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Institutional fields as linked arenas: Inter-field resource dependence, institutional work and institutional change

Santi Furnari

Abstract

Theories of institutional change have paid limited attention to the ways in which relations between institutional fields might facilitate or hinder institutional change. I introduce inter-field resource dependence as an important condition explaining institutional change between fields. Building on resource dependence theory, I conceptualize two dimensions of inter-field resource dependence: mutual dependence and power imbalance. I argue that these two dimensions have opposite effects on the likelihood of institutional change between fields. Mutual dependence between two fields increases the chances of institutional change by inducing actors in both the fields to work at creating new shared institutions in order to regulate their mutual dependence. Power imbalance between two fields decreases the chances of institutional change by inducing actors in the dominant field to work at maintaining existing institutions in order to preserve their power. Developing this core argument, I theorize that whether the institutional change occurring between two fields is radical or incremental is a function of the type of resource dependence linking the two fields; for example, when power imbalance is high, institutional change is unlikely but when it occurs it tends to be radical.

Keywords

institutional change, institutional field, institutional theory, institutional work, power imbalance, resource dependence theory.

Technology transfer offices on US campuses numbered only in the 20s in 1980, but exceeded 200 by the year 2000. From 1980 to 2000, the number of patents assigned to research universities rose 850% (Colyvas and Powell, 2006: 307). When the legitimacy of technology licensing was low, the boundaries between university and industry were sharp and coherent (Colyvas and Powell, 2006: 326)…the development of technology licensing at U.S. universities is a reflection of a process of institutional change whereby the realms of public and private science have become integrated into a common domain (Colyvas and Powell, 2006: 312).

Today, technology licensing is an "institution" – i.e. a legitimate and taken-for-granted practice (Maguire & Hardy, 2009: 150) - that regulates the exchange of resources (such as money and knowledge) between the institutional fields of academic and commercial science. Viewed historically, as in the quotes above, technology licensing is a case of "institutional change", defined here as "the creation of a new institution or the significant modification of an existing institution" (cf. Greenwood & Suddaby, 2009: 176). More specifically, it is only one case of an increasingly common phenomenon: institutional change occurring at the intersection of multiple institutional fields. As the specialized sectors composing contemporary global society become more interdependent, institutional change more often occurs where fields intersect, raising the fundamental practical problem of understanding how institutions form and change at these multi-sector intersections.

Several examples illustrate this phenomenon: the creation of the multidisciplinary partnership's practices between the fields of accounting and consultancy (Greenwood & Suddaby, 2006); the transposition of aesthetic practices from the fashion's field to mobile telephony (Djelic & Ainamo, 2005); the emergence of Bio-tech-dedicated practices between the fields of private venture capital and public science (Powell & Sandholtz, 2012). Taken

together, these examples show that the "interstitial spaces" between fields (Furnari, 2014: 439) provide fertile ground for institutional change because each institutional field is characterized by distinctive institutions, which can be combined in novel ways, eventually giving rise to new practices and institutions.

Yet, for almost every instance of successful institutional change at the intersection of fields, there is another institutional change that failed to take root. For example, Ozcan and Santos (2014) document how prominent actors in the two fields of financial services and telecommunications failed to institutionalize common practices to collaborate effectively. This and other examples of *un*successful institutional change (e.g. Kahl, Liegel & Yates, 2012) speak to the inherent difficulty of realizing the potential for change embedded in fields' intersections because of the often uneasy co-existence of different institutions (e.g. Powell & Owen-Smith, 2008: 603; Rao et al., 2000: 251). These contrasting examples raise a puzzle: why does institutional change occur between some fields and not others? To address this puzzle, this paper investigates the following research question: *under what conditions is institutional change more likely to occur between two institutional fields?*

This question has been only partially addressed by extant institutional research, despite the great attention devoted in this literature to the problem of institutional change in the last two decades (see Battilana et al., 2009 for review). Scholars have proposed several important explanations of institutional change, such as the presence of skillful "institutional entrepreneurs" able to envision new practices (e.g. Greenwood & Suddaby, 2006; Maguire et al., 2004); or bottom-up processes of institutional emergence (e.g. Lawrence et al., 2002; Lounsbury & Crumley, 2007); or the varieties of "institutional work" –i.e. intended as "the practices aimed at creating, maintaining and disrupting institutions" (Lawrence, Suddaby & Leca, 2011: 52)- engaged by individuals and organizations in their "day-to-day adjustments, adaptations and compromises" (Currie et al., 2012: 938; Déjean et al. 2004; Lawrence &

Suddaby, 2006; Lawrence, Suddaby & Leca, 2009). However, despite the important insights of this research, the vast majority of institutional studies have analyzed instances of institutional change *within a single institutional field*, devoting less systematic attention to the issue of how institutional change occurs *between multiple institutional fields*.

This scope limitation is due to the fact that previous research has mostly conceptualized institutional fields as relatively independent social arenas. As Fligstein and McAdam (2012: 18) recently argued, "virtually all of the previous work on fields focuses on the internal workings of these orders, depicting them as largely self-contained, autonomous worlds" (but see Greenwood & Hinings, 1996; Evans & Key, 2008; Furnari, 2014 for exceptions). This imagery contrasts with the examples opening this article and with the increasing interdependence that characterizes fields in the real world. Following Fligstein and McAdam (2012)'s call, the point of departure of this paper is that a more complete theory of institutional change requires conceiving fields no more as "disconnected islands" but as "linked arenas": if we systematically theorize the *relations* linking fields, we will be in a better position to explain why institutional change is more likely to occur between some fields rather than others.

This paper takes a step toward this goal by conceptualizing *one* particular relation between fields –the relation of "inter-field resource dependence"- as an important, hitherto under-studied, condition to explain institutional change between fields. Building on resource dependence theory (Emerson, 1962; Pfeffer & Salancick, 1978), I define inter-field resource dependence as *the extent to which the effective functioning of a focal field hinges on resources controlled by actors in another field*. I identify two analytically distinct dimensions[1] of an inter-field resource dependence relation: *mutual dependence* (or the sum of two fields' dependencies on each other's resources) and *power imbalance* (or the difference between two fields' dependencies on each other's resources) (cf. Casciaro & Piskorski, 2005: 168). I argue that these two dimensions have opposite effects on the likelihood of institutional change between

fields. When the level of mutual dependence between two fields is high, actors in both the fields are likely to *create new institutions* aimed at regulating their mutual dependence. Differently, when the level of power imbalance between two fields is high, actors in the more powerful field are likely to *maintain existing institutions* to preserve their favorable resource exchange conditions. Thus, I contend that different forms of resource dependence between fields motivate actors in the fields to undertake different forms of "institutional work" (Lawrence & Suddaby, 2006) aimed at either creating new institutions or maintaining existing institutions. In turn, these forms of work, if successful, will eventually result in institutional change or persistence, thereby shaping the likelihood of institutional change between fields. I further develop these core arguments by theorizing the *type* of institutional change (radical vs incremental) that is more likely to emerge under different levels of mutual dependence and power imbalance. Finally, I also discuss the combined effect of mutual dependence and power imbalance on the likelihood and type of institutional change.

This paper makes three contributions. First, I contribute to institutional change research by providing a theoretical explanation of why institutional change is more likely to occur between some fields rather than others. Specifically, this paper advances existing research by theorizing that the intersections between fields are not all equal, but rather offer different opportunities for institutional change depending on the type of inter-field resource dependence that characterizes them. Second, I contribute to institutional work research by theorizing how inter-field resource dependence provides opportunities and constraints for actors to undertake institutional work. In doing so, I outline a contingent approach to institutional work, taking seriously the influence of socio-structural factors on institutional work and responding to the call for more research on how macro-level conditions interact with micro-level processes of institutional change (Battilana et al, 2009: 85-86). Finally, I contribute to research on institutional fields by conceptualizing two dimensions of an inter-field resource dependence relation, thus advancing

a relational view of fields as "linked ecologies" (Abbott, 2005) rather than as self-contained domains.

