

Bad company? The ambiguity of personal knowledge networks

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Abstract

Recent debates on learning have shifted the analytical focus from formal organizational arrangements to informal personal ties. Personal knowledge networks, though, mostly are perceived as homogenous, cohesive, and local personal ties. Moreover, a functionalist tone seems to prevail in accounts in which personal knowledge networks are seen to compensate the shortcomings of the formal organization. This paper sets out to expand the dominant construal of networks, which is largely molded by the notion of embeddedness. Against the background of in-depth empirical analysis of the project ecologies of the Hamburg advertising and the Munich software business, the paper will first venture into the neglected sphere of thin, ephemeral, and global personal knowledge networks by differentiating between *connectivity*, *sociality*, and *communality networks*. Second, the paper not only elucidates the supportive functions of these ties but also explores the tensions between *personal interests*, *project goals*, and the *firm's aims* that are induced by these personal knowledge networks.

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1. Networks in economic geography: the implicit assumptions

Networking has become a key imperative of contemporary capitalism. The Rolodex has turned into a critical asset, the ‘know-whom’ it seems indeed is valued almost as much as the ‘know how’ (Gann and Salter, 2000). Along similar lines, the social capital embodied in trust-full ties is celebrated as a key source of collective prosperity (Putnam, 2000). In general, a ‘spirit of optimism has been linked to discussions of economic networks. They have been viewed as innovative, adaptive, resilient, open, and regenerative economic forms and [...] often seem to be connected with a sense of fairness or economic democracy’ (Leitner et al., 2002, pp. 278–9). Moreover, rather than merely as a transitory phenomenon, networks have come to be seen as defining a new area of capitalist development (see Castells, 1996).

In conceptual terms, this emphasis on economic networks drew the attention to social relations that appeared to operate between neo-classical notions of individual firms on the one hand, and Marxist class, amalgamated capital, and ‘structural’ analysis, on the

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other hand (critically, see Markusen, 1999). The network concept thus opened up a relational view of the social context of economic action (Emirbayer and Goodwin, 1994) that, in fact, largely became synonymous with Mark Granovetter's (1985) paradigmatic notion of embeddedness. By theorizing 'the role of concrete personal relations and structures (or 'networks') of such relations in generating trust and malfeasance', Granovetter's (1985, p. 490) idea of embeddedness catalyzed a rapidly expanding body of research on economic networks (Powell and Smith-Doerr, 2003; Grabher and Powell, 2004).

For economic geography, Granovetter's relational understanding of embeddedness provided a broad framework, at least a most popular metaphor, around which the empirics of the various regional success stories could be built. Regardless of how much the accounts on the Emilia Romagna, Baden-Württemberg, or Silicon Valley differed in empirical terms, these emblematic regions all seemed to be held tight together by networks, at least in the most generic sense of more or less durable ties. The plethora of testimonies on the resurging regional economies, however, also reified a perception of networks that, rather than being explicitly construed, more and more was implicitly assumed. More specifically, this shared implicit assumption reproduced a 3-fold biased view (Grabher, 2006).

First, in economic geography, networks have been utilized as an approach, at least a useful heuristic tool, to explore above all the realm of inter-organizational ties, which is the realm of collaborative ties between firms and their relationships with 'institutions'. By focusing on the inter-organizational level, networks operating at other social scales, such as relationships between individual actors, teams, or departments, are either ignored or unproblematically subsumed under higher-level networks. Inter-personal trust, symptomatically is confounded with inter-organizational trust: the 'ecological fallacy'. Trapped in such a fallacy, the analysis presumes a coherence of intentions, motivations, and interests thereby ignoring that 'at any one point in time individuals engage in multiple networks associated with different rationalities' (Ettlinger, 2003, p. 161). A path towards an appreciation of the multidimensionality of networks and the multiplicity of network logics, though, has been opened up in the context of actor-network theory inspired approaches (e.g. Thrift, 1996; Murdoch, 1999; Dicken et al., 2001; Latham, 2002).

Second, economic geography seems largely to privilege the 'strong tie'-end of Granovetter's (1973) paradigmatic dichotomy and uses networks as shorthand for enduring, robust, and trust-based ties. Networks in this view afford the cohesive and stable social underpinnings that, as earlier accounts emphasized, reduce all sorts of transaction costs and, as more recent debates iterate, promote interactive learning and innovation processes. Current attempts to break free from the conceptual straight-jacket imposed by the Marshallian region-as-island accounts (e.g. Bunnell and Coe, 2001; Bresnahan et al., 2001; Amin and Cohendet, 2004), though, increasingly appreciate the role of weak ties. However, the realm of less frequent and dense relationships seems strongly associated with the non-local scale, whereas accounts on weak ties on the local level appear rather rare.

Third, the more recent debates on 'communities of practice' (Brown and Duguid, 1991, 2002; Lave and Wenger, 1991; Wenger, 1998) and 'epistemic communities' (Knorr Cetina, 1981, 1999) have broadened the view on networks and shifted the attention from the inter-organizational to the inter-personal level. In marked contrast to actor-network theory that dissolves prevailing notions of clear tie-and-node geometries of

networks into diffuse overlapping relational spaces of ‘rhizomes’ (Deleuze and Guattari, 1976), the community debates remain more closely within traditional imaginations. Although the community-of-practice debates complexify network understandings (e.g. Gertler, 2003), they seem to be fixated with their functional attributes. Informal inter-personal ties compensate the structural shortcomings of formal (inter-) organizational arrangements. The literature on communities of practice in particular ‘has trumpeted their positive role in organizational innovation’ (Swan et al., 2002, p. 480). This celebration of communities obviously glances over the fact that they have ‘a life of their own’ and indeed might be formed exactly to circumvent formal organizational arrangements and practices. (see also Dalton, 1959).

2. Aims of the paper: de-homogenizing networks

In this paper we take up this 3-fold bias of prevailing network imaginations in economic geography. Our excursion into the neglected dimensions of networks seeks to appreciate the multiplicity of network logics and to elucidate the role of thin and ephemeral network ties. Moreover, we wish to counter functionalist perceptions of networks by emphasizing competition and conflict induced by networks.

