

**ORGANIZATIONAL OUTSETS OF INSTITUTIONAL CHANGE:
WINDOWS VERSUS LINUX IN LARGE MUNICIPALITIES**

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ABSTRACT

Recent efforts towards integrating organization and social movement theories in order to explain institutional innovation and change point to the political and discursive nature of these processes. However, most works assume dyadic actor constellations (e.g. “incumbents” vs. “challengers”) and institutional environments receptive to change. This paper presents a comparative analysis of large organizational first movers in the highly institutionalized field of desktop software markets. It applies social movement theories to an organizational realm and argues that complex intra-organizational collective actions lead to the formation of discourse coalitions between different conflict groups as a precondition for field-level institutional change.

1 INTRODUCTION

As a reaction to early criticism that neo-institutional theory was not devoting enough attention to issues of change (Scott 1987; Powell & DiMaggio, 1991; Scott 2001), many scholars focused on the issue (Tolbert & Zucker 1996; Dacin, Goodstein & Scott, 2002). However, these neo-institutional works on change still mainly ask how organizations cope with external pressures for change (Oliver, 1991 & 1992; Den Hond & De Bakker, 2007; King 2008) or how institutional practices diffuse (Fligstein 1990; Westphal, Gulati & Shortell, 1997; Townley, 2002).

The question spared out by these approaches is, how large organizational beacons for institutional change overcome internal barriers to change? What are the organizational outlets of institutional change? Obviously, answering these questions is of striking importance as any new institution has its origin, each institutional diffusion process has its innovators. Additionally, new institutions that are built up in spite of antithetic – coercive, normative or mimetic (DiMaggio & Powell 1983) – pressures deserve the description “institutional innovation” most. Unfortunately,

scholars applying the concept of “institutional entrepreneurs” (DiMaggio, 1988) regularly do not devote too much attention to whether the institutional setting is receptive or unreceptive to change (e.g. Munir & Phillips, 2005; an exception is Garud, Jain, & Kumaraswamy, 2002).

In drawing on recent works that conceptualize institutional as well as organizational change aided by literature on social movements (e.g. Davis, Morill, Rao, & Soule, 2005; Hargrave & Van de Ven, 2006; Den Hond & De Bakker, 2007; Kim, Shin, Oh, & Jeong, 2007; Davis et al. 2008) this paper will contribute to understanding change in spite of strong environmental influences favouring continuity. One major theory-oriented goal is to help, as suggested by Davis et al. (2008: 392), to push “social movement theory deeper into the traditional bailiwick of organizational analysis”. To this end, I look at innovation in the socio-technological field of desktop software markets as this allows me to use and further develop Hargrave and Van de Ven’s (2006) collective action model of institutional innovation: The parallels they find between literature on social movements and technological innovation coincide in the case of Linux, where a new technological paradigm overlaps with a social movement (Stallman, 1999; Hertel, Niedner, & Herrmann 2003). Additionally, desktop software markets are network markets (Shapiro & Varian, 1999) and hence a showcase for path dependent environments unreceptive to change (David 1985; Sydow, Schreyögg, & Koch, 2009). In this context the attempt undertaken here is to contribute to filling voids in these approaches regarding the organizational outsets of change by looking at the internal dynamics in large municipalities as first “beacon-adopters”.

While works applying social movement theory in an organizational realm stress the political nature of struggles for change, they often conceptualize them as bipolar settings of “incumbents” and “challengers” (e.g. Kim et al., 2007). This perspective, however, not only underestimates difficulties in identifying incumbents and challengers in a non-dyadic, multi-polar setting but also neglects that particularly the multi-polarity of a setting might explain why change

does (not) occur. In this paper I argue that intra-organizational collective action processes lead to the formation of “discourse coalitions” (Hajer, 1993) between different conflict groups as a precondition for field-level institutional change. Echoing Lawrence, Hardy and Phillips (2002), I am investigating Linux adoption by large organizations as institutional *change* in the making.

The paper is structured as follows: The next section presents a theoretical framework to capture how political dynamics within organizations may lead to groundbreaking change in an institutional field. After this, the method section gives details on why and how the municipalities of Munich, Frankfurt/Main, Vienna and Berlin have been selected as cases and briefly describes data collection and analysis. The section that follows derives theoretical propositions by linking up theoretical concepts with empirical insights. The concluding section discusses possible paths for further research on the interface of social movements, organizations and markets.

2 THEORETICAL FRAMEWORK

Theories of institutional change inspired by literature on social movements share Simmel’s (1955) notion of the potentially productive role of (political) conflict between different interest groups. Following Zald (2008), it is the understanding of organizations as open and political (Crozier & Friedberg, 1979) systems that makes them “ripe for analysis of collective action and social-movement-like processes.” Specifically for analyzing a technology-related field like desktop software markets, one of the most recent and promising approaches is that of Hargrave and Van de Ven and (2006) who develop a “collective action model of institutional innovation” by bringing together much of the above cited literature on social movements with concepts of technological innovation (e.g. Anderson & Tushman, 1990; Garud, et al., 2002).

Hargrave and Van de Ven (2006: 869) describe institutional change processes as quadripartite: in (1) “*framing contests*” actors fight battles over meaning as “signifying agents” (Snow & Benford, 1988), often guided by “epistemic communities” (Haas 1992); under (2)

“*construction of networks*” the literatures on “mobilizing structures” (Tilly, 1978; McAdam & Scott, 2002) or alliance building in standard battles (Cusumano, Mylonadis, & Rosenbloom, 1992) are subsumed; the (3) “*enactment of institutional arrangements*” embraces concepts like Campbell’s (2002) notion of “political opportunity structures”, Fligstein’s (1996) “architecture of markets” or complementary institutional infrastructure for technological innovation (Ingram & Rao 2004); and (4) “*collective action processes*” cover deliberate influence on institutions by groups of actors as in disruptive political events (Braithwaite & Drahos, 2000) or technological “path creation” (Garud & Karnoe, 2001; 2003). All mechanisms are said to be part of a dialectical struggle for institutional change in which conflict, power and political behavior of actors generate transformative momentum.

Following the authors, these mechanisms of institutional change apply mainly to “multiple actors in [an] interorganizational field” and have therefore to be distinguished from similar but more straight-forward concepts like “institutional design” (Van de Ven & Hargrave, 2004). There, institutional change stems from purposeful though rationally bounded social construction by individual actors. When looking at large organizational innovators, however, boundaries between the two concepts become blurred in a way that is not only a matter of research perspective: Large, non-atomistic organizational innovators may to a certain degree be self-supporting in a way that by adopting a new practice they performatively (Beckert, 2005) generate its legitimacy within a certain organizational field. That is the very reason why flagship adopters play such an important role for institutional innovation and diffusion processes. This capacity, in turn, comes at the cost of intra-organizational political struggles similar to those described by Van den Ven and Hargrave for the field level. These parallels were first italicized by

Zald and Berger (1978) and received recently growing attention as for example in Davis et al. (2005) and Kim et al. (2007).¹

--- Insert Table 1 about here ---

The framework I propose tries to combine the pro-active, innovation-igniting characteristics of Hargrave and Van de Ven's collective action model with the intra-organizational perspective of Kim et al. (2007). In their paper, Kim et al. also present four main mechanisms ("hypothesis") for explaining institutional change that can be subsumed under three of Hargrave and Van de Ven's mechanisms (see also Table 1): taking advantage of (1) "*political opportunity structures*" (referring, among others, to Tilly, 1978; Campbell, 2005) and (4) "*joint effects of organizational political dynamics and field-level institutional dynamics*" more or less parallel what Hargrave and Van de Ven call "enactment of institutional arrangements"; the (2) "*organized power of challengers*" equals the "construction of networks"; and (3) "*explicit conflict as a movement tactic*" is a more narrow version of "collective action processes".

