Institutions and Technology

Frameworks for Understanding Organizational Change—The Case of a Major ICT Outsourcing Contract

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The paper offers a fresh approach to the analysis of technology in organization through a critique of Orlikowski and Barley's assessment that institutional theory has the potential to bridge the social and material facets of organizational change when greater emphasis is placed on the materiality of technology. Through analysis of a major information and communication technologies outsourcing contract between UK Inland Revenue and Electronic Data Services, the authors follow institutional theory in problematizing studies in which technology is treated as a material cause or independent variable. But the approach commended by Orlikowski and Barley, they argue, is flawed by its unproblematized assumption of a separation between the physical and social aspects of technology. Drawing on the thinking of Laclau and Mouffe, the authors advocate an alternative framework that unsettles the commonsense, naturalized differentiation of the materiality of technology and the discursive field through which it is articulated and given meaning.

Keywords: institutional theory; organizational change; ICTs; discourse theory; outsourcing; actor-network theory

INTRODUCTION

The question of how to research technology has been a long-standing concern for students of organizations (Scarborough & Corbett, 1992). Orlikowski and Barley

(2001) have recently reviewed progress to date in a wide-ranging commentary on the overlapping fields of information technology (IT) and organization studies (OS).[1]

An important challenge of students of technology in organizations, they contend, is to appreciate what can be learned from IT and OS modes of research, with an anticipation that there can be "a fusion of perspectives, a fusion that is more carefully attuned to explaining the nature of techno-social phenomena" (Orlikowski & Barley, 2001, p. 147).

How then might this fusion be achieved? Institutional theory, Orlikowski and Barley (2001) believe, has considerable relevance and purchase as it illuminates the influence of institutional influences in enabling and constraining the shaping of technologies within organizations. But Orlikowski and Barley are also critical of institutional theory's neglect of the ways in which the material properties of technical systems enable and constrain processes of institutional reproduction and transformation. This shortcoming can be remedied, they contend, only by giving more adequate attention to the "material constraints and affordances" that technology presents (p. 152). In pitching for a version of institutional theory that accommodates this concern, Orlikowski and Barley aspire to construct a "bridge" (p. 149) between the physical and the social that can support a two-way interaction between technology and institutions in understanding organizational change.[2]

We agree that technologies are best conceived as simultaneously social and physical artifacts. We are less sanguine however about the capacity of Orlikowski and Barley's version of institutional theory to accommodate this concern and thereby remedy the deficiencies that they identify. Our suggestion is that other approaches—actor-network theory (ACT) but also a form of discourse theory advanced by Laclau and Mouffe (1985)—offer more promising bases for advancing the study of technology, organizations, and change. Our approach invokes Laclau and Mouffe's notion of a "discursive structure" that is performative, not contemplative in the sense that it "constitutes and organizes social relations" (Laclau & Mouffe, 1985, p. 96). We deploy this conception of discourse to deconstruct Orlikowski and Barley's distinction between structures (including technology and institutions) and practice. We also problematize the distinction between the physical and the social on which their proposed alternative to the IT-OS split is based.

In the first part of the article, we revisit Orlikowski and Barley's (2001) review of the IT and OS literature on technology before making a case for the adoption of Laclau and Mouffe's (1985) discourse theory as a possible, and for us more compelling, alter-

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native to institutional theoretic analysis (as well as to actor-network theoretic formulations of technology in organization). We then illustrate our argument by considering a case of organizational change involving a move to outsourcing a large information and communication technologies (ICT) system where we argue that the potential of ICTs as material systems for transforming organizational processes can better be understood by examining how these physical artifacts are articulated within a hegemonic operation of power relations. Overall, our purpose is to show how Laclau and Mouffe's discourse theory has relevance for enriching and advancing the study of (information) technology in organizations.

BRIDGING THE PHYSICAL AND THE SOCIAL

The legacy of OS studies is summarized by Orlikowski and Barley (2001) as "treating technology as a material cause, of abstracting away from the specifics of a design, and of ignoring the role of human agency in the process of technological change" (p. 148). This "tool" view of technology, where technology is considered independently of the social context in which it is developed and used, is also seen to operate as received wisdom in the IS literature (Orlikowski & Iacono, 2001).