The empirical context for our attempt to de-homogenize (no, we did not say ‘deconstruct’) networks is the increasing transience and fluidity of organizational arrangements and work. The ‘project’ and the ‘temp’ are the emblematic organizational manifestations of this secular shift in organizational practices (see Barley and Kunda, 2004), and networking signifies a key practice of project-based organizing (see Wittel, 2001). Networks in fact tie the loose ends of temporary assignments, fixed-term contracts, and transient organizational arrangements together—at least that is what is expected from them. Networking, in other words, weaves the social fabric of ‘project ecologies’ that provide the organizational and institutional infrastructure for recurrent collaboration (Grabher, 2002, 2004). As our subsequent empirical analysis seeks to demonstrate, networking in project ecologies indeed only partially matches predominant network conceptions.

First, the transience of projects also blurs the neat image of the clear formal (inter-) organizational arrangements prevailing in the more robust strong-tie relational architectures. Since employment, careers, and training in project ecologies are increasingly decoupled from the (long-term) affiliation with a firm, personal networks provide the ‘career capital’ (Arthur et al., 1999) to navigate through the fluid ecologies (Haunschild, 2003; Lindqvist, 2004, p. 21). Formal organizational agreements, thus, increasingly interpenetrate with informal personal communities and gatherings into polymorphous relational spaces that adhere to different social logics (see White, 1992). In engaging with White (1992, p. 198) we wish to portray the identity of individual actors in these transient contexts not as an unquestioned ‘atom’ but rather as ‘rickety ensembles’ that only temporarily crystallize at the intersection between different organizational and personal networks. More specifically, we will elucidate how project members are simultaneously embedded in the webs of obligation and loyalty to the *project team*, the *firm*, and to their role as *entrepreneur* of their own human capital.

Second, projects by their very definition are ‘temporary systems’ with ‘institutionalized termination’ (Goodman and Goodman, 1976; Lundin and Söderholm, 1995). Deadlines in fact are the distinct feature of projects. In the fluid and ephemeral organizational arrangements of projects the evolution of this sense of coherence, familiarity, and trust that radiates through the economic geographic accounts is limited.

Projects presuppose trust, yet their transience restricts its generation (see also Meyerson et al., 1996). Projects, in other words, also operate in weak-tie milieus. By appreciating Granovetter's (1973) elegantly simple 'strength of weak ties', we venture into this rather neglected sphere of thin and ephemeral relationships by extending the spectrum of personal networking modes from *communal* (the social backbone in the iconic district accounts) to *sociality* and *connectivity*.

Third, in the rather 'untidy' (Ettlinger, 2004) relational space of project ecologies, the multidimensional networks entwine various social logics and anchor in different link-pins of identity and loyalty. These intermingling organizational and personal networks are neither related in a static and hierarchical sense of unequivocal subordination nor do they complement each other in a neat fashion. Rather, relations between these partially overlapping, partially competing networks are highly ambiguous. For the individual project worker, being 'betwixt and between' (Garsten, 1999), ambiguity increases risks but also creates opportunities (Burt, 1986; Alvesson, 2000; Tempest and Starkey, 2004). Bridging the 'structural holes' (Burt, 1992) between different relational spaces becomes a strategic asset since it creates room for tactical maneuver, for arbitrage and opportunistic strategic games (see also Padgett and Ansell, 1993). We wish to appreciate Burt's view on networks as a means to *produce* competition (as opposed to the economic understanding of networks as a vehicle to *curb* competition) and seek to elucidate how the different network types contribute to the *coherence* but also trigger *conflicts* within the multidimensional ecologies.

3. Research setting and method

Empirically, the paper draws on research that systematically examines the particular organizational and institutional architectures of different types of project ecologies.¹ Project ecologies, in their more obvious dimension, are built around *organizational* networks between project teams, firms, clients, and suppliers for the duration of a particular project. These temporary organizational networks embody the 'pipes' (see also Podolny, 2001; Owen-Smith and Powell, 2004) of the project ecology through which resources are conveyed for the completion of the specific project. Beyond the organizational 'plumbing', project ecologies in fact also unfold more enduring *personal* networks that stretch out beyond the manifest pattern of actual project ties.

In taking up the triple bias of the prevailing network construal, our paper focuses on these latent and more diffuse personal networks. By comparing the Munich software ecology with the Hamburg advertising ecology we seek to unfold a broad spectrum of networking practices. While the Munich software industry exemplifies a more firm-based, strong-tie ecology that economizes on continuity and complementarity, the Hamburg advertising ecology represents an entrepreneurial and more conflictual weak-tie ecology. Both ecologies evince the entire spectrum of network types, though typically, the Munich ecology evolves predominantly around (both types of) Granovetter-networks, whereas the Hamburg ecology primarily thrives on Burt-ties.

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The comparative study of these two ecologies is based on 61 semi-structured qualitative interviews (with an average duration of 90 min) with representatives of software firms in Munich (mostly with project managers and key management personnel) and advertising agencies in Hamburg (in the majority of cases with art directors and account managers) and with freelancers and job brokers conducted during 2003 and the first half of 2004. All interviews were taped and transcribed verbatim. First-hand information was complemented by a variety of secondary sources, including data from industry reports, trade press, annual business reports, and press releases. By using inductive qualitative techniques to analyze the data (Eisenhardt, 1989; Strauss and Corbin, 1990), the findings were aggregated and synthesized in a comparative conceptualization of the Hamburg advertising and Munich software project ecologies (Grabher, 2004; Ibert, 2004).

