. Co-operative associations define, represent and model the social structure through a set of strategic actions, such as information, public relations, training, or standardization activities. Their actions can contribute to resist external pressures and consolidate their position towards capitalist competitors while strengthening their collective efficiency (Audebrand & Barros, 2018; Spillman, 2018).

As mentioned earlier, IOISs are embedded in inter-organizational social structures: therefore, co-operative associations seem to be endowed with relevant assets to bring out and structure IOISs. While the literature on co-operative associations is scarce, several studies have documented the contribution of meta-organizations to IOIS projects enhancing collective efficiency at the organizational field level (e.g.: Kurnia et al., 2019; Reimers et al., 2014; Steinfeld et al., 2005). In addition, numerous empirical evidences of IOISs established within the framework of co-operative associations can be mentioned, such as Desjardins banking management system, placed under the responsibility of the Fédération des caisses Desjardins du Québec (Desjardins, s. d.). At the same time, it appears that many co-operative associations are not (yet) engaged in digital projects involving the deployment of an IOIS.

Such observations led us to formulate the following question: how can co-operative associations contribute to the emergence of a co-operative IOIS, and which technical characteristics would they tend to equip the IOIS with? We attempt to answer our question through a theoretical essay intended to set preliminary foundations for a conceptual framework aimed at supporting management studies interested in mechanisms of change and inertia at the level of the co-operative movement. First, we mobilize the theory of social justice, which connects social injustices to social remedies apprehended through three dimensions: cultural, political, and economic. Second, we use the theory or standards to reveal how groups of organizations may be triggered in technical infrastructures establishing systems of social

injustices. We complement this with the theory of meta-organizations to explain how organizations can structure a collective leadership enabling them to transform technological foundation by adopting and diffusing open interoperability standards. Third, we highlight how co-operative principles may influence technological choices when building co-operative IOISs, in relation with co-operative principles 6 (co-operation among cooperatives) and 7 (concern for the community). Despite a need for empirical verification, we conclude that the theory of social justice may provide a relevant analytical lens to analyze co-operative's digital strategies.

## **1. STUDYING COOPERATIVES: A SOCIAL JUSTICE PERSPECTIVE**

“Co-operatives and co-operators have a long tradition of being concerned about and working for peace and social justice” (International Co-operative Alliance, 2015, p. 89). The concept of social justice was extensively explored by Nancy Fraser (e.g.: Fraser, 2005a, 2005b, 2011; Fraser et al., 2004) whose theory was later adopted by management researchers to study collective strategies conducted by alternative organizations and, more specifically, co-operatives (e.g.: Audebrand & Barros, 2018).

Nancy Fraser proposes three dimensions underlying the concept of justice, although she admits that the concept itself is indivisible (Fraser, 2005a, 2005b; Fraser et al., 2004). Firstly, the cultural dimension refers to the social status of individuals and social groups. Cultural injustices relate to norms and ideologies stratifying society into groups discriminated against according to their status, value or prestige (*recognition*). The political dimension refers to the governance structures and decision-making procedures of a social system (*representation*). Injustices are the result of rules and barriers that limit or deny the ability of certain members of society to exercise their political rights. They result, for example, in restrictions on social protests, tools for resolving social conflicts that prevent the representation of stakeholders, or in the strengthening of the power of large companies vis-à-vis political representatives. Finally, the economic dimension of social justice refers to the distribution of material resources and the allocation of economic power between individuals (*redistribution*). Economic injustices arise from the structure of social classes, limiting access to economic resources to certain individuals and groups and thus restricting the ability of these groups to interact on an equal footing with other members of society.

In addition to analyzing the forms of injustice, Fraser presents two types of remedies. The first type, affirmative, seeks to resolve injustices, but without addressing their root causes. The second type, transformative, fights the systemic sources of these injustices. Fraser takes racism

as an example of injustice that can be fought in an affirmative and transformative way. This injustice results in cultural domination that exposes a group to different forms of contempt: an interpretation of its practices and beliefs as foreign or hostile, communicational and interpretative practices that make it invisible, without identity and power, and a lack of respect for its members. The remedy promoted by civil society and governments is the promotion of multiculturalism and the revalorization of minority identities. As an affirmative remedy, the goal of multiculturalism is to encourage cohabitation between different entities, which can, at the same time, lead to communitarian reactions and nationalist overtones. A transformative remedy to racism would be not only to deconstruct the racist prejudices at the root of this injustice of recognition, but also to link this struggle for recognition to the struggle for a more just redistribution, with a view to reducing, or even eliminating, the social relations of domination and subordination (Fraser, 2011).

