

THE ROLE OF ALTRUISM IN INTER-FIRM RELATIONSHIPS: LONG-TERM VALUE CREATION IN BUSINESS NETWORKS

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Abstract

This theoretical paper seeks to contribute to a better understanding of the role of *altruism* in business relationships.

Firstly, we try to provide an overview on the state-of-the-art about this topic, investigating theories of altruism within: 1. economic studies; 2. sociological studies; 3. psychological studies; 4. organizational theories and theories of the firm; 5. the Industrial Network perspective; 6. game theories; 7. systems theories; 8. evolutionary studies.

Then, we try to compare the results coming from these eight different approaches, identifying a possible integrated model for studying the role of altruism in business relationships.

This framework is based on the identification of several forms or types of altruism: studies have identified, for example, reciprocal altruism (triggering direct and indirect reciprocity), competitive altruism (triggering "altruism contests" to be chosen as cooperators), kin altruism (strongly related to kin selection), unconditional altruism (often triggered by "warm glow" processes). Studies have also demonstrated that inter-personal and inter-organizational networks may create "environments" where the conditions for sustainable altruistic behaviors are more likely.

We found that the most fertile contributions to a possible theory of altruism in inter-firm relationships come from relational models in organizational theories, on the one side, and from integrated game-system-evolutionary models, on the other side. In particular, focusing on Industrial Network Perspective, our work investigates how altruism is related to actors' bonds and how altruism, as a consequence, can influence the relationships and their development. The Industrial Network Perspective is particularly useful to investigate those forms of reciprocal altruism occurring in long-term business relationships. On the other side, the integrated game-system-evolutionary models help to understand also other forms of altruism, such as indirect reciprocity, altruistic punishment, or competitive altruism, that are often essential for creating value in business settings.

In sum, the eight different approaches to altruism we investigated, once integrated and systematized, revealed that:

- there are several different types or forms of altruism;
- different forms of altruism tend to develop (or to atrophy) for specific reasons and under specific conditions;

- different altruistic/selfish behaviors, under specific conditions, may result in specific and recurrent advantages/disadvantages for the individual actors, for the group/network they belong to, and for the society as a whole;

- a better understanding of the dynamics of altruistic behaviors may be useful to better assess the health and the perspectives of business settings, such as inter-firm networks.

This research proposes a Concept Matrix which correlates (a) the different forms/types of altruism, (b) the different conditions under which they tend to develop (or to atrophy) in business settings (c) their possible positive/negative roles in the processes of value creation within business relationship processes.

Keywords: altruism, fairness, reciprocity, inter-firm cooperation, business networks, business relationships, actor bonds, value co-creation.

INTRODUCTION AND LITERATURE SEARCH METHOD

There is growing interest towards those economic interactions that occur in the absence of explicit contracts, regulatory institutions and market negotiations (Sigmund, 2002). Most of these basic economic interactions are triggered by emotions and feelings that are usually overlooked in business settings analysis, such as gratitude, pride, sympathy or indignation (Nowak et al, 2000); nevertheless, behaviors occurring during these "primitive" interactions often display surprising self-organizing effects (Fehr et al., 2002).

As a consequence, many scholars suspect that such down-to-earth, spontaneous interactions may have a key role in real-world business settings, even if classical economic theory disregards them as marginal (Simon, 1984).

This paper is aimed at defining the state-of-the art in academic understanding of *altruism*: a phenomenon which is at the very base of most business interactions that may be considered incomprehensible by the classical rational actor assumption (Nowak et al., 2000).

We chose an inter-disciplinary approach, investigating literature focusing on altruism in the following fields: 1.economic studies; 2. sociological studies; 3. psychological studies; 4. organizational theories and theories of the firm; 5. the Industrial Network perspective; 6.game theories; 7.systems theories; 8. evolutionary studies.

Our purpose was to find out how these eight streams of studies answered to the following **Research Questions:**

- **What is altruism and why does it exist?**
- **Is there a one and only form of "true altruism" or is this a multi-faceted phenomenon?**
- **Under what conditions do altruistic behaviors take place?**
- **What is the role of altruism in business interactions and in value creation?**

Adopting a literature review approach, we made a selection of available documents which contain information and ideas to express certain views on the nature of the topic (Hart, 2000).

To investigate the field of organizational theories and theories of the firm, we chose the EBSCO databases (Econlit and Business Source Premier) and the Google Scholar database. We used as keywords: "firm AND altruism"; "organization AND altruism"; "transaction cost AND altruism"; "transaction cost AND cooperation"; "resource based AND altruism"; "resource based AND cooperation". We found few relevant results, and we chose 9 writings which we considered useful to answer the Research Questions.

To investigate the fields of evolutionary theories, system theories and game theories, we chose the Google Scholar database, and we used "evolution AND altruism", "system theory AND altruism", "game AND altruism" as keywords. Then we chose the IIASA database, which is highly specialized in integrated evolutionary-system-game theory approaches, and we used "altruism", "fairness" and "cooperation" as keywords. We chose the 14 most relevant writings collected via database search, and we used them as starting points to conduct backward and forward search. This integrated field of studies proved very interesting to answer the Research Questions, and yielded 44 writings that we deemed relevant.

In order to investigate altruism in the economic, sociological and psychological perspectives we have used JStor database and Google Scholar. In addition to this, to better analyze altruism and IMP approach we have used the IMP group website.

We used "altruism AND economics", "altruism AND sociological studies", "altruism AND psychological studies". In economics area we found 25 interesting results, while in sociological studies we found 40 interesting results and in psychological studies 79 interesting results. In IMP database we used "cooperation AND actor" and so we found 94

results.

WHAT IS ALTRUISM?

Altruism in economic studies

Neoclassical economics assumes that people maximize utility (Simon, 1991). If we equate utility with income or wealth or profit, maximizing utility is identified with maximizing economic reward; from this **neo-classical micro-economic** perspective, altruism-charity just should not exist in economic settings.

In fact, in an **economic perspective** based on **individual optimization**, people choose their actions by selecting the best opportunity within some set of admissible possibilities (Arnsperger, 2000). Just as old-fashioned evolutionary thought rationally dictated, those who disadvantage themselves to favor others will not thrive; so the rational man, as portrayed in neo-classical micro-economic theories, does not give to charity, because there is no personal economic gain in doing so.

But empirical observations soon revealed that many successful economic actors do not behave according to the “rational” dogma of simple selfish profit maximization. A question arose: such firms are successful *in spite of* their “irrational” altruism, or maybe (the hypothesis looked heretical at first) *because of it*?

During the 1970s, studies were already revealing that behaviors violating the rationality assumptions are so systematic that it is difficult to label them as mere “mistakes”. For example, studies focusing on prospect theory revealed that it is possible to identify patterns and motives also for behaviors (in that case, risk orientation) that look simply “irrational” from a classical economic perspective (Kahneman and Tversky, 1979).