Our case-study approach inflicts two substantive caveats. First, the chief aim of the paper is neither to provide a general model of sectorally specific project practices in advertising and software nor aimed at an in-depth idiographic account of the local clusters in Hamburg and Munich. At issue is rather an empirically grounded systematic differentiation (see Glaser and Strauss, 1967) of networking practices in a weak and strong-tie project ecology. Second, the investigation of conflicts and tensions amplifies the notorious weaknesses of personal interview-based research. Probing into competing and opposing loyalties unavoidably touches upon delicate and uncomfortable, in any case rather confidential, issues associated with personal failure or organizational deficiencies. Such 'off records'-issues, quite obviously, pose a fundamental challenge for empirical research of this kind (see also Schoenberger, 1991; Markusen, 1994). Initial indications of contentious issues not only emerged in what the interviewees explained, but also in what they did not explain and what they refused to explicate. Being further alerted to the endemic tensions and conflicts in the deadline-driven and multilayered project ecologies (Alvesson, 2000; Mahaney and Lederer, 2003; Swart et al., 2003), we tried to triangulate inconsistencies and obvious loopholes in harmonistic accounts by contrasting the perspectives of different yet inter-related actors. By approaching contentious issues from different angles we, of course, did not aim at leveling out inconsistencies but rather were interested in carving out the lines of conflicts and tensions more clearly.

4. White in the project ecology: multiple identities

By focusing on the more diffuse realm of personal networks, this study leaves the realm of (inter-)organizational networks and puts the individual actor center stage of the analysis. In the fluid organizational context of project ecologies, individual actors in fact appear as 'rickety ensembles' (White, 1992) that only temporarily crystallize by relating themselves to competing sources of identity and loyalty (see Alvesson, 2000; Alvesson and Willmott, 2002; Swart et al., 2003). Individuals acting within a project ecology are at the same time members of a *project team*, employees of a *firm*, and *entrepreneurs* of their human capital (see Table 1).

4.1. Project identity

Symptomatically, projects evolve into 'organizations with bounds of trust and authority similar to, or even stronger than, a firm' (Gann and Salter, 2000, p. 966). Typically,

Table 1. Multiple identities in the software and advertising ecology

	Project identity	Firm identity	Entrepreneurial identity
Dominant in	Software and advertising	Software	Advertising
Goal orientation	Project mission	Organizational survival	Individual employability
Time horizon	Deadline	Episode	Biography

projects are organized around a unique, demanding, and often fascinating task that triggers enthusiasm and at least absorbs considerable commitment (Lindgren and Packendorff, 2003, p. 18). Particularly in knowledge intense fields, such as in our ecologies, professional identification with the challenging project task and the expertise-based and motivated project team is stronger than with the more bureaucratic organizational procedures and the hierarchical structures of the firm (Alvesson, 2000, p. 1102). Dedication to the project is also enhanced by the prospect that the temporary assignment ends with the achievement of the project goals (Lundin and Söderholm, 1995; Turner and Müller, 2003). Moreover, the radical task-orientation, the tight sequences of milestones and deadlines, and the pressures of a small and highly interdependent project team typically claim priority vis-à-vis the more mundane and recurring firm-related administrative activities. Firms can move easily cope with delays than projects, whose very success depends on staying ‘in time’.

4.2. Firm identity

While projects are devoted to a clearly defined mission, firms pursue rather general aims that, at the very minimum, ensure the organization’s long-term survival. As long as individuals are employed with a firm they are forced to subordinate their personal career plans to a considerable extent to their employer’s general aims. The time horizon of employment is longer than in a project, though not unlimited. Although contracts are normally open ended, the affiliation with a particular firm constitutes an episode in the employee’s biography and only rarely covers life tenure (Haunschild, 2003).

In the advertising ecology, the identification with the firm remains comparatively weak since the ethos of creativity, flexibility, and mobility encourages short-term assignments. In the software ecology, in contrast, assignments with firms stretch over significantly longer periods since professional socialization is a lengthy and highly firm-specific process: ‘It takes two years. When he is a beginner it will take two years—until he really feels fit in technical issues, and until he is really into the topic, . . . so deep that he can talk with the client without further assistance’ (Department Manager 20).² Moreover the software ecology is driven by the imperative of modularization since the costs of reusing the software in subsequent or related projects is marginal relative to the creation of new code (see Lehrer, 2000). This cumulative learning mode prevailing in the software ecology values long-term experience with the reuse and modification of firm-specific software products and components. Since

² Quotations from interviews are translated by the authors.

such idiosyncratic knowledge can only partially be traded in external labor markets, employment contracts are relatively robust in the software ecology.

4.3. Entrepreneurial identity

The third relevant source of social identity is the self-conception of the individual actor as entrepreneur of the own human capital (see Voß and Pongratz, 1998; Eikhof and Haunschild, 2004). In project ecologies the continuous ‘up-dating’ of professional knowledge (Lindqvist, 2004, p. 16) is to some extent, in the case of freelancers even fully, left to the individual actor. Moreover, the institutionalized ending of projects forces actors to continuously hunt for subsequent assignments. The chief goal of an individual as a self-entrepreneur is to build up individual ‘career capital’ (Arthur et al., 1999) that maintains or enhances her long-term ‘employability’ (Christopherson, 2001) or to ‘remain marketable’ (Mahaney and Lederer, 2003, p. 6). To the extent the identification with the firm vanishes into the background the key individual career issue becomes knowing ‘how to get from one learning opportunity to the next’ (Tempest and Starkey, 2004, p. 513). The entrepreneurial identity embraces the longest time horizon and spans the entire occupational biography.

While in the software ecology the maxim of employability is primarily oriented toward the internal labor and project market, in the advertising ecology this essential imperative is more closely geared toward the external project and labor market. The emblematic fixation with ‘freshness’ and the relentless reshuffling of project teams translate into high turn-over external labor markets. A quite representative agency, for example, ‘has a fluctuation rate of approximately 30%, every 3 years the company is all new . . . and all these people need opportunities to somehow spin around, they want to fluctuate. If you impede this, they will get sick, you will make them feel miserable’ (General Manager 22). In contrast to the cumulative learning mode in the software ecology that values firm-specific knowledge, skill formation in the originality driven advertising ecology evolves much more around occupation-specific qualifications that can more easily be traded in external labor markets. Of course, employability and the ability to navigate through these rapidly shifting labor markets depends also on the social capital of the know-whom (to approach for the next venture). For project members in the advertising ecology the ‘regulatory dilemma of skill-formation’ (Peck, 1994, p. 166) thus has to be resolved stronger on the basis of self-entrepreneurial calculations, whereas in the software ecology, firms have stronger incentives to invest in the employees’ skills.