The key difference between the two approaches is the one mechanism only mentioned casually (2007: 302) by Kim et al.: "*framing contests*". It is the rhetorical crossing of common sense's borders that precedes groundbreaking institutional change. Institutions are the stronger the more they are taken for granted (Commons, 1950; DiMaggio & Powell, 1991), as this keeps actors from even thinking of changing them. Hence, discursively recognizing and contesting them challenges their nature as inherent necessities (Suddaby & Greenwood, 2005). So, by underestimating the importance and transformative capabilities of framing contests and by explaining organizational change mainly as a response to external pressures, Kim et al. fail to

¹ Interestingly, the application of social movement theories *within* organizations was not prominently placed in the recent ASQ special issue on „Social Movements in Organizations and Markets“ (Davis et al. 2008).

capture innovative dynamics that are not favored by external pressures for change but come from reflexive processes within actors.

For applying these considerations in the following empirical investigation I integrate the above presented concepts into three categories for explaining organizational outsets of institutional change. I thereby try to preserve the general emphasis on political behaviour, power and conflict prevalent in both approaches. Besides, the following brings these recent works closer to the concepts put forward in McAdam, McCarthy and Zald (1996), who similarly distinguish “political opportunities, mobilizing structures and cultural framing”.

a) Opportunity structures: Any new institution draws on previous actions and structures (Giddens, 1984), every institutionalization process has its (idiosyncratic) history. Derived from this general notion is the requirement of at least some resources which actors can make use of for institutional recombination and/or transformation. Analytically, one may differentiate between internal (individual/organizational) and external (environmental) opportunity structures, which obviously have to be somehow related (see Stones, 2005). *Internal opportunity structures* include concepts like know-how, organizational rules and resources. Kim et al.’s (2007) intraorganizational “political opportunity structures” would primarily fit into this category. *External opportunity structures* embrace the environment related to the institutional practice of interest. When looking at organizational actors, a major part of the external opportunity structures is the respective organizational field (DiMaggio & Powell, 1983; Fligstein, 1985). This relational aspect is part of both Hargrave and Van de Ven’s as well as Kim et al.’s concepts: “Enactment of institutional environments” requires not only opportunities but also perception and acting upon, as it is even more explicit in the sequence “joint effects of organizational political dynamics and field-level institutional dynamics”.

b) Collective action: As in larger social entities, in organizations mobilizing resources (McCarthy & Zald, 1977) requires and at the same time *is* collective action. Not only empirically, but also analytically “construction of networks” and “collective action processes” (Hargrave & Van de Ven, 2006) or “organizing power” and “explicit conflict” are regularly one and the same. Therefore, I keep the analytical distinction only as a subdimension under the common umbrella of “collective action”. Still, formation and action of conflict or pressure groups stays a key variable for understanding political dynamics towards organizational and institutional change. What Rowley and Moldoveanu (2003) state for “stakeholder groups” in- and outside an organization, namely that both their interests and their identity are important determinants of why and how they act, may be similarly the case for intra-organizational conflict groups. To what extent their interests and identity are pre-given or rather generated and formed during the change process is an empirical question. Regarding the form of collective action within organization, it seems plausible that the repertoire will vary distinctively from that described by Tilly (1979; 2005) for social movements: As groups within organizations are normally connected via formal and informal rules, one might expect actions to be taken along those lines first. Similarly, factors like role-related authority (e.g. formal or professional) or veto-power by certain groups can be expected to coincide with organizational structure and history (Brunsson, 1989).

c) Framing: Hargrave and Van de Ven (2006: 869) define framing contests as struggles of opposing actors “to frame and reframe the meanings of relevant issues and technologies”. As mentioned, Kim et al. (2007) do not mention framing explicitly but concede that issue framing can be a social movement tactic in explicit conflicts. In the following, I will particularly stress concepts of framing that explain why and how discourse transforms into (deviant) action. Inspired by Suddaby and Greenwood (2005), I look at “the role of rhetoric in legitimating profound institutional change” and use Campbell’s (1998; 2004) distinction between “frames”

and “programs” to explain how argumentative strategies foster or inhibit institutional change. In Campbell’s typology *frames* are “ideas as symbols and concepts that enable decision makers to legitimize programs to their constituents” – which includes “theorization” as in the sense of “justification of an abstract solution” (Greenwood, Suddaby, & Hinings, 2002: 60; see also den Hond & de Bakker 2007) –, whereas “programs” enable [...] the charting of a clear and specific course of action”. Of course, actors use both rhetorical categories to foster as well as to hinder change and might team up in discourse coalitions (Hajer, 1993) on the basis of complementary and compatible frames and programs. At the latest when considering discourse coalitions the nature of framing as a subtype of collective action becomes obvious. Nevertheless, due to its importance for change processes and for analytical purposes I will use it as a separate category.

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Table 2 sums up the theoretical discussion so far: For explaining institutional change that stems from intra-organizational dynamics I suggest to look at three categories with two sub-dimensions each: (1) internal and external *opportunity structures*; (2) *collective action* in the form of organizing conflict groups and acting as a conflict group; and (3) *framing* in terms of legitimizing frames and action-guiding programs.

3 METHODS

In investigating the organizational outset of (endogenous) institutional change, a crucial part is choosing an adequate field and finding special cases within it. Relying on theoretical sampling (Eisenhardt, 1989; Flyvberg, 2006), I deliberately selected an exceptional field and, thereafter, exceptional as well as comparative cases following Yin’s (1994) notion of “literal” and “theoretical replication”.

3.1 Field Selection

When in this paper I look at the market for desktop software, this is an example that Shapiro and Varian (1999: 24) call “everyone’s favourite” for “lock-in”. Desktop software markets are network markets, meaning that the amount of individual utility in adopting a technology or practice depends on the total number of adopters, often referred to as “installed base” (Farrell & Saloner, 1986). David (1985) and Arthur (1989) describe these markets as being path dependent and attribute their rigidity to positive feedback mechanisms like network or learning effects (see also Sydow et al., 2009). High switching costs (Varian et al., 2004) and constant market shares far above 90 percent for Microsoft Windows and Office for over a decade make the assumption of strong institutional barriers to change in this market more than an educated guess. This is also backed by quantitative survey data: in spite of significant growth in server and other niche markets, open source software alternatives (“Linux”) are very hesitantly adopted on desktop PCs, far from being used as an operating and office system (see Wichmann, 2002; MERIT, 2006). This reluctance is striking as open source software comes free of license fees, allows access to its source code, thereby helping to prevent future vendor lock-in and allowing individual adaptation and updating (von Hippel & von Krogh, 2003).

In spite (and to some extent because) of this situation, in the last decade a social movement promoting the use of free and open source software emerged. By claiming free software was “a matter of free speech” (Stallman, 1999) non-governmental organizations such as the Free Software Foundation and activists behind open source software projects but also corporations like Google² have made using or purchasing software a political matter (Dobusch & Quack, 2008). While this politicization of a particular market may explain why political

² Google not only stages a yearly open source programming contests („Summer of Code“) but directly funds political activism via scholarships („Google Policy Fellowship“).

organizations like public administrations are taking the lead in adopting open source software, it does not explain where and why this adoption process actually starts. This question is even more puzzling, as technological and economic disadvantages of adopting a minority system first or even later affect corporations and public administrations in very similar ways. Any first adopter, for example, has to bear switching costs combined with high uncertainty whether the alternative will reach the critical mass of adopters necessary for the investment to be profitable. In other words, the political benefits of open source software do not make its (very tangible) network market disadvantages disappear.

3.2 Case Selection

As instances for change in this field I looked at large organizations that attempted to resist network market pressures for stability and focused on investigating the micro-structures and processes leading them to become potential “beacons” for institutional change. In network markets, particularly large organizational adopters of minority systems can function as role models who may attract followers (Scott, 2001). If not worldwide, so at least in the European market for desktop software, large municipalities like the Bavarian capital Munich or the Austrian capital Vienna have been such extraordinary examples.