Literature review

The concept of institutional field

An institutional field is a social arena in which individuals and organizations partake of a common meaning system and interact more frequently with one another than with actors outside of the field (Scott, 1994: 206-207). According to this classic definition, fields are identified by the presence of meaning systems that are shared by field participants. These shared meanings are encoded in a field's institutions –i.e. the taken-for granted practices constituting the "culturally legitimate models of organization and action" in a field (Clemens & Cook, 1999: 442). From this perspective, "fields only exist to the extent that they are institutionally defined" (Di Maggio & Powell, 1983: 148). This institutional conception of fields has important implications for defining the boundaries of a field. While research on field boundaries has traditionally been scant, "there is growing awareness that field boundaries are constructed around common meaning systems" (Suddaby, Cooper & Greenwood, 2007: 335; see also Mohr, 2005; Scott, 2008; Zietsma & Lawrence, 2010). In fact, the meaning systems shared in a field allow for "collective identification", marking the distinction of field members from non-members (Zietsma & Lawrence, 2010: 191).

Theories of institutional change

Institutional change has been a central theme in institutional research for the last two decades (see Clemens & Cook, 1999; Dacin et al. 2002; Battilana et al. 2009 for reviews). At least two major theoretical perspectives on this theme can be distinguished, each emphasizing different *sources* and *processes* of institutional change.

A first perspective highlights *exogenous* sources of change, such as environmental jolts (Meyer, 1982), shifts in societal values (Rao et al. 2003) or regulatory punctuations (Haveman et al. 2001). In terms of change processes, this perspective focuses on how exogenous shocks activate changes in the broader institutional environment surrounding a field, modifying the selection criteria shaping the evolution of institutions within that field (e.g. Haveman & Rao, 1997; Sine & David, 2003). Typically, these studies de-emphasize the role of human agency in institutional change, privileging structural explanations of institutional emergence.

A second perspective emphasizes *endogenous* sources of change, such as the presence of "institutional contradictions" (Seo & Creed, 2002) or the positions occupied by actors in a field (Leblebici et al., 1991; Maguire et al., 2004; Battilana, 2006). In terms of change processes, studies of institutional contradictions highlight that contradictions can shape actors' consciousness, prompting them to change existing institutions (Seo & Creed, 2002; Voronov & Yorks, 2015). Scholars of field positions highlight instead how specific positions in a field enable the actors occupying them to work towards change, emphasizing in particular the key role of peripheral positions (e.g. Leblebici et al., 1991). Differently from the exogenous-change perspective, these studies direct attention to how institutional change is shaped by human agency, either in the form of "institutional entrepreneurship" (e.g. Maguire et al., 2004) or in the form of "institutional work" –i.e. the practices undertaken to create, maintain and disrupt institutions (e.g. Lawrence & Suddaby, 2006; Smets & Jarzabkowski, 2013).

Taken together, these two perspectives have greatly contributed to our understanding of why and how institutions change. However, by and large, this literature has focused on institutional change occurring within one single field, devoting less attention to the problem of when and how institutional change happens between multiple fields. A selected group of studies have addressed this problem from the perspective of actors that are positioned between fields, demonstrating empirically that these actors are more likely to act as institutional entrepreneurs

(Greenwood & Suddaby, 2006) and initiate institutional change by transposing practices across fields (Boxenbaum & Battilana 2005).

Although these studies of bridging field positions have paved the way for a better understanding of how institutional change can occur between fields, they also feature two limitations. First, this research has relied on single case studies, thereby focusing on one particular intersection between fields at a time, rather than comparing different fields' intersections and their capacities to generate institutional change. As a result, this research provides fewer insights to address the central research question of this paper –i.e. why some intersections between fields are more prone to originate institutional change than others. Second, by relying on single case studies, this research has devoted less attention to systematically compare the different *types* of institutional changes that can emerge between fields and the conditions shaping their emergence (cf. Dacin, Goodstein & Scott, 2002: 50). To address these limitations, a more general framework is needed in order to compare –along some common conceptual dimensions- different intersections between fields and examine whether their differences can explain when institutional change is more likely to occur and what types of institutional changes are more likely to occur.

One way to build such a comparative framework is to shift the focus *from positions to relations between fields*. In fact, conceptualizing the *relations* between fields along some common analytical dimensions allows one to see how intersections between fields differ along those dimensions, thereby facilitating systematic comparison. A few studies have recently moved in this direction by focusing attention on the multiple ways in which fields can overlap (Fligstein & McAdam, 2012; Evans & Key, 2008; Furnari, 2014; cf. Greenwood & Hinings, 1996). In the following sections, I build on and further advance this emerging inter-field perspective by theorizing resource-based relations between fields through the lens of resource dependence theory. I first explain why I decided to focus specifically on resource-based

relations between fields, moving next to illustrate the value of resource dependence theory to conceptualize such inter-field relations.

Institutional fields as linked arenas: The importance of resource-based relations between fields

Institutional fields can be connected via multiple types of relations. For example, Evans and Key (2008) argue that fields are "institutionally connected" when actors in one field have the capacity to "shape the rules by which another field operates" (p. 974). Relatedly, Greenwood and Hinings (1996) discuss the "permeability" of a focal institutional field, defining it as the extent to which a field is exposed to ideas from another field (p. 1030). Whereas these notions emphasize institutional or ideational relations between fields, in this paper I focus on resource-based relations –i.e. relations constituted by regular exchanges of resources between fields.

I focus on resource-based relations between fields because *resources*[2] have been shown to be particularly important for explaining institutional change, which is the core phenomenon of interest in this article. In fact, several studies have highlighted the key role of resources, and particularly resource constraints, in motivating actors to work towards institutional change (e.g. Leblebici et al. 1991; Battilana & Leca, 2010; Sherer & Lee, 2002). The key argument of these studies is that resource-constrained actors are typically "less caught by institutionalized relationships and expectations" (Greenwood et al. 2011: 339), becoming more motivated to change the institutions that disadvantage them (Leblebici et al. 1991). However, these studies have discussed resource constraints arising from the internal structure of a field, without systematically theorizing the resource constraints deriving from the "relationships between fields and the complexities they may create" (Smets, Morris & Greenwood, 2011: 6). As I

illustrate below, with the concept of inter-field resource dependence I intend to capture this latter type of resource constraints.

It is important to note that a focus on resource-based relations between fields is consistent with the definition of field adopted in this paper, according to which fields are identified by the presence of common meanings and institutions shared by field participants (Scott, 1994: 206-207). In fact, following Thornton, Ocasio and Lounsbury (2012), in this paper I assume that "resources…have partial autonomy from culture and institutions" (p. 157). This assumption is justified on the ground that it is useful to keep resources and institutions *analytically distinct* in order to take into account how resources "have economic and socio structural effects separate from their institutional effects" (Thornton et al. 2012: 157). From this perspective, two fields that are 'institutionally dis-connected' (i.e. characterized by distinctive shared meanings and institutions) can still be connected resource-wise (i.e. linked by resource exchanges). Thus, my focus on resource-based connections between fields is not only compatible with the conceptualization of fields as 'institutionally defined' social arenas adopted in this paper, but also useful to theorize the analytically separable effect of resource-based relations on institutional change.[3]

Conceptualizing resource-based relations between fields: A resource dependence perspective

To conceptualize the relations of resource exchange between two fields, I build on resource dependence theory (Emerson, 1962; Pfeffer & Salancick 1978; see Wry et al. 2013 for review) for two key reasons. First, resource dependence theory distinguishes two different dimensions of a resource dependence relation (i.e. mutual dependence and power imbalance) (Casciaro & Piskorski, 2005; Gulati & Sytch, 2007), providing a fine-grained conceptual apparatus to theorize resource-based relations between fields and allowing to unpack how these

dimensions affect, separately and in combination, institutional change. Second, the relational notion of dependence central to resource dependence theory allows one to consider *each* field's dependence on the other field, facilitating the theorization of how these dyadic dependencies affects actors in *each* respective field. In other words, seeing resource dependence as a property of the relation between two fields allows to take into account simultaneously the actors in *both* the fields rather than focusing on a single focal field.

These two features differentiate the approach developed here from the only two studies that have explicitly discussed resource-based relations between fields (Fligstein & McAdam, 2012: 18; Evans & Key, 2008: 974-975). In fact, whereas both these studies point at the importance of resource dependencies between fields, they do not explicitly build on resource dependence theory for conceptualizing inter-field relations. As a result, they do not leverage the analytical potential of this theory to unpack the different dimensions of inter-field resource dependence (i.e. mutual dependence and power imbalance) and theorize their separate effects on institutional change. In what follows, I draw on resource dependence theory to develop the concept of inter-field resource dependence.