Loyalty in both ecologies obviously is a contested issue. In project ecologies, the traditional psychological contract between the worker and the firm wherein career development is offered in return for long service is increasingly challenged by new ‘transactional’ psychological contracts: ‘[T]emporariness, calculative involvement, and an emphasis on monetary compensation for narrow and well-specified worker contributions’ (Inkson et al., 2001, p. 261) are the thrust of these transient relationships. The emblematic ‘organizational man’, who offers unshakable loyalty in exchange for security, is being replaced by ‘contractual (wo)man’, with shifting link-pins of loyalty and strategic involvement. To the extent that firms infuse markets into their organization by encouraging independent project teams and intrapreneurship they in fact inevitably also generate incoherence and produce loyalty conflicts. They even might undermine key social assets since ‘individualized career-management strategies privilege

Table 2. Personal networks

	Communality	Sociality	Connectivity
Dominant in	Software	Advertising	Software
Nature of ties	Lasting, intense	Ephemeral, intense	Ephemeral, weak
Basis of ties	Common history	Professional complementarity	Common interest
Social realm	Private cum professional	Professional cum private	Professional
Governance	Trust	Networked reputation	Professional ethos
Focus	Relationship-oriented	Career-oriented	Task-oriented

the development of individual career capital rather than organizational social capital' (Tempest and Starkey, 2004, p. 516).

Since the firm no longer constitutes the exclusive learning arena, individual practices necessarily draw on the personal relational space that extends far beyond the current firm. The ambiguity of identities, however, almost unavoidably inflicts tensions within the personal networks when they might be instrumentalized either for achieving the project goal, contributing to the aims of the firm or advancing the own career (Alvesson and Willmott, 2002; Hatch and Schultz, 2002). Enduring personal networks, in other words, neatly compensate the deficiencies of temporal organizational arrangements, such as their deficient development of skills and sedimentation of experience. As amalgams of multiple social logics personal networks also distract, cause tensions, trigger off conflicts, and exploit. We now venture into this untidy relational space by subsequently differentiating the various personal network logics and then explore their role in contributing to coherence and conflict between the identities of actors as project members, employees of the firm, and self-entrepreneurs.

5. Multiple personal networks

In contrast to the (inter-)organizational networks that are fit together for the duration of a specific venture, personal networks evolve gradually over a multitude of project cycles. Personal networks engender lasting and latent ties in the background of the manifest and temporary 'plumbing' of organizational relations. Although the latent personal ties can be activated to solve specific problems in the actual project they more typically remain in the project background (see also Starkey et al., 2000). In both ecologies project members seem to rely on personal networks that differ with respect to their governance principle and their architectures (Grabher, 2004, pp. 1502–1506; Table 2).

The proposed differentiation of network types reflects, on a most general level, different degrees of social embeddedness (Granovetter, 1985), as indicated by the multiplicity of ties (see Wassermann and Faust, 1994; Uzzi, 1997; Uzzi and Gillespie, 2002). While network communality intricately interweaves private with professional dimensions of social exchange (high multiplexity) and network sociality is dominated by professional agendas that merely are underpinned by private aspects, network connectivity is almost exclusively professionally oriented (low multiplexity). These network types, of course, neither signify 'arithmetic' concepts with sharp boundaries nor do they remain unchanged over several project cycles. In fact, they typically alter their

character over time, i.e. gain or lose multiplexity in the course of repeated collaboration. Nevertheless this classification is employed as an intellectual strategy to direct further theoretical imaginations to de-homogenize networks and, most importantly, venture into the largely neglected weak-tie realm of networks.

5.1. Communality: Granovetter-ties, as we know them

The notion of communality denotes robust and thick ties that are firmly rooted in personal familiarity and social coherence. Relations are based on mutual experience and common history (see also Shumar and Renninger, 2002, p. 6). Although communality is present in both ecologies, it appears of higher relevance in the software ecology. The continuity-oriented knowledge practices in the software ecology translate into comparatively long affiliations with firms which in turn reduce the likelihood that network ties with former colleagues from school, youth organizations, university, or with long-term work-mates are disrupted by inter-firm and inter-regional mobility.

The duration of 'linear time' (Sennett, 1998; see also Bauman, 1996, p. 51) in the social realm of communality engenders the evolution of personalized experience-based trust as the chief governance principle. Communality, in contrast to the interest-driven and more deliberate association of *Gesellschaft* (society) is suggestive of the classical notion of *Gemeinschaft* (community), which evolves around shared norms and values and is cemented through joint socialization (Tönnies, 1979). Communality is built around a robust architecture based on common personal experience that limits the number of relationships (see also Granovetter, 1985; Uzzi, 1997), characteristically to between three and six ties in the Munich ecology. The strength of personal ties in communality, of course, does not necessarily imply high frequency of interactions, as a freelancer (33) explains: 'I believe, if you have met a person recently, then it's more like "Let's go again and have a drink together" in order to deepen the contact. But with someone, whom I know since 1983, it won't be necessary to go for a beer. You don't lose this kind of contacts'. Rather to the contrary, these networks typically can remain dormant over long periods of time and can be reactivated without much social effort.

5.1.1. Coherence in communality

Since communality is rooted in common history rather than in professional identity, access to and extension of these networks is rather limited. Consequently, the congruence between personal empathy and professional usefulness of ties is rather coincidental. And yet communality occasionally turns out to be instrumental to cope with professional matters in the project ecology.

For the individual project member, communality rather than specific information primarily conveys personal experience beyond the day-to-day project frenzy. Project workers use their communality networks to reflect quite general problems in interpersonal relationships with their project partners or to confidentially ponder about personal disharmonies within the team. Communality networks thus afford a sounding board for frustrations and tensions that cannot be discussed openly with colleagues, let alone supervisors or project partners.