Besides, public administrations as innovators in information technology markets are interesting from another point of view: After decades of “New Public Management” their stereotype is that of reactive copyists of business practices in several different areas, including IT (Christensen & Laegreid 2001; Townley, 2002). As supposedly very “unlikely cases” for institutional innovation in a technology market, municipal administrations as first adopters are promising cases for studying organizational outsets of institutional change. Interestingly, in 2008 there are still no large corporations that have introduced Linux as their primary desktop operating system, the only exception being highly specialized terminal-server or thin-client environments.

In particular, the municipality of Munich represents a mixture of an “exceptional” and a “critical case” in the terminology of Yin (1994: 38-40). It is an exceptional case in that it was the first large organization (at least) in Europe that announced plans to migrate its complete desktop software environment on about 14.000 PCs from Microsoft to open source software alternatives. Before, only very small municipalities like Schwäbisch-Hall with about 200 PCs had undertaken this step (Bräuner, 2005). It is critical as far as mainstream economic theory is concerned, which has major difficulties explaining why an organisation should take the lead in the presence of strong network effects (cf. Varian et al., 2004: 35).³ Additionally to selecting the municipalities of Vienna and Berlin as “literal replications” of the critical case Munich, I included the municipality of Frankfurt/Main as a “theoretical replication” in my sample: Frankfurt’s officials publicly announced the conclusion of an “Enterprise Agreement” with Microsoft on exactly the same day that Munich announced its Linux migration decision (see Table 3 for an overview of the selected cases’ characteristics). Of course, taking the per-definition exceptionality of Munich’s first mover case into account, the cases of Vienna and Berlin are literal replications in a rather broad sense. As early followers, I chose them not only because of their decision to migrate (parts of) their desktop software environment to Linux but also since they applied different (Vienna) or failing (Berlin) migration strategies.

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Finally, organizational size not only matters in terms of visibility but even more in terms of how easily a change of the desktop software environment is manageable: The larger an organization, the more diverse are the applications and data formats that require a common

³ So Varian et al. (2004: 35) state: „It would be nice to have a more systematic derivation of dynamics in network industries. Unfortunately, microeconomic theory is notoriously weak when it comes to dynamics”. The diffusion process *after* an innovator has succeeded, on the contrary, can be explained rather easily with the help of “bandwagon effects” (cf. Leibenstein, 1950; Banerjee, 1992) in economic or “mimetic isomorphism” (DiMaggio & Powell, 1983) in neoinstitutional theory.

operating and office system as their basis. Hence, differences in quantity also mean differences in quality, and larger organizations are consequently more reluctant to use open source software on desktop computers than smaller ones (see again Wichmann, 2002; MERIT, 2006).

3.3 Data Collection and Analysis

Case study research can be used to do both theory building and testing (Flyvberg 2006), and again following Yin (1994, 8), the unique strength of a case study is “its ability to deal with a full variety of evidence”, including documents, artifacts, interviews, and observations. To live up to this potential and for triangulation reasons, data was collected on the basis of a case study protocol over a three-year period from 2005 to 2007 (see Table 4):

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- Open-ended interviews with actors on different organizational levels, including political administration, central IT departments and subordinate and/or decentral IT departments. The interviews lasted from 45 minutes up to two hours and were semi-structured with a very open entry question to generate narrations (Mahoney, 2000; Scheiblhofer, 2008) followed by narrower questions concerning the reasons for the migration decision, the barriers and the driving forces during the process, as well as unexpected developments. All interviews were transcribed and – together with transcripts of interview-like talks at practitioner’s conferences – were entered into a case study database.
- Archival documents collected include, among others, studies on the technical and economic preconditions for any migration of desktop PC software in Munich, Vienna and Berlin, slides and handouts of conference presentations given by diverse actors during the years 2002 to 2007 and several agenda papers and decision drafts.
- As a source of external information articles published in the two largest German online IT-news portals “heise.de” and “computerwoche.de” as well as articles from three German and

one Austrian daily newspapers that dealt with the municipalities' desktop software environments and migration processes were collected and included in the case study database.

The data collection approach covered a time span between the introduction of Windows in the mid-1990s and Berlin's reversion of its migration decision in autumn 2007. A special focus lay on the post-millennial years from 2001 to 2007, when Linux and OpenOffice.org emerged as comparable alternatives to Microsoft's operating and office system. In adopting the cyclical ideal of qualitative research (Strauss & Corbin, 1990; Miles & Huberman, 1994), both data collection and analysis was not undertaken in strict consecutiveness. In particular, the focus on three organizational subsystems (political administration, central and decentral IT) and thus effectively arriving at an "embedded case study design" (Yin, 1994: 41) was developed only after analyzing the first third of the interviews in two of the sites (Munich and Vienna). In identifying relevant organizational subsystems ("conflict groups"), methodological and theoretical aspects immingled as the selection of further interview partners was dependent on their classification as members of a conflict group. Consequently, the reasons for choosing these subsystems and excluding others (e.g. end users) from investigation will be further discussed in the subsequent result's section.

The focus on first movers in a process of institutional change poses the problem of retrospective measurement: It is not only an inherent criterion of innovative activities that they are not easily foreseeable but also case selection itself was based on decisions that already had been made. To deal with this issue and the related danger of ex-post rationalization by both field actors and researchers I used narration-oriented (Mahoney, 2000) interview techniques (Schütze, 1983) and triangulated in the process of data analysis by comparing different, internal (interviews, archival documents) and external (media coverage) data sources. In the event of contradictory factual information as well as regarding temporal ordering of events, precedence was given to archival documents. Some issues, of course, were unresolvable and had to stay out

of consideration. Additionally, for each of the three theoretical categories – opportunity structures, framing and collective action – I tried to develop adequate measures on basis of the available data at hand; the following sections therefore jointly present measures and results.

4 EMPIRICAL RESULTS AND THEORETICAL IMPLICATIONS

After Munich's municipality proclaimed its switch-over to Open Source Software in 2003, in Vienna and Berlin discussions also arose about whether to migrate or not. These debates led to a partial migration in the former and an extensive but ultimately failed migration plan in the latter. Frankfurt, as previously stated, had already announced plans to continue using a Microsoft-only desktop software environment parallel to Munich's migration decision. Using the framework developed (see, once again, Table 2), the following section tries to explain why and how similar organizations in the same setting took such diverse paths.

4.1 Opportunity Structures

External Opportunity Structures

One might assume at first glance that the external opportunity structures for all four cases should have been rather equal: The technological availability of a functionally at least equivalent (Varian & Shapiro, 2003)⁴ alternative – Linux and other open source software – is a necessary but obviously not sufficient condition for institutional change in markets with strong network effects. And there was no regulatory change in desktop software markets during the observation period. However, as soon as some actors in an organizational field (DiMaggio & Powell, 1983; Fligstein, 1985) start moving this might alter the opportunity structure of others in this field. This reciprocal influence of organizational first movers we can observe both in the realm of discourse and regarding complementary market structures.

⁴ After reviewing Total Cost of Ownership (TCO) comparisons in the literature, Varian and Shapiro (2003: 12) come to the conclusion “that neither of these two platforms has a striking advantage over the other in terms of conventional measures of TCO.”

As members of one organizational field – large municipalities in German-speaking countries – the cases are not independent of one another and belong reciprocally to each other's external opportunity structure; in particular, timing and sequence matter, making the first visible adopter more influential than the later ones. Visibility, in turn, depends heavily on media coverage. Analyzing the reporting by the two major German IT news portals ("heise.de" and "Computerwoche") as well as by three German and one Austrian quality newspapers⁵ from 2001 to 2007 demonstrates the importance of Munich's example: More than half of all articles dealing mainly with the software environment in Frankfurt (100 percent), Vienna (56,67 percent), or Berlin (50 percent) refer to Munich's migration project, as well. In comparison, only 20 percent of the 115 articles on Munich refer to Vienna, 18.26 percent to Berlin and 6,98 percent to Frankfurt (see Figure 1).