On the other side, Thaler (1994) stated that rational behavior cannot be assumed. People seek to design their environments in order to achieve more complex goals than mere immediate self-interest, and cognitive biases and blunders influence their decisions (Thaler and Sustein, 2008).

For scholars who were not satisfied by “mistakes” as sole explanations of irrational behaviors, a more complex definition of “utility” was needed. Scholars started emphasizing that human choice is driven also by motives that overcome economy gain.

From this perspective, individuals do not form their preferences in isolation from other individuals, but in response to both public events and information related to a group. Loyalty to the group provides an important basis for altruism. Loyalty to organizations, such as business corporations, universities, associations, is among the most important forms of loyalty in modern societies (Simon, 1993).

Economic theory, then, reviewed individual optimization and optimization process in the light of the growing importance recognized to “**otherness**” (Arnsperger, 2000).

Following the previous considerations, other scholars focused their researches on the role of altruism and envy in multi-person **games competition** (Lehamann, 2001) and on the role of altruism and reciprocity in the motivation of **economic behavior** beyond self-interest (Charness and Rabin 2000; Kritikos and Bolle 2001; McCabe et al. 2003).

As emphasized by Cox et al. 2008, the more generous choices by a first mover induce more altruistic preferences in a second mover. Preferences are emotional state-dependent and the first mover's generosity induces a more benevolent (or less malevolent) emotional state in the second mover. Furthermore, altruistic behavior is mostly modeled as a positive externality of the income of others on one's utility (Collard 1978; Bolle et al., 2006). Specific models of interpersonal preferences were proposed by the “inequity aversion” approaches of Bolton and

Ockenfels (2000) and Fehr and Schmidt (1999). They explain that the relative performance of incomes between two related persons decides whether the externality will be positive or negative, and where a non-selfish choice will be done in order to reduce the difference between one's own and all the others' payoffs.

Altruism in sociological studies

The term *altruism* was coined by the French philosopher and sociologist Auguste Comte, who defined it as an unselfish desire to 'live for others' (Comte 1875: 556).

Altruists see themselves and others as "members of one big human family", regarding their altruism as natural normal behavior, related to their humanity. In sociological studies, the purpose of altruistic behaviors is to benefit others, even when this damages the actor (Monroe, 1996).

From this perspective, altruism is strictly related to the connections and disjunctions between a sociology of **gift-giving** (Mauss, 1924) and a phenomenology of **other-oriented subjectivity** (Levinas, 1991).

Altruism can then be considered as a general tendency to inhibit one's own desires in the light of the desires of others; altruism is a fundamental dimension of social interaction. In this context, individuals characterized by "otherness" give a particular attention to the other's needs and desires (Durkheim, 1993).

Furthermore, altruism becomes the **inhibiting or controlling of selfish behaviors**. Altruistic individuals tolerate the egoism of the others in social relationships (Friedrichs, 1960).

In the social relationship, altruism is identified with the desire to increase another's welfare, and egoism is the desire to increase one's own welfare. Accordingly to this interpretation, the "**prosocial**" behavior is considered as any behavior that benefits another person at a cost to the benefactor. "Prosocial behavior" means any actions, "defined by society as generally beneficial to other people and to the ongoing political system" (Piliavin et al. 1981: 4). Accordingly, egoists act prosocially when there are reputation incentives, but not when opportunities for indirect reciprocity are absent; on the contrary, altruists tend to act prosocially regardless of whether reputation incentives are present. Many theoretical models of prosocial behavior (Bowles and Gintis, 2004) well emphasize the heterogeneity of actors and their behavior.

Altruism in psychological studies

Social psychologists proposed that altruism consists in helping actions carried out without the anticipation of rewards from external sources (Macaulay and Berkowitz 1970). Some authors also suggest that the behavior is altruistic only if helpers incur some costs for their actions (Wispe 1978). The focus is on consequences for the helper rather than on his or her inner motivations.

During the 1980s, researchers started focusing on the existence and nature of the altruistic personality. The nature of the motivation underlying helping behavior and the nature of the process during which altruism unfolds became main topics in social psychology.

Differences in the definitions of altruism given by psychologists involve the relative emphasis on two factors: the intentions of the helper, and the amount of the benefit (for the helped) or of the cost (for the helper) (Krebs 1987).

Bar-Tal, Korenfeld and Raviv (1985) note that most of those who emphasize the **motivational aspect** of altruism agree that "altruistic behavior (a) must benefit another person, (b) must be performed voluntarily, (c) must be performed intentionally, (d) the benefit

must be the goal by itself, and (e) must be performed without expecting any external reward"(p. 5).

The concept of **reciprocal altruism** has been often equated with reciprocity, therefore emphasizing the positive side of reciprocity (Trivers, 1971).

Reciprocity is compared with cooperation, and prosociality (Perugini and Gallucci, 2003); reciprocity is conditional and it matches actions according to their valence. A positive action is reciprocated with positive actions, a negative action with negative ones (Perugini and Gallucci, 2003). This conditional nature of reciprocity (Gouldner, 1960) was elaborated upon with the concept of Tit-for-Tat (Axelrod, 1984; Axelrod and Dion, 1988).

Equity, cooperation, equality, and even material self-interest can be maximized by means of patterns of reciprocal behavior. Through reciprocity, individuals are able to achieve interdependent payoffs, otherwise out of the individual's reach.

Striving for self-interest has been very often suggested as a motivational basis of reciprocal behavior (Axelrod, 1984; Axelrod and Dion, 1988). When the interdependent situation is repeated over time, reciprocal behavior is not exploitable by more selfish strategies and it can support mutual cooperation.

By taking a pluralistic view on motivation, reciprocity can be defined both as a strategy and as a goal itself (Perugini and Gallucci, 2003). Reciprocity can be instrumental to achieve a specific goal, and actors who are aware of its effects can employ it accordingly (Van Lange, 1999).

Batson and Shaw (1991) tackle the problem of determining the motives underlying various acts of helping. Altruism and egoism can thus present qualitative distinct motives.

Situational empathy evokes altruistic motivation, whose ultimate goal is increasing other people's welfare (Batson and Shaw, 1991). The authors propose that altruistic behavior is fundamentally different from other types of intentional behaviors.

As emphasized by Krebs (1991), it is important to distinguish conceptually between the desire to enhance the welfare of others and the desire to enhance one's own welfare. Both desires always interact in the formation of behavioral goals. He includes self sacrifice in the definition of altruism.