The concept of inter-field resource dependence

Building on Emerson (1962)'s classic conceptualization of resource dependence between social groups, I define inter-field resource dependence as *the extent to which the effective functioning of a focal field hinges on resources controlled by actors in another field*. This latter field can be referred to as the "constraining" field (cf. Pfeffer & Salancick, 1978). From the perspective of a focal field, the level of inter-field resource dependence is a function of two factors: 1) the criticality of resources (i.e. how critical the resources provided by the constraining field are for the effective functioning of the focal field); 2) the availability of alternative fields that can provide the same resources provided by the constraining field (cf.

Emerson, 1962). Thus, a focal field A is dependent on a constraining field B in direct proportion to A's need for B's resources; and in inverse proportion to the number of alternative fields that can provide the same resources to A. In other words, a focal field will be highly dependent on another field when the resources controlled by actors in this latter field are highly critical for the focal field's effective functioning and when there are few alternative fields that can provide the same resources to the focal field.

Although the concept of inter-field resource dependence draws from resource dependence theory, it is important to emphasize one key difference between the more general notion of resource dependence developed in that theory and the more specific concept advanced here. That is, the construct of inter-field resource dependence captures a particular class of dependence relations involving actors that *are members of different institutional fields* and that are therefore, by definition, socialized into different institutions. In contrast, both Pfeffer and Salancick (1978)'s and Emerson (1962)'s seminal works did not consider the institutions characterizing the actors exchanging resources. Thus, differently from the general notion of resource dependence, the construct of *inter-field* resource dependence emphasizes the *'institutional diversity'* of the actors in an inter-field resource dependence relation (i.e. the fact that the dependent actors are embedded in different institutions). As I will illustrate below, this conceptual difference is consequential to explain why inter-field resource dependence induces actors to engage in institutional work (rather than in the conventional dependence-reduction tactics highlighted by resource dependence theory).

I distinguish two theoretical dimensions of a dependence relation between fields: mutual dependence and power imbalance (Casciaro & Piskorski 2005; Gulati & Synch, 2007). *Inter-field mutual dependence is defined as the sum of two fields' dependencies on each other's resources* (cf. Casciaro & Piskorski, 2005: 168; cf. Emerson, 1962). Since mutual dependence is defined as the sum of both fields' dependencies, the salient level of analysis for

conceptualizing mutual dependence is the inter-field relation (i.e. the fields-dyad). Therefore, whereas the general definition of inter-field resource dependence (provided above) focuses on a focal field, the definition of mutual dependence focuses on the dyadic relation between two fields. Mutual dependence captures the *total amount of dependencies* in a dyad, regardless of whether those dependencies are distributed in a balanced or unbalanced way among the actors in the dyad (Casciaro & Piskorski, 2005: 170). A "high" (low) level of mutual dependence between two fields indicates that each field's resources are highly (lowly) critical for the effective functioning of the other field and that there are few (many) alternative fields that can provide the same resources.

An example of two fields connected by high mutual dependence are the pharmaceutical field and the field of academic biology when new bio-technologies first emerged in the late 70s in USA (Powell & Sandholtz, 2012). At that point in time, biology university labs did not have all the necessary expertise and resources to commercialize ready-for-the-market drugs while large pharmaceutical corporations lacked access to cutting-edge university science (e.g. Powell, White, Koput & Owen-Smith, 2005). In addition, in the late 1970s, there were few alternative fields that could provide these resources (pharma-related commercialization expertise and cutting-edge biological science), which were highly critical for the functioning of both the academic biology and the pharmaceutical fields (Powell et al., 2012). An example of two fields that are connected by low mutual dependence are the fields of fashion and the field of mobile telephony before the mid-90s: as Djelic & Ainamo (2005) illustrate, these two fields had been historically largely independent because the resources of each field were not critical for the effective functioning of the other field.

Inter-field power imbalance is defined as the difference between two fields' dependencies on each other's resources (cf. Casciaro & Piskorski, 2005: 168; cf. Emerson, 1962). As for mutual dependence, the salient unit of analysis for defining power imbalance is

the inter-field dependence relation (i.e. the fields-dyad). However, differently from mutual dependence, power imbalance defines the *difference* between, not the *sum* of, two fields' dependencies in an inter-field dependence relation. Suppose that a field A is dependent upon field B at a level equal to 4, while field B is dependent upon field A at a level equal to 2. In this example, the level of mutual dependence between field A and B will be equal to 6 (4 plus 2); whereas the level of power imbalance between them will be equal to 2 (4 minus 2). While mutual dependence measures the total amount of dependencies between fields, power imbalance measures the level of inequality in the relative distribution of dependencies between fields, that is, the level of asymmetry in an inter-field resource dependence relation (cf. Gulati & Sytch, 2007). When the level of power imbalance is high, one field is less dependent on the other field than vice versa. A field A can be less dependent on field B than viceversa for two reasons: 1) either because more alternative fields are available to A for obtaining the same resources provided by B than viceversa; 2) or because A provides B with more critical resources than viceversa. Following Emerson (1962)'s core insight that power "resides in the other's dependency" (p. 32), actors in the less dependent field will have more power to constrain the functioning of the dependent field than the other way around. Therefore, conceptually, the level of power imbalance between two given fields captures the extent to which actors in the two fields differ in their power to constrain each other.

An example of two fields linked by a high level of power imbalance are the field of chemical production and the field of academic genetics in USA in the mid-1980s, when chemical firms obtained exclusive patent rights on a key scientific discovery, namely the genetically-modified mouse known as the "oncomouse" (Murray, 2010). As Murray (2010) illustrates, the oncomouse was a critical resource for the field of academic genetics because scientists needed this particular type of mouse to conduct their scientific activities. When patents on the oncomouse were *exclusively* granted to chemical companies, academic

geneticists became increasingly dependent on those companies because they could obtain the right to use the oncomouse for their experiments only from those companies. In other words, because actors in the chemistry field became the only providers of a resource critical for the functioning of the academic genetics field, this latter field became more dependent on the chemistry field, which, conversely, became more powerful. Thus, the resource dependence relation between these two fields was characterized by high power imbalance.

Previous research has demonstrated -conceptually, empirically, and mathematically- that mutual dependence and power imbalance are *analytically distinct* dimensions of a resource dependence relation that can vary independently (Casciaro & Piskorski, 2005; Gulati & Sytch, 2007). To better illustrate this point, let me go back to the oncomouse example.

Before patenting the oncomouse, chemical companies were providing funds and technological equipment to universities, obtaining in exchange access to their knowledge and to the oncomouse, which was originally invented, but not patented, by university scientists. The oncomouse was an important resource not only for university scientists, but also for chemical companies, which needed it to test proprietary chemical compounds. Thus, before that the oncomouse patent was granted to chemical companies, the academic genetics field was dependent on the chemical production field for two types of resources (funds and technology); whereas chemical companies were dependent on universities for other two types of resources (knowledge and oncomouse). In this case, the level of mutual dependence between the two fields is captured by the sum of the four resources exchanged between the fields (funds, technology, knowledge, oncomouse). To simplify for illustrative purposes, we can say that the level of mutual dependence in this case is equal to 4 (assuming that each type of resources counts for 1). Following the same logic, the level of power imbalance is instead equal to zero, given that both fields are dependent on the each other for 2 types of resources, so that the difference between their dependencies is zero (2 minus 2). Thus, the relation between the

chemical production field and the academic genetics field can be characterized, *before the oncomouse patenting*, as a low-power-imbalance and high-mutual-dependence relationship: each field needed the other for critical resources and in a balanced, equal, way.

It is interesting to note that *after the oncomouse patent was granted to the chemical companies the level of power imbalance between the two fields increased while the level of mutual dependence remained unchanged*. Given the patent, actors in the academics genetics field had now to pay the chemical companies for using the oncomouse. Thus, these actors became dependent on the chemistry field for three types of resources (funding, technology, oncomouse). In contrast, chemical organizations were now dependent on the academic genetics field for only one type of resources (knowledge). To keep with the analytical simplification introduced above, the level of power imbalance between the two fields is now higher, shifting from 0 to 2 (3 minus 1), whereas the level of mutual dependence remained the same, that is, 4 (3 plus 1). In other words, the sum of dependencies between the two fields (i.e. mutual dependence) remained unchanged, indicating that the two fields remained reciprocally dependent on each other's resources. However, the relative distribution of those dependencies among the two fields (i.e. power imbalance) became more unequal, indicating that one field is now more dependent on the other than the other way around.