In the following section, mobilize Fraser's distinction between affirmative and transformative actions to analyze cooperatives' digital strategic choices.

## **2. SHAPING AN IOIS: BETWEEN DOMINATION AND COLLECTIVE AGENCY**

In this section, we see how an IOIS component, namely interoperability standards, contribute to shape the overall IOIS social structure. After defining and characterizing interoperability standards, we present opposing strategies aimed at centralizing or decentralizing information management and control across an IOIS. Eventually, we present how cooperative associations could mobilize interoperability standards to pursue their functions.

### **2.1. STRUCTURING DOMINATION SYSTEMS THROUGH INTEROPERABILITY STANDARDS**

From an institutional perspective of information systems (Orlikowski & Barley, 2001), an IOIS may be apprehended as a digitally-enabled social structure of collaboration among organizations (Reimers et al., 2014). An IOIS is structured around three elements, or modalities: interpretive schemes (including knowledge) serving as communication medium as well as structural constraints for shared meanings among individuals; norms (including governance rules) sanctioning or validating individuals' collaborative practices; and resources (including information) mobilized by participants to realize their means (Orlikowski & Robey, 1991).

Our argumentation focuses on the latter structural element: resources. IOISs such as Amazon build their competitiveness by pooling organizations' resources, namely information about their products, to consolidate it into a powerful international online marketplace. The resource is

exchanged through a technology designed to embed other structural components: protocols and rules of interactions are established by technicians responding to managers' directions and visions. The process consists of reflecting and supporting existing collaboration practices (e.g.: businesses exchanging information about products and orders), but also integrating new practices of inter-organizational collaboration (e.g.: centralization of customer data on one single online platform). Thus, an organization can design an IOIS structure in a way to access and centralize information from other stakeholders, hereby concentrating resources and creating a power imbalance within the network. In other words, "the design and deployment of information technology, with its implications for information resources and enforcing rules, constitutes a system of domination" (Orlikowski & Robey, 1991, p. 155).

Technically, an IOIS allows organizations to automate the exchange of information with partner organizations (Robey et al., 2008). Digitized information, or data, can circulate beyond organizational boundaries thanks to interoperability standards, which are technical specifications setting the rules of data exchange among autonomous information systems. In other words, interoperability standards embed two IOIS structural element – interpretive schemes and norms – into a technology allowing the exchange of a third structural element – resources. Accordingly, standards are an integral part of the digital system of domination pointed out by Orlikowski and Robey (1991).

Interoperability standards have the specificity to be embedded in network markets: their value depends on their ability to increase the breadth and depth of collaboration among business partners (Saraf et al., 2007). From an organization's point of view, the number of accessible partners and the amount of available information is directly connected to the level of standards' dissemination (network externalities) (Garud & Kumaraswamy, 1993; Tassej, 2000).

Adopting competing standards represents an expensive and uncertain move: in addition to the investments required for implementing and assimilating of the technology, the organization gives up tangible network externalities, to join another network in the (unverified) hope to benefit from new and larger externalities (Zhu et al., 2006). As a result, the dependency paths entail *lock-in effects*: organizations attract each other within a network generating collective externalities (self-strengthening), while undermining their individual ability to leave this network (perpetuation) (Bergek & Onufrey, 2014). Lock-in mechanisms also have a cognitive dimension: communities feed their respective frames of reference by learning about and from the IT tools they use (Cecere et al., 2014; Wang & Ramiller, 2009). Frames of reference

generate efficiency, by stabilizing interactions among individuals around standards and routines; at the same time, they constrain communities' cognitive abilities to grasp technologies implementing different logical processes. Thus, lock-in mechanisms generate collective inertia towards radical and disruptive IT innovation: this explains why a technology can persist within an organizational field, despite the availability of more efficient technologies (Besen & Farrell, 1994).

Organizational strategies can be aimed at strengthening– or deactivating – lock-in mechanisms. An IT provider may strengthen these mechanisms by incorporating standards it produces and owns (known as *proprietary standards*) to IT products it commercializes (Tassey, 2000). In doing so, the IT provider can make its products incompatible with its competitors, hereby establishing an IT environment upon which it has full control and exclusivity: to be able to collaborate within this environment, organizations have no choice but to adopt solutions provided by the firm. Such strategies are everywhere in our daily lives: just think about the last time you wanted to charge your Samsung phone, but your friends had only iPhones...