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A very simple analysis of verbatim transcripts reveals that the medial dominance of Munich's example similarly prevails in the organizational discourse within the other three municipalities under study; in all cases interview partners explicitly referred to the media as the source of their information about the other cases. Without being asked a respective question, references to the examples of other organizations nearly exclusively pointed to municipalities of similar size. Among these, references to Munich clearly dominated in the other three cases (see Figure 2). These numbers, however, do not give an indication of whether Munich was seen as a positive or a negative example – they merely document the impact of a large flagship adopter on potential followers' discourses. Actually, the example was conceived quite differently within the same site, ranging from "frightening" to "impulse-generating" (Vienna) or from "unsuccessful" to its praise as "exemplary" (Berlin).

⁵ Frankfurter Allgemeine Zeitung, Frankfurter Rundschau, Süddeutsche Zeitung and Der Standard.

--- Insert Figure 2 about here ---

When looking at the software market structure, timing and sequence mattered, as well: Large and important software houses like SAP denied they would ever support Linux as an operating system for their products when Munich started its migration project. Three years later, and not last due to growing demand after Munich's decision, SAP began to support Linux with a steadily growing share of its products. By the time the interviews were made in Frankfurt, Vienna, and Berlin this development had not yet been clear and did not turn up in the interviews.

Internal Opportunity Structures

Aside from the fact that all four municipalities had a Microsoft monoculture on their desktop computers at the beginning of the 21st century, their internal opportunity structures for changing this situation differed significantly. In the following, I focus on three aspects (see Table 5 for details): (1) history of software usage; (2) status quo of software deployed in 2002/2003, when Munich decided to migrate to Linux; and (3) strategic latitude, which partly results from the former two but covers other issues like general financial or organizational capabilities, as well.

Since, of all cases, only Vienna had significant experience with open source alternatives and its rather centralized IT structure allowed for (more autonomous) strategic manoeuvre, it was internally best equipped for changing its software environment. This capacity was also demonstrated by the quick development of a viable Linux version in Vienna ("Wienux") after Munich's first move had set the ball rolling. In Munich and Berlin, overall tendencies of the internal opportunity structures were similar but differed in degree: The different size of the two municipalities goes along with different qualities of organizational and technological complexity.

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Solely by looking at both internal and external opportunity structures, Vienna should have been by far the most likely first adopter of Linux on desktop PCs out of the four cases under study. But differently to Munich and Berlin, Vienna had no urgent need for a decision regarding its software environment as product support for the Windows version in use was secured until 2010. Munich – the actual first mover – was not only far behind in terms of knowhow, but also its organizational IT structure had to be changed before administrators were able to deploy a non-Microsoft software environment. So what made Munich the frontrunner was in part the rather old Windows version in use, which brought migration as an issue onto the table.

In Berlin, the technological situation was quite similar to Munich; however, general organizational characteristics such as complexity of formal structures, financial capabilities and the IT service unit's spin-off made area-wide changes more difficult. Opportunity structures in Frankfurt, although classified on all accounts as favouring continuity, at a closer look reveal in part paradoxical tendencies favouring change that may also have played a role in Munich's case: Frankfurt's complete lack of strategic leeway was very unsatisfying for many central actors. The following reorganization project on basis of Microsoft software showed that organizational change may also strengthen existing institutions. Comparing opportunity structures across all four cases italicizes both their influence as well as their non-deterministic nature.

4.2 Collective Action Processes

Organizing conflict groups for collective action

In classic research on social movements (e.g. McCarthy & Zald, 1977) one of the major tasks is explaining why and how individuals choose working together for a common cause in spite of all the difficulties and “individual inefficiencies” (Olson, 1965; critical: Hirschman, 1982) that come with collective organizing. In organizations, individuals are already connected via hierarchical, formal and informal rules and routines; in a way, they are already collectively

organized, share a common environment, and use formal and informal channels for managing change and resolving conflicts. Therefore, the focus within organizations may be more on the development and course of the *front lines* in a particular conflict rather than why people organize in the first place.

Empirically, I arrived at distinguishing three distinct conflict groups that in all four sites who actively participated in decision-making and -execution regarding the organization's software environment. By asking interviewees who they discussed and corresponded with regarding IT and IT strategy, it soon became clear that only a very limited circle of people was actively involved in strategic IT decision and implementation processes. As expected, front lines roughly followed the division of labor and hierarchical structures within the organizations:

- *Political administration (PA)*: Politicians and public officials responsible for IT who do not have an educational or professional background in IT. Being aware of their lack of knowledge they have to trust their IT staff or turn to external advice for making decisions on IT matters. Dominant interests in this group were public opinion and keeping IT budgets low.
- *Central IT staff (CIT)*: The size of the central IT department varied distinctively across the cases, ranging from few competencies and employees (Frankfurt) to large and competence-rich (Vienna). Most members of the central IT staff have a strong educational or professional background in IT. As a policy unit, its major task is coordination and strategic development of a municipality's IT environment. Central IT's dominant interests were getting the means – in terms of financial and organizational resources – to (in their understanding) effectively control the organization's IT department.
- *De-central IT department (DIT)*: Employees in de-central IT departments largely have an educational or professional IT background and servicing the desktop software environment is their day-to-day job. De-central IT departments are regularly co-located with functional

subdivisions and have two supervisors – one in the central IT department and one in the functional division. Their major interests are coping with the steadily growing workload and protecting their often software-specific knowledge which they have accumulated over years of learning-by-doing.

As described above, the (general) “group interests” (Perrow, 1961) correspond to functional roles and were stable over the research period in all cases. In spite, however, of their overall similarity, conflict groups in different sites took different stands on the question of whether or not to change the organization’s desktop software environment and engaged in different forms of collective action

Collective action processes

Although conflict lines in all four cases follow very much formal organizational structures, (veto) power does not follow the same lines: The formal decision-making authority of the political bodies coincides with the professional authority of the central IT staff – a line of division of power as described for example in Brunsson (1989). Even more prevalent were antagonistic positions between central and de-central IT departments over the right division of labour, competences and budget. This triadic conflict situation offered both possibilities for coalition building as well as “divide-et-impera” tactics. Table 6 assembles inductively generated categories of collective action repertoires in a cross-case comparison which were observable in two or more cases or have been particularly consequential in only one case.

--- Insert Table 6 about here ---

So, in their struggles for change or continuity the different conflict groups drew from distinct sets of collective action repertoires. As proposing strategic IT decisions belongs to the functional role of the central IT staff, in all cases they had the advantage of an *agenda setting* competence. Where, as in Frankfurt, neither politicians nor de-central IT officials chose to

question these proposals, no open conflict ever arose. But even when the political administration reacted by questioning the strategy, calling for external advice and formally demanding a migration to Open Source Software as had happened both in Munich and Berlin, completely different paths were possible. In Munich, during the process, a coalition between central IT and political administration emerged which could suppress resistance of some de-central IT departments. In Berlin, the political administration failed to convince its central IT department of their migration plans and eventually reversed its migration decision – in spite of strong support by half of the de-central IT departments. Although formally bound to a migration resolution by Berlin's federal parliament, its focal role allowed central IT to effectively block any change projects from growing out of their status as laboratory experiments. In Vienna, tight cooperation between central IT and political administration led to the parallel deployment of open source software alternatives without external advice, reorganization measures or any formal instructions. By leaving the final deployment decision up to the de-central departments, Vienna successfully averted their resistance but also reached only very limited roll-out.