In attempting to "theorize the IT artifact" (Orlikowski & Iacono, 2001), students of technology of a more or less explicit constructivist inclination have moved away from materialist images of technology toward a conception of technologies as social objects (Kling, 1991; Pinch & Bijker, 1987; Walsham, 1993). Although this avoids determinism, it must address the issue of the materiality of ICTs. Actor-network theory attempts to bridge the physical and the social through its concept of the heterogeneous network comprising social and technical elements, including people, machines, texts, and any other material form (Law, 1992). A social order achieves stability through a process of "translation" where actors successfully appropriate others' interests to one's own (Callon, 1991; Latour, 1987). "A crucial notion for Latour," as Mutch (2002) comments, "is the durability of networks" in which machines "play a central role" as they involve "the construction of 'black boxes' which conceal the social nature of their construction" (p. 526). For actor-network theorists, technologies are in effect the material embodiment of "the assumptions that underpin the interests of particular actors in the network" (p. 526).

Orlikowski and Barley (2001) clearly welcome the theoretical shift from treating technology as a physical entity that determines organizational outcomes to conceiving of technologies as social objects. But this welcome is conditional. For they also caution against the oversocializing of technology in constructivist analyses that "reject the notion of material affordances and constraints altogether" (p. 149). They concur with Button (1993) that ANT's emphasis on the social construction of technology neglects an awareness of technology as a social production that is achieved in the practices of design, construction, development, implementation, and use. By privileging process rather than action, Button claims, ANT allows technology to "vanish" (p. 24). Later in the article we comment in more detail on the affinities and differences between ANT and Laclau and Mouffe's (1985) discourse theory.

In summary then, Orlikowski and Barley (2001) urge the development of a form of analysis that on one hand avoids treating technology as a material given that determines organizational structure and on the other hand avoids the excesses of constructivist analysis, such as those attributed to ANT, in which technology and work practices are pushed to the background. A way forward, Orlikowski and Barley contend, is for technologies in work organizations to be researched as physical and social artifacts in such a way that takes work practices seriously—so as to provide an understanding of how agency influences the design and use of technology and also an understanding of how the material properties of technology influence agency. Institutional theory, amended to accommodate an adequate appreciation of the materiality and impact of technology, is commended as the favored vehicle for making this advance.

FROM INSTITUTIONAL THEORY TO DISCOURSE THEORY

Orlikowski and Barley (2001) apply their formulation of institutional theory to the example of telecommuting. The IS literature's preoccupation with technological advances, they note, incorporates no more than a cursory consideration of the social aspects of telecommuting, for example, in the form of the institutional and cultural forces that mediate its spread. Institutional theoretic analysis, Orlikowski and Barley argue, better appreciates that full-time telecommuting is rare as a consequence of social and cultural understandings about the organization of work that have proved resistant to change. In place of a one-sided, technology-centric conception of telecommuting, they commend a perspective that conceives of telecommuting as an "emergent, evolving, fragmented and provisional social production" (p. 154). But they also caution that paying attention to the role of "cultural and structural forces" should not be at the expense of neglecting "technical and economic" ones. "By ignoring the potential of technology," Orlikowski and Barley write, "organizational scholars have failed to recognize the role that networked computers may play in breaking down the separation of work and home, long the hallmark of social relations under industrial capitalism" (p. 158).

Orlikowski and Barley (2001) believe that by rectifying institutional theory's disdain, if not phobia, of technology, and thereby placing greater emphasis on the materiality of technology, "bridging the physical and the social" can be accomplished. We question the coherence of such a project. Instead of accepting, or naturalizing, the (commonsense) distinction between the physical and the social, we conceive of this distinction as the articulation of a (hegemonic) discourse that renders such distinctions normal and credible.

Retention of the assumption that the physical and the social are distinct spheres that must then be bridged reproduces a dualism that, as Orlikowski and Barley (2001) themselves recognize, is a weakness of determinist literature on technological change both within IT and OS. Their call for organizational researchers to focus on the "potential of technology" as a physical artifact distinct from the institutional context of its deployment is problematical because it implies that the capacity of technology to shape and constrain the actions of agents can be examined independently of its social

context. In their analysis of telecommuting, Orlikowski and Barley suggest that the material properties of networked computers have brought about a transformation of the institution of the separation of home from work. Attention to the materiality of technology is to be welcomed, but the privileging of the physical aspects of technology as a means of explaining institutional change is, in Orlikowski and Barley's analysis, coincident with an appreciation of "how technologies are embedded in complex inter-dependent social, economic and political networks" (p. 154), effectively fading from view. This does not sit comfortably alongside the intent to recognize technology as simultaneously social and physical.

This contradiction can be avoided, we argue, by deconstructing the physical-social distinction but in a way that keeps the materiality of technology center stage. When applying the discourse theory of Laclau and Mouffe (1985), the material properties of technology are conceived to gain "meaning" and "potential" through their articulation within discourse.