In the long run, an IT provider may progressively build a monopolistic position over a given organizational field, preventing both competitors to enter the field and users to leave it (Besen & Farrell, 1994). To be sure, the terms “user” refers to the final user, i.e. the individual using a given solution. Such a strategy may also be implemented within a vertical value chain: a key actor (e.g. a wholesaler) can organize its business relationships around an IT tool which would be deliberately with its competitors' ones, thus consolidating its own position within this value chain (Reimers et al., 2014). Locked-in market structures typically result in higher prices and discouragement of innovation (Tassey, 2000).

On the other hand, some players may carry out strategies aimed at disabling lock-in mechanisms. Examples include competitors to the dominant IT firm seeking to penetrate the market (Garud & Kumaraswamy, 1993) or other parties interested in lowering barriers to innovation within an organizational field (e.g.: consultants, researchers, organizational managers, etc.) (Reimers et al., 2014; Steinfield et al., 2005). Such players may produce and promote publicly documented specifications, called *open standards*, designed to create the conditions for interoperability among any IT tools implementing such specifications.

## **2.2. DIFFUSING INTEROPERABILITY STANDARDS WITHIN AN ORGANIZATIONAL FIELD**

Now that we have explored how IT providers' interests can be reflected into interoperability standards, comes the following question: how do interoperability standards come to be adopted?

Organizations are typically reluctant to adopt IT innovations which challenge a dominant mindset in an industry (König et al., 2012). This phenomenon can be explained by the fact that an innovation is inherently out of scope of the existing organization's knowledge: potential adopters lack the cognitive references enabling them to understand which opportunities and challenges the innovation can generate for their organizations.

Promoters of emerging standards may attempt to overcome inertia by leveraging on organizational learning (Marsan, Paré, & Beaudry, 2012; Wang & Ramiller, 2009). To do so, promoters may elaborate and disseminate narratives designed to make their innovation intelligible by targeted organizations (Swanson & Ramiller, 1997). Influencing collective perceptions about an innovation requires extensive resources which often exceed the capacity of a single player, especially when the innovation in question consists of standards whose value rely on their simultaneous adoption from a significant number of business partners. Also, the various promoters who have an interest in the dissemination of an innovation tend to form a community of *innovation*, in which they pool their resources (Kim & Miranda, 2018). A community of innovation brings together a group of actors (IT solution providers, consultants, researchers, etc.) around a common narrative surrounding an innovation (Marsan, Paré, & Wybo, 2012). This common narrative is intended to provide organizations with a vision of how IT innovation could be integrated into organizational structures and processes: this narrative may be referred to as an *organizing vision* (Swanson & Ramiller, 1997). The organizing vision serves three key functions: it helps actors to interpret the innovation; it serves to *legitimize* the innovation, by anchoring it within collective reference frameworks' ideas and norms; and it enables consistent *mobilization* among stakeholders interested in its dissemination (Marsan, Paré, & Beaudry, 2012; Swanson & Ramiller, 1997).

As it evolves in an organizational field, an organizing vision is subject to contradicting forces: it benefits from a community of innovation which conducts a variety of promoting actions to increase its fame and power of conviction (publications, events...), but it also meets critics seeking to discredit IT innovation. Most of the time, an innovation can hardly attract collective attention, and eventually gets forgotten. Thus, the organizing vision is an ephemeral rhetoric: if it does not fall into oblivion, it is intended to become institutionalized (Swanson & Ramiller, 1997). In the latter case, an innovation comes to be taken for granted by the organizational field in question: adoption mechanisms rely no much longer on rational cost-benefit assessment process, but rather on a mimicry effect leading organizations to comply with a new collective norm (Marsan, Paré, & Wybo, 2012). When an interoperability standard comes to be

institutionalized, adopting the tools incorporating such standards becomes the norm. An illustrative example is the SMTP standard that specifies the protocol by which an email is transmitted: the institutionalization of SMTP leads organizations to naturally adopt and implement emailing systems, without questioning the pros and cons of this protocol.

### **2.3. CO-OPERATIVE ASSOCIATIONS: LOCUS OF (DIGITAL) COLLECTIVE ACTION**

In the preceding sub-sections, we saw how interoperability standards shape inter-organizational relations, and what are the strategies for diffusing such standards among an organizational field. We will now focus on co-operative associations, so as to understand how their assets can enable them to get involved in an IOIS project.

Co-operative associations are *meta-organizations*: their members are themselves organizations (co-operatives), rather than individuals (Ahrne & Brunsson, 2005). They are established by co-operatives concerned to mitigate uncertainties stemming from their external environment by collectively controlling it (Ahrne et al., 2016). Co-operative associations thus perform a dual function: organizing relations within an organizational field, and organizing the relations between the said organizational field and its external environment (König et al., 2012). Both functions are presented succinctly in the following paragraphs.