4.3 Framing

Most of the collective action processes described above involve (e.g. calling for external advice, defecting political instructions) or even are (e.g. questioning IT strategy, bargaining for competencies) discursive framing activities. In looking at framing, the main difficulty is the lack of first-hand process data on how different frames won out over others. A suitable approximation can be reached with a twofold approach: First, I retrospectively reconstruct how the conflict groups' discursive positions have evolved over time. Second, for a more fine-grained differentiation between various issues, I present a snapshot of the rhetorical structures either favouring continuity or change that these discursive processes have led to. Both steps rest on an analysis of verbatim transcripts of primary data sources, i.e. actors directly involved in the

migration process on different organizational levels in the different cases. In the second step I introduce the distinction between action guiding *programs* and legitimizing *frames*.

Contrary to their similar and stable interests, the conflict groups' positioning toward changing the software environment was highly contingent with respect to organizational opportunity structures, the collective action repertoire applied and, in some cases, changed over time during discursive struggles (see Table 7).

--- Insert Table 7 about here ---

In Munich, the unsalaried council member Gerd Baumann – a lawyer by training and private user of the proprietary office alternative “Ami Pro” – asked the responsible council committee to check whether cheaper alternatives could replace Microsoft’s Office Suite. In their answer, the central IT staff tried to turn his request down using simple lists of “pros and cons” of Microsoft Office and other Office Suites (see Table 8 for an example of the several, all-too-similar tables presented by them).

--- Insert Table 8 about here ---

One year later, a draft of an external expert’s report had convinced central IT officials that a migration from Microsoft to open source alternatives was technically and economically possible. But at the same time politicians had become the sceptics and been joined in their concerns by de-central IT officials, as the head of IT recalls: “When, for the first time, we proposed Linux on the basis of the external study in autumn 2002 in the IT committee [...] we got a lot of stick ((laughs)) [...] and I thought we don’t even need to continue, we slunk off with our tails between our legs.”

The final twist in disfavour of Windows was “achieved” by Microsoft’s chief lobbyist, CEO Steven Ballmer himself: Alerted by the same study that had convinced the central IT staff,

Ballmer interrupted his vacation in Switzerland to visit Munich's mayor – a move that led to skyrocketing media coverage and thus increasing pressure on politicians to support their central IT staff in (ostentatiously) resisting the monopolist's power.

Looking at the discursive processes in Frankfurt shows the completely opposite picture: The central IT staff's uncontested agenda-setting power led to a smooth decision making process. Criticism coming from opposition party members was routinely discarded and sporadic questions by scattered IT officials regarding open source alternatives were immediately turned down ("we rejected such proposals instantly"). In Vienna, politicians played a very cautious and ambiguous role, preferring to displease neither advocates nor adversaries of a migration to open source software. The central IT staff, being more sympathetic towards open source software, and the political administration found common ground in the least controversial strategy of a both-and-approach, which required nobody to obviously change their position.

The discursive struggles were slightly more complex in Berlin. The sheer size of the municipality and its subdivisions makes the latter more susceptible to subgroups and intra-group conflicts. For example, six of the twelve de-central IT departments committed themselves to enforced deployment of open source software on desktops, whereas others decided on their own to migrate to the next generation of Microsoft Windows and Office. The political administration, explicitly inspired by Munich's example, demanded a complete migration to open source software but did not devote additional funds to this project. Thus, it was rather easy for the central IT staff to block any migration efforts just by refusing any assistance or responsibility for de-central migration projects. After three years without any actual progress towards open source software deployment, the political administration gave in to central IT staff's demand for changing the migration resolution into a weaker one that just asked for open, i.e. non-proprietary, standards. Since Microsoft managed to certify its document format by the International

Organization for Standardization (ISO), this new ruling enables continued usage of Microsoft software in all areas.

Dominant frames and programs

Looking at the frames and programs (see Tables 9 and 10) that dominated each of these intra-organizational debates it is possible to explain differences between cases and – by looking behind the frequency numbers – to identify (discourse) coalitions (Hajer, 1993) of actors and issues on different organizational levels. For categorization, the literally transcribed interviews and talks were reduced to 1.901 paraphrases as the basis for coding the data. Then, in multiple consecutive rounds (Miles & Huberman, 1994), a system of coding categories was developed with focus on the meta-category “barriers and drivers for the adoption of an alternative (i.e. non-Microsoft) desktop software environment”. These inductively generated categories were then classified as predominantly covering “frame” or “program” aspects of the migration discourse. Most of the categories are two-dimensional, as issues such as “profitability” were raised both as arguments in favor and against changing the software environment. If there was a difference greater than unity between the two dimensions, a category was classified as predominantly pro- or predominantly anti-migration. Of course, this partial quantitative measure of discourse structures is primarily for illustration and to make the qualitative analysis more traceable.

--- Insert Table 9 about here ---

In Munich, two different conflict groups applied different frames to make sense of and legitimize the same open source software migration project: On the one hand, politicians stressed frames referring to a diffuse “anti-monopoly” ideology, the particular responsibility as a public administration and – especially compared to the other organizational subsystems – the chance to heighten the city’s profile. The central IT officials, on the other hand, framed the introduction of open source software above all as the (sought-after) opportunity to re-centralize the

municipality's organizational IT structure; for them – as the only subgroup – switching gains exceed switching efforts.⁶ Together, these two camps generated enough momentum (Hughes, 1983) to overcome the strong barriers to open source software introduction that materialized also as resistance in de-central IT departments. In all four municipalities, IT officials in de-central IT departments opposed the migration, not least as their expert's knowledge depreciated rapidly under a new operating system because of the „creative destruction“ of skills and knowledge inherent in every technological innovation process (Tushman & Anderson, 1986).

Compared to the discourse in Vienna's municipality, the second migration case, the number (9 to 7) and relative importance (59.38 to 43.49 percent) of framing categories coded predominantly as pro-migration is higher in Munich (see Table 9). An explanation for this difference may be that the far-reaching migration plan in Munich required much more legitimizing “talk” (Brunsson, 1989) than the softer strategy in Vienna. Another reason might lie in the more restricted access to first-hand data of critical de-central IT departments in Munich. In looking at the two non-migration-cases, Frankfurt and Berlin, the non-existence of predominantly pro-migration categories in Frankfurt is noticeable; while in Berlin there was a real debate on the pros and cons of switching to Free/Open Source Software, in Frankfurt there was hardly any debate at all.

Looking at the categories that predominantly cover program aspects in the migration discourse (see Table 10), one can see several facets more clearly: First, migration to open source software is seen as “hard work” requiring a lot of effort: In Munich three of the five most frequently coded categories are predominantly anti-migration and reflect the efforts necessary to migrate hundreds of special-purpose applications and thousands of macros, forms and templates.

⁶ In total, as can be seen in Table 9, also in Munich the majority of the paraphrases in the category “switching gains & efforts” was coded as efforts, indication that such a change project is perceived as laborious and expensive.

The difference to Vienna can be explained by the fact that in the Austrian capital all difficult tasks, characterized by huge amounts of macros etc., had been excluded from migration. Second, the program categories give an impression of the great variety of tasks necessary in such a migration project. Of course, in Frankfurt and partially in Berlin, much of the discourse was only about anticipated problems with different programs, as there had not been an actual roll-out of an alternative solution.

--- Insert Table 10 about here ---

Finally, there are huge differences between different conflict groups within the four cases that cannot be seen in the aggregate data presented in Tables 9 and 10. For example, the dominant *issues* differ especially between politicians, who rely heavily on discussions and external advice, and both IT-related groups that are mainly concerned with practical migration problems on the technical and organizational level. As far as the position for or against a change in the desktop software environment is concerned, it is for reasons already mentioned (e.g. depreciation of know-how) that de-central IT departments are generally more skeptical towards open source migration projects. Additionally to know-how and workload related objections, the bandwidth of de-central concerns ranged from technical (“Linux still has many teething problems.”) and competence issues (“With Linux we would lose control over the root directory.”) to simple expressions of protest (“We won’t do it. We won’t”). Figure 3 tries to offer a glimpse of these respective differences as it depicts the critical tendency toward change of all actors in de-central IT departments across all cases.