Laclau and Mouffe's Discourse Theory

A variety of discourse approaches has gained currency in the OS literature as ways of understanding organizational change, including those inspired by postmodernism and others grounded in a critical realist ontology, such as critical discourse analysis (CDA). Laclau and Mouffe's theory has a novel conception of discourse as material practice that makes it especially relevant for analyzing technological change. Their approach has been developed through a deep engagement with Marxian theory that is reconstructed through an incorporation of the insights drawn from the later Wittgenstein, Derrida, and Lacan.[3]

Laclau and Mouffe's (2001) discourse theory assumes and affirms the primacy of the political. Social relations are understood as contingent and historical rather than manifestations of an essential human interest or an immutable social order. Hege-monic articulation is the attempt to effect an ultimately impossible fixation of meaning and in doing so, to construct stable systems of identities that function as collective wills and yet have no essential or a priori origins.

In Laclau and Mouffe's (1985) thinking, the conception of discourse extends to all social practices and relations such that "every object is constituted as an object of dis-course" (p. 108). This broad conception of discourse, which Laclau (2002) acknowl-edges "could be replaced by that of practice" (p. 81), departs from other variants of dis-course analysis where it is assumed, or implied, that discursive and nondiscursive elements of reality are ontologically different and can be unequivocally distinguished (Fairclough, 1992, 2005). For Laclau and Mouffe, there is no ontological difference between the linguistic and behavioral aspects of a social practice. For example, in building a wall, both the linguistic act of asking for a brick from a workmate and the nonlinguistic act of adding the brick to the wall are both part of the practice/discourse of brick wall building (Laclau, 1990). As Laclau states, "It is not that discourse pro-duces some kind of material effect, but that the material act of producing it is what dis-course is" (Bhaskar & Laclau, 1998, p. 13). By conceptualizing discourse as material practice, discourse theory seeks to avoid amaterial conceptions of social interaction,

which some Foucauldian studies have tended toward, without succumbing to an unquestioning adherence to a realist ontology, which grounds much critical discourse analysis.

Laclau and Mouffe are "anti-constructionist" insofar as they understand objects to exist independently of language and thought. But their understanding that extradiscursive reality has meaning only through discourse distinguishes their stance from other kinds of realism. An existing material phenomenon, such as an earthquake, can be articulated—rendered meaningful within diverse discourses (e.g., geology, theology: act of God)—but for Laclau and Mouffe, that does not put into question its existence as matter. Every discourse is penetrated by a negativity (the "Other") that it fails to incorporate within its province of meaning; and it is this that prevents discourses from fully achieving the status of a totalized object. The "constitutive outside" blocks the identity of the inside but yet is a prerequisite for the construction of the inside. Identity and objectivity therefore are negatively constituted, incomplete, and ultimately unstable but are temporarily solidified through processes of hegemonic articulation. It is because there is something external to, or "beyond," discourse that objects can be constructed differently in and through discourse.

Laclau and Mouffe's discourse theory can be employed to "deconstruct" Orlikowski and Barley's conceptualization of the physical and social as separate entities—entities that, they argue, can and must be "bridged."[4] From Laclau and Mouffe's perspective, the conceptualization of technology as either physical or social exemplifies a "logic of difference" in which, in this case, a division seemingly captures or reflects key features of a given order. Such logic however is partial and precarious. It is problematized by a logic of equivalence that attends to how, for example, the development of material technologies is (in Orlikowski and Barley's analysis) conditioned by the social. In effect, Orlikowski and Barley undermine the logic of difference by appealing to the logic of equivalence. But they also resist the logic of equivalence as they refuse the reduction of the physical to the social (as well as vice versa). Their notion of a bridge between technology and institutions is a language game that is "productive" for and of their desired direction for institutional theory—that is, a direction capable of understanding the "constraints and affordances" of technologies as material systems. However, it is unconvincing to conceive of the physical and social separately, as we will show shortly in our consideration of the ICT outsourcing case.

Whereas all objectivity, identity, and meaning are understood to be contingent, discourse theory accounts for the relative stability of the social through the concepts of *articulation* and *sedimentation*. Articulation is "the construction of nodal points which partially fix meaning" (Laclau & Mouffe, 1985, p. 113, italics omitted). Over time, objects, identities, and discourses achieve an "objective presence" (Laclau, 1990, p. 34), despite being forged by a radical contingency that tends to conceal "that entity's contingency and historicity" (p. 34). Yet despite their comparative stability, sedimented discourses remain within the play of politics and can be problematized in new articulations. A process of *reactivation* reveals the contingency of the articulation in ways that unsettle and potentially degrade and replace its hegemonic power.