Communality might also deepen the identification of the individual with the own firm. Within the Munich software ecology, owing to the predominant stable and long-term firm affiliations, communality networks sometimes dwell within the boundaries of a single firm. The function of communality as a trusted and proven

sounding board for confidential issues, naturally, is also valued in the context of entrepreneurial ambitions. Deliberations about job offers from competing firms or about career leaps within the firm are restricted to the handful of trusted friends. In these instances, communality not necessarily provides critical specific pieces of information or industry insider knowledge. Communality, though, might convey useful advice somewhere between the rather close perspective of the most intimate personal relationships on the one hand, strategic information of potential competitors in the project ecology on the other hand.

5.1.2. Conflicts within communality

The intermingling of the ‘communicative logic’ in communality networks and the ‘strategic rationality’ (see Habermas, 1981) of the project business obviously do not necessarily dissolve into a smooth *mélange* but rather can add up to a delicate brew. Communality networks, thus, introduce actions and decisions into the economy that are ‘made with a logic other than economies at heart’ (DeFilippis, 2001, p. 794). This is not to fall back on tired dichotomies, which consider emotions taboo in the economy (see Ettliger, 2004, p. 37). Rather this is to suggest that communality networks, although perhaps incubated in the project ecology, develop a life of their own that defies any straightforward instrumentalization.

For the individual as a project member, the strong bonds of mutual loyalty within network communality can easily get in conflict with maxims of project management. While the management textbook demands to assemble project teams according to the specific ability of members to contribute to the particular project task, strong communality ties might privilege established and familiar team constellations, regardless of their match with the project task. In other words, trust-based networks invite ‘freeriders from within the relationships not to work as hard as they might, or have to, if they were not connected’ (DeFilippis, 2001, p. 794).

Since in the software ecology skill profiles are broader and teams thus are more adaptable to a variety of tasks, this tension, though, seems less acute than in the advertising ecology where, as a General Manager (19) explains, ‘we try to sustain a professional distance. We don’t want any fiddles. We want the client to know that we boot out a sub-contractor anytime, even if we like him a lot. [...] That won’t work, if there is a too strong personal relationship. Then you say, “Ah, Thomas is a nice guy, come on let’s give the job to him”. I don’t want that. By no means’. This statement also graphically illustrates why communality networks are less prevailing in the advertising ecology.

The gradual amalgamation of strong personal ties and the identification with the firm at the same time restrains entrepreneurial ambitions. The resonance between communality and employee loyalty engenders a vague though deep sense of belonging, much more binding than a functional and bureaucratic firm affiliation, as the wording in the subsequent statement vividly illustrates: ‘My wife always asks me when I come home late in the evening: “What has been up in your [firm’s name]-family?”’ (Chief Development Engineer 22, emphasis added). In such a strong-tie context, leaving the firm and founding an own company risks to damage the loyalty to the ‘(firm-)family’ and the ‘best friends’—and who would risk long-standing friendship for profane commercial reasons? This appears even more unlikely in an ecology in which even long-established competitors are typically referred to as ‘befriended firms’.

5.2. Sociality: the Burt-ties

In contrast to the thick and lasting relations in communality, the notion of sociality emphasizes ephemeral, yet intense networking. Sociality is primarily driven by long-term professional motivations but unfolds in private forms of interaction and casual encounter (Wittel, 2001, p. 51). Although sociality very much pervades both ecologies, it is the archetypal form of networking in the advertising ecology. The disruptive knowledge practice of learning by switching (teams, agencies, suppliers, clients) here renders an ongoing re-wiring of relationships. Sociality is driven by the canonical compulsion of freshness, mobility, and flexibility.

While communality networks focus on maintaining and deepening relationships, sociality networks are much more strategically career-oriented. Communication within sociality hardly relies on virtual means. Rather sociality, quite literally, is all about keeping in *touch* and rubbing shoulders, that is re-activating ties through ongoing face-to-face encounters. Although the private facets of sociality (such as personal sympathy, affinity to certain hobbies, and joint acquaintances) typically remain superficial, they are instrumental for easing professional agendas. Work here ‘appears to supplant, indeed hijack, the realm of the social’ (McRobbie, 2002, p. 99). In fact, the more strategic approach toward relationships is suggestive of an outright commodification of networks (Wittel, 2001, p. 56): contacts with blue-chip clients or in-vogue creatives are ‘stored’, ‘exchanged’ and, as trade parlance reveals, even ‘stolen’. Since sociality networks are more superficial than communality ties they are more extensive and typically involve several dozen to a few hundred ties.

The short project cycles hardly leave time to develop personalized trust based on shared experience, familiarity, or social coherence. Instead, sociality essentially relies on ‘networked reputation’ (Glückler and Armbruster, 2003) as a chief governing principle. In the absence of personal experience with a particular person or firm, project members rely on word-of-mouth judgments of friends or trusted collaborators. Although less reliable than personal experience, networked reputation conveys a far more personal and dependable credibility than public reputation that circulates freely in the project ecology (Glückler and Armbruster, 2003, p. 280; see also Granovetter, 1985, p. 490).

5.2.1. Coherence in sociality

In the disruptive learning regime of the advertising ecology, sociality fulfills indispensable functions by providing critical information about job opportunities for the nomadic project worker as well as rumors about pending accounts, forthcoming pitches, and available cooperation partners (see also Jones, 1996; DeFillippi and Arthur, 1998; Ekinsmyth, 2002). In this sense, sociality is focused on ‘catching up’ (see also Kotamraju, 2002), that is, to pick up crucial pieces of information. The imperative of catching up demands to expose oneself to the noise of names, stories, and industry gossip circulated at the notorious bars and clubs and to frequently arrange for brief (and supposedly ‘private’) encounters with insiders at industry meetings and conventions. Catching up, of course, is not confined to information on the mere availability of potential collaborators but also refers to generic project skills, such as reliability and stress-tolerance (which obviously are not certified in degrees). Sociality thus allows to accumulate ‘know-whom’, which indeed embodies a critical component of the ‘tacit knowledge’ that is imperative to navigate through a fluid project ecology (Gann

and Salter, 2000, p. 969). And this know-whom is tacit, quite literally: it is definitely not to be found in the Yellow Pages, rather it is in the buddy-list on the mobile phone.