First, a meta-organization organizes relationships within an organizational field by offering a cultural infrastructure for inter-organizational collaboration (Spillman, 2018). This infrastructure is based on a collective identity which defines the organizational field, and which offers a set of ideas shared by its members (König et al., 2012). In the case of co-operative associations, their field identity is rooted in the seven co-operative principles defined by the International Co-operative Alliance (ICA) (International Co-operative Alliance, 2015). The first five principles are closely related to the original version, as practiced by the Rochdale Pioneers (International Co-operative Alliance, 2004), and focus on the relation between a co-operative and its members: voluntary and open membership; democratic control; economic participation; autonomy and independence; education, training and information. Later, two new principles were defined, regulating the relation between a co-operative and its partners within the co-operative movement and beyond: cooperation among co-operatives (or inter-cooperation, principle 6); and concern for the community (principle 7). Thus, co-operative associations' framework of collaboration is composed of organizations who have in common internal governance models, who agree not to compete, and who collectively aim for social justice.

Second, a co-operative association organizes the relations between its organizational field and its external environment. This function consists of protecting their field, by ensuring its representation and legitimization toward institutional and governmental actors; it also entails stimulating innovation within the field to ensure its adaptation to changes happening in the external environment (Audebrand & Barros, 2018; Harter & Krone, 2001; Huybrechts & Haugh, 2018).

In the realization of both functions mentioned above, co-operative associations conduct cultural activities which enact and shape the identity of the co-operative movement. When their field meets an innovation, co-operative associations conduct strategic activities aimed at supporting member organizations' learning process (Berkowitz, 2018). They identify the innovation, analyze it in light of the co-operative principles, and disseminate their analysis through information-sharing and capacity-building activities. For instance, Harter and Krone (2001) observed that the *Nebraska Co-operative Council* (NCC), a U.S. agricultural co-operative association, conducted an information campaign among co-operative leaders about potential opportunities and challenges of an emerging technology based on open interoperability standards: Internet. To do so, NCC built and promoted a digital co-operative culture, backed by a training program, to encourage coordinate co-operatives' collective adoption of Internet standards. Marsan et al. (2017) studied the influence of co-operative associations' narratives towards co-operatives' perceptions about digital innovations. Researchers presented to members of a co-operative association, *Fédération des coopératives de services à domicile et de santé du Québec* (FCSDSQ), a free software project for managing patient data. When asked to analyze the relevance of this tool for their respective co-operatives, participants referred to two groups of criteria: the interest of the solution for the management of their co-operative's affairs, and the alignment between the philosophy of the tool and the values of their organization. Since participants perceived compatibility between open source software values and co-operative principles, their perception towards an open source solution was positively influenced (Marsan et al., 2017).

Because co-operative associations tend to incorporate innovations while preserving the stability of their field, we presume that they will tend to encourage the adoption of interoperability standards perceived as compatible with co-operative principles. This leads us to wonder which type of standards could demonstrate better alignment with co-operative principles. In other words, may the co-operative identity lead co-operative associations to favor open or proprietary interoperability standards? We address this question in the following section.

### **3. INCORPORATING CO-OPERATIVE PRINCIPLES WITHIN AN IOIS**

Along the previous section, we highlighted how technical interoperability standards shape an IOIS and influence inter-organizational relations within an organizational field. We also presented cultural actions which are relevant to disseminate emerging standards, and explained why co-operative associations may be well-equipped to design a collective strategy leading to the creation and transformation of an IOIS. We argued that such cultural actions are rooted in an internationally-agreed set of co-operative principles, among which two specifically aim to regulate the relations between co-operatives and their external environment: cooperation among co-operatives (principle 6) and concern for the community (principle 7). In the present section, we attempt to understand how each of these two principles may be translated into interoperability standards (open or proprietary), and to deduce likely characteristics of a “co-operative IOIS”, i.e. an IOIS aimed at facilitating cooperation among co-operatives.

#### **3.1. PRINCIPLE 6: COOPERATING (EXCLUSIVELY?) AMONG CO-OPERATIVES**

The cultural infrastructure common to co-operative associations and their members is materialized by seven international co-operative principles. In this section, we focus on the sixth principle, cooperation among co-operatives (or inter-cooperation). We see how this principle shapes cultural infrastructures incorporated by co-operative associations, before looking at the capabilities arising from this principle allowing co-operative associations to act on the infrastructures useful to IOISs (normative and ideational on the one hand, and technical on the other hand).