What then of "technology"—such as the workstations that comprise computer networks? Such technology is understood to have a materiality but at the same time to

lack any foundational or essential identity. Whatever identity is attributed to technology, it is understood to be the outcome of a process of articulation. This does not mean that the technology "vanishes." The material artifact (or composite of other artifacts)—the workstation for example—remains present. But it is allowed that the material technology is not essentially a workstation or a networked PC that exerts specific, isolatable effects. Rather, the identity of the material artifact(s) is derived through a process of discursive articulation that among other things is a condition of possibility of establishing communications between computers in a network. The artifact commonly known as a workstation might for example be articulated as a catalogue of its discrete parts—the CPU, memory, fan, and so on—some of which can be salvaged and reused, some that must be carefully disposed of, and others that are dumped.

Does this mean that for Laclau and Mouffe the technology is no more or less than whatever it is constructed, or articulated, to be? And that it is therefore changed—from a workstation into a set of parts for example—simply by calling it something else? The answer is no, but it is not straightforward. It is no because the artifact never was essentially a networked workstation, even if it were repeatedly referred to as such. So, it makes little sense to ask whether calling the technology something else changes it. This no is indeed not straightforward because the identity of the artifact is produced only through the process of articulation in which a (transitory and contingent) relation between elements is established—such as the person who is identified as a (potential) user and the technology such as a workstation that he or she uses. The identity of each of the elements is temporarily (and hegemonically) fixed through articulatory practice. When for example the artifact is articulated as a source of reusable parts (that may or may not be acquired to build a workstation), both the user and the technology acquire a particular identity that differs from when the artifact is articulated as a means of communicating with other computer users on a network. In each case, the material of the technology is present; but, as different users interact with it, its identity is articulated in different ways.

Earlier we touched on the contribution of ANT to the study of technology in organization. It is relevant to comment on the question of how Laclau and Mouffe's theorizing differs from and has commonalities with the conception of technology developed within ANT.[5] Both ANT and Laclau and Mouffe's discourse theory are strongly influenced by semiotics and are fervently antiessentialist.[6] From semiotics, ANT draws the insight that entities are produced in relations and that there is no essential justification for privileging forms of analysis that either treat materialities (e.g., technologies) as ontologically different to actors or that abstract actors from the contexts, or networks, that (relationally) ascribe distinguishing qualities, such as intentionality, to them. With Saussure, ANT conceives of entities "achiev[ing] their form as a consequence of the relations in which they are located" (Law, 1999, p. 4) or to put it another way, through which entities are performed (see also Mol, 1999). ANT shares with Laclau and Mouffe a rejection of the agency/actor-structure/system dualism or alternation, arguing that the social "possesses the bizarre property of not being made of agency and structure at all, but rather of being a circulating entity" (Latour, 1999, p. 17). But even in its most incisive mode, ANT analysis involves the study, or "summing up," of "interactions through various kinds of devices, inscriptions, forms and formulae, into a very

local, very practical, very tiny locus" (Latour, 1999, p. 17). The study of these interactions tout court is understood to provide the key to understanding how entities are (temporarily) rendered stable and durable.

A basic point of difference for Laclau and Mouffe concerns ANT's Saussurian assumption that the identity of an entity is derived and deducible from its place in a relational network. From Laclau and Mouffe's perspective, this identity is contingent, being continuously but imperfectly achieved, rather than provided, as it were, by its positioning in a network. Crucially, for Laclau and Mouffe, it is not just the relations but more fundamentally, what escapes, or lies outside the relations, that is key to understanding the identity and identification of entities such as technology. It is this "lack," to deploy the Lacanian term, that at root compels the process of "circulation" or "movement" that, as Latour (1999) notes, is central to ANT analysis.

For Laclau and Mouffe, technology as an entity is both possible (i.e., we grasp through common sense what is meant by usages of the term *technology* as a consequence of it being articulated within a discursive formation that bestows a particular meaning upon it) and impossible (i.e., entities such as technology are precarious as their boundaries are arbitrary, being products of [potentially renegotiable] efforts to exclude other possible meanings). Accordingly, for Laclau and Mouffe, the central focus is the process of articulation whereby social practices produce and sustain privileged discursive points that at least temporarily "arrest the flow of differences" (Laclau & Mouffe, 1985, p. 112). ANT is also concerned with how such points are established, but it is not so fundamental. To the extent that ANT examines this process (e.g., of translation), it does so by studying the conflicting interests of "actants" without regard to the significance of what Laclau and Mouffe (2001) term the (hegemonic) moment of political articulation in which "a particular social force assumes the representation of a totality that is radically incommensurable with it" (p. x).