This vignette illustrates that mutual dependence and power imbalance are two *analytically distinct* dimensions of an inter-field resource dependence relation that *can* vary independently. Thus, *for any given level of power imbalance, an inter-field dependence relation can be characterized by different levels of mutual dependence and viceversa* (cf. Casciaro & Piskorski, 2005: 170-171). Assuming that these levels can be only two (low vs high), Figure 1 below describes four possible configurations of mutual dependence and power imbalance between two institutional fields.

Insert Figure 1 about here

The quadrants in Figure 1 should not be interpreted as irreversible and static configurations. Rather, each quadrant defines the resource dependence relation between two fields *at a given point in time*. This does not imply that the resource dependence relations between fields do not evolve over time (due to, for example, changes in technology or regulation). Rather, they are intended here as socio-structural relations that, although being historically contingent, can be analyzed at discrete points in time due to their relative durability of "a distinctively social sort" (Hughes, 1936: 180).

As discussed above, the two fields of academic genetics and chemical production in the mid-1980s (after the oncomouse patenting) described by Murray (2010) constitute a good example of fields connected by high power imbalance and high mutual dependence (Quadrant 2). Basically, these two fields have significant mutual resource dependencies, but one of the two fields is more powerful than, yet still to some extent dependent on, the other field. Differently, Quadrant 4 describes a situation in which there are limited overall dependencies between the fields, but one field is more dependent on the other than viceversa (i.e. high power imbalance). An example of this configuration is given by the field of health care services and the field of public policy in USA during the Medicare/Medicaid era (Scott et al. 2000): while hospitals in the health care services field were dependent on the financial resources provided by the government, the government was not dependent on hospitals. As a result, Quadrant 4 describes a situation in which actors in the more dependent field are more constrained and have less leverage than in the scenario described by Quadrant 2, while actors in the less dependent field have more unconstrained power and autonomy over the dependent field. Finally, Quadrant 1 and Quadrant 3 can be described by the examples used above to illustrate the cases of "high mutual dependence" and "low mutual dependence", which are, respectively: the fields of

academic biology and the pharmaceutical field in the early bio-tech years (Powell & Sandholtz, 2012); and the fields of fashion and the field of mobile telephony (Djelic & Ainamo, 2005). In fact, in both these cases the institutional fields investigated were linked not only by high mutual dependence but also by low power imbalance (because none of the two fields was more resource-constrained than the other).

Inter-field resource dependence, institutional work and institutional change

In this section, I theorize how the levels of mutual dependence and power imbalance between two fields influence the likelihood of institutional change between those fields. Towards this goal, I develop three basic arguments. First, I argue that different levels of mutual dependence and power imbalance between two fields induce actors in those fields to undertake different forms of institutional work (aimed at either creating or maintaining or disrupting institutions). In doing so, I use the established three-fold classification of forms of institutional work (i.e. creating, maintaining, disrupting institutions) developed by Lawrence and Suddaby (2006).[4] Second, I argue that these forms of institutional work are more likely to result in institutional change as a function of the levels of mutual dependence and power imbalance between the two fields. Third, I argue that the institutional changes eventually resulting from different forms of institutional work are likely to be of a different kind.

To develop this last argument, I introduce a distinction between two types of institutional changes between fields: *radical institutional changes between fields* (i.e. changes entailing a significant re-distribution of power between the fields) and *incremental institutional changes between fields* (i.e. changes entailing a limited re-distribution of power between fields). Building on research distinguishing types of institutional changes (e.g., Dacin et al. 2002; Colomy, 1998), I develop this distinction to address one of the gaps identified in the

literature review above -i.e. the lack of a systematic conceptualization of the types of institutional changes that can occur between fields.

I illustrate these three arguments in the following three sections. Given that, for the reasons discussed above, mutual dependence and power imbalance are analytically distinct dimensions, I first theorize the separate effect of each of these dimensions, moving next to their combined effect. When I discuss the separate effect of each dimension, I assume that the other dimension remains constant in an inter-field dependence relation.

The effect of mutual dependence on institutional work and institutional change

A high level of mutual dependence between two fields indicates that each field's resources are highly critical for the functioning of the other field and that there are few alternative fields that can provide the same resources. Given the criticality of resources and the scarcity of alternative resource providers, actors in two fields linked by high mutual dependence would face significant uncertainty and worst exchange conditions if they do not exchange resources with each other (Casciaro & Piskorski, 2005: 174; cf. Emerson, 1962). Therefore, actors in both the fields are strongly motivated to exchange with each other and to make their exchanges work well. However, the different institutions to which these actors have been socialized in their respective fields are likely to hinder resource exchanges between fields, plaguing them with potential misunderstandings and conflicts (Rao et al. 2000; Phillips et al., 2000). Under these conditions, actors in both the mutually dependent fields are likely to become motivated to create new shared institutions that can smooth the resource exchange process by making their exchanges less uncertain and problematic.

For example, O'Mahoney and Bechky (2008) illustrate how actors from the originally separated fields of open-source and commercial software institutionalized "boundary organizations" and new shared governance practices for managing their mutual resource

dependence (created by the joint production of new software products). These new organizational forms and practices became shared institutions between the two fields, enabling the diverse actors in the respective fields "to substantively collaborate by building a bridge between divergent worlds that allowed collaborators to preserve their competing interests" (O'Mahoney & Bechky, 2008: 426; cf. Gray, 1985; Brown, 1991).

When two fields are linked by low mutual dependence, the resources exchanged are instead less critical for the functioning of each other field and there are more alternative fields that can provide the same resources. Under these conditions, if actors in the two fields do not exchange resources with each other, they would still be able to procure the same resources from other fields "on only slightly worst terms" (Casciaro & Piskorski, 2005: 173). Thus, in this case actors in both fields are likely to care less about their resource exchanges and tolerate more the potential misunderstandings, conflicts and uncertainty that, due institutional diversity, are likely to characterize those exchanges. As a result, these actors are less likely to devote effort to create new institutions for facilitating their inter-field resource exchanges. On the basis of these arguments, I submit the following proposition:

> **Proposition 1:** *When the level of mutual dependence between two fields is high, actors in both the fields are likely to work at creating new shared institutions between the two fields.*

The institutional work efforts undertaken by actors in mutually dependent fields can find "entrenched forms of resistance" due to the institutional diversity characterizing the actors involved in inter-field resource exchanges (cf. Rao et al., 2000: 251). However, since actors in *both* fields are likely to work at creating new institutions, it is plausible to hypothesize that this joint work is likely to result in institutional change. In fact, previous research has shown that

when institutionally diverse actors engage in "co-creation" institutional work, new institutions are likely to emerge from their joint efforts (e.g. Zietsma & Mcknight, 2009). Relatedly, extensive research on cross-field collaboration demonstrated that when the diverse parties in a collaboration relationship are both motivated to make the collaboration work, new practices and institutions are more likely to emerge (e.g. Dorado, 2005; Phillips et al., 2000). Building on these insights, I hypothesize that the creating work undertaken by actors in mutually dependent fields is likely to result in institutional change.

I argue that the institutional changes occurring between two fields connected by high mutual dependence, when they occur, are likely to involve the partial or full hybridization of the different institutions characterizing the two fields. With the term "hybridization" I intend to capture the creation of new institutions by combining elements of already existing institutions. Hybridization can be partial, when elements of existing institutions "are put together in new but recognizable ways" (Powell & Sandholtz, 2012: 94). The example of the boundary organizations between the fields of open-source and commercial software (O'Mahoney & Bechky, 2008) is a good illustration of partial hybridization: the new practices created in that case allowed the diverse actors in the two fields "not to collapse or merge [their] divergent worlds but to preserve each world's integrity while building a bridge between them" (O'Mahoney & Bechky, 2008: 450). Thus, in partial hybridization the different pre-existing institutions combined into a new institution are still recognizable.