Altruism in organizational studies and theories of the firm

The term "altruism" is almost absent in studies focusing on the nature and organization of firms. A search in the Google Scholar database, using "organizational AND altruism" and then "firm AND altruism" as keywords, yielded no relevant writing among the first 50+50 results: it seems that the word "altruism" is included in organizational studies only in case of specific issues, such as charity organizations or family businesses. In other words, altruism is generally not considered as a metric to assess an organization's value, nor as a basic concept to understand what a firm is, and why does it survive.

On the other side, there is a growing interest in inter-firm *cooperation*. Since "cooperation" can be considered as a behavior that may imply a certain degree of altruism, we will briefly review what is the role of cooperation according to two main theories of the firm, and namely: the Transaction Cost Economics (TCE), and the Resource-Based View of the Firm (RBV). Moreover, a specific paragraph will be dedicated to a further approach, the Relational view, and particularly to the Industrial Network Perspective, which pays a more thorough attention to factors, such as relational bonds, reputation, and trust, that are deeply related to altruism.

TCE sees organizational life as a series of transactions: minimizing the cost of each individual transaction is the main goal of management. Governance of transactions is based

on two mechanisms: hierarchies and markets. Both hierarchies and markets work under the assumption of classical economic rationality, or at least of bounded rationality (Simon, 1984). In this perspective, **inter-firm cooperation (and defection) does not occur as a bottom-up, spontaneous behavior, but as a result of rational planning and careful contracting**: in fact, the typical forms of cooperation studied by TCE are outsourcing and inter-firm vertical integration (Williamson, 2009).

The **resource-based view** of the firm, on the other hand, states that the main goal of management is to increase the firm's capabilities and to capitalize on them (Combs and Ketchen 1999). This approach sheds light on some intangible assets of the firm, such as knowledge, or standing, that are often crucial in the competitive scenario. But resource-based studies are usually interested in how these intangible resources may be *acquired* (Chen and Chen 2003), whilst the other, "altruistic" side of the medal, for example knowledge sharing or helping for reputation building, remains substantially uninvestigated. In this perspective, cooperation occurs as a strategy to accumulate resources: firms will cooperate only with partners which prove capable to enrich and/or complement their resource base. In other words, the RBV predicts **cooperative behavior under direct reciprocity conditions only** (Fink and Kessler 2010).

As well outlined by Cyert and March (1963, 1992) an organization can be considered as a coalition of individuals which boundaries cannot be drawn. The goals of an organization are generated by a process of bargaining among potential coalition members.

Through interaction firms change themselves and the complex environment in which they operate. Outcomes are generated not within a single firm but by networks of interacting organizations and parts of organizations (Cyert and March, 1992).

Altruism in the Industrial Network Perspective

The network, as analyzed by the Industrial/International Marketing and Purchasing Group (Ford, 2001), is based on knots (organizations or business units) connected by a net of relationships (Håkansson, 1982).

In the environment created by the firm through the choice of the territory, the customers and the providers develop interactions that create relationships. Moreover, the relationship can't be considered as a single entity, but it is necessary to consider it as a part of a "whole" (Håkansson, Snehota, 1995: 3). Every relationship is embedded with other relationships, developed by, and with, other actors; every relationship between two organizations depends also on what happens in the wider network of relationships in which they are direct and indirect involved (Håkansson, Ford, 2002). From this perspective, firms move from dyadic relationships to network relationships.

From the network analysis, three paradoxes emerge (Ford et al., 2003):

- 1) "The network enables and restricts a company simultaneously" : developed relationships enhance the bond between actors as well as constrain its evolution;
- 2) "Relationships are developed and defined by companies but companies are also developed and defined by relationships". The actor is considered as relationship-derived: the identity of actor is generated by the interaction and this one generates the co-evolution of actors.
- 3) "Companies try to control the network but control is destructive": the more a single actor is able to exercise control over a network, the more the actor becomes the sole source of innovation (Håkansson et al. 2009) .

The network becomes a world in which an actor alone can make few things, but if a sufficient number of actors are mobilized, everything will become possible (Håkansson, 1987).

Actors are identified in “individuals who endow business networks with life. But the individuals are not acting in isolation, they interact and their action becomes organized. No actor (company) is an island but is always an arbitrary part of a mainland” (Håkansson and Snehota, 1995).

According to the IMP Approach, “any business enterprise, no matter how small it is, has to maintain relations with several other actors and some other relationships concur in the development of a certain relationship” (Håkansson and Snehota, 1995).

A relationship between two firms influences their development, considering that firms, like all organizations, are units of interlocking behaviors (Håkansson and Snehota, 1995: 192).

We consider actors as characterized by their acting in interaction (Håkansson et al. 2009) that differ from firms as adaptive rational system (Cyert and March, 1963) and omnisciently rational system (Simon, 1957). Each actor is so characterized by a character (aims, capabilities...) and an identity (how actor is seen by others) (Håkansson and Snehota, 1995) that emerge from interaction and evolve during time.

Through interaction actors operate in a process of learning and teaching; what an actor learns influences how it perceives the identity of the counterpart. As well emphasized by Håkansson and Snehota (1995) since individuals act within relationships between two companies, they bring in their limits but also their capabilities to learn and reflect. From this perspective, commitment, identity and trust are processes that constrain, and at the same time enable, the behavior of the actors in relationship.

On a company level, the bonds are important, since they orient resources and activities of the company towards specific others. Bonds between actors have an organizing effect on the web of actors and thus on the business network as a whole.

Through relationships, actors develop knowledge and loyalty, creating the basis for adaptation processes. These ones generate interdependences among resources that support the development of other relationships (Ferrero, 1992).

Through interaction, actors develop links between the respective knowledge, technologies, capital investments and cultures (jointness) (Håkansson et al., 2009). From this perspective, through the relationship actors develop resources sharing and competences combining to realize their activity.

The key feature of business relationship and network approach emerges: the cooperation perspective. In the business network atmosphere, cooperation prevents the relationship from becoming a zero-sum game cooperative approach. Cooperation is also considered “when two or more parties have objectives, which are mutually dependent” (Easton and Araujo, 1992:76). In this view, inter-firm altruistic behavior can be seen as a possible natural component of typical network cooperation: in fact, actors' choices are not aimed at maximizing the revenues of each single interaction, but at making inter-organizational bonds stronger and deeper.

Altruism in Game Theories

Game theory is aimed at understanding economic interactions between humans. This approach starts from designing a game, i.e. a “highly abstract, and sometimes even contrived instance(...) of interactions between independent decision makers” (Sigmund, 2002). Then, the researcher tries to predict, on the basis of given assumptions, how humans will play the game. Finally, the predictions are tested in experimental settings, and as a consequence the assumptions are either corroborated, or proven false (Bolton et al., 1998; Andreoni and Miller, 1993).