##### **3.1.1. Cooperation among co-operatives as a trust-builder**

Spillman (2018) and Berkowitz and Bor (2018) agree to consider meta-organizations as structures of collective action. According to them, meta-organizations serve as platforms through which competing companies take collective action to create the collective infrastructures useful for their business. This echoes, for example, the observations of Steinfield et al. (2005). The members of the Mortgage Bankers Association of America compete within the mortgage market in the United States; nevertheless, they cooperated on an ad hoc basis to build a common infrastructure (processes and standards) for a IOIS to emerge. The infrastructure increased collective efficiency without hampering competition.

The sixth co-operative principle adopts a different logic. It states: “Co-operatives serve their members as effectively as possible, and strengthen the co-operative movement by collaborating through local, national, regional and international structures” (International Co-operative

Alliance, 2015). According to the Guidance Notes to the Co-operative Principles issued by the International Co-operative Alliance, this principle includes two messages. “The first part of the sentence recognizes that while co-operatives can accomplish a lot at the local level, they will accomplish even more by working together to generate economies of scale and develop a mutual representative force” (International Co-operative Alliance, 2015, p. 78). The second part of the sentence refers to co-operative associations, intended to provide this infrastructure allowing and encouraging co-operatives to “work together permanently for the same purpose, and not just collaborate occasionally” (*ibid.*).

Rather than setting up structural conditions for competition among their members, co-operative associations focus on pooling member co-operatives’ resources to be more competitive vis-à-vis their non-co-operative rivals. In other words, the phenomena of coopetition that usually take place *within* meta-organizations is, in the case of co-operative associations, externalized to an environment *outside* the organizational field. Externalizing competition may influence co-operative associations’ behaviours: competition may be perceived as an environmental pressure generating uncertainty for their members, and whose effects should be mitigated.

Audebrand and Barros (2018) observed this behaviour by studying the Fédération des coopératives funéraires du Québec (FCFQ). Facing the entry of foreign multinationals, the co-operatives pooled their resources within a co-operative association, to modernize their management tools and improve their collective economic performance. However, unlike the Mortgage Bankers Association of America which enabled its members to strengthen their organizational competitiveness through a collective infrastructure (Steinfeld et al., 2005), the FCFQ created an infrastructure aimed at deactivating competition. Co-operatives pooled key economic functions within their association, such as advertising and capacity-building: in other words, they renounced to some organizational capacities to increase the competitiveness of their field towards non-co-operative competitors (Audebrand & Barros, 2018).

On their end, Basterretxea, Charterina and Landeta (2019) empirically assessed the influence of co-operative identity on the structure of innovation networks. The researchers were interested in the machine tool industry in the Spanish Basque Countries, and more particularly in the research and development (R&D) activities carried out in partnership among several companies. They observed mechanisms of collaboration established between co-operative enterprises (members of the co-operative association Mondragon group) and other local (non-co-operative) enterprises. The study points out a cultural division between co-operatives and

their capitalist counterparts. While co-operatives tend to approach R&D activities as an opportunity to pool resources and integrate organizations, capitalist companies perceive R&D services as an infrastructure allowing them to improve their own organizational performance.

Two takeaways may be drawn from the arguments presented in this subsection. First, co-operatives may prefer to deactivate competition, by pooling strategic resources within a common meta-organization. Second, meta-organizations may activate such resources to preserve their members from external competition, by competing themselves with capitalist rivals. In the following sub-section, we propose to connect such takeaways with specificities associated to the open or proprietary nature of interoperability standards.

### **3.1.2. Locking up the co-operative value through technical standards**

Technical standards are intended to be rules for the many (Brunsson et al., 2012, p. 616). As we saw in section 3.1, two standardization strategies can be distinguished. On the one hand, open standards are collectively produced and established by organization consortia, and contribute to establish a level-playing field for open competition: this was the strategy implemented by the Mortgage Bankers Association of America. On the other hand, actors willing to preserve an organizational field from competition may adopt a strategy of proprietary standards: external competitors face higher barriers to entry, while actors operating within the organizational field tend to build niches rather than attempting to compete with each other (Tassey, 2000).

As argued above, co-operative associations can implement strategies which aim to build up their own competitiveness towards external actors, by dispossessing their members from strategic resources. In such a scenario, co-operative associations' infrastructures of collaboration is not open – quite the opposite: they are exclusive to their members. This logic may lead co-operative associations to opt for proprietary standards, rather than open ones. In fact, this is illustrated by many examples, such as the strategy conducted by CoopCycle, an international association of bicycle delivery co-operatives, provides its members with a delivery management application. “The CoopCycle software is therefore not open source: its source code is available on GitHub but its commercial use is reserved for co-operative!” (CoopCycle, s. d.). Here, CoopCycle implements a strategy intended to build a co-operative technical infrastructure, limited to their organizational field, and intended to compete vis-à-vis capitalist actors.