Although sociality evolves through the frenzied networking and ‘catching up’ on a personal basis, it indeed also provides instrumental information for assembling project teams and performing projects. Particularly in the short cyclical and tight-deadline business of the advertising ecology, extended and reliable sociality networks that can be activated on a short notice to complement a team are key factors. As a General Manager (29) asserts, ‘we simply must cultivate our contacts, nourish new contacts, partly maintain old contacts, in order to always have the right portfolio of people and services available’.

Whenever sociality conveys information about lucrative business opportunities the personal engagement in sociality potentially contributes to the firm’s aim to acquire new accounts. Sociality at a quite early stage indicates potential business opportunities by circulating speculations about an unsatisfied client or insider information about a staff change in the marketing department of a potential client (which typically leads to a reshuffle of ties with advertising agencies): ‘Of course it is highly interesting if you see the boss of [a competing agency] sitting there together with a guy from Coca-Cola, and normally they never sit there’ (General Manager 29). Sociality thus provides a social means to detect the dynamic spots within the market. According to a survey among German advertising agencies, personal recommendations are the most promising ways for acquiring new clients (see Burrack and NB Advice, 2004).

Sociality networks also underpin individual entrepreneurial attitudes and the essential ingredients for tinkering with the occupational biography. The informal know-whom conveyed through sociality networks is much more critical for career advancement than formalized degrees and certificates. ‘In my whole life I have sent only two official applications’, exemplifies a Software Freelancer (33), ‘but I’ve never got a job this way. All the projects and all the engagements I ever got were opportunities that came up within the circle of my friends’. Conversely, employers owe critical information and indications in their relentless search for talent to sociality networks, as an art director (13) illustrates: ‘When you recognize that this ship . . . is wavering . . . perhaps there is an opportunity to get people, you normally couldn’t get’. Sociality is the ears and the eyes on the informal market for jobs, projects, and relationships.

5.2.2. Conflict through sociality

The obvious benefits of sociality come at expenses that are unevenly distributed in the project ecology. Establishing and maintaining sociality networks demands a continuous investment of time, attention, and money (see Haunschild, 2003), resources that are routinely scarce in projects. New media workers, as one of the rare empirical accounts on this issue reports (Christopherson, 2001, p. 18), for example, spend an estimated 6 h per week looking out for new opportunities. Hanging out in sociality networks, which is imperative to monitor the labor and project market, thus incurs hidden though considerable transaction costs that somehow cloud the bright image of the hyper-efficient project portrayed in project management textbooks (e.g. Jurison, 1999).

The central dilemma in sociality symptomatically crystallizes around the personal contacts with clients (Blyler and Coff, 2003, p. 680; Swart et al., 2003, p. 8). Agency–client ties typically are firmly rooted in lasting personal relationships between the account manager on the agency side and the marketing director on the client side

(Grabher, 2002, p. 250). On the one hand, these robust personal ties are in line with the firm's aim to lock-in the client through trustful personal relations. On the other hand, however, these strong personal ties with the client contribute heavily to the career capital and the marketability of the project member. The ambiguity of these personal ties to the client in fact widens the scope for entrepreneurial ambitions and for tactical maneuver. In particular in constellations in which the project member can monopolize the bridging relation between the firm and the client he can derive the arbitrage benefits of the *tertius gaudens*, the third person who benefits (Burt, 1992, p. 76).

In order to enhance this particular career capital, project members might be tempted to misemploy resources of the firm in order to advance their personal reputation vis-à-vis their client. As an exemplary practice, Alvesson (2000, p. 1110) for example, refers to a group of professionals that underreported their actual hours of working time to their management because they did not want the client to pay for work that was somewhat inefficiently carried out. Service-mindedness in such instances obviously turns from a business asset to a commercial threat for the firm. With the increasing intensity of personal ties, loyalty thus indeed may shift from the firm to the client.

The robust personal tie to a client frequently provides the springboard for a career move. The firm might seriously suffer when the sociality tie with a client leverages an exit to a competing agency or the establishment of an agency, which quite typically evolves around the 'founding client'. In both cases, the firm provided the organizational incubator for the personal tie with the client but ultimately loses this tie because, in the vivid formulation of a General Manager (2), the 'client does not see me as [agency] but as "Mrs. Müller, who had done so much for me"' (see also Castaldo and Nava, 2004).

5.3. Connectivity: Granovetter's neglected side

The concept of connectivity denotes the socially thinnest and culturally most neutral, in a sense, the most weakly embedded mode of networking. While communality amalgamates friendship and professional issues, and sociality more strategically supports business agendas with private facets, communication in connectivity is relatively distant from the personal realm and most succinctly focuses on the specific subject matter of a present project. Social relations are almost purely informational. As much as caused by, as resulting from, the low level of social embeddedness, connectivity primarily unfolds in virtual forms of interaction.

Connectivity plays only a minor role in the advertising ecology in which the convention of face-to-face interaction and a 'people business'-culture preponderates. In addition, despite the availability of increasing bandwidth in virtual communication, the color tone in the proofs, such as the sensual quality of the paper for the brochure, has to be checked through physical inspection. The software ecology in contrast, and hardly surprisingly, displays a stronger affinity to virtual forms of interaction, such as online forums or mailing lists, owing to the cultural neutrality and asynchronicity of these media.

These virtual forms of exchange neither seem to engender personalized trust nor do they unfold the dynamics of networked reputation (see also English-Lueck et al., 2002). Nevertheless, online forums depend on a sort of generalized reciprocity to preserve virtual sources, such as collective knowledge on software, from an imbalance between too little nourishment and over-utilization that increasingly undermines the value of the source (Kollock, 1999). Under conditions of (close to) anonymous exchange,

connectivity instead seems to be governed by the professional norms and ethos' prevailing in the software ecology. Reflecting the general affinity toward reusing knowledge, the software ecology is strongly molded by an ethos of collaborative problem solving and mutual backing (see also Orlikowski, 2002, p. 264; Brenner, 2003). Despite the vast extension of connectivity comprising up to several hundreds and a few thousands of ties, the architecture follows a straightforward construction principle: participation is bound to a certain level of expertise, which allows to meaningfully interact with other participants.