In the following section, we explore some options for analyzing technological change in organizations by examining the example of a major public sector ICT outsourcing contract to the private sector.

THE INLAND REVENUE–ELECTRONIC DATA
SERVICES PARTNERSHIP

We start by offering a brief and necessarily selective account of the establishment of the Inland Revenue–Electronic Data Services (EDS) partnership before exploring how both institutional theory and then discourse theory might be applied to interpret its development.[7]

In 1994, the UK Inland Revenue signed a 10-year contract that outsourced the provision of the maintenance and development of its information systems to EDS. This involved a major organizational change as Inland Revenue moved from a provider of ICT systems, relying on its in-house Information Technology Office (ITO[8]) for building and operating these systems, to being a purchaser of ICT services.

Prior to the tendering of a contract, several alternatives for the provision of ICT services were considered, ranging from a wholly in-house program of performance

improvement to a complete outsource and various combinations of in-house and contracted out provision (see National Audit Office, 1995). Inland Revenue opted for a "strategic partnership" with a single private sector supplier, subject to a market test against in-house costs. At the time, it was the world's largest outsourcing contract by a government department to the private sector, and it was immediately held up as a best practice model for the provision of public sector ICT. The Inland Revenue's stated objective for the partnership was to improve the cost-effectiveness of its ICT systems and services by drawing on the expertise and muscle of a major ICT service provider. In addition to cutting the costs of maintaining existing systems, it was expected that EDS would inject technical and managerial expertise capable of ensuring the more rapid and effective development of new systems required in response to as yet unknown changes in tax policy. The preference of a "partnership" arrangement was informed by the premium placed by Inland Revenue on creating a working environment in which the partners agreed, adopted, and worked toward common objectives.

Institutional Theory

To return to Orlikowski and Barley's commendation of an institutional theoretic perspective, how might this be engaged to examine the Inland Revenue–EDS partnership? In broad terms, it would stress the importance of fully appreciating the wider regulatory and normative context, comprising "cultural and structural" as well as "technical and economic" forces when attempting to understand how outsourcing of ICT systems to the private sector became at first thinkable and legitimate and eventually became practically obligatory and irresistible.

Inland Revenue's decision to outsource its ICT operations occurred in a political context where government departments were under pressure to engage the private sector in the provision of public services. A decade before, decisions about the provision of ICT systems were made within an institutional field that made private sector involvement unthinkable. Innovation in ICT provision was delivered internally and occurred within whatever budget had been negotiated with the Treasury. Successive Conservative administrations welcomed radical solutions for the renewal of the public sector in the form of private finance initiatives as well as public-private partnerships. In 1991, the influential white paper *Competing for Quality* (Treasury, 1991) stated that wherever possible and appropriate, public sector services, including the provision of ICT services, should be subjected to a market test, with work being awarded to the service provider offering the taxpayer best value for money. This development offered the possibility and legitimized the strategic option of outsourcing elements of public sector activity to private contractors.

During the early 1990s, a boom in the ICT sector had depleted the Inland Revenue of key ICT staff. Their pay fell steadily behind private sector rates, leading to the hiring of expensive contract consultants to cover the shortfall. At the same time, the department was under intense pressure to deliver upgrades or modernization of its technical systems to secure the more efficient and user-friendly collection of taxes and to service planned changes to the taxation system.

A few years earlier, in 1987, a substantial and influential review of the Inland Revenue undertaken by the National Audit Office had identified poor strategic planning of ICT developments in addition to serious staff shortages. Staffing restrictions were seen to be handicapping the delivery of existing ICT projects and restraining the introduction of technological changes that could reduce costs by automating activities and/or improving levels of customer service. Difficulties encountered in the department's development of an integrated collection system (ICS) were indicative of more widespread delivery problems. Delays eventually led to its abandonment and were attributed to

> weaknesses in project management, design and staffing . . . up to the point of its cancellation ICS had absorbed some 200 man years in development manpower resources, compared with an original estimated requirement of 36.5 man years, and Inland Revenue estimated that a further 100 man years would be needed to complete it. (National Audit Office, 1987, pp. 11-12)

Public exposure of the inability of Inland Revenue to deliver planned systems formed an important part of the backdrop to the introduction of a Change Management Program in 1993 and the signing of the contract with EDS a year later. What had once been unthinkable had progressively become conceivable and eventually expedient, if not irresistible.