--- Insert Figure 3 about here ---

Besides, the paired curves in Figure 3 demonstrate that the discursive similarities between the two change-cases Munich and Vienna on the one, and the two continuity-cases Frankfurt and Berlin on the other hand, remain when differentiating between conflict groups.

4.4 Summing up the results

Table 11 presents aggregated measures of the three theoretical categories (1) opportunity structures, (2) collective action and (3) framing. This account allows a general assessment of the cases while omitting intra-case differences and most of the process perspective. Although Munich's decision influenced the external opportunity structures of the other three cases, this influence was neither unequivocal nor strong enough to compensate for the overall network market structure, which favored continuity over change and was the same for all four cases. The evaluation of internal opportunity structures presents Vienna as the most likely case for changing its desktop software environment, whereas in Munich and Berlin opportunity structures favoring change and continuity balance each other.

--- Insert Table 11 about here ---

In all four cases conflict groups and their interests follow roughly the same organizational lines but determine neither the respective group's nor the organization's position towards its desktop software environment. In fact, changing positions led to different directions of their collective action over time. As a consequence, Table 11 depicts only the last measuring-point in Table 7 when referring to the collective action of conflict groups. From all categories, framing analysis delivers the clearest picture on an aggregate level: At least post-hoc, discourse and decision-making are very much in line. Of course, this not so much explains why a decision was made as it underlines the necessity to investigate intra-organizational discursive dynamics for explaining onsets of institutional change.

6 DISCUSSION AND CONCLUSION

The focus of this study was on organizational onsets for change in an institutional environment generally not supportive of change. In building upon recent efforts to combine neo-institutional and social movement theory (e.g. Davis et al., 2005; 2008; Den Hond & De Bakker

2007; Hargrave & Van de Ven, 2006; Kim et al., 2007), the study attempts to complement these works with a framework for explaining the organizational outset of institutional change by looking at organizational political dynamics. There are several lessons to be learnt from Munich's migration from Windows to Linux and the contrasting cases of Frankfurt, Vienna, and Berlin for theories of institutional change: First, technology adoption and organizational change in one site may have significant influence on similar processes in other sites by changing their external opportunity structures, especially if groundbreaking enough to induce media coverage. However, this influence is highly contingent on media reporting and its reception by potential early followers, issues neglected by most large-scale quantitative studies (e.g. Dos Santos & Peffers, 1995). In spite of methodological difficulties related to retrospective reconstruction of process data, more work on large institutional pioneers and their early followers seems worthwhile.

Second, roles and preferences of actors differ from case to case and may even change during the process, converting some of them from opponents into proponents and vice-versa. Both dimensions interact and are mediated by framing processes. Analyzing this framing process also reveals that convincing opponents of a group's standpoint is less important than forming discourse coalitions (Hajer, 1993), where different groups support the same measure for different reasons. These results add to Kim et al.'s (2007: 316) emphasis on "explicit" conflicts that an organizational capacity of resolving them in a productive way is necessary; otherwise, explicit conflict can lead to deadlock and hence to mere conflict without change as it happened in Berlin. In any case, the collective action processes behind such coalition-building demonstrate that much of what Hargrave and Van de Ven (2006) state for the field level is also applicable on the organizational level.

Third, and key to organizational outsets of institutional change processes is to eke out strategic leeway for the organization as a whole. In this regard, weakening formal authority may

hinder change and vice-versa. This is a concretion of Kim et al.'s point (2007: 300), who very much strengthen the weakening of “incumbent power” as a precondition for change on an organizational level: “Political opportunities created by the weakening of incumbents’ power in an organization will increase the probability of replacing an existing organizational practice with a new alternative.” In the cases of this study, however, it is not so clear who actually is “in power” – a finding compatible with recent critique of dyadic conceptualizations of power (e.g. Hayward, 1998). Politicians’ formal authority is balanced out by central IT staff’s expert authority and positional power. In Munich, political non-professionals actually took over the decision-making from the experts entitled to do so in the first place. Even if the incumbent role was ascribed to central IT staff, they only had veto powers which alone were insufficient to bring about change. So, Munich’s migration is not a story of distinctive leadership by a group of institutional entrepreneurs (DiMaggio, 1988) but rather that of an organizational capability to reach and stick by a consequential decision.

Fourth, conflict group formation within organizations is different to conflict group formation on the field level. As is rightly pointed out by Clemens (2005), even when social movement theories are applied in an organizational realm, these are still “two kinds of stuff”. Existing formal and informal organizational structures are likely to have a strong influence on conflict group formation but at the same time do not determine them: The emergence of the actual front lines is still an empirical question that is contingent on the organizational environment and the subject matter. Besides, adaptations of and extensions to social movement theory for its application to an organizational context and vice versa still are a rather virgin research territory.

For future research, a second look at public administrations as potential innovators in a technology market seems worthwhile. This innovative role counters common sense as well as

theoretical stereotypes of them being inflexible and conservative bureaucracies. Speculating why specifically municipalities took the lead in the market for desktop software, I suggest two non-exclusive explanations: First, software markets recently became more and more politicized with many individual and organizational open source software providers being also political activists (Dobusch & Quack 2008). Municipalities, in turn, are also hybrids between political bodies and service providers – and thus probably more susceptible for the political value added by open source alternatives. Second, desktop software regularly does not belong to the core business activities corporate actors put their innovative focus on. In public administrations, on the contrary, optimizing internal processes is one of the main concerns and IT is a vital area. Together, this not only explains the pioneering role of public administrations in software markets but also illustrates empirically the political contingency of even technological innovation processes as strengthened by Hargrave and Van de Ven (2006).

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FIGURES & TABLES

FIGURE 1

Reciprocal references to the cases under study in media articles.

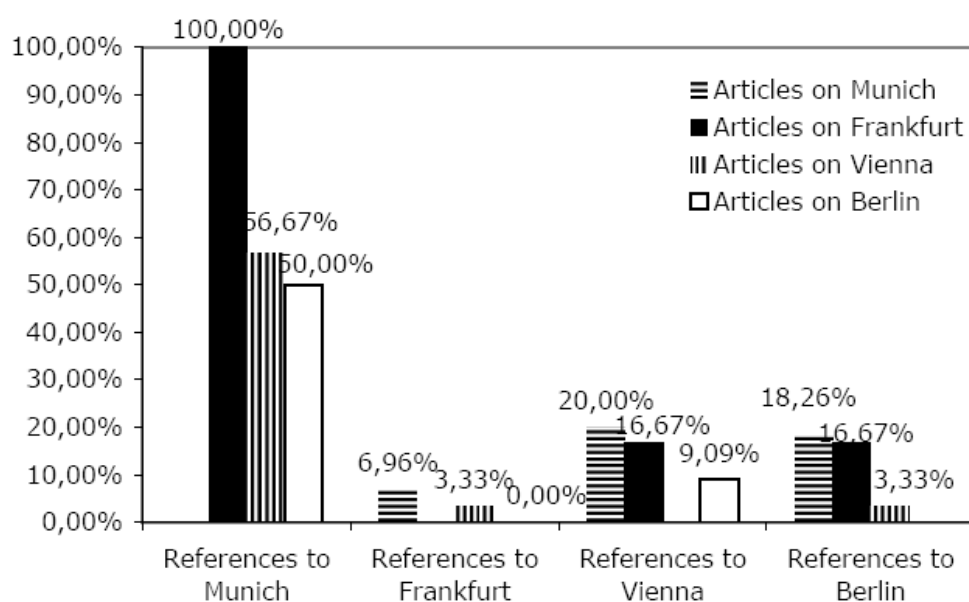


FIGURE 2

Percentage of references to Munich as an example in Frankfurt, Vienna and Berlin; absolute values in brackets.

