

Reproducing the Firm: Routines, Networks and Identity

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Firms exist because jointly people can produce goods that they cannot produce individually, or they can produce these goods much more efficiently. People collaborating in firms can do so because of the social fabric that they create and maintain, somehow, inside the firm. The social fabric consists of the relations between individuals, in terms of a multitude of possibly overlaying social networks (Aalbers & Dolfsma 2015), as well as of routines that grow from these social relations. The social relations can, but need not be informal – indeed, a plurality of social relations between individuals potentially exists inside a firm. Routines, a concept similar to the concept of institutions, but best used in a more restricted manner, perhaps, referring to specific micro-level practices, must be supported by social relations. They can however develop to become independent of the social relations that support them, especially when routines are formal.

Reproduction of institutions, including firms and the social relations and routines inside a firm that in part constitute it, is not self-evident (cf. Dolfsma et al. 2011). We argue, drawing on institutional economics and social psychology, that participants in a firm, individuals and groups, need a sense of purpose or identity in order to autopoietically reproduce (Luhmann 1995). In order for a firm to reproduce through actions of agents that are not fully and constantly monitored a sense of purpose must be shared. Without a shared purpose, the alternative would be full and constant monitoring, assumed sometimes, implicitly in principal-agent theory, but impossible per se in practice.

A theory of the firm, thus, we argue, may imply not just that social relations are present and studied, that the activities of agents are somehow parsimoniously understood using the concept of routines, but also that it is recognized that a sense of shared purpose is required among participants. Even if social relations (largely) persist between the same individuals, and even if they continue to behave in accordance to the same routines, we argue, a firm may not be reproduced if there is no organizational identity that is shared by all involved.

1. Relations and Networks

The division of labour inside firms makes a firm a thoroughly social entity in the sense that the individuals inside firms must communicate, exchange knowledge and information and constantly align their activities with each other. Individuals do so formally and explicitly, as well as informally and tacitly. The multiple types of relations between individuals in a firm constitute a diversity of networks inside a firm that easily becomes complex (Aalbers & Dolfsma 2015). Figure 1 illustrates the diversity and resulting complexity of even a single relatively small sized network. Any social grouping, including a firm, will have multiple such networks. The number of possible directed connections between individuals in a single network is $n!$ In this fictitious example that would be $5!$, which equals 120 possible (directed) relations.

Figure 1 is not the representation of an actual network in a firm, but Figure 2 is. Figure 2 presents the network of relations between employees who themselves chose to give advice to others (i.e. advice network) in Company Q. They are based in the research

department of a financial company that is part of a large multinational company operating in the automotive industry. Part of this research team is based in its USA headquarter (green), and part of the team is located in some other location on the globe (orange). The department-internal advice network is presented in Figure 2. We collected data for three other networks, and there are more networks to be recognized in this as well as in any other firm. The relative lack of social interactions between the individuals in this department is recognized by its senior management as a potential threat for the department's continuity and a situation in which opportunities are not created and developed.

<Figures 1 and 2 about here>

While there are a number of possible networks in each organization, the formal-workflow, the informal-friendships and the advice networks are important ones for a firm to properly function. The first is shaped by management and involves mandated interactions and exchanges. The second is self-initiated and a source for the development of trust. The third is self-initiated as well, but is work-focused too. A firm that has a well-developed advice network, and individuals well-positioned in it, can expect to outperform other firms (Sparrowe et al., 2001). These three networks, and possibly others, are all means by which individuals exchange information and knowledge that is relevant for a firm's ongoing operation.

2. Routines

Much aligning of activities and sharing of knowledge is not explicitly and separately mandated by senior management, and may occur even without the individual employees making conscious decisions. The aligning and sharing often happens when an individual is not even in direct contact with another individual physically present. This is possible because of explicit policy about what employees should do, as well as in a substantial number of circumstances because of routines that emerge about expected behaviours of individual employees in a firm. Routines can differ widely between firms. Routines set expectations among all individuals involved in a practice about what is appropriate behaviour to show in different circumstances, triggering an if→then sequence of behaviours. Routines are of the if→then kind making it sure that individuals act without giving a situation much thought. Organizational routines thus create a status quo expectation among participants in a firm, or practice generally, which (help) reproduce the firm.

