

Innovation for a Reason: A Theory of Organizational Authority and Innovation

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Abstract

Despite the variety of ownership and governance authority structures among firms in contemporary advanced industrialized countries, there has been surprisingly little research on the relationship between organizational authority and innovation. This paper seeks to develop a theoretical framework with which to examine how organizational authority shapes a firm's effort at innovation. Organizational authority can be more or less broadly distributed within an organization along two axes: ownership and governance. I define innovation broadly as adoption of ideas and behaviors new to an organization, and specify three key variants: technological, organizational, and value chain innovation. The most prominent research on organizational authority and innovation operates at the micro-level, suggesting that firms with broad-based organizational authority can better motivate organizational innovation but have difficulty incentivizing capital investment for technological innovation. Given the abundance of innovation research on inter-organizational determinants, I propose that insights may also be gained from this literature. In particular, I propose that broad-based organizational authority operates as an important source of identity that can either facilitate or inhibit inter-organizational collaboration. Furthermore, I propose that firms with widely distributed organizational authority are more likely to develop stronger inter-organizational relationships with geographically proximate firms. To illustrate how these theoretical claims apply, I examine a number of innovation opportunities in the history of the Mondragon cooperatives, a large network of worker cooperatives in Northern Spain. These cases illustrate how a firm's authority structure, as well as the organizations that surround it, shape the types of innovation it is likely to pursue and its effectiveness.

Introduction

There is a curious abundance of majority employee owned firms in knowledge-intensive industries yet, to date, scholars have devoted little attention

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to understanding how organizational authority shapes innovation. A large segment of employee owned firms in the United States operate in technology-intensive product areas, have highly credentialed employees, and serve high-value markets. For example, 19 of the 100 largest American majority employee owned firms are engineering or architecture firms. On that list are knowledge-intensive management consulting firms like Abt Associates and Westat, or the innovative manufacturing firm W.L. Gore, the creator of Goretex fabric (NCEO 2012).² What is the relationship between widely distributed organizational authority and innovation?

In the United States, if not most advanced industrialized economies, the concentrated ownership model is dominant. Just as illustration, family owned firms comprise 80% to 90% of business enterprises in North America and 35% of Fortune 500 firms (Astrachan and Shanker 2003). Yet, in the wake of the recent financial crisis and concerns about rising wealth inequality, there is a renewed interest in alternative modes of economic organization.

There are numerous alternatives. Historically, unions served as a counterweight to investor interests, pressuring firms with concentrated ownership to provide long-term employment and family sustaining wages. Particularly in cases where unions have seats in governing bodies, as in the case of German co-determination, the authority to set the long-term goals of the organization is more broadly distributed within the firm. Increasingly, worker representation through unions has been replaced by the high involvement work practices of human resource departments, where employees are given opportunities to participate in management decision-making and, less frequently, the long-term strategic planning of firms (Appelbaum et al. 2000). More recently, employee ownership has been identified by many as a promising alternative to the dominant mode of firm ownership. Today, in the US, there are nearly 2,500 firms with majority employee ownership (NCEO 2012). Another alternative, of which there are between 300 and 600 in the United States, is the worker cooperative, combining worker ownership and democratic governance.

² <http://www.nceo.org/articles/employee-ownership-100>

If we are to consider these alternative modes of economic organization, question the consequences of concentrated firm ownership, and propose future economies with greater organizational heterogeneity, we should understand better how these firms are likely to operate in dynamic market contexts. In contemporary management discourse, these types of organizational change are often subsumed under the rubric of innovation. Innovation accounts for an increasing proportion of corporate budgets (Hage 1999) and is touted as central to the competitiveness of contemporary businesses in advanced industrialized countries.

While there has been little explicit focus on this topic, existing analytical lenses focus our attention on micro-level mechanisms. In particular, economists and organizational theorists have focused on the incentives and information premia that variations in organizational authority provide for stakeholders and the implications for the types of innovation they effectively pursue (Dow 2003, Hansmann 1996). The innovation literature, however, focuses much attention at the inter-organizational level and this perspective is lacking in the micro-level scholarship on organizational authority (Lam 2004). In particular, the micro-level perspective offers little assistance in understanding how firms adapt to new supplier and client markets.

Thus, in this paper, I develop a theoretical framework that specifies how organizational authority simultaneously operates at the micro and macro-social levels to shape the pursuit and realization of innovation. In particular, I argue that authority structures constrain firms' ability to pursue particular types of innovation, and that they must rely on inter-organizational collaboration to compensate for their limits. However, the range of potential collaborators is also shaped by their authority structure as well. Norms around organizational authority are highly institutionalized, thereby either legitimating or ostracizing firms and altering the range of potential collaborators.

In the final section of the paper, I use a case study to demonstrate the relevance of these claims. I apply this framework to a number of innovation events within the Mondragon cooperatives, a network of nearly 120 worker

cooperatives in the Basque region of Spain. As an extreme case of distributed organizational authority in a context that strongly legitimates this form, innovation events at Mondragon offer vivid illustrations of the mechanisms at play.

Defining Innovation and Organizational Authority

The term innovation captures the range of challenges and opportunities an organization faces in adapting to a dynamic context. The term is often used synonymously with the term “organizational change” (Poole 2004). For the purposes of this paper, I define innovation as the adoption of ideas or behaviors that are new to an organization. This definition is intended to be sufficiently broad that it can incorporate the various types of innovation discussed below.

Three dimensions of this definition are worth specification. First is that innovation necessarily occurs within some organizational context, meaning within a set of institutionalized social interactions. This is because innovation involves not only the creation of a new technology, the identification of a new constituency of consumers, or a shift in an organizational process, all of which may be generated by an individual in isolation, but the combination of all three. Invention of a new technology, on its own, does not generate value. Some constituency must value and have the opportunity to consume that new technology. That technology must also be repeatedly produced, even if each instance is unique, in a manner where the costs are not prohibitive. Second, innovation entails the adoption of a novel behavior or idea, meaning that it changes a set of organizational routines within an organization (Nelson and Winter 1982). Thirdly, innovation entails the survival of the organization. In other words, some sub-set of the institutionalized behaviors that characterized the organization are retained.