Differently, in full hybridization, pre-existing institutions are fused together into a wholesale new institution so that they are no more recognizable. An example of full hybridization is the creation of the dedicated-bio-tech firm (DBF)'s practices between the fields of academic biology and pharmaceutical production (Powell & Sandholtz, 2012). Actors in these fields not only combined the institutionalized practices of one field with those of another, but also re-purposed those practices while combining them, so that they were fully transformed

in the process of their combination and became therefore un-distinguishable in the new hybrid institutions emerging from this process (i.e. the dedicated-bio-tech firm's practices). Metaphorically, partial hybridization can be equated to re-combining Lego pieces of different colours to create a new form: although the form is new, by looking at it we can still recognize the Lego pieces on the basis of their distinctive colours. In contrast, full hybridization resembles the process of mingling different food ingredients into a new sauce, so that the basic ingredients are difficult to separate out and distinguish from each other by tasting the final sauce. On the basis of these arguments, I submit the following proposition:

> **Proposition 2:** *When the level of mutual dependence between two fields is high, institutional change is likely to occur, and when it occurs, it is likely to involve the partial or full hybridization of the different institutions characterizing the two fields.*

Finally, I argue that the institutional changes occurring between two fields connected by high mutual dependence, when they occur, are likely to involve a limited re-distribution of power between the fields –i.e. to be "incremental", according to the definition provided above. In conditions of high mutual dependence, actors in both fields need each other for accessing critical resources that are otherwise difficult to procure. For this reason, actors in each field can make a credible threat to stop exchanging resources with actors in the other field, thereby exposing these latter actors to the risk of worst exchange conditions and more uncertainty (cf. Pfeffer & Salancick, 1978). Under these conditions, it will be difficult for actors in each field to obtain more power over the actors in the other field because each attempt to obtain more power can be easily countered by the credible treats of leaving the exchange. As a result, actors in both fields are unlikely to try significantly changing the power distribution between the fields or, if they attempt, they are unlikely to succeed in doing so. For example, Van Wijk and

colleagues (2013)'s study of the cross-field collaborations between the fields of corporate sustainability and commercial tourism illustrate how such collaborations led to institutional changes that were "less radical than initially envisioned" (p. 259), preserving the distribution of power between the two fields. On the basis of these arguments, I submit the following proposition:

> **Proposition 3:** *When the level of mutual dependence between two fields is high, institutional change is likely to occur, and when it occurs, it is likely to be incremental, involving a limited re-distribution of power between the two fields.*

The emergence of technology licensing as a new shared institution between the fields of public and private life sciences (Colyvas, 2007) provides a vignette to illustrate the institutional change dynamic described by these three propositions. In the late 1970s, these two fields were connected by strong reciprocal resource dependencies (Owen-Smith and Powell, 2008: 606), but they also featured significantly different, and potentially conflicting, institutions because "the [institutional] features that buttressed industry also threatened to erode the academy" (Colyvas, 2007: 458 [added]). Public science was characterized by peer-review and academic publication as its distinctive institutionalized practices (Colyvas, 2007: 458). Differently, private science was shaped by the institutions of proprietary knowledge and profit, sustained by the practice of patenting (Murray, 2010). Thus, when bio-medical firms and universities attempted to exchange their resources (knowledge and money) via collaborations, conflict over interpretations of behaviour and responsibilities often arose in those collaborations (Colyvas and Powell, 2006). To smooth their institutional differences and effectively manage their reciprocal resource dependencies, actors in both the fields worked at creating new shared institutions –such as technology licensing- that could facilitate their

resource exchanges and joint collaborations. These new shared institutions were made of elements drawn from the different institutions historically characterizing the two fields, hybridizing those elements into new practices. For example, Colyvas (2007) documents how technology licensing's practices combined different definitions of "what aspect of a scientific finding constituted an invention, who was an inventor, and how licensing should be used" (p. 457). These definitions reflected both the institutions of public access and property rights' protection, which respectively characterized the fields of public and private life sciences. In addition, the definitions that were "selectively retained" into the new institutions reflected a balance between the pre-existing institutions of the two fields, speaking to the fact that this institutional change did not imply a significant re-distribution of power between the fields (Colyvas, 2007: 472-474).

The effect of power imbalance on institutional work and institutional change

A high level of power imbalance between two fields indicates that there is asymmetry in the extent to which one of the fields depends on the other field's resources. According to the definition of power imbalance provided above, a focal field can be said to be more powerful than another because it has access to more alternative fields as compared to the other field; or because it provides more critical resources to the other field than viceversa. As a result, if actors in two power-imbalanced fields fail to exchange resources, the actors in the less powerful field would face greater uncertainty and worst exchange conditions (than those in the dominant field) because they have fewer alternative fields able to provide the same resources that are highly critical for the functioning of their field. Conversely, the actors in the dominant field "will find it easier to dictate the terms of the relationship by threatening to withdraw from the exchange" (Casciaro & Piskorski, 2005: 172).

Under this scenario, the actors in the dominant field are more likely to be motivated to maintain their field's institutions in order to preserve their resource advantage. In fact, the institutions of the dominant field shape how the field's resources can be accessed and acquired by actors outside the field (Lawrence, 2004; Owen-Smith & Powell, 2008: 616), thereby underpinning the resource advantage and power of the actors in the dominant field. By maintaining their field's institutions, actors in the dominant field attempt to preserve their advantageous conditions of resource appropriation –i.e. the conditions at which outsiders to the field can appropriate their field's resources- thereby reaffirming their power over the other field. For example, Zietsma and Lawrence (2010) describe how incumbent actors engaged in boundary maintenance work to prevent outsiders for accessing their field's resources and maintain their power over them (p. 201-203; 205-206). Relatedly, Currie and colleagues (Currie et al. 2012) show how dominant actors (i.e. clinical geneticists) maintained their power over resources in the face of external threats by less powerful actors (i.e. genetic nurses).

The actors in the less powerful field face a different situation. These actors are highly constrained by the dominant field due to the limited number of alternative fields providing the same resources and the high criticality of those resources. As a result, these actors are relatively locked-in to exchange resources with the actors in the more powerful field, despite the fact that these latter actors are likely to use their higher power in order to obtain more favourable exchange conditions. To access the scarce resources available in the dominant field and reduce the power imbalance between the two fields, actors in the less powerful field are likely to work towards disrupting the dominant field's institutions. By disrupting the dominant field's institutions, these actors attempt to improve the unfavourable conditions at which they can access the dominant field's resources, with the aim of changing those conditions to their advantage. For example, Zietsma and Lawrence (2010)'s study documents how outsiders attempted to "disrupt the institutionalized practice of clear-cutting" in the British Columbia's

costal forestry field, using "dramatic language to delegitimize the practice" in public protests and overt attacks on the media (pp. 204-205). Similarly, Maguire and Hardy (2009) describe how outsiders to the powerful agribusiness field engaged in "disruptive institutional work" by categorizing the DDT practices institutionalized in that field as "unethical, un-desirable, or inappropriate" (p. 169). On the basis of these arguments, I submit the following propositions:

> **Proposition 4:** *When the level of power imbalance between two fields is high, actors in the dominant field are likely to work at maintaining their own field's institutions.*

> **Proposition 5:** *When the level of power imbalance between two fields is high, actors in the less powerful field are likely to work at disrupting the dominant field's institutions.*

The two opposed forms of institutional work (disrupting and maintaining work) likely to be engaged in situations of inter-field power imbalance can give rise to a variety of institutional outcomes. Thus, the net effect on institutional change is more uncertain than in the scenario described above and requires a more nuanced theorization. In fact, not surprisingly, extant studies of institutional change in situations of power imbalance *within a field* feature mixed findings. On one side, research at the intersection of social movements and institutional theory (see Schneiberg & Lounsbury, 2008 for review) has shown that initially powerless actors in a field can sometimes succeed in disrupting powerful institutions that disadvantage them (e.g. Lounsbury et al. 2003; Zietsma & Lawrence, 2010; Maguire & Hardy, 2009). On the other side, research has shown that powerful actors are usually able to shut down challengers' change attempts by engaging in maintenance work (e.g. Micelotta & Washington, 2013; Lawrence, 2008; Currie et al., 2012). For example, Micelotta and Washington (2013)

show how powerful Italian professional associations effectively counteract attempts at disrupting existing institutional arrangements by re-establishing the status-quo. Similarly, Currie and colleagues show how powerful actors can successfully maintain existing institutions "relatively untouched" in order to re-affirm their power (Currie et al. 2012: 957).