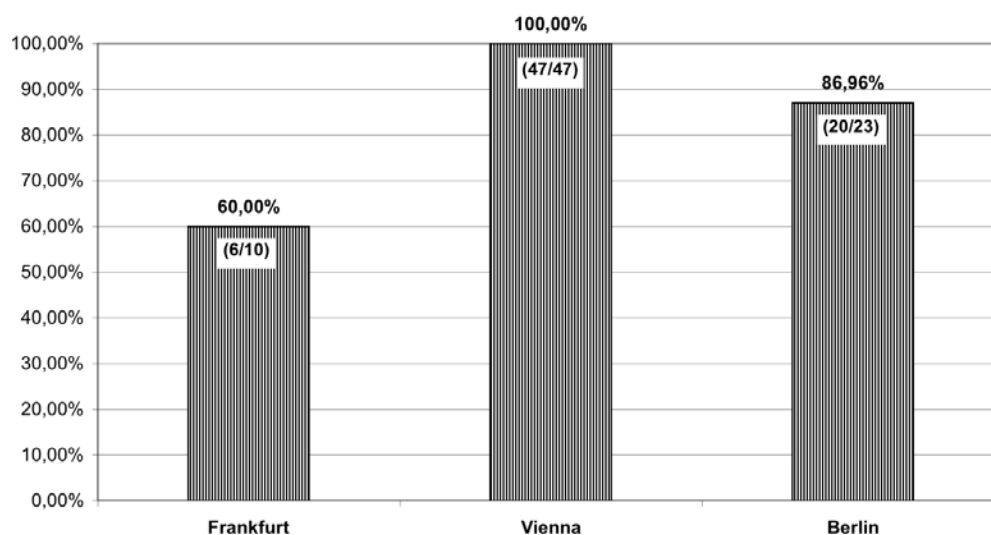


FIGURE 3

Comparison of dominant frames and programs in different organizational conflict groups across cases.

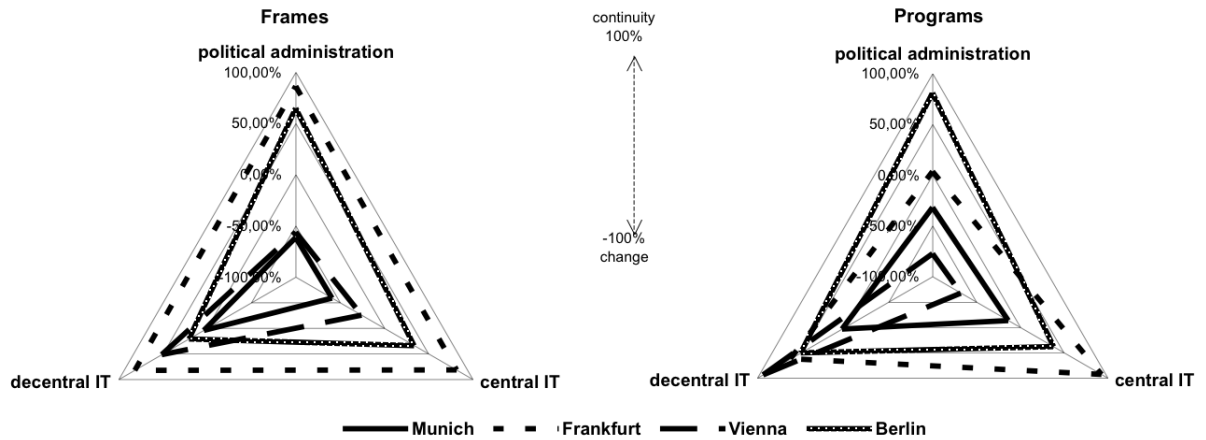


TABLE 1

Mechanisms of Institutional Change (Hargrave & Van de Ven, 2006; Kim et al., 2007)

Hargrave and Van de Ven (2006)	Kim et al. (2007)
Framing contests	-
Construction of networks	Organized power of challengers
Enactment of institutional environments	Political opportunity structures
Collective action processes	Joint effects of organizational political dynamics and field-level institutional dynamics
	Explicit conflict as a movement tactic

TABLE 2

Theoretical building blocks for explaining endogenous institutional change

Theoretical Category	Subdimensions
Opportunity Structures Institutional preconditions actors draw upon in their struggle for institutional change or continuity.	External structures hindering or enabling change. Internal structures hindering or enabling change.
Collective Action Coordination and coordinated action of (antagonistic) conflict groups.	Organizing conflict groups for collective action. Acting collectively as a conflict group.
Framing Rhetorical structures that precede, legitimize and guide institutional change or continuity.	Frames , legitimizing deviant or non-deviant actions. Programs , guiding deviant or non-deviant actions.

TABLE 3**Case selection characteristics**

	Munich	Frankfurt	Vienna	Berlin
Inhabitants (Mio. in 2007)	1,34	0,66	1,67	3,41
Municipal employees*	29.000	> 10.000	62.000	115.000
PCs*	14.000	8.000	20.000	60.000
Migration decision	2003	no migration decision	2005	2004/5
Planned migration scope	complete migration	-	partial migration	complete migration
Migration status end of 2008	roll-out in all departments	-	few roll-outs; partial roll-back	revision of migration decision
Case selection logic (Yin 1994)	critical/exceptional case	theoretical replication	literal replication	literal replication
* rounded estimates provided by municipalities				

TABLE 4**Case study database (overview)****Case Study Database**

	Munich	Frankfurt	Vienna	Berlin
transcripts				
interviews / persons	7 / 7	6 / 6	9 / 10	7 / 8
talks and verbatim records of meetings / persons	3 / 3	-	1 / 1	3 / 10
Σ transcripts / persons	10 / 9	6 / 6	10 / 10	10 / 18
per functional area:				
political administration	2 / 2	3 / 3	2 / 2	3 / 10
central IT	5 / 3	1 / 1	5 / 4	3 / 4
decentral IT	2 / 2	2 / 2	2 / 3	4 / 4
external	2 / 2	-	1 / 1	-
media coverage (2002-2007)				
articles (online / print)	69 / 49	2 / 6	18 / 12	22 / -
archival documents				
minutes of meetings	-	1	1	9
agenda papers (decision drafts etc.)	31	2	5	31
sets of slides	12	-	3	1
miscellaneous	8	1	6	15

TABLE 5

Cross-case comparison of internal opportunity structures prior to the respective migration decisions in 2002/3

Internal Opportunity Structures		
Site	Description	Measure*
Munich	(1) After uncontrolled introduction of Windows in the early 1990s, centralized standards for important software (e.g. operating and office system) led to only mild level of software diversity.	neutral
	(2) In 2002 support for the area-wide deployed Windows NT was cancelled, requiring an update of the software environment.	change
	(3) Organizational IT structure in 2002 did not give the central IT a mandate to prescribe a general migration to a non-Windows system, but the overall IT structure with central standards and only 13 decentral IT departments was relatively controllable. Generally, the IT staff lacked know how on open source software alternatives ("we only knew our world").	continuity
Frankfurt	(1) From all sites Frankfurt stack longest to a central Unix-based IT system. Windows was introduced after a radical decentralization of the IT organization 1996/97 independently by over 30 different IT departments, leading (2) to a highly diverse software environment (including instances of purchasing pirated copies) in 2002/3. (3) The central IT department had been stripped of budget, competencies and staff.	continuity
Vienna	(1) After the introduction of PCs the deployment of desktop software was closely monitored by a central IT department which had the authority to decide on any software usage. Parallel to usage of open source software on servers, its desktop functionality had been monitored and tested from the end of the 1990s onwards.	change
	(2) In 2003 support for Windows 2000 and XP as well as Office was secured until 2010, indicating no immediate need for migration efforts.	neutral
	(3) The central IT department was well funded, competence rich and had by far the best know how on open source alternatives of all researched sites, which eventually enabled Vienna to develop its own Linux distribution ("Wienux") in less than a year without external support.	change
Berlin	(1) Because of major organizational restructuring following Berlin's reunification, roll-out of Windows-PCs peaked not until the late 1990s and led – in spite of decentralized introduction – to the rather uniform deployment of Windows NT.	neutral
	(2) Similar to Munich, Berlin predominantly used the outdated Windows NT, requiring changes in the software environment.	change
	(3) When major parts of the central IT department had been hived off in the late 1990s, politicians decided to free the administration from any obligation to contract; a move with which the municipality deprived itself much of its strategic leeway: Most departments were still dependent on the hived off service provider, which was no longer bound to political instructions. Besides, the double-nature as municipality and federal land complicated centralized decision making due to constitutionally secured autonomy of lower level authorities and (post-)reunification costs led to severe budget restraints.	continuity
Legend: (1) history of software usage / (2) status of software deployed in 2002/2003 / (3) strategic latitude		
* Classification, whether the internal opportunity structures favoured <i>change</i> , <i>continuity</i> or were <i>neutral</i>		