Schumpeter defined five types of innovation: new products or services; new production methods; new supply sources; new markets or applications; and new modes of organization (1961). Lam (2004) condenses these five types to three types: organizational change, technological change, and new market relationships. Her categorization is useful because it aligns with general divisions

within the research literature. *Technological innovation* is the development of new products and services (for a review see Ahuja et al. 2008). *Organizational innovation* is the adoption of new production processes (for a review, see Lam 2004). These two dimensions of innovation map loosely onto Tushman and Nadler's (1986) distinction between product and process innovations. The third dimension, *market innovation*, captures changes in inter-organizational exchange relationships. One of the more prominent streams of research on market innovation originates from von Hippel's work on "user-driven innovation" (1988), in which he argues that many innovations are driven by the changing demands of consumer markets, as opposed to technological or organizational innovations.

There is also a dimension of scale to innovation. Tushman and Nadler (1986) distinguish between incremental, synthetic, and discontinuous innovation, with discontinuous innovation being the most radical of the set. Less radical innovations result from the reorganization of knowledge previously existing within an organization. By contrast, discontinuous innovation emerges from the application of ideas or behaviors that are novel to an organization (Vanek 1970). However, all three types of innovation discussed above can be more or less novel.

Organizational Authority

Authority can be defined as formal control over the long-term goals of the organization. This control has two dimensions. The first is the distribution of legal control over assets. Asset ownership entails final legal authority over the use of the assets and rights to the organization's residuals or profits (Rousseau and Shperling 2003). At one end of the spectrum, ownership can be concentrated in the hands of a single individual. At the other end, ownership can be broadly distributed among the employees of the firm. While publicly traded firms have many owners, the passivity of shareholders due to collective action problems and incomplete information cause these firms to more closely resemble situations of

concentrated ownership, where maximization of market capitalization is the unitary goal (Berle and Means 1932).

The second dimension is the distribution of governance authority, in that employee owners either have direct or indirect voice in the strategic decision-making of the firm. Here, on one end of the spectrum are firms where a single individual, often the majority owner, holds final strategic decision-making rights over the long-term direction of the firm. Yet, narrow governance authority is not necessarily associated with narrow asset ownership. In the case of many firms with Employee Stock Ownership Plans, ownership over the assets of the firm are broadly distributed among employees but rights over long-term strategic decision-making are held by an executive committee that has limited accountability to the owners. Alternatively, in the case of a worker cooperative, each worker owner has an equal stake in governance. In that case, each owner either has a vote to appoint the board of directors or has the right to sit on the board themselves. Finally, narrow ownership does not necessarily equate to concentrated governance. In the case of firms under German co-determination, firms with union representation on boards, and firms that hold board positions for employee representatives, governance may be more broadly distributed even though ownership is narrowly concentrated. Chart 1 lays out the varieties of organizational authority and where different organization forms fall along these spectra.

	Narrowly Concentrated Ownership	Broadly Distributed Ownership
Narrowly Distributed Governance	<ul style="list-style-type: none"> • family-owned firm • single-owner firm • publicly-traded firm 	<ul style="list-style-type: none"> • Employee Stock Ownership Plan (ESOP)
Broadly Distributed Governance	<ul style="list-style-type: none"> • co-determination • union board representation 	<ul style="list-style-type: none"> • worker cooperative • ESOP with board representation

Chart 1: Variations in Organizational Authority

Linking Organizational Authority to Innovation

Despite the variety of authority structures in contemporary firms, to date this dimension of organizations has received insufficient consideration among scholars of innovation and organizational change. To clarify the gap that this paper seeks to fill, it's important to distinguish organizational authority from another dimension of organizational structure frequently cited in the innovation literature. The foundational work by Burns and Stalker distinguishes between bureaucratic and organic organizational forms (1961). Organically structured firms are characterized by shifting leadership, continual readjustment of tasks and responsibilities, a culture of affective commitment, broadly-distributed knowledge, and a network structure of control. Bureaucratic firms are hierarchical, compartmentalized, and formal. According to the authors, these two ideal types form bookends of a spectrum of organizational characteristics that explain innovation.

Formal authority, however, merits a distinct treatment. Burns and Stalker's typology fails to answer a fundamental question: who sets the long-term goals of the organization and who has authority to change those goals? Furthermore, who in the firm has the authority to decide whether or not to adopt an organic or bureaucratic organizational form? This is not to suggest that there is not a correlation between types of formal authority and particular organizational structures. The organic/bureaucratic distinction resembles the governance dimension of organizational authority, but says nothing about the ownership component. As will be discussed below, however, the incentives of ownership have important consequences for innovation.

To develop a theory of organizational authority and innovation, I begin with existing scholarship on the topic, which uses micro-level rational choice theory and transaction cost economics to explain variation in outcomes. In their view, it is the interests of and types of information available to those in power that inform the relationship between authority and innovation. Because that literature says little about inter-organizational collaboration and market innovation, I look to the literature on inter-organizational innovation next.

Micro Views

Most of the extant research on firms with broadly distributed organizational authority comes from economists and business scholars, who have focused on mechanisms at the individual and intra-organizational levels of analysis (Dow 2003; Hansmann 1996; Aghion and Tirole 1994). From this perspective, laborers and investors have distinct interests and goals. Laborers seek to maximize returns on labor while investors seek to maximize returns on capital. Relatedly, they have access to different types of information. Laborers have greater knowledge about the daily production processes and internal organizational challenges of the firm, while investors have better information about the market value of the firm. These differences shape how these different types of firms pursue innovation.

According to this view, firms with broad-based ownership should more effectively conduct labor-intensive innovation (Aghion and Tirole 1994; Dow 2003). When workers have the opportunity to keep the gains from the innovation, this serves as an incentive for better performance. When the innovation is labor-intensive, the marginal improvement in innovative efficiency on the part of labor will outweigh the additional costs of contracting for investment, making it more efficient for workers to own the firm. Others have suggested that labor-intensive innovation tends to be process innovation, which broadly-owned firms can better realize because this activates the better tacit knowledge of daily practices that workers hold (Vanek 1970; Bonin 1983).