One of the most famous examples is the Ultimatum Game. “In the Ultimatum Game, two players are offered a chance to win a certain sum of money. All they must do is divide it. The

[player chosen as] proposer suggests how to split the sum. The responder can accept or reject the deal. If the deal is rejected, neither player gets anything" (Nowak et al., 2000). The two players, i.e. the Proposer and the Responder, cannot negotiate nor communicate before the offer.

Classical game theory firstly addressed the Ultimatum Game on the basis of the classical economic assumption of rational opportunism of players. It then predicted that the proposer would offer the lowest possible sum, for example one dollar out of 100, and that the respondent would accept, because from a "rational" standpoint even one dollar is better than zero. But this is not what happens in the real world. The Ultimatum Game has been replicated hundreds of times, in different experimental conditions, involving people of all social conditions, all cultures and all geographic origins, and the outcome is always robustly the same (Nowak et al. 2000): most proposers offer a sum which is much higher than the lowest possible, between 25% and 45% of the total amount; and most responders who are offered a sum lower than 20-30% reject.

In other words, this experimental game, which was created under the assumption of rational opportunism, paradoxically showed that people tend to behave altruistically, to expect the others to do so, and to punish opportunists, even at the cost of losing payoff.

As a consequence of this failure in predictions, there was a sort of Copernican revolution in game theories. Scholars started thinking in terms of populations instead of individuals; in terms of embedded emotional triggers instead of rational opportunism; in terms of long-term trial-error strategies instead of short-term aware planning. In other words, the evolutionary thought arrived on the game theory scene.

The first model based on this novel approach was proposed by Nowak and Sigmund (1998). Since then, a great amount of theoretical and experimental work has been proposed in this field, which is one of the most viable in economic studies, as we will see below.

According to this approach, an interaction strategy (e.g. a certain reciprocation rule, or the punishment of opportunists) spreads in a given population if it is successful; but "success" cannot be measured on the basis of the single interaction. Complex mathematical models are being developed to predict what behaviors are successful in the long run, at given conditions. These mathematical models, differently from those based on the rational actor assumption, resulted in successful predictions of actual altruistic behaviors of players in games such as the Ultimatum Game and many others (Nowak, 2006). To develop these mathematical models, evolutionary game theory rooted in system theory, to which the next paragraph will be dedicated.

What is, then, altruism, from the evolutionary game theory standpoint? We were unable to find an explicit definition of altruism in the writings we selected in our literature search; but all the writings imply a consistent idea of altruism, that we seek to summarize as follows.

Altruism is a strategy for economic interaction that may result, at certain conditions, in a more stable and more successful equilibrium in a given population, than that resulting from a undisputed invasion of opportunism .

Altruism in System Theories

System thinking is a vast phenomenon which has been deeply influencing studies in almost all fields in the last decades. We will limit ourselves to briefly presenting those branches of system theories that seem more interesting to understand the phenomenon of altruism: (i) complex adaptive systems, also called adaptive dynamics, and (ii) social rule systems, also called institutional systems.

Adaptive dynamics focuses on how systems evolve as a consequence of different interaction

dynamics within them; for example, a system may collapse for an epidemic of opportunistic behavior, that prevents actors to cooperate to solve a common problem (Kryazhimskiy and Kleimenov, 1998).

Whilst Adaptive Dynamics studies rest on the assumption that the system is self-organizing and evolves for a series of spontaneous trial-error activities during interactions (Young, 1996), **Institutional Systems studies** focus on how interactions may be, to some extent, routed or controlled by a governance system. Institutional systems, in fact, are developed for the governance of common pool resources, such as security or fisheries, in order to enforce mechanisms preventing over-exploitation of resources or dangerous defection rates in cooperation (Ostrom and Walker, 2005).

In all system theories, the unit of analysis is not the individual part of the system, but the *interaction* between parts of the system. Game modeling is then a natural complement of system thinking. In this field of studies, altruism is a key concept: "We will show that the interaction between selfish and strongly reciprocal individuals is decisive for the understanding of human cooperation. We identify conditions under which selfish individuals trigger the breakdown of cooperation, and conditions under which the strongly reciprocal individuals have the power to ensure wide-spread cooperation" (Fehr and Fischbacher, 2003). Consistently with the game theory approach, Adaptive Dynamics and Institutional Systems studies **see altruism as a strategy competing with opportunism in each individual interaction**. System theories analyze altruistic behavior without any moral assumption (West et al., 2007). Altruism may win, but not because it is better or nicer or fairer: it wins when it ends up yielding a higher payoff. A certain degree of opportunism tends to be successful in the short term, whilst a certain degree of altruism tends to be successful in the long run. But what is this "certain degree" of altruism? System theories allow us to build sound mathematical models and experimental evidence to answer this question in different settings (Hofbauer and Sigmund, 2003). For example, it has been demonstrated that the possibility of punishing defectors is often an essential condition for cooperative behaviors to spread and win within a population (Sigmund, 2007; Hauert et al., 2007). Consistently, people are instinctively willing to punish opportunists, even if punishment is costly; this kind of costly punishing is called "altruistic punishment" because it is proven beneficial for the collectivity, in that it prevents the invasion of cheaters.

In a nutshell, the main contribution of system theories to the understanding of the phenomenon of altruism is a precise identification of some important conditions under which altruistic behavior is more successful than opportunistic behavior. These "conditions for altruism" will be more thoroughly described in a following paragraph. We will see that system thinking provides important insights into the relationships between altruism and phenomena like punishment, reputation, negotiation, spatial proximity, gossip, competition, or even war.

Altruism in evolutionary studies

Evolutionary studies provide powerful frameworks to understand the phenomenon of altruism. This could be surprising, at a first glance; in fact, classical Darwinian theory is based on competition and selfishness. But the evolutionary thought soon realized that competition does not take place at one level only (West et al., 2007). For example, if an interaction at a certain level is competitive and selfish (e.g. a war between two anthills) a cooperative interaction will be needed at lower levels (e.g. mutual help among ants of the same anthill). "The two fundamental principles of evolution are mutation and natural selection. But evolution is constructive because of cooperation. New levels of organization

evolve when the competing units on the lower level begin to cooperate. Cooperation allows specialization and thereby promotes biological diversity. Cooperation is the secret behind the open-endedness of the evolutionary process. Perhaps the most remarkable aspect of evolution is its ability to generate cooperation in a competitive world. Thus, we might add “natural cooperation” as a third fundamental principle of evolution beside mutation and natural selection" (Nowak, 2006).

Cooperation is then a key strategy in nature, and when cooperation requires sacrifice, then altruistic attitudes are selected as an alternative and antidote to selfish attitudes, to make cooperation possible (Sigmund, 1998).

In evolutionary studies, cooperation is studied in that it is costly, and then the definitions of altruism and cooperation tend to overlap: according to evolutionary view, **(altruistic) cooperation occurs when an individual pays a cost, c , for someone else to gain a benefit, b .** Cost and benefit are measured in terms of fitness (Nowak, 2006). The values of b and c are included in mathematical models that seek to predict social behaviors.