Taken together, these mixed findings demonstrate that the success of less powerful actors in disrupting existing institutions and thus producing institutional change is *possible, but not probable*, due to the presence of more powerful "defenders of the status-quo" whose interests are threatened by institutional disruption (Oliver, 1992: 578). Being more powerful, these institutional defenders have by definition access to more substantial resources, which can be invested in institutional maintenance projects (e.g. Hensmans, 2003; Micelotta & Washington, 2013). Building on this rich body of research, I contend that actors in the less powerful field *can* succeed in their institutional disrupting efforts, but their success will not be frequent due to the higher power of actors in the dominant field. Therefore, in probabilistic terms, institutional change is less likely to occur between fields linked by high levels of power imbalance.

Although less likely, institutional change *can* occur between power-unbalanced fields when actors in the less powerful field do succeed in disrupting the dominant field's institutions. I argue that, when institutional change occurs between two power-unbalanced fields, it is likely to be radical, involving a significant re-distribution of power between the fields. Because disrupting work explicitly targets the dominant field's institutions and aims to de-legitimize the powerful actors in that field, these latter actors are likely to be stigmatized when disruption work succeeds. In turn, the de-legitimation of powerful actors in the dominant field opens up opportunities for a significant re-distribution of power between the two fields, prompting the entry of new actors (e.g. Scott. et al. 2000; Hardy & Maguire, 2010). In fact, when dominant actors are successfully de-legitimated, power is reallocated to new actors that are typically able

to display "purity" (Douglas, 1966) by projecting themselves as significantly different from the formerly powerful actors. On the basis of these arguments, I submit the following proposition:

> **Proposition 6:** *when the level of power imbalance between two fields is high, institutional change is unlikely to occur, but when it occurs, it is likely to be radical, involving a significant re-distribution of power between the two fields.*

If institutional change occurs between power-unbalanced fields, it is likely to involve the partial or full replacement of the dominant field's institutions with the institutions of the less powerful field. In fact, by directly targeting actors in the dominant field through disruption work, actors in the less powerful field create the perception of a salient rival or "enemy", advocating the displacement of the institutions associated with the de-legitimated rival. This argument is consistent with empirical evidence documenting how the perception of a salient rival prompts actors to "distance" themselves and mark their difference from the perceived rival (e.g. Tajfel & Turner, 1986). Similarly, I argue that successful disruption work on the part of the less powerful field's actors induces those actors to distance themselves from the dominant field's institutions and replace these institutions with their field's institutions (or variants of those institutions). However, successful disruption work does not necessarily imply the *full* replacement of the dominant field's institutions, although this is a possible outcome (see, for example, Rao et al. 2003). Rather, it may involve only the *partial* replacement of the dominant field's institutions, which may continue to co-exist with the other field's institutions, perhaps in an enduring state of tension (Dunn & Jones 2010; Murray 2010). On the basis of these arguments, I submit the following proposition:

Proposition 7: *when the level of power imbalance between two fields is high, institutional change is unlikely to occur, but when it occurs, it is likely to involve the partial or full replacement of the dominant field's institutions with the less powerful field's institutions*.

A vignette to illustrate the institutional change dynamics described by these three propositions is provided by Rao and colleagues' study (Rao et al., 2000: 251-259; see also Morrill, 2000) describing how the institutionalization of alternative dispute resolution (ADR)'s practices occurred at the intersection of two unbalanced fields: the more powerful judicial field, populated by judges and "other professional elites (e.g. lawyers and law professors)" (Morrill, 2000: 36); and the less powerful social services field, populated by social psychologists and counsellors. The ADR's institutional change occurred via the disruption work undertaken by actors in the less powerful field (i.e. social workers), who started criticizing the adversarial resolution practices conventionally institutionalized in the judicial field. These critiques were disruptive in nature, taking the different forms of "broad attacks on institutional underpinnings or criticisms of particular practices" (Morrill, 2000: 8). Eventually, the disruption work engaged by social workers was successful, attracting a "critical mass of supporters" and progressively de-legitimating the powerful actors (i.e. the judges) using the conventional practices. In the process, social workers greatly expanded their sphere of influence, acquiring new powerful positions by leading the adoption of the new practices, which eventually replaced the formerly dominant practices.

The combined effect of mutual dependence and power imbalance on institutional work and institutional change

A comprehensive theorization of the combined effect of mutual dependence and power imbalance on institutional change would require a detailed illustration of all the four configurations of these dimensions depicted in Figure 1 above. However, due to space constraints, in this section I focus especially on one of these configurations –i.e. the high-mutual-dependence/high-power-imbalance's configuration (Quadrant 2)- because it is the more theoretically interesting and the more relevant for the analysis of institutional change among the four configurations illustrated in Figure 1.[5]

Institutional work and institutional change between fields linked by high mutual dependence and high power imbalance. In essence, the simultaneous presence of high mutual dependence and high power imbalance between two fields indicates: 1) that the two fields are reciprocally dependent on each other; 2) that one of the fields is more powerful than, yet still to some extent dependent on, the other field. The oncomouse example described above provides an illustration of this scenario: in that example, actors in the chemistry field have more power on academic geneticists thanks to the oncomouse patent, but they are still partially dependent on academic geneticists to access their knowledge.

In this scenario, the actors in the dominant field are subjected to two competing forces. On one side, these actors enjoy favorable exchange conditions and power over the other field's actors, and so they are motivated to maintain the existing institutions underlying their dominance. On the other side, although more powerful, they are still dependent on resources located in the other field. This reciprocal, yet unbalanced, dependence provides the less powerful actors with some leverage to negotiate and obtain more favorable exchange conditions by threatening to leave the exchange. For example, after the oncomouse patent, genetics universities still exercised some power over chemical companies because they could threat to limit industry's access to the results of their laboratory experiments. This unbalanced

mutual dependence exacerbates the problems created by institutional diversity and power imbalance (discussed above). In fact, because less powerful actors are likely to be aware of their negotiation leverage, they are also likely to make more demands and contest more frequently the dominant's field institutions underlying their disadvantageous resource exchange conditions. Thus, the possibility of confrontational behaviors between actors in such fields is likely to increase while the possibility to develop mutually satisfactory exchange relationships is likely to decrease (cf. Bacharach and Lawler, 1981; Lawler and Yoon, 1996). These problems affect the capacity of dominant actors to effectively access and use the resources that they need from the other field, despite these actors are in a relatively more powerful position as compared to the other field's actors.

For these reasons, in this scenario actors in the dominant field are likely to exercise their power and work at disrupting the institutions of the less powerful field in order to access more directly the resources they need from that field. In fact, by disrupting the institutions of the less powerful field, actors in the dominant field can change to their advantage the rules defining access to the other field's resources, thereby creating new conditions for appropriating those resources. For example, Thornton (2002) describes the disruption work carried out by business corporations to acquire publishing companies, whose practices, rules and beliefs had been gradually and systematically dismantled though the "imposition of the corporate mentality on a business diametrically opposed to it in the past" (p. 81). Similarly, Rao and Kenney (2008) describe how the organizational forms institutionalized in the field of consumer watchdog organizations were "hammered into place" by powerful mass media organizations (p. 357; see also Rao, 1998).

In contrast, actors in the less powerful field are likely to maintain their own field's institutions in order to preserve their leverage on the more powerful field. In fact, by being less powerful, by definition these actors will have fewer alternative fields that can provide the same

critical resources provided by the dominant field. Thus, these actors are likely to be motivated to exchange resources with actors in the dominant field and to make efforts to maintain their leverage (the dominant field's dependency on them) in the hope of obtaining more favorable exchange conditions. For this reason, these actors are likely to react to the disruptive attacks of the dominant field's actors by undertaking forms of institutional maintaining work aimed at preserving their field's institutions. For example, Marquis and Lounsbury (2007) describe how small community banks resisted to the imposition of institutions emphasizing market efficiency on the part of large national banks, thereby defending their own institutions centered on community and local trust. On the basis of these arguments, I submit the following propositions:

> **Proposition 8:** *When the levels of mutual dependence and power imbalance between two fields are both high, actors in the dominant field are likely to work at disrupting the less powerful field's institutions.*

> **Proposition 9:** *When the levels of mutual dependence and power imbalance between two fields are both high, actors in the less powerful field are likely to work at maintaining their own field's institutions.*

The final outcome (in terms of institutional change vs persistence) of these two opposed forms of institutional work (disrupting vs maintaining work) is uncertain and ultimately depends on which of the two fields' actors "win". On one side, previous research demonstrated that counter-movements resisting institutional changes imposed by powerful actors can, occasionally, be successful (e.g. McAdam, McCarthy & Zald, 1996). On the other side, given that actors in the more powerful field have at their disposal more resources to invest in their

institutional disrupting efforts, it seems more plausible to argue that these actors are more likely to be successful in disrupting the institutions of the less powerful field, as illustrated in numerous cases in which dominant actors successfully imposed their institutional change projects (e.g. Thornton, 2004; Thornton & Ocasio, 1999; Rao, 1998; see Lawrence, 2008 for review). Thus, I argue that institutional change is likely to occur between fields linked by high levels of power imbalance and mutual dependence.