Alternatively, the microeconomic view anticipates that firms with broadly distributed worker ownership will be more constrained in their ability to gather capital and pursue technological innovation (Bonin 1983).³ In the worker-owned

³ Interestingly, some recent research suggests that the productivity premium of worker ownership may not be limited to labor-intensive innovation. Berenstein (2012) examined the impact of going public on patent generation, using a multi-industry dataset. He found that, using patent citations as a metric, companies produce less novel innovations after they go public. While he doesn't specify the distribution of capital or labor intensity in the sample of industries studied, these results are at least suggestive that worker ownership is an important source of productivity advantages in both capital and labor-intensive industries. Though he doesn't provide data to substantiate the claim, he suggests that the negative effect of public ownership on innovation is

firm, there are two potential sources of capital: worker-owner investments and external lenders. The investments of worker owners are tied in with their ownership, so the only way they can re-coop their investment is if the value of their ownership stake increases. Yet, if a worker-owner can only sell their share to another worker-owner, as is the case if the organization is to maintain their level of distributed authority, they will have far fewer opportunities to sell their share and, therefore, a less competitive market. As a result, worker-owners will be less sure about whether they are making a worthwhile investment, and may find themselves risk averse. Banks are less likely to loan because they have less ability to ensure that worker-owned firms will manage their assets responsibly. The interests of investors and workers are not aligned. Workers may want higher wages or less taxing work, but investors want higher profits. When investors lend to worker owners, they give up control over their investments to a group that may manage those investments differently than they would like. By contrast, a bank may be more inclined to lend capital to a set of investors, who are not involved in the day-to-day business and, therefore, are less likely to have interests that diverge from those of the lender.

Missing from these accounts, however, is a clarification of the differential effects of ownership and governance. Two micro-level approaches to employee ownership research help to distinguish between these two. The “1/n problem” (Meade 1972) formulation states that individual worker owners are unlikely to provide additional effort because the benefits from their increased productivity will be distributed among all owners, who may not provide equivalent effort, and who they are unable to monitor. The solution is to establish some sort of co-monitoring mechanism, like broadly distributed governance authority. Also looking at the costs of governance, Hansmann (1996) emphasizes how, in comparison to investors, worker owners have more heterogeneous interests, because of their varied roles and occupation. As a result, Hansmann suggests, worker ownership will operate more efficiently when workforces are more

due to stock analysts' demands for investments with short returns on investment (see also He and Tian 2013).

homogenous and when there are governance mechanisms to negotiate between varied interests. In both of these cases, broadly distributed asset ownership is a necessary but not sufficient condition to gain the productivity benefits of worker ownership. It must be complemented with broad-based governance.

Macro-Social Views

The analysis of organizational authority and innovation above is grounded in a micro-level approach, but a wide literature examines inter-organizational relationships as a key source of variation in innovation. Other organizations can provide information about potential markets, new inputs, new technologies, and new organizational practices (Ahuja et al. 2008). Alternatively, surrounding organizations may inhibit innovation by encouraging adherence to established routines. A micro-level focus misses these key dimensions of innovation and, in particular, offers little insight on the predictors of market innovations. Because there has been little macro-level analysis of the relationship between organizational authority and innovation, this is a key intended contribution of this paper.

Insights about the relationship between organizational authority and innovation from an inter-organizational perspective can take guidance from the business literature on organizational innovation (Lam 2004). Worker-owned firms' difficulty accessing external capital highlights the importance of access to external resources. Research in the resource dependence tradition warns about the way that reliance on other organizations constrains organizational autonomy, limits an organization's capacity to engage in strategic risk taking, and increases uncertainty (Pfeffer and Salancik 1978, Hillman et al. 2009). Firms can pursue a number of strategies to reduce the uncertainty of resource dependence, from mergers to inter-organizational collaborations. From a different perspective, the institutionalist view on organizational innovation has emphasized how the organizational field both legitimates organizations within it, but also constrains the range of acceptable organizational practices (DiMaggio and Powell 1991).

Together, these two theories suggest that firms of varied authority structures must manage relationships with other organizations to acquire the resources they lack internally, but that the range of potential partners may be constrained by the legitimacy of a particular organizational form within an organizational field. In their research on the use of hired labor in Israeli kibbutzes, Simons and Ingram (1997) found that the financial institutions, on which they were increasingly dependent, pushed them to adopt more flexible labor practices and began to undermine the principle of labor equity. The implication is that misalignment between the authority structure of the searching organization and its institutional environment may either lead to change in the authority structure or inability to develop relationships within that environment.

In this view, the distribution of organizational authority, whether in the form of asset ownership or governance, is better understood as an ideology or source of organizational identity than as a set of preferences, as in the micro-level view (Scott 2001). Firms with broadly distributed authority do not pursue employment stability and provide transparent communication to worker-owners because these are the interests of those with organizational authority. Instead, such organizations pursue these goals because they are consistent with the identity of the organization. Divergence from these goals would undermine the legitimacy of the organization among stakeholders. Rothschild-Whitt (1979) characterized organizations with broadly distributed authority as adhering to Weber's fourth ideal type of social action: value rationality. According to this ideal type, "authority resides not in the individual, whether on the basis of incumbency in office or expertise, but in the collectivity as a whole." (Rothschild-Whitt 1979; 511) The institutional view suggests that the extent to which a particular identity shapes the behavior of that organization is influenced by the prevalence of that organizational identity among surrounding organizations. In cases where that organizational form is the exception, other organizations may even act explicitly to suppress that organizational form (Schneiberg 2013).

The second set of insights about inter-organizational innovation and organizational authority comes from the literature on regional agglomerations and

industrial districts (Krugman 1998, Storper 1997). This literature argues that, in short, the globalized world is not flat but is spiked. The capacity of firms to innovate and thrive is informed by the locality in which they are embedded. Despite the advance of communications technologies and global transportation, firms rely on labor markets, informal relationships, and infrastructure, all of which is territorially grounded. In her well-known comparison of Silicon Valley and Boston's Route 28, Saxenian (1996) showed that network-based non-hierarchical local industrial systems encourage novel re-combinations of knowledge and resources. Her findings reinforced similar findings about local networks that allowed small manufacturers in northern Italy to survive in the context of globalizing production (Piore and Sabel 1984).

When we look to the inter-organizational relationships that facilitate innovation among firms with broadly distributed authority, local relationships should be particularly important. As labor is inherently less mobile than capital, worker-owned and governed businesses face geographic constraints that investor-owned firms don't face. Regardless of the commitment to place that a single owner holds, there are generally more workers than investors, except in the case of a publicly traded firm. It may not be coincidence that both Silicon Valley and the Italian region of Emilia-Romana, where Piore and Sabel conducted their research, are regions with concentrations of employee ownership. In Silicon Valley, many of the startup tech firms offered their employees equity as compensation (Leadbeater 1997), while Northern Italy has one of the highest concentrations of worker cooperatives in the world (Bartlett et al. 1992).