TABLE 6

Selection of the collective action repertoire of different conflict groups and a cross-case comparison of its usage

Political administration	Munich	Frankfurt	Vienna	Berlin
Questioning IT strategy in municipal bodies	X	(X)*	X	X
Calling for external advice	X	X		X
Giving formal instructions	X			X
Central IT staff	Munich	Frankfurt	Vienna	Berlin
Trying to predetermine decision making via agenda setting	X	X	X	X
Seeking to cooperate with political administration	X	X	X	
Defecting political instructions				X
Bargain for competencies, personnel, budget	X	X		X
Decentral IT departments	Munich	Frankfurt	Vienna	Berlin
Questioning IT strategy in municipal bodies	X		X	X
Questioning IT strategy via external media	X			X
Failing to act uniformly vis-a-vis other conflict groups	X		X	X
Bargaining for competencies, central support	X	X	X	X

* Questioning of IT strategy only by politicians of opposition parties and only after Munich's decision.

TABLE 7

Positioning of intra-organizational conflict groups at different points in time.

Municipality	Munich			Frankfurt			Vienna			Berlin		
Conflict group*	PA	CIT	DIT	PA	CIT	DIT	PA	CIT	DIT	PA	CIT	DIT
Position in 2001/2/3	ch	co	.	.	co	co	.	na	.	.	co	na
Position in 2003/4/5	co	ch	co	co	co	co	na	ch	co	ch	co	na
Position in 2005/6/7	ch	ch	co	co	co	co	na	ch	co	na	co	na

Legend: co = favor continuity / ch= favor change / na = neutral/ambiguous / . = no role in decision making
 * PA = political administration / CIT = central IT departments / DIT = decentral IT department

TABLE 8

Product comparison prepared by Munich's central IT staff for the responsible council committee's meeting in Nov. 2001

Advantages	Disadvantages
- StarOffice is Open Source Software - Lower purchase costs - End of dependence on Microsoft - Cross platform applicability (StarOffice)	- Re-working in existing documents necessary because of - partial lack of import/export - different macro languages - different object models - New product line needs requires more training and, therefore, leads to higher training costs - There is no in-house training personnel - Insufficient online-help (StarOffice) - StarOffice/SmartSuite data formats are mostly not suitable for data exchange. Documents would have to be handed on in MS Office or RTF format. - The already deployed – and paid for – MS Office products would have to be replaced all over although they are often not even amortised (to ensure readability in internal data exchange) - No mail-client (SmartSuite)

TABLE 9

Cross-case comparison of framing aspects in the migration discourse

Framing categories	Munich	Frankfurt	Vienna	Berlin	Total	s
organizational structures	16,80%	52,21%	13,02%	29,81%	19,87%	15,33%
switching gains & efforts	22,27%	11,50%	11,08%	7,69%	17,82%	5,47%
(overall) profitability	15,04%	13,27%	15,79%	24,68%	13,82%	4,42%
public administration issues	10,74%	5,31%	5,26%	8,33%	8,32%	2,29%
expectations & uncertainty	8,20%	2,65%	7,48%	1,92%	7,67%	2,80%
anti-monopoly*	8,98%	0,88%	6,09%	5,77%	7,45%	2,91%
Ideological aspects of FOSS	5,27%	2,65%	9,97%	7,69%	6,70%	2,73%
pioneer (dis-)advantages	3,71%	0,88%	6,09%	1,28%	4,54%	2,09%
experts vs. laymen	1,56%	3,54%	11,08%	2,24%	3,78%	3,80%
role models (imitation)	3,91%	3,54%	3,60%	3,85%	3,56%	0,16%
local business development*	2,54%	0,00%	1,39%	0,64%	1,94%	0,94%
sunk costs (infrastructure)	0,00%	1,77%	4,16%	0,64%	1,84%	1,58%
private usage	0,98%	1,77%	2,77%	1,92%	1,84%	0,64%
quantitative IT growth	0,00%	0,00%	1,11%	1,28%	0,43%	0,60%
habitation	0,00%	0,00%	1,11%	2,24%	0,43%	0,93%
Number of codings	472	104	322	291	926	
Σ anti-migration	39,06%	95,58%	42,38%	56,09%	53,24%	
Σ pro-migration	59,38%	0,88%	43,49%	43,91%	24,62%	
Difference	20,31%	94,69%	1,11%	12,18%	28,62%	

* unidimensional codes (only pro- or anti-migration)

Legend:  predominantly pro-migration / change
 predominantly anti-migration / continuity

s = standard deviation

TABLE 10

Cross-case comparison of program aspects in the migration discourse

Program categories	Munich	Frankf.	Vienna	Berlin	Total	s
migration strategy	20,22%	4,00%	31,63%	37,46%	23,45%	12,76%
applications (incl. macros)*	18,74%	11,00%	13,72%	16,15%	17,27%	2,87%
organizational know-how	10,95%	16,00%	11,63%	3,09%	10,38%	4,65%
technical aspects of OSS	9,09%	3,00%	11,16%	8,25%	9,27%	3,01%
(refusal of) discussions	7,42%	22,00%	8,84%	5,84%	8,95%	6,42%
IT strategy (general)	0,93%	24,00%	13,49%	14,43%	8,95%	8,20%
migration complexity*	10,02%	5,00%	2,09%	3,78%	6,26%	2,95%
external advice	9,09%	7,00%	1,86%	5,15%	5,86%	2,66%
technical aspects of Microsoft	4,08%	1,00%	2,09%	3,78%	3,41%	1,26%
individual know-how	3,53%	7,00%	0,93%	1,72%	2,69%	2,34%
experience with alternatives	4,08%	0,00%	2,56%	0,34%	2,69%	1,67%
new personnel*	1,86%	0,00%	0,00%	0,00%	0,79%	0,80%
Number of codings	535	91	380	256	1262	
Σ anti-migration	43,23%	65,00%	20,47%	79,38%	36,61%	
Σ pro-migration	56,77%	31,00%	79,53%	12,03%	28,29%	
Difference	13,54%	34,00%	59,07%	67,35%	8,32%	

* unidimensional codes (only pro- or anti-migration)

Legend: predominantly pro-migration / continuity
 predominantly anti-migration / change

s = standard deviation

TABLE 11

Aggregated measures across cases under study

Theoretical Category	Sub-dimension	Source	Munich	Frankfurt	Vienna	Berlin
Opportunity Structures	External structures hindering/enabling change	Section 4.1	continuity	continuity	continuity	continuity
	Internal structures hindering/enabling change	Table 5	neutral	continuity	change	neutral
Collective Action	Organizing conflict groups for collective action	Section 4.2	neutral	neutral	neutral	neutral
	Acting collectively as a conflict group	Table 7*	change	continuity	neutral	continuity
Framing	Frames , legitimizing deviant/non-deviant actions	Table 9	change	continuity	neutral	continuity
	Programs , guiding deviant or non-deviant actions	Table 10	change	continuity	change	continuity

* aggregated positioning of all conflict groups in 2005/6/7