As Kenneth Boulding has taught, however, each practice (or system) faces an external environment that affects it (Dolfsma & Kesting 2013), "irritates" the if→then routines that make the system work as Niklas Luhmann (1995) would put it. What is needed, then, is a conceptualization of what might stabilize the systemic nature of a practice again, after it is irritated.

From the interactions a plethora of routines emerged in Company Q that guide how individuals work and collaborate. Routines, for instance, about how to have meetings, when to have meetings, and what medium should be used for the interactions. Routines about how to organize department meetings, and how to involve the colleagues located elsewhere. One part of a meeting, for instance, is to have colleagues talk about an academic conference they have attended (most individuals in this innovation department have a PhD in econometrics, statistics or for instance computer science). This was a standing agenda item in addition to updates about ongoing projects. In addition, there are routines -when formalized these boil down to department or firm policies- about sharing information to a larger group than just a

conversation partner. The department held separate academic meetings, seminar style. The routines that emerged or were instigated affect employees' private lives too, as some routines determine how (very) early in the morning to have meetings with colleagues physically located elsewhere or about who can physically liaise between the two locations.

Sometimes some established (mundane) routines may not be useful anymore, but some general or meta-routines may be invoked to search for a solution that is largely in line with the established (mundane) routines that are not challenged. Meta-routines are "mechanisms that modify existing routines and guide the search or and selection of new routines" (Van Driel & Dolfsma 2009, p.52). Meta-routines are invoked to modify existing routines or search and develop new ones (Nelson and Winter, 1982, p. 18). Invoking these may allow the firm to return to a manageable situation without resort to a more fundamental reorientation.

Social network relations between individuals in a firm offer the means by which novel kinds of routines are sought as information spreads across individuals in an organization through the contacts maintained. Social interactions will thus stabilize a system again after irritation - new routines emerge or existing routines are reconfirmed in the social interactions that constitute a network. Because of this function social networks have, in addition to supporting the development of routines, social network relations help determine when possibly routines can be departed from without upsetting a status quo.

3. Sense of Purpose: Organizational identity

While purist social network scholars would argue that the shape of the social networks in a firm, as in any other social grouping, will determine the nature of the interactions inside them, including the routines that emerge, we argue that something else is at play as well.

According to social identity theory, a firm's self-definition of identity reflects constituents of a shared understanding regarding what is central, distinctive and enduring about an organization (Albert & Whetten 1985; Ashforth & Mael 1989). This identification influences firm actions and behaviour (Ashforth, Harrison & Corley 2008; Ullrich et al. 2007). It serves a coordinating and guiding role, including at a meta-level, providing individuals within a firm with a focal point for what constitutes legitimate action in line with the organizational identity. Stronger identification thereby motivates people to pursue beneficial outcomes for the firm in question to ensure its reproduction.

The social identity espoused in Company Q shapes the kind of meetings it has, and what is discussed in them. The MNC that directs the financial arm of which research department is a part at arm's length has faced steep competition for decades and has had trouble positioning itself in the market. Some believed that it did not have a unified purpose, which made it difficult for customers to understand what it was all about. From our perspective for this paper, this means that well-intended individuals employed in the MNC could undertake activities that even undermined the firm's own goals. General management has more recently made a big and concerted effort to change this, which changed many of the practices, interactions and routines in the firm by producing and getting support throughout the firm for a shared organizational identity. The identity reshaped routines, sub-department positioning and formal reporting structures. One example of this is the way in which individuals' performance was assessed – this changed to reflect team contributions as separate explicit items. The personal development reviews changed in style, in part as different information was recorded, but this change also materialized in new documents and IT systems being developed.