Institutional theory is without doubt useful for appreciating how decision making, for example, is accomplished through the political and cultural contexts of its operation. One limitation of this analysis—which Orlikowski and Barley's critique and revision of institutional theory literature on telecommuting is intended to correct—is that little attention is paid to the influence of the materiality of ICTs—in shaping the formation of the strategic partnership, for example. Without this correction, there is a one-sided analysis that examines how the "social" constrains the development of the "physical" but not vice versa. This weakness can be remedied, Orlikowski and Barley argue, within a revised institutional theory in which greater attention is paid to the physical and in particular, to the "constraints and affordances" of ICTs as material systems. The problem is that their way of attending to the material properties of ICTs assumes and reproduces a seemingly self-evident division between the social and the physical as they are treated as distinct forces (or variables) that in combination exert effects on the world, such as the spread of telecommuting. An effect of Orlikowski and Barley's desire to construct a bridge between the physical and the social so as to allow greater emphasis to be placed on the material properties of ICTs, and as contrasted with problematizing their division as the articulation of a particular discourse, is to embrace a position of contingent determinism where the materiality of the technology is seen to possess particular affordances and constraints independently of the social context of their identification and use. To be clear, we are not suggesting that analyses of technology in organization cannot proceed in this way or that they will fail to produce highly plausible accounts of its operation. Instead, our argument is that Orlikowski and Barley's proposed revision of institutional theory relies in an unacknowledged way on a division that is (hegemonically) constructed rather than

given and that the adequacy and credibility of such analysis is compromised by this limitation.

Laclau and Mouffe's Discourse Theory

By interpreting the Inland Revenue–EDS case through the lens of Laclau and Mouffe's discourse theory, we are better positioned to theorize and appreciate technologies as simultaneously social and physical artifacts. ICTs have a materiality, yet this cannot be studied independently of their articulation in discourse.

Laclau and Mouffe's concept of *discursive structure*—an impermanent outcome of the fixation of meaning through which some semblance of order is produced—enables us to appreciate how meaning/order is established through an ongoing process of differentiation from other discursive structures. For example, the notion of technology as a physical object is advanced through its differentiation from the notion of technology as a social object. In Laclau and Mouffe's terminology, a logic of difference is invoked to define technology in relation to its Other and vice versa. Instead of assuming that this difference is a self-evident truth or that it reflects differences that are obviously "out there," Laclau and Mouffe's discourse theory invites us to suspend such convictions but without denying the possibility that technology for example is a materiality. The point is to appreciate that any "truth," such as a consensus that may be reached at least within a group of organizational actors—such as social scientists to institutional theory, actor-network theory, or Laclau and Mouffe's discourse theory—"is the result of a hegemonic articulation, and that it always has an 'outside' that impedes its full realization" (Laclau & Mouffe, 2001, p. xviii). With this in mind, it is relevant to note that the fulfillment of the planned organizational change at the Inland Revenue is not conceived to depend on replacing the technology per se but rather in changing how its business systems are developed and in changing how these can "support its business processes more effectively" (National Audit Office, 1996, p. 19). In this regard, ICTs are conceived as social objects as their "functionality" depends not on (an upgrading of) the technology per se but on how the development of systems is managed and how they are used by staff in the tax offices.[9]

With regard to systems development, it is noted that the new information strategy drawn up in 1993 required the splitting of major computer projects into smaller, more manageable units. The aim of the new approach was to "reduce complexity and risk, and allow a quicker response to changing needs." When Inland Revenue entered its "strategic partnership," it was expected that EDS would bring its expertise in the management of technology, including the construction and maintenance of business systems, to reorganize its development. In other words, the ICTs were being conceived as social objects with the expectation that EDS would provide an alternative organizational process for their production.

Laclau and Mouffe's discourse theory is valuable for studying process of institutional transformation because it attends to the establishment of relations between the material properties of ICTs, the means of their deployment in organizational settings,

and the identities of users. In the Inland Revenue–EDS case, this took place within a discourse of change management that promoted the virtues of private sector provision of ICTs. This hegemonic formation unsettled the previously sedimented institutional framework of internal provision. It was articulated through a chain of equivalence between unrealized potentials attributed to ICTs, more streamlined work processes that could deliver improvements in customer service, and the empowerment of Inland Revenue–EDS staff. It was intended that the new business systems at the Inland Revenue would support and be supported by a broader program of change management that

> envisaged a shift of responsibility away from the centre and a movement away from its hierarchical systems of command and control. The new approach would aim to give greater empowerment, where managers would place more emphasis upon leadership and coaching, and staff would have greater responsibility and accountability for their work. (National Audit Office, 1996, p. 20)

This "empowerment" of staff would be achieved through the labor-saving introduction of new ICTs, resulting in the redeployment of staff who would deliver service enhancements. "New information technology provides opportunities to improve customer service and compliance work, by redeploying staff who have been freed from manually routine and repetitive work" (National Audit Office, 1996, p. 19).