Theoretical Integration and Hypotheses

To understand how firms with varied distributions of organizational authority innovate, we need a model that combines micro and macro-social dimensions. There have been limited efforts in this direction. Using econometric simulations, Novkovic (2007) shows that democratic employee owned firms

survive longer and come to dominate industries with low rates of R&D investment, but also that their likelihood of success in these industries is bolstered through the presence of other democratic employee owned firms, from whom they can borrow novel practices and technologies without undermining their authority structure. Menzani and Zemagni (2010) argue that the success of Northern Italian coops is largely attributable to the networked relationships between coops. Neither of these studies, however, explains why firms with distributed organizational authority more effectively innovate in the context of other firms with broadly distributed authority.

Expanding on these recent pieces of research, the proposal advanced here is that distributed organizational authority places constraints on the types of innovation possible and organizational contexts potentially ease these constraints (see Chart 2). Drawing on the previous discussion, we can generate six propositions about the relationships between organizational authority, the inter-organizational environment, and innovation outputs.

P1a: Firms with broadly distributed ownership are more likely to undertake radical process innovation.

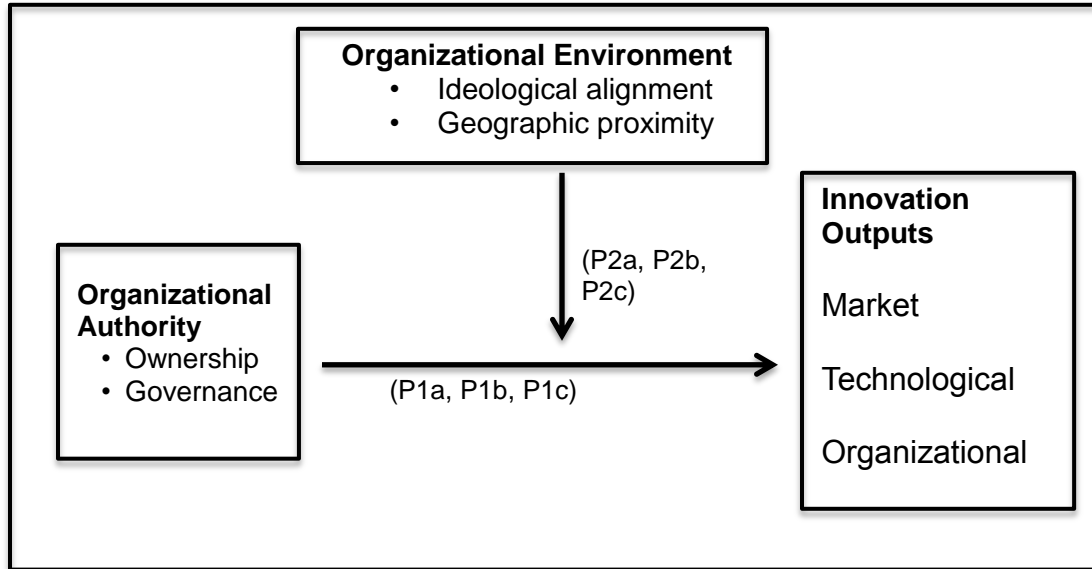
P1b: Firms with more concentrated ownership are more likely to undertake radical product and market innovation.

P1c: Firms with broadly distributed ownership and governance are more likely to radically innovate in areas of production where skills are rare and complex.

P2a: Firms are more likely to innovate, particularly in areas of product and market innovation, if they are embedded in an organizational field with aligned ideology.

P2b: The dominant institutions of the organizational field in which a firm is embedded will shape the degree of innovation it pursues.

P2c: Firms with broadly distributed ownership and governance are more likely to innovate through relationships with geographically proximate organizations.



An Extreme Case: Mondragon

“You have to keep in mind that we have a very important objective and that is the creation of employment, and at times we maintain, circumstantially at least, some jobs that other companies with a more capitalist motive would do away with at once. And this is a factor that hurts us from a profitability standpoint, but that pleases us as being consistent with our reason for being.” (Mondragon group President Jesus Catania in Bakaikoa and Albizu 2011; 136)

In the following section, I use a case of distributed organizational authority to demonstrate, across innovation types, how the authority structure of an organization and the other firms in its organizational context compel innovation and shape innovation pathways. The Mondragon cooperatives are *an extreme case* of distributed organizational authority embedded in a aligned organizational context. Whyte and Whyte wrote, of their choice to study the Mondragon case, “one concentrates one’s attention on the exception, in the hope that it will lead to a modification of the previously accepted generalization, or to a more basic reformulation, opening up new avenues for scientific progress.” (1991, 4)

Extreme cases are not intended to be representative of a broader population, but help to illuminate previously ignored variables and their relationship to broader phenomena. “Atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied.” (Flyvbjerg 2006, 229). For data, I draw on a number of book-length analyses of Mondragon (Cheney 1999; Whyte and Whyte 1991; Thomas and Logan 1982), from peer-reviewed articles, and from material gathered during a one-week workshop course organized by the Mondragon group in 2012.

Background

First established in 1954 in the Basque region of Spain as a single cooperative, Mondragon has grown into an integrated network of approximately 120 worker cooperatives, employing nearly 83,000 workers across a wide range of industrial and service industries (for summary, see Dow 2003). As of 2008, Mondragon provided 3.9% of total employment in the Basque region and 9.1% of the industrial employment. It is the largest employer in the provinces of Gipuzkoa, Bizkaia, and Navarra.⁴⁵

Currently, to be a member of the Mondragon Cooperative Group (Mondragon Corporacion Cooperativa, MCC), individual worker cooperatives must adopt a standard ownership and governance structure. Each worker owner within each cooperative purchases an equal equity stake. In turn, they gain a

⁴ <http://www.mondragon-corporation.com/ENG/Press-room/articleType/ArticleView/articleId/621.aspx>

⁵ Innovation is pervasive in Mondragon’s corporate discourse. As ratified by the Mondragon general assembly, innovation is one of the Mondragon group’s four corporate values. The 2011 Annual Report illustrates the centrality of innovation in the group’s corporate strategy, as well as its perceived success:

“Innovation continues to be an essential lever for generating new business for the future. In this regard, MONDRAGON assigned 165m euros to R&D; the Industry area earmarked a budget of 9.1% over value added; we have 508 families of invention patents and we are participating in 39 international R&D projects... 20.5% of sales in the Industry Area in 2011 were new products and services, which did not exist five years ago.” (5)

stake in the cooperative's residuals proportional to their wages and a single vote in the governing General Assembly. Each cooperative has two main governing bodies: the Governing Council, elected from the General Assembly, and the Social Council, elected from the non-managerial workforce. The Governing Council oversees long-term strategic planning and appoints management. The Social Council serves as an advisory board to assure that non-managerial worker interests are addressed by management. With the requirement of equal ownership stakes and the presence of dual governance mechanisms, the Mondragon cooperatives can be considered an extreme case of distributed authority.⁶

As the number of cooperatives has expanded, they have established nested sector-based groups of cooperatives with sets of shared enabling institutions. In their current configuration, the companies are independently operated, but share resources, collaborate, and coordinate activities within sector-based sub-groups and across the full network. As a whole, the MCC is governed by a Cooperative Congress, composed of representatives from each cooperative, given a number of votes loosely proportional to the number of workers in the cooperative. Furthermore, each of the sectoral groups and shared institutions is governed as a cooperative, according to representative democratic principles. Those workers employed by these second-level cooperatives share governance with the cooperatives that fund these institutions. With a network of organizations adopting the same broad-based authority structures, the Mondragon cooperatives can be viewed cases of organizations operating with an organizational context that legitimates a broad-based authority structure. In particular, three sets of enabling institutions are particularly central to their capacity to innovate.

Enabling Institutions

⁶ In the past 20 years, as part of Mondragon's expansion into global markets, increasing numbers of Mondragon workers, particularly abroad, are not members of the cooperatives. However, for most of its history, no more than 20% of workers have been non-members.

The Mondragon cooperatives have, since several years after the establishment of the first cooperative, shared a financial management institutions. The Caja Laboral Popular (CLP) bank not only pools finances, but it also audits the finances of the cooperatives that collectively own it, new start-up cooperatives, and firms that seek to join the MCC. Furthermore, it invests in start-up cooperatives. Another MCC cooperative, which was formerly part of CLP, provides a range of business and managerial consulting services. Similarly, several startup incubators have been established as shared institutions. Lastly, within the MCC is an office that gathers information on the organizational practices of each member cooperative, evaluates them according to a set of agreed standards, and disseminates the results among the group.

A second enabling institution at Mondragon is the network of research resources developed within the MCC. The group has established a network of 14 research and development centers, some serving specialized sectors and others serving the whole MCC group. The research centers themselves employ approximately 800 worker owners. At these centers, research is conducted on a project basis to help firms address technical problems in products or processes. While Mondragon cooperatives receive discounted service fees, the centers also collaborate with non-member organizations. The MCC coops also collaborate in their long-term strategic planning efforts. The MCC as a whole and the individual sector groups produce multi-year forecasts that identify emerging markets and core technologies that present opportunities for future growth.

Labor market institutions are the third key set of shared resources within the Mondragon group. The Mondragon group funds technical schools, a four campus university, and a center for executive education. Every one of these institutions is also governed as a cooperative, with workers sharing authority with the cooperatives that fund the organizations. Both the technical schools and university programs organize collaborations with the Mondragon cooperatives, such that the students gain applied experience but also as a way for the cooperatives to identify potential future members. University departments also provide contracted research for businesses, both inside and outside of

Mondragon, providing students with opportunities to develop specialized knowledge of the cooperatives where they conduct research. Executive and professional education is provided through an institution run by the MCC, called Otalora (Basterretxea and Albizu 2011, 9). Over 500 managers and every one of the current CEOs of Mondragon cooperatives have completed the MBA program. Beyond enhancing worker skills, MCC and the sector groups serve as labor market intermediaries. Each group maintains an inventory of the workforce needs of its cooperatives, including detailed information on worker skills, and coordinates with other groups to shift workers as activity levels change in the cooperatives. Lastly, the Mondragon cooperatives have developed shared social services. Sector groups and the MCC provide short-term unemployment assistance, health insurance, and benefits to worker owners. It is within this context that individual worker cooperatives seek to innovate.

Cases within the Case: Innovation Opportunities at Mondragon

In order to provide more precise illustrations of the mechanisms suggested above, I present cases of technological, organizational, and market innovation at Mondragon. I focus on what could be described as an *innovation opportunity* as a unit of analysis. This method is informed by Thomas's (1994) study of technological change, in which he identifies common emerging technologies and studies the history that proceeds and follows an organization's decision about whether or not, and how to adopt the technology. In this paper, I apply this method to examine cases of technological, organizational, and market innovation.

Technological Innovation

A company's consideration about what technology to produce may be the most commonly recognized opportunity for innovation. For Mondragon, as the group has expanded, this has necessarily been an ongoing process. Below, I

present two short cases of new product development within Mondragon. While very different in the type of product generated, both cases share common characteristics in the way that the distribution of organizational authority and the network of surrounding organizations shaped the innovation process.

EKO3R – A Cooking Oil Recycling Service

Established in 2008, EKO3R is a Mondragon cooperative that provides a used cooking oil collection and refinement service for municipal governments. The client is not the individual household, but towns and cities who are seeking to more effectively collect, recycle, and re-use cooking oil. To participate in the service, households receive a reusable canister in which they save used cooking oil and deposit it in neighborhood storage depots. After they deposit the canister, they receive a clean and empty one. The storage depots resemble large vending machines, with a slot to insert full canisters and another slot where a clean and empty canister is ejected. The fullness of the depots is monitored by a GPS-based system that optimizes the routes for collection trucks to pick up the used oil and bring it to a refinery. The used cooking oil is then refined to produce biodiesel and other types of oils. At the outset of a contract, EKO3R conducts a preliminary needs assessment in which it identifies the number of likely users, the best locations for storage depots, distributes the canisters to households, and installs the storage depots. Once the system is put in place, the company provides continual monitoring of the system to improve collection processes. Since the company's founding, they have signed agreements with five provinces to provide the service.