In some cases, altruistic behaviors are almost automatic: for example, ants don't hesitate about risking their lives to protect their anthill; many mammals don't hesitate about risking their lives to protect their offspring. In other more complex cases, such as the economic games analyzed above, an evenly match between altruistic and selfish strategies takes place: both attitudes may reveal successful, according to circumstances, and so they are both basic to the brain and hard-wired in feelings and emotions. "We feel fine if we help others and share with them. But where does this ‘inner glow’ come from? It has a biological function. We eat and love because we enjoy it; but behind the pleasure stands the evolutionary program commanding us to survive and to procreate. In a similar way, social emotions like friendship, shame, generosity or guilt act to prod us towards achieving biological success in complex social networks" (Sigmund 2002).

Altruistic cooperation, in sum, involved the co-evolution of a large range of emotions (which we share with many social animals): e.g. hypocrisy, suspicion, friendship, sympathy, guilt, sense of honour, belonging feelings, etc. Such emotional triggers have great importance in business settings, much beyond the rational actor assumption.

Evolutionary studies witnessed a great dynamism with regards to theories of altruism in the last 15 years. In the 1990s, it was commonly accepted that genuine evolutionary processes could explain only certain forms of altruism, and namely: kin altruism (I help only my relatives, because even if I die they will carry my genes on); reciprocal altruism (I help only who is likely to help me in turn); and some particular forms of altruism aimed at being chosen as a mate in sexual competition (I help the best potential mates and so they will probably choose me) (Roberts, 1998). But in the last years, the growing powerful integration between evolutionary theories and game/system approaches led to understand that also more complex forms of altruism are well explained by evolutionary processes.

As a consequence, the main contribution of evolutionary studies to the understanding of the phenomenon of altruism is that they provide a robust overall framework capable to explain even very different forms of altruism. A brief but systematic list of the different forms of altruism identified so far by evolutionary studies will be provided in a following paragraph.

ALTRUISM OR ALTRUISMS?

Different forms of altruism according to sociological and psychological studies

For a long time, especially in economic context, the existence of true altruism was neglected

(Piliavin and Charng, 1990: 28). In social psychology Hoffman (1981) and Batson (1990) took a key role in the reconsideration of the egoistic model.

The socio-biologist Wilson (1975: 578) defines altruism as "self-destructive behavior performed for the benefit of others."

More generally, socio-biologists call a behavior "altruistic" if it benefits the actor less than the recipient.

Focusing on motives, in psychology studies Sober and Wilson (1998) point out the essential differences between "evolutionary altruism", altruism that emphasizes consequences to the actor and the recipient, and "vernacular altruism", which "has to do with the motive of benefiting others." (p. 76). Vernacular altruism is the common interpretation of altruism that has to do with the motive of benefiting others; it is an absolute concept, not a comparative one (Sober 1988).

Differently, evolutionary altruism is not essentially psychological but essentially reproductive and comparative (Sober, 1988). Sober and Wilson (1998, pp. 149-54) also investigated cultural practices, such as social norms, as an alternative 'evolutionary' mechanism, not involving genetic transmission, by which altruistic behaviors can become established in social groups.

Moreover, Batson (1991) proposed that altruism can be defined by the individual's motivations: "Altruism is a motivational state with the ultimate goal of increasing another's welfare" (p. 6).

From the point of view of **social psychology**, as emphasized by Moscovici (Moscovici and Zavalloni, 1969), three typologies of altruism can be identified:

1. Participatory Altruism, that promotes the collective life of people belonging to the same community (family, church, nation, association,...).
2. Trust Altruism, that is founded on a bond of trust and confidence "with the recipient of the grant, which will seal the bond with gratitude". In this case the benefits of altruism are not reflected only on the recipient, but also on those who made the gesture.
3. Normative Altruism, that is based on the principles of responsibility and solidarity. Social norms stating that altruism is "good" may be implicit and explicit (laws, social pensions,...).

Different forms of altruism in integrated evolutionary-system-game theories

As we said above, the strong cross-fertilization between evolutionary studies, game theory and system theory led to an impressive widening of investigation focus as for the phenomenon of altruism in the last 15 years. Even if there is still some resistance (see for example West et al. 2007), nowadays evolutionary theories can provide sound explanations also to altruistic cooperation between non related and non reciprocating individuals, and can predict acts of generosity that are not directed to reproductive success.

So far, the integrated evolutionary-system-game theory approaches identified several reasons why an altruistic behavior may be performed. These different reasons shape different forms of altruism, as we seek to summarize below:

1. **Kin selection:** I help those who share my genes. This enhances the probabilities that my genes will propagate (West et al., 2007).
2. **Direct reciprocity:** I help who is likely to be in the condition to help me in the near future. This enhances the probabilities that I will be helped when I will need it (Trivers, 1971).
3. **Indirect reciprocity:** I help someone *even if* he or she is *not* likely to be in the condition to help me in the future, for the sole purpose to build my reputation as good cooperators (Nowak and Sigmund, 2005). This enhances the probabilities that I will be

helped in turn by someone who knows my good **reputation** (Brandt et al., 2006). "Often the interactions among humans are asymmetric and fleeting. One person is in a position to help another, but there is no possibility for a direct reciprocation. We help strangers who are in need. We donate to charities that do not donate to us. Direct reciprocity is like a barter economy based on the immediate exchange of goods, whereas indirect reciprocity resembles the invention of money. The money that fuels the engines of indirect reciprocity is reputation. Helping someone establishes a good reputation, which will be rewarded by others. [...] Natural selection favors strategies that base the decision to help on the reputation of the recipient. Theoretical and empirical studies of indirect reciprocity show that people who are more helpful are more likely to receive help." (Nowak, 2006).

4. **Network reciprocity:** I help those with which I interact more often. This enhances the probabilities that a successful network cluster, where the cooperation rate is high, will emerge around me (Lieberman et al., 2005)
5. **Group selection:** if the group I belong to is subject to competition with other groups, I give help within my group. This will enhance my group's fitness (Rainey and Rainey, 2003).
6. **Altruistic punishment:** I punish defectors and cheaters, even if punishing is costly. This will make epidemics of opportunism in the population I belong to less likely; as a consequence, the entire population will benefit from my behavior. Moreover, if I have a reputation of being a punisher, people I interact with will be encouraged to behave fairly (Sigmund, 2007).
7. **Competitive altruism:** I show costly generous behaviors to those who can decide about my competitive position. Generous behaviors demonstrate (i) that I can afford the costs of altruism and (ii) that I am a good cooperater; then, generous behaviors may enhance the probabilities that I will be chosen e.g. as a mate, as a partner, as a leader, overcoming my competitors (Gintis et al., 2001; Roberts, 1998).
8. **Unconditional altruism:** I give help, for none of the reasons mentioned above: for example, I secretly help a stranger I will never see any more, so that I gain no payoff, not even reputation. This happens because the strong emotional triggers evolved to make "useful" altruism possible may reward me also for "useless" altruistic behaviors, making generous behaviors pleasurable, per se (Sigmund, 2002).