A firm's social identity informs the nature of the interactions between individuals in general, but in particular for non-trivial, new situations for which no routines exist (yet). A firm's social identity, reflecting the values its people hold (cf. Dolfsma & Verburg 2008), thus

is involved in the setting of novel routines as well that, ultimately, (help to) reproduce the firm.

4. A framework: Equivocality and Uncertainty

Routines, Networks and Organizational Identity are important for a firm to be able to reproduce. Reproduction of an institution such as a firm is not self-evident. The three mechanisms will play out more or less, depending on the circumstances that the firm finds itself in. We would like to suggest a characterization of the environment under which these circumstances are likely to be most manifest (Table 1). In order to do this, we argue that, for a firm as an information-processing entity (Ocasio 1997), pressing characteristics of its environment are the uncertainty it faces, and the equivocality met with (cf. Daft & Lengel 1986). The two are related, but different, and might usefully be discussed as separate concepts here (cf. Dolfsma 2001).

<Table 1 about here>

Mindful of the Knightian distinction between risk and *uncertainty* (Knight 1921), we define the latter as the situation in which not enough or not the right kind of information is available for decision makers to make sound decisions in. If more and the right kind of information would be available, however, such decisions would be made. *Equivocality*, however, is present when information can be interpreted very differently, depending on agents' viewpoints – additional information may not resolve the differences. Viewpoints may persist despite adding information; adding information will not resolve the confusion and lack of understanding. It is the task of organizations to reduce uncertainty as well as to reduce equivocality (Daft & Lengel 1986, p.555). The question is which mechanisms it can use best under which circumstances.

We suggest that when both uncertainty and equivocality are low, established routines and working procedures can be used to maintain the firm as a going concern.

When uncertainty increases, but equivocality remains low, established routines may not be useful anymore. Invoking meta-routines will allow the firm to return to a manageable situation. For Toyota, for instance, such a meta-routine is that of “self-testing, trial and error” which means that any solution to a problem it confronted should be fully understood oneself rather than be bought in from outside experts before being implemented (Van Driel & Dolfsma 2009). The organizational identity of Philips, for instance, for a long time was “local for local” meaning that solutions and responsibility are to be found at as low a hierarchical level as possible (Blanken 2002, p.19).

When uncertainty is low, but equivocality is high, there is a need for active aligning of viewpoints using what might be called ‘rich media’ such as face-to-face meetings of a bilateral nature or in small groups. Interaction is rich if more ways of communication are used and the response can be immediate. Phone calls are rich still, as there is the potential for immediate feedback, but they are less rich since they only use the medium of audio. In this case, therefore, social networks are drawn on.

When both equivocality and uncertainty are high, an organization's organizational identity is at play. The organization will find itself discussing what its purpose is, and how it understands the world it inhabits so it can create shared understandings amongst its employees without which it cannot function. Social networks and to an extent meta-routines can help establish an organizational identity. Yet, an organization's identity makes sure that employees understand and decide broadly in line with what the (implicit) purpose of an

organization is – while meta-routines, routines and the functioning of social networks in an organization need to be broadly in line with an organizational identity in order to reduce uncertainty and equivocality, none of these mechanisms can itself be fully prescriptive of an individual's behaviour (cf. Dolfsma et al. 2011), yet together they support a shared sense of purpose that helps reproduce the firm in case of uncertainty and equivocality.

5. Conclusion

The argument made in this paper is that the expectations that (meta-) routines set in an organization, supported by the social network connections between individuals in that organization, and guided by the social identity held by individuals inside it, offer a powerful explanation about how a firm reproduces as it faces challenges in its environment of uncertainty and equivocality that prevent firm reproduction.