When institutional changes occur between fields connected by high mutual dependence and high power imbalance, these changes are likely to be radical in nature, involving a significant re-distribution of power between the fields. For example, Thornton (2004) carefully documents how business and financial executives came to dominate the field of publishing, thereby leading to a radical change in power distribution. Similarly, Fligstein (1990) shows that the institutions associated with manufacturing and marketing functions succumbed to the more dominant institutions promoted by powerful actors in the financial services field. Although this empirical evidence is at the field level of analysis, rather than at the inter-field level, it is plausible to argue that when actors in a dominant field successfully disrupt the institutions of a less powerful field, the ensuing institutional change is likely to be radical, implying a significant re-distribution of power between the fields.

> **Proposition 10:** *When the levels of mutual dependence and power imbalance between two fields are both high, institutional change is likely to occur, and when it occurs, it is likely to be radical, involving a significant redistribution of power between the two fields.*

Finally, I argue that, when institutional change occurs between fields linked by high mutual dependence and high power imbalance, that institutional change is likely to involve the

partial or full replacement of the less powerful field's institutions with the institutions of the dominant field. Thornton (2002) represents an example of full replacement of the institutions previously characterizing the publishing field with financial institutions. Differently, Murray (2010) is an example of partial replacement. In fact, despite less powerful than chemical firms, academic geneticists reacted to these companies' domination attempts by reshaping the meanings of patenting practices imposed by chemical firms. By re-purposing patenting practices for academic goals (i.e. by patenting scientific knowledge to keep it public), scientists reacted to "commercial encroachment", transforming the meaning of commercial practices and establishing "hybrid practices that preserved their distinctive institutions" (Murray, 2010: 341). This example illustrates how partial replacement can conduce to hybrid forms of institutional change, allowing the institutions of the two fields to "co-exist" in a state of enduring tension (Dunn & Jones, 2010; Reay & Hinings, 2005). On the basis of these arguments, I submit the following proposition:

> **Proposition 11:** *When the levels of mutual dependence and power imbalance between two fields are both high, institutional change is likely to occur, and when it occurs, it is likely to involve the partial or full replacement of the less powerful field's institutions with the dominant field's institutions.*

Discussion

This paper makes three main contributions to institutional research. First, I contribute to extant theories of institutional change by broadening their scope to include instances of institutional change between fields and by providing a theoretical explanation of why institutional change is more likely to occur between some fields rather than others. So far, scholars highlighting the importance of intersections between fields (e.g. Greenwood & Suddaby, 2006; Boxenbaum & Battilana, 2005; Rao et al. 2000) have relied on case studies of

single inter-field intersections, thereby providing fewer insights for comparing different intersections between fields and their capabilities to originate institutional change. In this paper, I take a step toward filling this gap by identifying inter-field resource dependence as a salient inter-field relation, thereby providing a conceptual platform to systematically compare different intersections between fields. In addition, I show that different intersections between fields offer different opportunities for institutional change depending on the type of resource dependence linking the fields under investigation. In doing so, I highlight the value of looking at inter-field resource dependence as an important, so far under-studied, source of institutional change, moving beyond the prevailing focus of the literature on endogenous sources of change within a single field (e.g. Leblebici et al. 1991; Maguire et al. 2004; see also Dacin et al. 2002). Whereas this paper's focus has been on inter-field resource dependence relations, the perspective outlined here more generally suggests that it is important to conceptualize the linkages between fields and "their very potential to effect change" (Fligstein & McAdam, 2012: 9). Future research should further theorize how different types of inter-field linkages interact in shaping opportunities and constraints for institutional change (cf. Evans & Key, 2008).

Second, I contribute to theories of institutional work by explaining how different types of inter-field resource dependence are likely to induce different forms of institutional work and different processes of institutional change. In doing so, I illustrate the mechanisms through which inter-field resource dependence motivates actors to undertake institutional work, thereby answering the call for more research on unpacking the motivations of actors engaged in institutional work (Hwang & Colyvas, 2011). In particular, I focus on actors' material, resource-driven, motivations, which have been relatively under-studied in the institutional work literature (Lawrence, Suddaby & Leca, 2009). In fact, while previous research has explored how actors become motivated to respond to institutional constraints via various resource-based strategies (Oliver, 1991), less systematic attention has been devoted to

conceptually explore the reverse –i.e. how resource-based constraints may induce actors to work on institutions. In addition, by theorizing how inter-field resource dependence influences institutional work, this paper advances our knowledge of how macro-level, socio-structural, factors shape micro-level processes of institutional formation; a problem on which more systematic research has been repeatedly called for (Battilana et al. 2009: 85-86; Greenwood et al., 2011). On one side, studies of institutional work have paid scant attention to how macro-level conditions influence actors' work aimed at changing institutions (e.g. see Lawrence et al., 2013; Lawrence et al., 2011 for review). On the other side, institutional change research has acknowledged that macro-level forces shape the micro-processes by which actors can successfully change institutions (e.g. Battilana et al., 2009), but has devoted less attention to systematically theorize the mechanisms by which these cross-level effects are produced. This paper contributes to this broader debate by linking a *specific* type of macro-level factor – namely, inter-field resource dependence- to the micro-level processes of institutional work unfolding between fields. Future research should further analyze how other types of inter-field relations, such as different forms and levels of institutional connection between fields (e.g., Evans & Key, 2008; Greenwood & Hinings, 1996) can afford opportunities and constraints for various forms of institutional work.

Third, I contribute to research on institutional fields by conceptualizing fields as linked arenas of social action rather than as semi-autonomous domains, as implicitly assumed in most previous institutional research (see Scott, 2008: 181-209 for review). In fact, by focusing on the resource dependence relations between fields, this paper departs from previous research that focused on the internal structure of fields (see Greenwood et al, 2011; Wotten & Hoffman, 2008 for review). In this regard, this paper addresses the call for better understanding how institutional fields are affected "by the myriad ties they share to other fields" (Fligstein & McAdam 2012: 19). Building on the original insights of resource dependence theorists (e.g.

Emerson, 1962; Pfeffer & Salancick, 1978), this paper answers this call by identifying two distinctive dimensions of an inter-field resource dependence relations (mutual dependence and power imbalance) and conceptualizing their separate and combined effects on institutional change. The conceptualization of these dimensions offers useful insights for future research aiming to better understand the overlaps between fields (e.g. Thornton et al., 2005), the genesis of those overlaps and their consequences for the emergence of novelty (e.g. Padgett & Powell, 2012; Furnari, 2014).

As any other study, this paper has some limitations. A first limitation is that the model presented here does not explicitly take into account how different types of institutional work may be combined in specific empirical instances of institutional change. For example, Zietsma and Lawrence (2010) show how configurations of practice work and boundary work underpin cycles of institutional stability and change, emphasizing how these different forms of work are recursively inter-related. Differently from this dynamic portrayal, the model presented here focuses on the institutional work activities that are likely to be undertaken *at a given point in time*. This perspective has the important benefit of allowing systematic comparisons of different intersections between fields and the opportunities they provide for institutional work and institutional change. In this regard, this paper provides a useful starting point to further investigate how various forms of institutional work can be combined over time during the various stages of an institutional change process. For example, future research can address this limitation by exploring how changes in inter-field resource dependence might correspond to changes in the types of institutional work undertaken by actors in the interdependent fields. Another limitation is the simplifying assumption that all actors in a field are equally dependent on the resources available in another field, independently on their positions within their field. Yet, actors might be differently affected by inter-field resource dependence if they occupy a central (e.g. Greenwood & Suddaby, 2006) or peripheral (e.g. Leblebici et al., 1991) position

in a field. Following this reasoning, more research is needed to understand whether the constraints created by inter-field resource dependence are experienced differently by actors occupying central or peripheral positions in their respective fields.