Of course, the eight different forms of altruism may overlap and mix in real world situations. For example, in business networks we can find both forms of network reciprocity and of indirect reciprocity. In family businesses, both kin selection and direct reciprocity may come into action. In case of war, the dramatic external threat may enhance the effect of group selection, which may mix with the effects of altruistic punishment, and so on.

Quasi-synonyms of altruism: cooperation, fairness, reciprocity, help

We will now briefly analyze some concepts which are very similar to altruism, and in some cases may be considered almost synonyms.

- For **altruism** we will adopt an extremely simple definition, borrowed from the evolutionary approach: altruism occurs when an actor chooses to pay a cost for someone else to gain a benefit.
- During **cooperation**, someone is benefited, independently from the fact that someone else has paid a relevant cost for it: for example, if I answer to a person who asks me where is the post office, my behavior is certainly cooperative, but it is hardly

definable as altruistic. Thus, “cooperation” is a somewhat wider concept.

- The term "fair" connotes a behavior which is "altruistic enough" to be socially accepted. For example, in the Ultimatum Game, if I am the proposer and I offer 10% of the sum I have received, technically I am altruistic, because I could have offered 1% only; but the responder may judge my behavior *unfair*, and may reject my offer. In other words, the concept of **fairness** implies a psycho-social *threshold* under which an altruistic and a selfish behavior are equalized.
- **Reciprocity** occurs in several forms of altruism, where who helps expects to receive help in turn, either by those who were benefited, or by those who know his or her reputation. But altruistic behavior may take place also in the absence of reciprocation: altruism towards offspring is a good example.
- Who gives costly **help** is by definition altruistic, but not vice-versa. In the case of altruistic punishment (see above: form of altruism n. 6), the altruistic punisher chooses conflictual interaction instead of helpful behavior. In other words, the concept of altruism, according to the definition provided above, is wider than the concept of help.

UNDER WHAT CONDITIONS DOES ALTRUISTIC BEHAVIOR TAKE PLACE?

Conditions for altruism in sociological and psychological studies

Within social psychology, Batson (1991) investigated the development of altruism through the “empathy-altruism hypothesis”. People will choose the welfare of others over their own when they feel empathy for the others. Batson (1991) sets his theory against the arousal/ cost-reward model of Piliavin et al. (1981), which assumes that observing another’s problem arouses feelings of distress and helping alleviates those feelings, and the negative-state relief model (Cialdini et al. 1987).

Moreover, in order to explain prosocial behavior among unrelated individuals in large populations, researchers turned their attention to models of indirect reciprocity (Panchanathan and Boyd 2004; Rockenbach and Milinski 2006; Wedekind and Milinski 2000): individuals receive long term benefits for short term prosocial acts. Scholars have drawn on theories of kin selection (Hamilton, 1964) and reciprocal altruism (Trivers 1971) to explain such actions. The

potential benefactors respond strategically to the presence or absence of these benefits, cooperating at higher levels when repetitional benefits and possibilities of indirect reciprocity exist than when such benefits are unlikely (Milinski et al, 2002; Semmann, Krambeck and Milinski, 2004). In these researches, prosocial behavior is jointly determined by characteristics of the person and the environment.

The relative importance of personality and situational factors depends upon the kind of helping. ‘**Helping behavior**’ refers to ”an action that has the consequences of providing some benefit to or improving the well-being of another person” (Schroeder et al. 1995, p. 16). It doesn’t include cooperation, which is considered as an action from which one can also benefit. The **episodic helping** is considered as responsiveness to a request and it is more influenced by the situation. **Sustained helping**, such as volunteering, is more influenced by socialization factors and by habits, values, and personality (Schroeder et al., 1995).

Moreover, the study of **long-term helping** that have emerged in social psychology attempts to find ‘the altruistic personality,’ explorations of the functions served by volunteering, and

analyses based on the concept of role identity (Grube and Piliavin 2000).

Finally, **macrosociological approaches** study long-term helping behaviors, considering both social and cultural capital as predictors of involvement in both formal and informal volunteering (Wilson and Musick, 1997).

Conditions for altruism in integrated evolutionary-system-game theories

Evolutionary, system and game theory studies have dedicated paramount integrated efforts to understand the conditions under which altruistic behavior is more likely to take place, to spread, and to become a successful and stable reference strategy in a given population.

An important outcome of such efforts is that, since there are different forms of altruism, evolved for different reasons, there are also, respectively, different conditions making altruistic behaviors sustainable, and winning.

We sought to summarize the most relevant conditions identified in literature.

- 1) **Kin selection:** the stricter the relatedness, and then the probability that genes identical to mine will benefit from my help, the higher the cost which is worth paying to help my relation (Dawkins, 1976). Strict correlation between the relatedness coefficient and the cost-to-benefit ratio of the altruistic act is demonstrated by both mathematical models and empirical observations (Frank, 1998).
- 2) **Direct reciprocity:** when two individuals are bound to interact many times, and each time are given the possibility to choose between cooperation and defection, both mathematical models and empirical observations demonstrate that cooperation results in the higher *overall* payoffs. But since defection usually yields the highest *individual* payoff in the short term, the temptation to defect will never disappear. What are the strategies that facilitate an evolutionarily stable cooperative equilibrium? First of all, the higher is the probability that two individuals will interact again in the future, the more sustainable will be the cost of cooperation for both parties (Nowak, 2006). Nevertheless, mathematical simulations and computer tournaments (Nowak and Sigmund, 1993) show that the most generous strategy, i.e. "always cooperate", is counter-productive, because it results in the invasion of opportunism, i.e. the "always defect" strategy, which makes the overall fitness of the population collapse. The most successful strategy is **conditional cooperation**, roughly synthesizable this way: "I decide whether cooperate or not with an individual on the basis of my previous experiences with that individual". The two most successful strategies for choosing between cooperation and defection on the base of previous experiences are the so-called *tit-for-tat strategy*, and the so-called *win-stay, lose-shift* strategy (Nowak and Sigmund, 1993). The mathematical implications of these strategies will not be described here (see for example Imhof et al., 2007): we will limit ourselves to highlighting that, according to these studies, even if the successful altruist in general does *not* cooperate with defectors, she or he gives some defectors a second chance. In other words, a **certain level of forgiveness** is an important component of an evolutionarily stable cooperative system based on repeated social interactions. Empirical observations corroborate the results of these mathematical models (Godfray, 1992; Nowak, 1992).
- 3) **Indirect reciprocity:** also indirect reciprocators, like direct reciprocators, pay a cost to create the conditions to be helped in the future. But whilst direct reciprocity is based on emotional triggers related with *gratitude*, indirect reciprocity is based on emotional triggers related with *reputation* (Engelmann and Fischbacher, 2002). As a consequence, in order that indirect reciprocity succeeds, it is essential that cooperative

and non-cooperative behaviors do not remain unknown, but **are witnessed and made known** throughout the population (Brandt et al., 2006). "Indirect reciprocity has substantial cognitive demands. Not only must we remember our own interactions, we must also monitor the everchanging social network of the group. Language is needed to gain the information and spread the gossip associated with indirect reciprocity. Presumably, selection for indirect reciprocity and human language has played a decisive role in the evolution of human intelligence" (Nowak, 2006).