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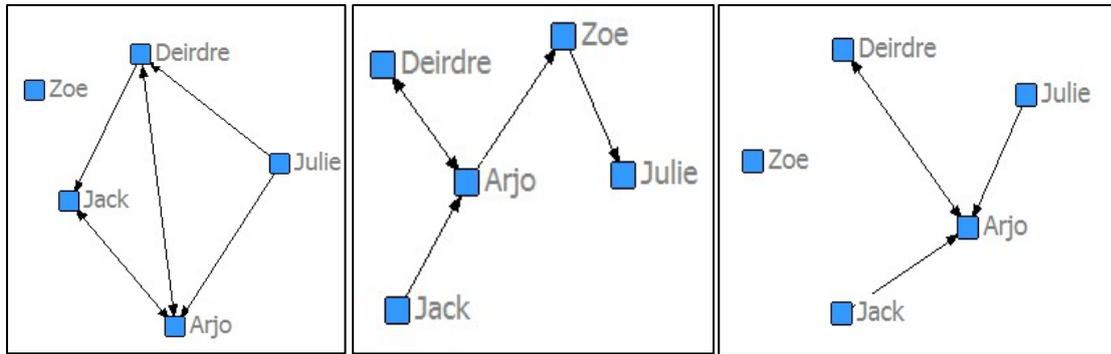


Figure 1: Fictitious examples of a network between 5 individuals.

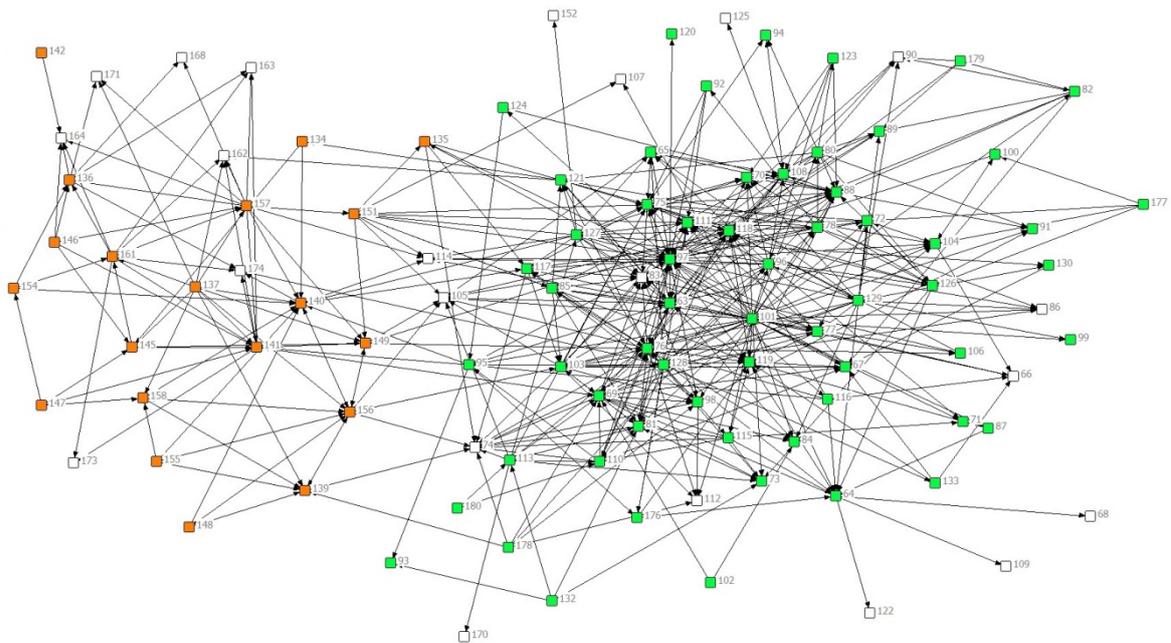


Figure 2: Advice-network of researchers in the financial arm of Company Q, a global player in the automotive industry.

Table 1: Firm Reproduction Mechanisms in different circumstances

		Uncertainty	
		High	Low
Equivocality	High	Organizational Identity	Social Networks
	Low	Meta-routines	Routines