The argument was made that the power of new ICTs could only be realized through a strategic outsource to the private sector because only private sector operators had sufficient knowledge of and access to the latest technology. One such example was schema management software that was introduced by EDS to reduce the time and effort in making scheme changes to Inland Revenue's databases. Before the introduction of this software, much of the work of the 45 database administrators involved reengineering older systems, with a typical project including logical design, scheme modeling, development, and implementation into the "live" systems environment. The reimplementation of large hierarchical systems on to relational database management systems was highly labor intensive, with schema changes requiring up to 100 man days to make and document the changes. The introduction of the new software enabled the automation of routine tasks in managing the schema, thereby allowing the database administrators to spend more time testing and implementing new systems. In this example, we see that the material properties of the ICTs took on a particular identity through their articulation in a discourse of change management. Other potential meanings are displaced—such as ICTs as a device for facilitating increased surveillance and more intense forms of organizational control. Whereas Orlikowski and Barley for example might be inclined to attribute the capability of the software to the "affordance" of the technology, discourse theory understands this capability to be discursively identified but without denying the materiality of the technology that is a condition of possibility of the automation of certain tasks.

A discourse theoretic conceptualization of technology and institutions as discursive structures recognizes that the material properties assigned to ICTs, whether conceived as "affordances" or instantiated capabilities, do not exist independently of the discursive field through which they are constituted. In 1994-1995, Inland Revenue

introduced 8,500 new computer terminals (out of a total of 52,000) into local tax offices. For the first time, this gave staff access to all the information that the department held on an individual taxpayer, thereby making possible an improved level of responsiveness to its customers. In analyzing the case, it makes no sense to separate analytically the materiality of the new computer terminals introduced into local offices from the way in which this materiality was rendered discursively. The material properties of the technology (e.g., its various components) shaped the institution of the in-house provision of public sector ICTs through a process of hegemonic articulation in which they were constituted as a means of allowing staff to reduce routine work, thereby "empowering" them.

SUMMARY AND CONCLUSION

Our analysis has engaged with Orlikowski and Barley's concern to facilitate some mutual learning between the fields of IT and OS, with a focus on the relationship between technology and institutions in organizational change. An important contribution of institutional theory has been to highlight ways in which the rationality of organizational action is conditioned by and retrospectively justified in terms of cultural and historical considerations—such as entrenched, particularistic notions of legitimacy. We share Orlikowski and Barley's concern to study the institutional media of organizational change, including the changes in the use of ICTs. But we have questioned Orlikowski and Barley's retention of a conception of technology as a determining or causal factor—a stance that stems from privileging the material properties of technology that are understood to exert an effect independently of the "cultural and structural forces" (Orlikowski & Barley, 2001, p. 154) that foster its development, shape its meaning, and mediate its effects. Or as Orlikowski and Barley (2001) put it, every technology "constrains and affords use . . . some constraints are malleable, others are not—at least not without radically redesigning the technology or undermining its operation" (p. 149).

The recognition of technology as simultaneously physical and social is of course not a novel insight. Notably, ANT has, in Law's (1999) words, shown that "what appears to be topographically natural, given in the order of the world, is in fact produced in networks" (p. 8). The challenge is to avoid the idealist excesses of constructivist analysis but without subscribing to the realist discourse commended by institutional theorists where the possibility of identifying and revealing "affordances" and "constraints" is assumed without reference or regard to their discursive constitution in the practices of their enactment and disclosure. In this venture, we have commended the relevance of Laclau and Mouffe's discourse theory and in particular their concept of discursive structure that characterizes the path-dependent medium for doing—reproducing/transforming—the social world, including the identities of those who participate in this process. Laclau and Mouffe can offer what institutional theory, according to Orlikowski and Barley, has not done to date—namely, a clearer and closer focus on practice.[10]

Our principal purpose has been to sketch the relevance of Laclau and Mouffe's thinking for studying the relationship between (information) technology and processes of institutionalization and institutional transformation. Their thinking suggests that a pivotal question is not, as Orlikowski and Barley formulate it, how the physical (technology) shapes the social (institutions) but how technologies and institutions are articulated and hegemonically fixed within discourses that establish relations between them. Laclau and Mouffe's discourse theory focuses our attention on the conditions of existence of identities, relationships, and objectivities (including the material properties of technologies); the institutional contexts within which they are constructed as objects; and the relationships between these and the "producers" and "users" of technologies. The primacy given by Laclau and Mouffe to antagonism and political struggle provides a distinctive way of conceiving of the politically charged nature of practice and is therefore of potential relevance to anyone engaged in enacting, shaping, and changing practices of organizing and strategizing, including those involved in the provision, development, and implementation of large-scale ICT systems. In deconstructing the differentiation between the physical and the social, technological change in organizations is seen to be a political accomplishment, which tends to be disregarded or obscured in many analyses, including ANT studies of ICTs where a "naturalized" ANT formula (see Law, 1999, p. 8; Latour, 1999) has been applied (e.g., Holmström & Robey, 2005).