To conclude this subsection, we have tried to put into perspective the (few) studies dealing with the digital shift of the co-operative movement with a socio-cognitive approach to IOISs articulated with the emerging theory on meta-organizations. This has allowed us to emphasize the sixth co-operative principle, inter-cooperation, as a normative component of the co-operative movement: through their cultural activities, co-operative associations strive to translate this principle into the ideational and material components intended to strengthen collaboration among their members and resist competition from external actors. Therefore, we assume that the principle of inter-cooperation could contribute to structuring a co-operative IOIS based on proprietary standards produced and owned by co-operative associations.

### **3.2. PRINCIPLE 7: AIMING FOR SOCIAL JUSTICE**

The 7<sup>th</sup> co-operative principle, which states that “Co-operatives work for the sustainable development of their communities through policies approved by their members” (International Co-operative Alliance, 2015, p. 85), anchors co-operatives’ activities within their broader environment. The very *raison-d’être* of co-operatives is not to serve members as investors, but as human beings: addressing members’ needs requires the adoption of a holistic approach to their environments. In this subsection, we argue that principle 7 may be a driver for the adoption of open interoperability standards.

#### **3.2.1. Proprietary standards: affirmative remedies to social injustices?**

“This 7<sup>th</sup> Principle of working for the ‘sustainable development of their communities’ also requires that co-operatives accept responsibility for making a contribution to tackling poverty and wealth inequality, not only between developed and emerging economies, but also the growing wealth inequality in nation states and in the local communities within which co-operatives operate” (International Co-operative Alliance, 2015, p. 90).

As presented in previous sections, the production and diffusion of proprietary standards can be used as a strategy to mitigate competition. Such a strategy is currently implemented by emerging business models, such as Amazon, aiming to consolidate their dominant position over a given market. Thus, non-interoperable strategies are drawing policymakers’ attention as they contribute to increasing prices, unfair competitive practices, discouragement of innovation, and reduction of users’ control over their personal data. Put differently: IOISs based on proprietary standards could be structurally vectors of wealth inequality – and, by extension, of social injustices.

We also found that co-operative principle 6 may encourage co-operative associations to produce their own proprietary standards and limit their use to their members, as a resource reinforcing the co-operative movement's competitiveness towards capitalist rivals. One argument raised by co-operative leaders opting for proprietary strategies, is that preserving co-operative resources from capitalist rivals is a prerequisite for the co-operative movement to survive and strive. In other words, for co-operatives to survive in a capitalist market, they must build their own competitiveness toward capitalist rivals – which includes creating co-operative infrastructures based on proprietary standards owned by co-operative actors.

As presented in section 2, Nancy Fraser's theory may a useful lens to assess co-operatives' technical choices in relation with their aim for social justice (co-operative principle 7). The theory invites us to understand mechanisms of injustice, before analyzing remedies. We introduced this paper by arguing that global capitalist IOISs are based on centralized infrastructures, enabling a central actor (such as Amazon) to extract and valorize data from its environment. In doing so, the central business model establishes a dominant position within an IOIS, which it consolidates through mechanisms of lock-in effects and path dependency. In practice, Amazon's dominant position enables this actor to unilaterally set processes and pricing policies, towards consumers and independent merchants who may have poor alternatives.

Capitalist IOISs' mechanisms of injustice may be revealed through Nancy Fraser's three dimensions of social justice. From a *cultural* point of view, capitalist IOISs consider the data as a resource available within the environment, which an organization may extract to build its competitive advantage (Srnicek, 2018). Let's remind that much of this data consists in information produced by individuals using the platform – in the case of Amazon, customers and merchants. By extracting user data, storing it in its own server and processing it through undisclosed algorithms, business platforms disempower individuals in controlling their own data. In other words, users' rights to effectively control their data is non-recognized. Cultural injustices translate into *political* ones: platforms are usually exploited by businesses who are owned and governed by investors. IOIS stakeholders, i.e. platform users, are usually excluded from the platform's internal governance: they are typically unable to control and regulate how algorithms exploit their data (lack of representation). Eventually, platform users face an *economic* injustice: mechanisms of redistribution are unilaterally decided and implemented by the business owning the platform. Users have no alternative but to accept them, or opt out from the IOIS altogether. As a result, users are partially dispossessed from economic resources: in

Amazon case, merchants are paid exclusively on their sales, but do not benefit from wealth generated out of the exploitation of their data (lack of redistribution).