- 4) **Network reciprocity:** Standard approaches to evolutionary game dynamics are based on the assumption that populations are well-mixed. In real settings, however, populations are often not well mixed: social networks or spatial configurations imply that each individual interacts much more often with some individuals than with others. This is the general condition under which network reciprocity may take place. If my altruistic behaviors benefit neither a single individual, nor the entire population, but all and only my "network neighbors", this may contribute to the forming of a successful *network cluster*. This process is modeled thanks to graph theory. Like in the case of indirect reciprocity, the mathematical analysis of this phenomenon is very complex, and a large part of this universe is still uncovered, but both theoretical and empirical studies confirm that network reciprocity is evolutionarily stable if the average number of network neighbors is small, and/or if the additional cost for a further neighbor to receive network benefit is negligible (Ohtsuki et al., 2006).
- 5) **Group selection:** populations may be divided into competing groups. Groups differ from network clusters in that an individual may belong to and cooperate with more than one network cluster, whilst groups, in this evolutionary model, have strong boundaries and inter-group relationships are based on competition only. Under this condition, multilevel selection favors intra-group cooperation, provided that the number of groups is large enough, and the maximum group size is small enough. Also in this case, mathematical models have been developed to predict if real-world conditions are compatible with the emergence of intra-group cooperative behaviors (Keller, 1999). Moreover, empirical observations demonstrated that the perception of **external threat** influences the psychological attitude to altruism within a group: if something important is at stake at the higher level of competition (e.g. in case of war), cooperation at the lower level, i.e. within the group, is more likely (Rainey and Rainey, 2003).
- 6) **Altruistic punishment:** mathematical models and empirical observations confirm that both direct and indirect reciprocity are dramatically strengthened if someone is ready to pay a cost to punish selfish behaviors. In this case, then, the altruistic behavior does not take the shape of help towards specific individuals, but takes the shape of a general deterrent against defection. The conditions for altruistic punishment to take place depend on the form of defection it punishes: in case of direct reciprocity, the evolutionary stability of altruistic punishment increases with the probability that further interactions between the defector and the punisher will take place again in the future; in case of indirect reciprocity, the evolutionary stability of altruistic punishment increases with the probability that the punishing behavior is made known throughout the population and improves the reputation of the punisher (Sigmund, 2007). Altruistic punishment is so important that humans have developed a specific strategy to make sure that opportunists are punished, even if an effective punishment is too costly to be performed by a single individual: according to this approach, in fact, the main function of **regulatory institutions** is to systematically

make cooperative behaviors more rewarding, and opportunistic behaviors less rewarding (Ostrom and Walker, 2005).

- 7) **Competitive altruism:** there are complex relationships between status, competition and altruism. In some cases, for example, it has been proven that generous behaviors are associated with the achievement of leadership positions, or with the conquest of good sexual mates (Roberts, 1998). Nevertheless, these issues have been scarcely investigated by the integrated evolutionary-system-game theory approaches so far. In other words, evolutionary studies on these issues gathered interesting empirical evidence, but are scarcely interested in setting up system-oriented mathematical models that predict the evolutionary stability of this kind of behaviors. As a consequence, for the time being, the corpus of studies identifying the conditions under which this form of altruism is successful is not as rich and systematic as in the case of the other forms of altruism described above (Zahavi, 1995).
- 8) **Unconditional altruism:** Integrated evolutionary-system-game theory approaches consider unconditional altruism as an instable strategy. In other words, if too many unconditional altruistic behaviors occur within a given population, the population becomes unable to withstand the invasion of opportunistic behaviors, as explained above. On the other side, unconditional altruism may be useful to start up new relationships, when it is still unknown whether the "player" we benefit will engage in direct or indirect reciprocity games with us, or will enter our group, or our network.

ALTRUISM AND VALUE CREATION

Altruism and value creation in the industrial network perspective

In the Industrial Network perspective, a relationship is defined as a “mutually oriented interaction between two reciprocally committed parties” (Håkansson and Snehota, 1995). Relationships are characterized by a process unfolding over time, based on interdependencies. When discussing value in such a context, it is then reasonable to assume that there are two parties actively involved in creating value through and in that relationship. There is not just one party creating value and the other consuming it, but two active parties co-creating value (Forsstrom, 2003).

Each actor, being member of a network, supports the access to resources controlled by other actors. The interdependence is multidimensional and is referred to links of activity, ties of resources and bonds of actors. Activities and resources of the involved companies are interlocked and they jointly produce something that one company could not achieve alone. The Network perspective requires to take into consideration the view of the entire activity pattern in which the value creation comes from the complementarity of connected resource collections, and not only from the exchange of resources (Johanson, Strömsten, 2005).

The value generated in the network can be investigated through the ARA Model (Actors, Resources, Activities) (Håkansson, 1987). Resources can be identified as means through which actors develop their activity. Activities are processes developed in order to transform resources that are created during the interaction. We can recognize physical resources (product and production facilities) and social resources (organizational units and relational units) (Håkansson, Waluszewski, 2002).

The four types of resources are dependent from one another. The products are created in direct and indirect interactions that influence their property. The production facilities, that support a better use of resources and a cost decreasing, have latent features that can be

activated only through interaction. Resources use and value depend on the way through which they are combined (ties) with other resources that belong to, and are used by, other actors. The value of resources is dependent on the use of their features and thus on the relationship between the provider and the user. In the relationship perspective, resources are a result of activities, as well as a condition that makes certain activities possible. The repetition of action and transaction creates links among activities. The results reached in relationships depend on the link that an organization develops and maintains with other organizations. Bonds among actors determine the organization's identity and influence the ability to relate with other organizations. This is the base for a reciprocal development in a changing context. A firm interacts with organizations that are directly or indirectly linked. The relationships connected in the network can be considered as a mechanism for knowledge co-ordination and for information sharing. The performance of a company in the business network is determined by how useful it is perceived to be by others; it reflects its contribution to activities of those directly but also indirectly related (Håkansson and Snehota, 1995)

Altruism and value creation in integrated evolutionary-system-game theories

According to evolutionary studies, value is measured in terms of fitness. Altruism creates value, then, when it favors the setting up of a stable cooperative equilibrium: in this situation, the overall fitness of a population is maximized. For example, a population where indirect reciprocity works well (i.e. where altruistic punishment is possible, and effective communication ensures truthful reputation for cooperators, defectors and altruistic punishers) will have a better overall fitness than a population where information opacity prevents effective decisions about cooperation/defection choices (Brandt et al., 2006).