The project to establish the company was initiated in 2006. As part of collaboration between the town of Arrasate (where Mondragon is headquartered) and Mondragon University (MU), several students developed a process for the collection and recycling of cooking oil. The decision to pursue this new product area was, in part, a response to increasingly stringent legislation in Spain and the Basque region, concerning the management of used cooking oil. MU researchers

developed a patent for the refinement process. The Fagor Group, one of the industrial groups of the MCC, allocated funding to purchase the patent and agreed to dedicate further resources to develop the business plan. A key attraction for the Fagor group was the opportunity to manufacture the storage depots that would be part of the system. Fagor partnered with one of the Mondragon business incubators, SAIOLAN, to develop the product and conduct a market research study. For a part of the industrial design, they contracted with a local industrial design firm that had been incubated at SAIOLAN. The canisters and storage depots were also designed to address ergonomic and aesthetic concerns, beyond functionality. To develop the company website, the company contracted from a web design company housed in one of Mondragon's industrial parks. After piloting the service in Arrasate, a cooperative was formally established. Half of the ownership and governance authority is held by EKO3R workers and the other half is held by one of the Fagor Group cooperatives.

Artxa – A Pig Raising Cooperative

The following case draws largely on Whyte and Whyte's account of the formation of agribusiness at Mondragon (1991, 188-195). In the early 1980's, Mondragon's largest retail cooperative, Eroski, began to increase its involvement in the development of new suppliers in agribusiness. Mondragon already included several agribusiness firms and, during the same period, decided to establish an agribusiness entrepreneurship development department within the CLP. In line with this effort, the CLP announced that it would ease its financing restrictions on agribusiness startups. While feasibility studies for industrial startups had to show a cost of less than \$33K per job created, the CLP announced that agribusiness startups could go beyond this threshold. Furthermore, the regional government had announced an interest in expanding agribusiness and had liberalized some of its lending programs for this purpose.

In this context, the director of the new agribusiness department set up a project team with representatives from Eroski, a Mondragon cooperative

producing animal feed and fertilizer called Miba, the CLP, and the regional livestock farmers association. Their intent was to develop a business plan for a pig-raising cooperative. The planning group also included the eight workers, skilled in animal husbandry and veterinary services, who would ultimately start the business. Each group in the project team became a partial owner and stakeholder in governance, beyond what was covered by a loan from the Basque government.

Operations at the new cooperative, called Artxa, began in 1984. The cooperative purchased breeding sows and sold them to members of the regional livestock association. The farmers sold the piglets and sows back to Artxa, which raised them using feed and materials from Miba. Simultaneously, the workers at Artxa maintained a consulting service that they provided to the regional farmers group. Ultimately, the pigs were sold to Eroski to be slaughtered. One year later, Artxa applied for support from the Basque government to finance a biogas plant to generate heat for the livestock pens and to process the excrement from the pigs into fertilizer, to be sold to Miba.

While quite different areas of production, these two cases of technological innovation share a number of common characteristics. A number of the relationships between organizational authority and innovation discussed in the first half resonate here. First, in neither case did the leading organization take on the full burden of capital investment. Instead, the organizers gathered a set of stakeholders to finance the establishment of a new cooperative undertaking a new production technology. In the EKO3R case, the technology was developed within one of Mondragon's academic centers and was financed by another cooperative within the Mondragon network. These cases illustrate the unwillingness on the part of worker cooperative owners to engage in risky capital investments alone. Second, in both cases, the selection of the particular product area was, at least in part, informed by the local government's priorities. More than subsidization, the Mondragon cooperatives worked in partnership with the local government to develop the new product. Furthermore, in both cases, the cooperatives partnered with non-governmental local actors, indicating the

strength of their ties to the regional economy. Lastly, the product fit into an internal value chain, such that the cooperative would both benefit from and support other Mondragon cooperatives.

To clarify this last point, it may be useful to compare the cases above with the prominent open innovation model of inter-organizational collaboration (Chesbrough 2003). In contrast to a closed system of innovation, where patents are used to gather profits from licensing fees, an open system entails the willingness of an organization to forego proprietary control over a new technology and invest less in pure research. Technologies may be licensed from outside sources, developed at outside research labs, or initiated in-house, but the goal is to spin them off as independent start-ups and maintain inter-organizational collaborations.

In ways, this model resembles the practices at Mondragon. The key difference, however, is that the Mondragon cooperatives evidence a preference for collaborations with other Mondragon cooperatives (Thomas and Logan 1982). The concept was not developed and then introduced to potential collaborators. The other cooperatives were partners in the concept development. In the case of Artxa, the early involvement of both upstream and downstream cooperatives suggests that the goal from the outset had been to link these organizations together. Furthermore, the collaborations themselves are organized through cooperative governance. This illustrates the strength of norms around broadly distributed governance authority in that particular institutional context.

Organizational Innovation

Organizational innovation entails shifts in the methods or processes used to transform inputs into higher value outputs. Below, I present two cases of organizational innovation in the Mondragon cooperatives. Both entailed changes to organizational processes, which the microeconomic literature suggests should be less challenging due to the alignment of managerial and worker interests in a context of broadly distributed organizational authority. Nonetheless, the inter-

organizational context shaped the degree to which these practices were effectively adopted, generating strong opposition in one case and tacit acceptance in the other.

A New System of Job Evaluations

In the early 1970's, Mondragon was growing rapidly. By 1975, the membership in one cooperative, Ulgor, had grown to 3,500 members, though it was less than 20 years old. The industrial group of which Ulgor was part, ULARCO, was facing strain to move workers between different cooperatives as demand peaked and declined in the different organizations. One key obstacle to this was the system of job evaluations, which assessed the skill-level of different positions and was, therefore, used to assess the pay rate for workers. Each cooperative used its own system of job evaluations, complicating the task of shifting workers between organizations and creating resentment when workers doing the same jobs in different cooperatives received different pay rates. In response, the leadership of ULARCO decided to establish a common job description and evaluation system across the group.