Despite these limitations, this paper has important implications for practice. For the change agents working at the intersection of multiple fields, this paper suggests that some types of institutional work (rather than others) may be better suited to achieve institutional change depending on the types of resource dependence linking the fields in question. For the policy makers interested in promoting (or hindering) institutional change at the intersection of multiple fields, this paper provides guidance for identifying the fields that are more likely to originate, or to be affected by, institutional change.

Conclusion

The concept of institutional field has been persistently central in institutional theory and organization theory at large. Reinforcing the vital importance of this concept, this paper contributes to recent efforts to expand institutional analysis beyond the boundaries of a single field by conceptualizing different types of resource dependence relations between fields and theorizing their effects on institutional work and institutional change. The increasing interdependence of institutional sectors in contemporary global society highlights the urgency of such expanded cross-field institutional analyses. This paper takes a step towards this direction, providing a conceptual platform to analyse resource-based relations between fields and explain the institutional changes possibly emerging from them. Much remains to be explored about the constraints and opportunities created by the intersections between institutional fields. My hope is that the inter-field perspective outlined here will sensitize further research on the various ways in which institutional fields are connected and the consequences of such inter-field connections for institutional change and persistence.

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Notes

[1] My usage of the term "dimensions" is consistent with the terminology traditionally adopted in resource dependence theory to refer to mutual dependence and power imbalance (Casciaro & Piskorski, 2005; Gulati & Sytch, 2007). This term emphasizes that mutual dependence and power imbalance are *analytically distinct* facets of a power-dependence relationship "because, for any value of power imbalance, a power-dependence relation can be characterized by varying levels of mutual dependence [and viceversa]" (Casciaro & Piskorski, 2005: 170 [added]). In fact, previous research has demonstrated -conceptually, empirically and mathematically- that mutual dependence and power imbalance can vary independently (see Casciaro & Piskorski, 2005; Gulati & Sytch, 2007). I illustrate this point more extensively with an example at pages 15-16 of this paper.

[2] The term "resources" indicates both tangible assets (such as financial capital, supplies and physical capital) and intangible assets (such as knowledge and reputation) (Powell, 1991; Battilana & Leca, 2010; Pfeffer & Salancick, 1978).

[3] The assumption that resources and institutions are analytically distinct is also consistent with the fact that this paper develops a theoretical model that is synchronic in nature, focusing on how the level and type of resource dependence connecting two fields *at a given point in time* influence the likelihood of institutional change between the two fields. Differently, a diachronic model would have required relaxing this assumption and acknowledging that, from a *diachronic* perspective, resources and institutions can be fruitfully conceptualized as reciprocally inter-related (e.g. Sewell, 1992; Giddens, 1984).

[4] I use the institutional work perspective in my theorization because it provides a balanced view of the relationship between structure and agency (Currie et al., 2012: 938) by shifting attention away from dramatic actions of heroic entrepreneurs (Lawrence et al. 2011: 57; see also Delbridge & Edwards, 2008). In addition, it also provides a comprehensive approach to

institutional change allowing one to theorize cases of successful as well as *un*successful institutional change (Lawrence et al. 2009).

[5] Quadrant 1's and 4's configurations are less theoretically interesting because their effects on institutional change can be derived more easily from the propositions illustrated above. In quadrant 1, the logic of propositions 1-3 still holds: the positive effect of high mutual dependence is reinforced by low power imbalance, which facilitates actors in both fields to create institutions, making institutional change more likely to occur. In quadrant 4, the logic of propositions 4-7 still holds: the negative effect of power imbalance is reinforced by low mutual dependence, which provides actors in the less powerful field with less leverage, making their disruption efforts more likely to fail and institutional change less likely to occur. Quadrant 3's configuration is less relevant for understanding institutional change: given a low level of mutual dependence and power imbalance, actors in both fields are likely to be less motivated to exchange resources and to engage in *any type* of institutional work to regulate those exchanges, making institutional change less likely to occur.

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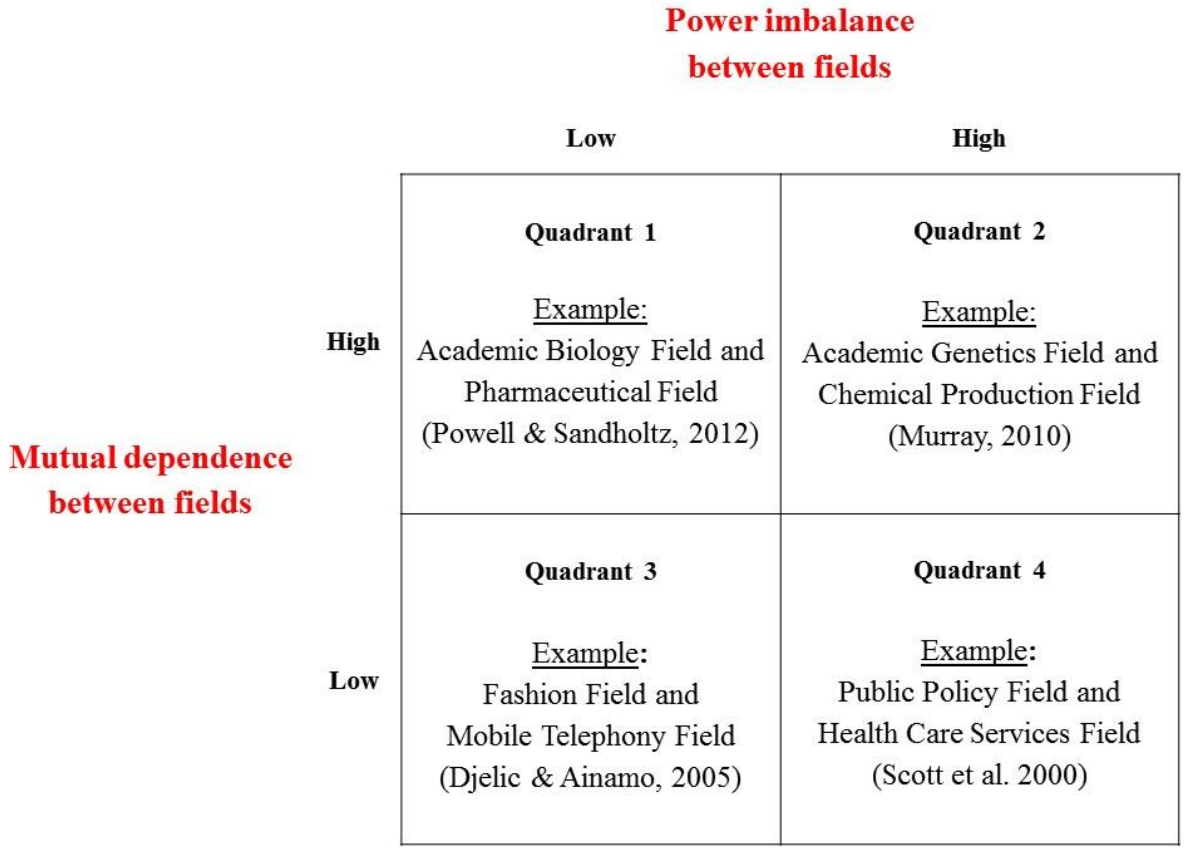

Figure 1. Configurations of mutual dependence and power imbalance between fields.

Santi Furnari is Senior Lecturer in Strategy at Cass Business School, City University London, UK. He received his Ph.D. in Business Administration and Management from Bocconi University in Milan, Italy. His current research interests include the emergence of new institutional fields and practices, the design of organizational configurations and business models, and the use of fuzzy-set/qualitative comparative analysis (fs/QCA) in organization and management theory. Santi's research has been published in academic journals such as the *Academy of Management Review*, *Industrial and Corporate Change* and *Organization Studies*, among others. His paper on "Interstitial Spaces" has won the AMR Best Paper Award for the best paper published in the Academy of Management Review in 2014 [Email: Santi.Furnari.1@city.ac.uk]

Corresponding author:

Santi Furnari

Cass Business School

City University of London

106 Bunhill Row

LONDON

EC1Y 8TZ

UK

santi.furnari.1@city.ac.uk