The contribution of altruism for value creation is then essential from an evolutionary standpoint: it is only when the lower level begins to steadily cooperate that the higher level develops system capabilities and can, in turn, compete (West et al., 2007).

Not only are the integrated evolutionary-system-game theories providing rich analytical tools to understand the conditions under which sustainable cooperation may take place; they are also providing tools which may be developed to measure the cost-to-benefit ratio of cooperation in specific business settings (Nowak, 2006). We suggest that such tools could be usefully taken into consideration by management studies.

CONCEPT MATRIX: ALTRUISM IN BUSINESS SETTINGS

Form of Altruism	Description	Conditions making the altruistic behavior stable (good cost/benefit ratio)	Example in business settings and industrial networks
Kin selection	I help those who share my genes.	The stricter the relatedness, the higher the cost I am ready to pay for helping.	Family businesses.
Direct reciprocity	I help who is likely to be in the condition to help me in the near future.	I decide whether to cooperate, and to what extent, on the basis of the probability of new future interaction with the same subject, and on the basis of previous experiences (tit-for-tat; win-stay, lose-shift).	Long term business partnerships.
Indirect reciprocity	I help someone <i>even if</i> he or she is <i>not</i> likely to be in the condition to help me in the future, for the sole purpose to build my reputation as good cooperator.	I decide whether to cooperate, and to what extent, on the basis of the reputation of the subject I interact with, and on the basis of the publicity given to my behavior.	Business clubs as "reputation incubators".
Network reciprocity	I help those with which I interact more often.	I decide whether to cooperate, and to what extent, on the basis of the sustainability of the dimension of the network cluster.	Supply chains.
Group selection	If the group I belong to is subject to competition with other groups, I give help within my group.	I decide whether to cooperate, and to what extent, on the basis of the perceived seriousness of the external threat and on the basis of the size and number of the competing groups.	Workforce loyalty.
Altruistic punishment	I punish defectors and cheaters, even if punishing is costly.	I decide whether to punish, and to what extent, on the basis of the probability of further interactions with the same subject, and/or on the basis of the degree of social praise for altruistic punishing.	Costly contract cancellation to punish unfair partner. Regulatory institutions.
Competitive altruism	I show costly generous behaviors to those who can decide about my competitive position.	(scarcely studied so far)	Wasteful gifts to a potential customer, to be chosen as a supplier.
Unconditional altruism	I give help, for none of the reasons mentioned above, i.e. expecting no payoff.	Possibly useful to establish new relationships. Dangerous in direct/indirect reciprocity contexts.	Generous behaviors may result in being accepted as a new network neighbor.

CONCLUSIONS

If we consider organizational studies and theories of the firm, we can see that the importance of altruism as a basic strategy for business interactions is quite under-investigated. Both TCE (Transaction Cost Economics) and RVB (Resource Based View of the firm) have not developed tools to understand under what conditions self-organizing cooperative business interactions may take place. The role of altruism in value creation has been largely underestimated by such approaches, which did not develop tools to identify and measure altruistic cooperation in business settings.

Among the main theories of the firm, only the Relational View seems to have developed approaches and tools capable to understand and to assess phenomena related with altruism in business settings.

Indeed, more and more scholars recognized the limits of purely economic accounts of altruism and the complex interplay of social, psychological and economic factors in economic behavior (Arnsperger, 2000). As pinpointed by Lunt (2004), altruism is a complex concept at the boundary of evolutionary, economic, social and psychological theory.

Furthermore, focusing on interconnection between individuals, as well emphasized by Garza et al. (2010) literature focuses on the fact that altruism occurs not only in dyadic interactions, but also, and importantly, in the wider social context of network interactions.

From this perspective, firms create value through relationships on the basis of collaborative learning (Håkansson, Havila and Pedersen, 1999).

As well emphasized by Hammervol (2011), trust, commitment and partner-specific adaptations are key factors in value creation in the context of long term inter-firm relationships. We suggest that *sustainable altruism* may be considered as a key enabler for trust, commitment and partner-specific adaptation, and then may be considered essential for value creation.

On the other hand, value creation is identified in the process through which the capabilities of partners are combined to improve competitive advantage of the partners (Borys and Jemison, 1989). Focusing on Industrial Network approach, we can outline how altruism can be considered as an important feature of actors, identified as individuals or collective entities or organizations.

Through interaction, every actor acquires an identity. In addition to this, the outcomes of an actor behavior arise from a way that it interacts with the behavior of particular counterpart (Håkansson et al., 2009).

From this perspective, through bonds, resources of actors and activities become embedded (Håkansson et al., 2009: 139), considering interconnections between actors related to mutual orientation, preferences and commitment.

An actor is dependent on a specific web of actors and exists as a consequence of interaction with these actors. Actors are both the outcome of the history of their interactions within this specific web, and a force that drives that interaction (Håkansson et al., 2009).

From this perspective, altruism can be considered both as a feature of the character of an actor (strictly related to its nature) and as a feature that can be influenced by the interaction. An actor, in other words, can be altruistic because this feature characterizes its nature, but also because this characteristic is recognized by the other organization with which it interacts.

This requires paying a particular attention to the feature of organizations with which the relationship is developed, in order to go more in depth into the possibility of cooperation.

In addition to this, on the basis of this analysis, it may be interesting to investigate the ability of altruism to be both a feature of the actor and a resource that could be shared among actors

in a relationship. It may be fruitful to investigate, through empirical evidences, the ability of altruism to influence the process of resource combining in a network perspective.

Our hypothesis is that altruism can successfully influence the processes of resource combining, by increasing the involvement of actors and the adaptation of their aims.

The integrated evolutionary-system-game theory approaches, on the other hand, proved capable to provide very interesting insights in the issue of altruism. It is a very effervescent field of studies, where cutting-edge outcomes are expected in the next years; but evolutionary-system-game theory approaches are already capable to provide not only sound explanations to the phenomena related to altruism and cooperation, but also quantitative tools to predict under what conditions altruistic behaviors are robust, sustainable in the long run, and capable to maximize the overall fitness. Such outcomes would be very useful if borrowed by management studies, because an aware governance of cooperation is revealing itself as a major challenge in the globalized economy.

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