Laclau and Mouffe provide the conceptual resources with which policy makers and practitioners can develop an alternative way of interrogating organizational change projects and programs that take fuller account of its politics. From this perspective, the high failure rate of costly outsourcing deals in the public sector, for example, is attributable to the continuing maintenance of a hegemonic articulation that attributes access to cutting-edge technology to the private sector coupled to the understanding that technology is an assured means of delivering improvements in the delivery of services. This logic of equivalence is however subject to contestation, not something essential to the properties of the physical artifact. It is produced through the exclusion of an "outside" that is at once necessary to its presence and confounding of its complete fulfillment. This might help explain why many outsourcing deals, such as the one analyzed in this article, are conceived to promise so much but in the end are found wanting.[11]

NOTES

1. These authors have made seminal contributions to the literature that examines the relationship between organization change and technology (see, e.g., Barley, 1986; Barley & Tolbert, 1997; Orlikowski, 1992, 2000). The number of citations for Orlikowski and Barley (2001) suggests it will become a reference point for theorizing on the topic.

2. We recognize that Orlikowski and Barley (2001) represents just one version of institutional theory's conceptualization of organizational change and that other versions within the organization studies literature would contest it. Much has been written however on the capacity of institutional theory for adequately conceptualizing how or why institutions change (Kondra & Hinings, 1998; Powell, 1991). Given space constraints and our desire to explore the contribution of Laclau and Mouffe to the information systems literature, we are not able to engage these debates in any depth.

3. For a brief but well-informed introduction to Laclau (and Mouffe)'s thinking, see Critchley and Marchart (2004).

4. Low and Woolgar (1993) similarly harness deconstructive thinking to assert that the "technical" and the "social" are categories that "achieve their sense and definition through their opposition to each other" (p. 35).

5. There are of course major difficulties with treating actor-network theory (ANT) as if it were a homogeneous phenomenon. Space does not permit a more nuanced discussion. For recent contributions that signal the extent of biodiversity in the ANT population, see McLean and Hassard (2004) and Czarniawska and Hernes (2005).

6. Law (1999) characterizes ANT as a "*semiotics of materiality*" (p. 4). Laclau and Mouffe (1985) develop their position through a critique of Saussure (as well as Marx).

7. Much of the analysis is based on information in the public domain. Our knowledge of the case was informed by a period of fieldwork that took place between 1999 and 2001. It is not used here because the period of interest precedes it and because the use of publicly available material meant it was possible to identify the organizations involved.

8. The Information Technology Office was one of the largest public sector organizations of its kind, with 2,250 employees and an annual budget of £250 million.

9. Of course, it was anticipated that technologies would also be upgraded. For example, during their contract, Electronic Data Services (EDS) replaced many of the computer terminals in local offices and upgraded the software that ran on them. These technologies were necessary for staff to do much of their work—as became apparent when the system became unstable or went down. But, it is misleading to attribute "affordances" or "effects" to such technology independently of its practical operation within an information and communication technologies (ICT) system.

10. Laclau and Mouffe's discourse theory is also responsive to Fairclough's (2005) criticisms of postmodernist approaches to discourse analysis that privilege "organizing" (as process/agency) at the expense of "organization" (as structure) but without reverting to a (critical) realist conception of structure (Willmott, 2005). Structures exist for Laclau and Mouffe but only in the discursive practices that reproduce or transform them.

11. In December 2003, Inland Revenue announced that it would not be renewing its contract with EDS. This followed several high-profile failures of the ICT systems, including the introduction of new tax credits in 2003. The ICT infrastructure designed by EDS to support the new initiative proved highly unstable, causing significant inconvenience to hundreds of thousands of the poorest and more vulnerable people in the United Kingdom. Whether this failing is attributable to EDS or to the excessive demands placed on EDS by the Inland Revenue is probably an undecidable matter (Bridgman & Willmott, 2005). Whatever view is taken, it is noteworthy that it did not lead to any serious consideration of returning to an in-house provision of ICTs or to any public reflection on the wisdom of addressing the difficulties of their provision by outsourcing it to the private sector. The hegemonic suture survived the dislocation of the Inland Revenue–EDS partnership break-up.

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