A taskforce, organized by the group and composed of different categories of workers from different cooperatives, engaged in extensive planning, studying the practices of private sector firms and conducting interviews with the membership. They also established an appeals procedure for workers who were unhappy with their job evaluations. A set of new evaluation criteria was established and all positions across the group were evaluated. Two key dimensions of the evaluation process were novel to Mondragon. First, standard job descriptions were created for particular positions. Second, managers were given, for the first time, some authority to evaluate the performance of their workers. While the majority of positions were either upgraded or kept the same, nearly 1/3rd of workers filed grievances and asked to have their positions re-evaluated. This was despite the fact that workers who had their positions downgraded were guaranteed that their pay rates would not change for two

years. Ultimately, several hundred evaluations were changed.

During this time, the institutional context around Mondragon was also changing. The Franco regime had loosened controls on union and political organizing, such that these organizations were operating more freely as the shifts to the job evaluation system were ongoing. Several months after the job evaluation shift occurred, the first strike in Mondragon's history was launched at the Ulgor plant. The striking worker-owners' foremost demand was a return to the old pay system. The Governing Council of Ulgor rejected this request, claiming that the workers had failed to utilize the appropriate governance mechanisms for addressing disagreements, namely the Social Council. While the strike was ultimately broken and the majority of worker-owners returned to their jobs, discussions around the strike and its precedents continued for several years after.

In the year after the strike, strong criticism against the behavior of the Mondragon leadership came from two key local institutions: the Catholic Church and the Basque separatist party, ETA. Both groups distributed public statements claiming that the Mondragon leadership had disregarded the authority of the worker-owners and accused the cooperatives of engaging in behavior characteristic of capitalist firms. As identified by an Ulgor taskforce in 1975, the Social Councils were deemed insufficient as representatives of the interests of blue-collar workers. The resolution was that the Social Council members would receive more training in business practices, would have greater opportunity to oversee personnel departments, and gained the mandate in cooperative by-laws to consult on governance issues, which it did not have before.

High Involvement Work Practices

As part of the effort to address blue-collar worker dissatisfaction at Mondragon, during the 1970's, the management of the ULARCO group explored new ways of organizing daily work in a more egalitarian fashion. As part of their research into alternatives, several managers began to learn about high

involvement work practices and, in particular, team-based work. They drew significant inspiration from the Norwegian work democracy movement and invited a leading practitioner to Mondragon to advise the group on its application. These changes to work organization, however, were largely drawn from the best practices of large private multinational firms. (Cheney 1999, 89) The reform was largely driven by managerial interests and, though they were framed as responding to worker concerns, was presented as a pre-packaged solution.

The implementation occurred in stages. Team-based work was first adopted in the Copreci cooperative, which produced components for gas and electric equipment. This cooperative was selected because the product lines and technology required little capital investment in order to shift from long assembly lines to work tables. Furthermore, a survey of the workforce at Copreci identified two stages in the production line where workers were dissatisfied. These were the areas where they first implemented work teams. Workers took on additional responsibility, for monitoring supply levels, and also were required to new learn skills. In some other ULARCO cooperatives, particularly where the production technologies were either not conducive to team-based work or costly to replace, implementation was incomplete. In several other cases, and one new cooperative in particular, changes to work processes were carried out.

Remarkable is the fact that the reforms faced little resistance from blue-collar workers. The Social Councils were offered opportunities to provide feedback on plans to revise the work practices, but were minimally involved (Whyte and Whyte 1991; 123). Alternatively, the Social Councils were becoming more involved in governance and long-term decision-making. Cheney (1999) described this as “participation overload.” (105) For the workers, their understanding of appropriate participation as a worker-owner was to preserve equity and oversee governance. Changes in work practices were “the responsibility of management” (Whyte and Whyte 1991, 215). Furthermore, silence from surrounding institutions like unions and political parties gave no additional motivation to resist the changes.

These cases illustrate how organizational authority operates at multiple

levels simultaneously, both as a set of incentives but also as a set of norms. When managers were attempting to implement work teams in the different cooperatives, they tended to be carried out in situations where the required capital investments were lower, despite the availability of capital from other supporting institutions. Again, there was an aversion to capital investment. Yet, much of the trajectory of these innovation events was shaped by the institutional climate. The decision about whether to oppose or even participate in the development of the two new processes was largely shaped by ideas about the appropriate level of participation for workers. Equal participation was understood to be appropriate for job evaluations, but it was not relevant for team-based work. Furthermore, these different understandings of the two innovation events were reinforced by the local Catholic Church and political party, which served as powerful guiding institutions for blue-collar workers.

Market Innovation

A third dimension of innovation is the entry into new markets. This dimension has received less attention than technological or organizational innovation. Some of the most well-known evidence on this topic comes from von Hippel's work on user-driven innovation (1988). He shows that many new product innovations are generated by the demands and efforts of the final users of the innovation, and not necessarily the producers of the innovation. He argues that this is the case because the organization that can most efficiently generate rents from the innovation will be the one to invest in realizing the innovation. To adapt von Hippel's language, Mondragon's institutional context and the authority structures of the individual cooperatives constrain the range of potential collaborators from whom they will allow themselves to generate rents. Two cases illustrate this point.

Developing the Culinary Industry Labor Force

Educational institutions serve as a source of skilled labor and, in 2011, several Mondragon coops decided to invest in the region's supply of skilled culinary and hospitality workers. Mondragon University opened its fourth faculty and campus, the Basque Culinary Center in San Sebastian (MCC Annual Report 2011). Prior to this, the Mondragon cooperatives had no training programs in this industry. The school offers degree courses in Gastronomy, Culinary Arts, and Gastronomic Sciences. The faculty will work in partnership with Mondragon's cooperatives in the food, retail, and hospitality industries, and prepare students for work in these sectors. The establishment of this campus constitutes an investment in the supply of research, labor, and technical assistance available to Mondragon cooperatives looking to appeal to the market for high-value gastronomy.

The new campus was funded through investments from Mondragon University, several Mondragon cooperatives, the regional government, and several private enterprises, including the Heineken Corporation. The building for the new school was constructed by a Mondragon cooperative, another cooperative decorated the interior, and the school uses cooking equipment from Mondragon's Fagor cooperative, which is also one of the stakeholders. These entities sit on the governing board of the school, as well as the lead instructors, who are local culinary experts.

The decision to invest, however, in the high-end culinary market is unexpected for a number of reasons. First, high-end gastronomy is not a widely consumed good, so it is uncertain the amount of job creation that can result from growth in this industry. Second, the Mondragon group does not have a background in hospitality management. It would be difficult to argue that hospitality and high-end cuisine are areas of comparative advantage for the Mondragon group, or areas where they can leverage existing resources. Thirdly, the project is capital intensive, only relying on several dozen instructors and administrators to establish and run the school.