5.3.1. *Coherence in connectivity*

As project members, individual actors benefit from the wide range of connectivity into a rich knowledge pool. The organizational logic of the composition of the project team is the complementarity of skill profiles. The comparative efficiency of this lean organizational form in fact depends on minimizing overlaps and redundancies of competencies. Consequently, individual project members have to rely on connectivity that stretches far beyond the project teams when they search for specific problem solutions among their professional colleagues. A development engineer (31) exemplifies the vast extension of connectivity networks that are loosely tied together by a range of indirect ties: 'At a first level I have my direct contact persons, about 100 or 150. And then at a second level, there are about 1400 persons, but . . . who do not have a problem, if someone calls them or consults them. It would not be a problem if someone gives me a call and says "I got your number from XYZ . . . and can we talk about this topic". Sure we can'.

In the software ecology connectivity yields essential continuing learning processes related to the substance matter of software projects, that is, coding. Connectivity, in other words, provides a virtual construction site where code is updated, modified, and repaired, it is a place where software developers do the actual programming work. 'We frequently detect technical defects . . . then we write an e-mail [to the software provider]: well we have detected the following. Problem XYZ. Reproducible this way. Avoidable that way. Please do something' (Software Developer 6).

As connectivity contributes to the on-the-spot problem solving capacity of the individual project member it indirectly also strengthens his or her position as an employee of a firm. The more autonomous an actor is able to act and respond to unforeseeable challenges the more flexible he or she can be assigned to the diverse tasks that typically occur in a project-based enterprise. Beyond task specific support, connectivity however also affords a most effectual vehicle for the continuous upgrading and reformatting of the individual skill portfolio (see Kotamraju, 2002, pp. 16–18). Reflecting the comparatively stronger emphasis on broad skill portfolios and flexibility in software than in advertising, a Department Manager (17) is spot on 'The really good ones are the multifunctionals'.

Connectivity, however, obviously also supports the individual actor's entrepreneurial interest in maintaining employability. The complementarity of skill profiles in project teams induces a 'tension between disciplinary based specialist groups and project teams' (Lam, 2004, p. 19). Individual members, frequently, are organizationally decoupled or spatially separated from knowledge exchange and casual shop-talking with their peer groups. Problems of an outright 'isolation' of specialists within mixed project teams occur particularly in assignments to the 'front-line' of performing long-term project tasks within the client organization (Lam, 2004, p. 19). In this organizational context,

the continuous upgrading of skills through reciprocal problem solving within connectivity is a welcome opportunity to spend time on (self-)education and 'hanging out' with the peers, at least virtually if not in the cafeteria (see also Brenner, 2003).

5.3.2. Conflicts through connectivity

The exchange of information and sharing experience through connectivity again, of course, not unequivocally benefits all layers of the ecology but also incurs costs. Most obviously, though not manifested in schedules and budgets, the updating of the individual knowledge-base diverts project resources, which are attention, time, and money, for the sake of personal employability. New media workers, for example, spend about 13.5 h per week in 'unpaid' learning (Christopherson, 2001, p. 18). This continuous updating and broadening of the personal skill base, though also eating in the engineers' leisure time, compete with the notorious 'permanent state of urgency' (Thrift, 2000) in project ecologies and the indisputable priority of project tasks, particularly in times of approaching milestones. 'Instead of working on the Visual Basic application they are supposed to be building, they spend time learning Java Script. They ... want to remain marketable' (Software Project Manager, in: Mahaney and Lederer, 2003, p. 6; see also Perlow, 1999).

The professional ethos of collaborative problem solving and mutual backing generates a sense of general reciprocity in the connectivity networks of the software ecology. The very same professional ethos of an open sharing of experience in fact might easily come into conflict with the vital interests of the firm and thus might challenge the individual's loyalty to the employer. The ethos of open communication within a group of professional peers clashes with requirements of industrial secrecy and protecting the core competencies of the firm, both of which are essential ingredients of the individual's identity as an employee of the firm. The resulting 'conflict in communication norms' (Lam, 2004, p. 24) constricts the range and depth of information exchange in connectivity networks: project members permanently have to consider 'what they can say and what they can't say' (Lam, 2004, p. 24). In particular if individual project members primarily seek to enhance their reputation among their peers by sharing critical firm-specific information, connectivity might undermine core competencies of the firm. Here the firm, phrased differently, pays the expenses of reciprocal exchange in connectivity, whereas its benefit, which is peer recognition, is individualized.

In the absence of means to monitor the reciprocity of information sharing in close to anonymous exchange, the professional ethos of collaborative problem solving constrains free-riding in connectivity networks. The collaborative software ethos, phrased differently, eludes the 'tragedy of the (virtual) commons'. The power of this collaborative ethos is demonstrated in the evolution of open source software, most prominently Linux of course (O'Mahony, 2003), in which private appropriation of knowledge is tabooed. The communicative norms in connectivity thus are at odds with entrepreneurial aspirations, which would call for an individual appropriation and exploitation of the virtual commons of the collectively built knowledge pool. Although the collaborative ethos in connectivity does not constitute a principal barrier to entrepreneurship, it presumably is a source of ongoing personal conflicts about how much and what to share with peers, a conflict that is definitely less pronounced in the much more entrepreneurial 'Burt' ecology of advertising.