Let's now analyze remedies to social injustices proposed by a co-operative IOIS established on proprietary interoperability standards. In a co-operative IOIS, users' data is stored in servers which are owned and/or controlled by co-operative organizations – rather than capitalist business platforms. Co-operatives are collectively owned and controlled by their members: users of digital platforms would be recognized as legitimate to collectively control the structures which extract, store and process their personal data. However, the proprietary nature of interoperability standards sets intrinsic limitations to users' control over their data. As stated above, proprietary standards organize non-interoperability: in our case, a co-operative IOIS may organize its non-interoperability with non-co-operative IOISs. Consequently, users who store their data within a co-operative system would be unable to (easily) transfer their own data and use it in a non-co-operative service. Put differently, a co-operative IOIS based on proprietary standards could contribute to replicate an injustice mechanism observed in capitalist business platforms.

Pursuing with the *political* dimension, while users are effectively excluded from capitalist IOIS's governance systems, they are directly associated to co-operatives' democratic governance structures. In theory, member users could express their voice through the co-operatives' general assembly, for instance to set principles aimed at controlling algorithms processing their data within the IOIS. In practice, though, such political power exercised at the level of a co-operative general assembly might encounter limitations. A co-operative IOIS based on proprietary standards supposes that co-operatives appoint a common standardizing body, mandated to produce and maintain such interoperability standards. Examples of co-operative groups in the banking, agricultural and health sectors teach us that apex technical bodies tend to grant more power to operational teams, at the expense of local democracy. Consequently, we may expect that the standardizing body maintaining a co-operative IOIS would maintain lose relations with local general assemblies, limiting users' political power towards data processing strategies.

Lastly, as for the *economic* dimension, wealth generated by a co-operative IOIS would benefit co-operative businesses, whose profits should be used in a way that benefits their members and local communities. In this respect, a co-operative IOIS would distinguish itself from a capitalist IOIS aiming at concentrating wealth and distributing it to external investors. However, the

proprietary nature of interoperability standards supposes that organizations should be excluded from such economic benefits. Without effective democratic control (political dimension), a co-operative standardizing body may be triggered to favour co-operatives' economic interests, rather than users' economic interests. In practice, some dimensions of individual users' daily lives might be excluded from the co-operative IOIS scope. For instance, non-co-operative groups (trade unions, social services...) or businesses (small enterprises) might not be granted the right to access and benefit from the co-operative IOIS. Consequently, individual users might benefit from more efficient co-operative services, while seeing other services struggling to perform their digital transition – or use capitalist IOISs disempowering them.

All in all, a co-operative IOIS based on proprietary standards might benefit co-operative efficiency, without addressing deeper mechanisms of injustices affecting individual users. Opting for proprietary standards might thus be considered as an affirmative remedy which, by focusing on the effects of social injustices (i.e.: resisting towards the competition of capitalist platforms) might fail to address – or even reinforce – deeper mechanisms of social injustices (i.e.: users' disempowerment towards the use of personal data).

### **3.2.2. Open standards as a foundation for transformative remedies?**

Along the previous sub-section, Nancy Fraser's theory allowed us to identify some potential limitations of a co-operative IOIS based on proprietary standards. We basically pointed out that proprietary standards limit users' capacities to control and process their personal data, hereby replicating mechanisms of injustices observed in the context of capitalist platform businesses. In this sub-section, we apply the same analytical approach to the scenario of a co-operative IOIS based on open interoperability standards.

A co-operative IOIS based on open standards allows data to flow freely among any compatible systems. Users become thus fully able to choose a service provider, and to transfer their data from one provider to another. In other words, *cultural* injustices generated by capitalist IOIS are addressed by re-empowering individuals, and recognizing their full right to possess and control their personal data. Technical foundations may also influence the governance of a co-operative IOIS. While proprietary standards encourage the centralization of data within a limited set of approved servers, open standards allow decentralized storage in any compatible server. In the context of a co-operative IOIS based on open standards, users may be granted the capacity to store their personal data in a server controlled by a provider of their choice. Users may tend to entrust organizations offering transparent processes, hereby encouraging co-

operatives to implement inclusive and open governance models. *Political* injustices would thus be addressed by a system allowing (and encouraging) decentralized co-operative governance models, ensuring more inclusive and fluid user participation. Finally, by opting for open interoperability standards, a co-operative IOIS would not aim to silo the data within the co-operative movement. Co-operatives operating in the IOIS would be able to exchange data with other, non-co-operative organizations – such as enterprises and community organizations operating in their local territory. Instead of locking up data and associated value within an exclusive co-operative system, community members would be able to circulate it among any local organizations with whom co-operatives maintain relationships. Consequently, users would be *economically empowered*, by being granted a capacity in deciding how data (and associated wealth) should circulate among their communities.