The Basque region, however, is the culinary capital of Spain and home to a globally renowned culinary community. The city where the Basque Culinary

Center will be based, San Sebastian, has one of the highest densities of Michelin starred restaurants in the world and is reputed to be one of the top culinary capitals of Europe.⁷ Many of the leading chefs of this community have now taken leadership roles in the management of the Basque Culinary Center, some of whom sit on the board.

Internationalization

The second case centers on the issue of internationalization. Starting in the early 1980's, Mondragon began to feel substantial pressures to globalize (MacLeod and Reed 2011). With trade liberalization, markets were emerging in developing countries, both for production and consumption. In the early 1980's, due to slowed growth, Mondragon's workforce declined for the first and only time. Furthermore, firms from other advanced industrialized countries were starting to enter into developing markets for production and competing with Mondragon. Their main competitors in the automobile and home appliance industries were consolidating, giving them access to greater resources (Azevedo and Gitahy 2010). One of the Mondragon cooperatives, Irizar, was manufacturing busses at a cost of 180K euros in the 1990's, while the same vehicle could be produced in China for 12K euros (MacLeod and Reed 2009; 137).

In the mid-80's, the Mondragon group established a committee at the inter-organizational level to study options to respond to the pressures of globalization. Initially, their response was to resist the pressure to expand. Instead, they pursued process improvements and other strategies to better compete from their location in Northern Spain. Expansion outside of the borders of the Basque region introduced challenges, particularly with respect to their principle of maintaining a cooperative structure within all of their enterprises.

It was not clear how a division of a Mondragon cooperative, based in South America, could participate in the governance of the Mondragon group. It

⁷ Satran, Joe (2011) "The 20 Most Michelin-Starred Cities in the World", *Huffington Post*, http://www.huffingtonpost.com/2011/08/16/best-restaurant-cities_n_928196.html ; accessed January 2, 2013

was also not clear how the workers could be part of the common labor pool of the Mondragon group, with which workers were and are guaranteed employment by shifting them between busy and slow member cooperatives. The costs of integrating distant cooperatives seemed prohibitive and, beyond this, many voiced concerns about the costs of establishing worker cooperatives in contexts with different histories and cultures.

Ultimately, however, Mondragon had no choice but to embrace internationalization. In explaining the decision to internationalize, the Director of Internationalization stated: “We were doing what we had to do; the worst service we could do to the society was to disappear” (Luzarraga et al. 2007; 11) The first Mondragon industrial co-op to establish an overseas plant was COPRECI, an appliance manufacturer that purchased a factory in Brazil in 1989. By comparison, the Whirlpool Corporation opened their first foreign facility in 1958.⁸ The German white goods producer, Bosch, opened its first manufacturing facility in South America in 1968.⁹ When they did begin to internationalize, the expansion occurred under constraints.

Part of the internationalization plan, approved in the Congress, was that any expansion abroad had to protect employment in the Basque region. In contrast to a strategy of moving jobs from high-wage regions to low-wage regions, Mondragon attempted an internationalization strategy of “multi-localization” (Arando et al. 2010). This meant that growth abroad would seek to complement, but not replace, work in the Basque region. By contrast, a strategy of “delocalization” was used by many manufacturing firms of advanced industrialized countries and is starkly illustrated by the massive decline of employment in American manufacturing over the past 40 years. Luzarraga et al. found that Mondragon coops that internationalized during this period were twice as likely to create jobs in the Basque region than Mondragon cooperatives that

⁸ Whirlpool Corporation website: <http://www.whirlpoolcorp.com/about/history.aspx>, accessed January 2, 2013

⁹ Bosch website: http://www.bosch.com/en/com/bosch_group/history/theme_specials/internationalization/internationalization.html, accessed January 2, 2013

did not (2007).

As of 2006, Mondragon had 65 industrial subsidiaries in 18 countries and sold 57% of its industrial output to foreign countries (Lopez et al. 2009). The vast majority of these subsidiaries are not organized as cooperatives and their workers are not cooperative members. Some have suggested that this is evidence of the degeneration of the Mondragon cooperatives, as they are increasingly relying on the subordination of labor to generate profit (for example, Malleson 2010). Some of the cooperative governance mechanisms have been set up in the foreign subsidiaries, like Social Councils. In one subsidiary in Brazil, cooperative ownership was proposed to the workers and voted down.

In sum, these two cases highlight how strongly Mondragon's link to the region shapes its efforts at market innovation. In the case of the Culinary Center, the Mondragon group established a new labor market institution in an area where the cooperative had little background. Instead, the attraction was that a set of regional institutions, including the regional government, expressed interest in developing that industry. Furthermore, the Mondragon group was able to organize the governance of the school in a broadly distributed manner, including representatives from the cooperatives, the public sector, the workers, and private sector firms. By contrast, the need to enter international markets has undermined the broad distribution of authority at Mondragon. The members express concern about the ability to establish cooperatives in contexts where that organizational structure is unfamiliar. Because Mondragon is unwilling and unable (and it is not clear which) to establish cooperatives in other territorial contexts, their own organizational identity is undermined. They have only been able to justify the expansion as a means to protect their work in the Basque region.

Conclusion

The purpose of this paper was to identify and address theoretical gaps in the innovation and organizational authority literatures. Despite the diversity of forms of organizational authority in advanced industrialized countries, there has

been no effort to examine whether or how these structural forms shape innovation. Alternatively, in the literatures on employee ownership and democratic workplace governance, research on innovation has been limited to micro-level studies that examine how shifts in authority shape individual worker incentives.

This paper offers several suggestions about future research in this area. Analyses should examine distributions of organizational authority at both the micro and macro-levels, in recognition of its importance not only as a set of incentives but also as an important source of organizational identity. Second, future research should pay attention to the organizational context in which a firm is operating, in order to understand how authority shapes innovation. More broadly, resource dependency scholars should consider how ideological alignment shapes the character of organizational interdependency and inter-organizational collaboration. Third, future research should examine the degree to which differences in authority shape that organization's relationship to geographically proximate organizations. This gap in the literature offers numerous opportunities for future research.

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