6. Summary: neutrality, coherence, or cannibalism?

Project ecologies intricately interweave inter-organizational relations with a range of personal networks that adhere to diverse social logics and that unfold different relational architectures. Project ecologies indeed also rely on the (all too) familiar strong-tie networks of communality that are firmly rooted in common history and personalized trust. However, beyond these iconic *Gemeinschaft*-ties, project ecologies also unfold ephemeral yet intense sociality networks built around professional complementarity as well as the thin and culturally most neutral wide-ranging webs of connectivity. These different personal network logics do not constitute sharply demarcated sections of social reality but rather amalgamate into a diffuse relational space. The neat tie-and-node cartographies of relational networks here indeed dissolve into untidy combinations of social logics. In this messy relational space, in which actors maneuver across different social contexts, personal identity in fact is fluid. Each 'I', White (1992, p. 198) maintains, 'is a more or less rickety ensemble, it is firm and whole only temporarily as a facet of one particular constituent discipline energized in some situation and style'. Persons, then, are not necessarily the governors of network relations, but are nodes of story condensation and identity that occur at the interface between multiple networks.

In the fluid context of project ecologies, the identity of individual actors shifts between at least three different strings of loyalty that guide behavior in their personal networks (see Alvesson, 2000; Alvesson and Willmott, 2002; Swart et al., 2003). Project members have to contribute to the specific project whose unique, often fascinating task, typically mobilizes commitment far beyond the dedication to routine activities (Lindgren and Packendorff, 2003, p. 18). At the same time, of course, project members have to adhere to the long-term goals of their firm. More and more, project members are also entrepreneurs of their own human capital driven by the imperative to maintain 'employability' and to remain 'marketable' in a highly volatile organizational ecology (e.g. Lindqvist, 2004).

The diverging imperatives associated with these different identities (contribute to the project!—support the firm!—remain employable!) might be aligned and synchronized through the personal networks. Personal networks, phrased differently, might thus further enhance the coherence of project ecologies, at least for the limited duration of a project. Conversely, the multidimensionality of personal networks might also induce conflicts and tensions between the different identities of the individual actor. The fundamental ambiguity of personal networks hence affords room for strategic maneuvering and arbitrage à la Burt and for 'robust action' (Padgett and Ansell, 1993), in which a single action can be moves in many different games at once.

In a comparative perspective, however, communality might offer the weakest direct support and, conversely, induce the least severe tensions and conflicts. The thick and trust-based ties of communality mainly function as a sounding board for contemplating personal decisions beyond the day-to-day frenzy. Taken together, the role of communality in project ecologies tends to be close to *neutrality*, at least with respect to ongoing project work.

Collaborative problem solving and mutual backing in the extended and virtual webs of connectivity might get in conflict with firm-related requirements of confidentiality. On the whole, though, the potential threats of this exchange of rather specific know how in the virtual commons of professional communities seem outweighed by it is

simultaneous benefits for projects, firms, and individual entrepreneurial attitudes. Connectivity, overall, primarily seems to support the individual actor in aligning the imperatives of the different identities and thus further induces *coherence* of the ecology, if only temporarily.

By blending professional agendas with casual and quasi-private encounters, sociality grants access to sources of know-whom, which are critical in transient project ecologies. The sort of 'strategic friendships' in sociality embodies considerable potential to support the individual actor in all three identities: knowing the right partner for upcoming ventures is equally valuable for the individual as being a project member, employee, and self-entrepreneur. Sociality, though, presumably also offers the widest room for strategic maneuver when, for example, entrepreneurial attitudes are prioritized vis-à-vis the requirements of the project and the firm. The strategic friendships in sociality, which we regard as the quintessential form of personal networking in project ecologies, afford the social means for an outright *cannibalization* of firms. This, to be sure, is not a threat to project ecologies. However, it incurs costs that might be overlooked by functionalist accounts that all too neatly fit projects, firms, and networks together.

7. Epilogue: Granovetter, Burt or White?

The paper set out to expand prevailing economic geographic imaginations of networks. The dominant construal of networks is largely molded by Granovetter's relational reading of embeddedness, a master paradigm of economic geography in the cultural turn (see also Peck, 2005; Grabher, 2006). This tradition reifies, not least under the heavy weight of the heaps of district accounts, a perception of networks as enduring (inter-)organizational ties. And, without a trace of doubt, networks are 'good'. They reduce transaction costs, afford social capital, convey tacit knowledge, underpin interactive learning . . . , and are fair, on top of it all (see also critically DeFilippis, 2001; Leitner et al., 2002, pp. 278–9). Similarly, the more recent debate on 'communities of practice' primarily praises their ability to compensate structural shortcomings of hierarchical firms and fluid projects alike. And like networks, communities of practice appear as unequivocally 'good' (critically, see Swan et al., 2002, p. 480).

We tried to counter the prevailing functionalist construal of networks with a heavy dose of White and Burt. White's (1992) notion of the de-centered self affords a template to appreciate the multidimensionality of network actors and the multiplicity of network logics. In this sense, White's approach seems to share some common ground with the program of actor-network theory. Although actor-network theoretical perspectives provide a useful starting point for leaving the trodden paths of dominant network perceptions we prefer to follow the route indicated by White. Actor-network theoretical approaches tend to privilege the relational dimension of the web at the expense of considerations of actors themselves (see also Dicken et al., 2001, p. 105). White's perspective, in contrast, rather than neglecting problematizes actors. Moreover, his ideas allow for some continuity with the differentiation of network ties à la Granovetter that, albeit familiar, has yet to be exploited in economic geography in a systematic fashion.

Although Burt seems to remain even closer to more familiar network construals, his perspective implies nothing less than a reversal of our perspective on networks. In the spirit of the embeddedness approach, networks have turned into a shorthand for the non-economic, the social fabric of family, friendship, kin, and local cultures. While this

view regards networks as a counter-world to competition and strategic behavior, Burt's (1992) notion of structural holes perceives networks as vehicles of competition and strategic behavior. This approach, consequently, appears particularly useful to theorize the entrepreneurial dimension of networking and the amalgamation of communicative and strategic rationalities in the ostensibly paradox of 'strategic friendship'. The embeddedness tradition, in a sense, has reiterated that emotions are not 'supposed to be left at home' (Ettlinger, 2004, p. 37); by appreciating Burt we in contrast emphasized that the job (the project, the firm, and the career) is not supposed to be left in the office.

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