To conclude this section, co-operative principle 7 claims that co-operatives should act for social justice. Nancy Fraser's theory explains that social injustices stem from social mechanisms that can be addressed only by adopting holistic approaches and implementing transformative remedies. Applied to IOISs, we observed that some injustices may be rooted in the non-recognition of individuals to control their personal data, which is translated into infrastructures through proprietary standards aimed at locking users into a given system. Addressing this situation by establishing competing IOISs with standards exclusively addressed to co-operatives may consist in an affirmative remedy, which by itself would consolidate social injustices. A transformative approach could consist in addressing the mechanisms of social injustices, through a co-operative IOIS based on open interoperability standards recognizing users' rights to own their data, allowing them to voluntarily entrust data processing organizations, and enabling them to effectively control such organizations through participatory governance models.

#### **4. CONTRIBUTIONS AND LIMITATIONS**

Management studies tend to adopt an organizational level of analysis to uncover and analyze models and strategies implemented by co-operative platforms as alternatives to capitalist platforms. Although informative, the organizational level of analysis occults strategies conducted at the level of an organizational field, such as the establishment of IOISs. Along this paper, we developed a theoretical reflection aimed at bridging this gap in two ways. First, we wanted to raise academics' awareness about the relevance and importance to study strategies surrounding co-operative IOISs, by identifying how strategic choices regarding the nature of

interoperability standards (open or proprietary) may impact the co-operative movement and its environment. Second, we attempted to propose a theoretical lens at the crossroads between three theories, namely social justice, standards, and meta-organizations, which may be suitable to reveal how the movement's identity may influence technological choices, and tensions which might appear between contradicting technological options.

With this research, we hope to make a dual contribution. From an academic point of view, we aim to contribute in applying Nancy Fraser's theory of social justice to the management field. More specifically, we build upon Audebrand and Barros's (2018) observations, demonstrating how co-operative associations could develop remedies towards social injustices: we add a component which could help researchers in analyzing the nature of such remedies, namely whether they consist of affirmative or transformative action.

In addition, our paper is intended to help co-operative practitioners in anticipating the digital transition. While the emergence of digital technologies puts pressure on co-operative businesses, such a change of paradigm cannot be addressed only at an organizational level. Our reflection stresses on the fact that co-operatives may constitute a collective capacity to resist the emergence of powerful businesses based on IOISs, by building co-operative IOISs. It also warns co-operatives about the risks and limitations that may stem from collective strategies motivated only by organizing competition towards market-driven logic. We argued that a collective strategy integrating transformative action aiming for social justice could generate additional positive impacts for co-operatives and their members, by deactivating deeper mechanisms that may be favorable to capitalist businesses in the long run.

Our research is intrinsically limited by its exploratory and theoretical nature. To overcome its exploratory characteristic, these reflections could be complemented with a literature review aimed at identifying factors influencing meta-organizations in their decision-making processes. Some structural factors (e.g.: size, age and sector of activity) could influence the capacity of a co-operative association to engage in a digital project in the first place, and by extension its tendency to opt for proprietary or open standards. Then, such a theoretical framework would need to be tested, challenged and complemented with empirical research. A comparison among co-operative associations could help to inform us about the structural factors as stated before. In addition, a comparison between co-operative associations and other meta-organizations could help to identify co-operative specificities, and thus verify whether the co-operative

identity (in particular cooperation among co-operative) constitutes a tangible asset for co-operative businesses to apprehend the digital transition.

## CONCLUSION

This exploratory research is aimed at setting foundations for the development of a theoretical framework for understanding and analyzing technological choices supporting the emergence of a co-operative inter-organizational information system (IOIS). It focused on the mechanisms to be taken into consideration when establishing the technical foundation of an IOIS, namely diffusing interoperability standards within a pre-existing organizational field.

In a first section, we proposed and justified the relevance of a theoretical framework at the crossroads between the theory of social justice, standards, and meta-organizations, to understand how the nature of interoperability standards (open or proprietary) could shape an IOIS and, by extension, the overall inter-organizational relations in the organizational field. We also identified some co-operative associations' assets enabling them to select and diffuse interoperability standards among their members. In a second section, we attempted to identify how the co-operative identity may influence co-operative associations in opting for open or proprietary standards when aiming to build a co-operative IOIS. We posited that co-operative principles 6 and 7 could generate contradicting dynamics. "Cooperation among co-operatives" could lead co-operative associations to adopt a protective posture which would entail locking the data within their field, and thus to select and diffuse proprietary standards. However, "concern for the community" could encourage co-operative associations to aim for a social transformation approach, which could be translated into open interoperability standards.

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