



EMPIRICAL RESEARCH

Interrelationships of identity and technology in IT assimilation

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Abstract

Even as organizational literature increasingly studies the role of identity in organizations, the interrelationships of identity and technology in the context of information technology (IT) assimilation demand greater exploration, particularly in light of limitations in prior research that have prevented a full understanding of this relationship. This article aims to deepen understanding of the processes by which technology and identity co-evolve in the IT assimilation process over time. The proposed alternative framework relies on the philosophy of Michel Foucault, applied to a longitudinal, qualitative case study of a French company involved in the deployment of a geolocation technology. The analysis reveals diverse patterns of interaction among the managerial discourses used to shape technicians' ascribed identity and the identity that technicians design for themselves, which then result in distinct IT assimilation types that contribute to the further evolution of their identity.

European Journal of Information Systems (2014) 23, 51–68. doi:10.1057/ejis.2013.16; published online 6 August 2013

Keywords: identity; technology; assimilation; identification; discourse; Michel Foucault

Introduction

Identity has significance for various organizational issues (Albert *et al*, 2000) and can provide insights into topics of concern for information systems (IS) researchers (Gal & Kjaergaard, 2009), such as organizational sense-making (Weick, 1995) and the development of organizational practices and change (Gioia *et al*, 2000). Although the concept of identity mainly appears at the organizational level in mainstream management scholarship, identity as encountered by individuals in professional contexts also deserves attention (Alvesson *et al*, 2008). A personal identity consists of unique attributes that other people do not share, so it entails subjectivity derived from personal behaviours, values, and emotions; collective visions of the self expressed through social identity or self-perception as a group member also influence the construction of the self (Alvesson *et al*, 2008). Identity is both problematic and critical for how people establish value, think, feel, and act in organizations (Albert *et al*, 2000). It is therefore an increasingly important element for IS research that questions how people interact with information technology (IT), especially when more technologies, such as identification technologies, communicate, recognize, locate, and affect a user's identity.

Yet IS research rarely examines identity or its relationship with technology (Gal & Kjaergaard, 2009) and instead regards IT as separate from its social and organizational contexts (Orlikowski & Iacono, 2001). However, no IS exist in isolation; they are embedded in work and social environments composed of social beings (Alvesson *et al*, 2008) who do not consider themselves primarily 'IT users' (Lamb & Davidson, 2005) but rather enter

Received: 14 January 2011
Revised: 17 June 2011
2nd Revision: 19 April 2012
3rd Revision: 21 September 2012
4th Revision: 20 February 2013
5th Revision: 15 May 2013
Accepted: 27 May 2013

the organization with personal and social identities (Wastell & Newman, 1996; Walsham, 1998; Barrett & Walsham, 1999; Ciborra, 1999; Alvesson *et al.*, 2008). Accordingly, IT-based practices cannot be separated from the identity concerns that give them meaning (Ciborra, 1999; Dourish, 2001). Users' existing identities can simultaneously influence, be challenged by, and be shaped by the organizational decision to adopt a new system.

Prior research explores various identity–IT linkages, according to two main relationships, focusing either on how existing identity influences IT assimilation (Van Akkeren & Rowlands, 2007) or the transformations in professional identity implied by IT implementation (Walsham, 1998; Barrett & Walsham, 1999; Lamb & Davidson, 2005). However, few studies have undertaken in-depth analyses of the ongoing processes by which technology and identity co-construct and mutually influence IT assimilation over time (Alvarez, 2008; Introna & Hayes, 2011). As Lamb & Davidson (2005) recognize, few studies address the reciprocal interactions between individual identity and IT assimilation over time. Yet technology and identity reflect mutually constitutive relationships (Alvarez, 2008), such that actors' identities emerge in the ongoing co-constitutive relations of all human and non-human actors (Introna & Hayes, 2011). Some recent research (Alvarez, 2008; Gal & Jensen, 2008; Introna & Hayes, 2011) raises the need to explore the interrelationships between identity and technology over time. Focusing on the organizational level, Gal & Jensen (2008) suggest research that explores how existing organizational identities influence organizational IS adoptions, as well as how new IS changes organizational practices, interactions, and identities. A better understanding of how and why people interact with technology also requires an in-depth, longitudinal examination of the co-construction processes of individual identity and IT (Gal & Kjaergaard, 2009). This research gap is particularly salient for IT assimilation, which results when adoption decisions occur at the organizational rather than individual level (Van Akkeren & Rowlands, 2007). Users have no alternative but to 'assimilate' the IT that the organization has adopted (Gallivan, 2001).

Our objective is to draw on these emerging ideas to further understanding of identity–technology interrelationships in IT assimilation over time, by developing a more holistic understanding of identity and technology in organizations (Alvesson *et al.*, 2008). In particular, we provide a longitudinal in-depth analysis of the processes by which technology and identity co-evolve in IT assimilation. To investigate these interrelationships, we use a framework derived from the thinking of Michel Foucault (1972, 1977, 1985a,b), one of the most important contemporary philosopher of modern identity (Weir, 2009). This framework addresses issues of identity, technology, discourses, power, and relationships, as well as their symbolic and material dimensions. Although Foucault's thinking has been relatively neglected in IS research (Willcocks, 2004), it offers a compelling, contemporary conceptual

framework that provides powerful heuristic possibilities for explaining identity–technology interrelationships. First, by exploring how subjectivities evolve due to diverse sources that are interrelated in practice, it leads to a more holistic and relational understanding of identities in organizations (Gal & Kjaergaard, 2009), including personal–social relations (Alvesson *et al.*, 2008). Second, this perspective can conceive of organizational objects with both material and ideational qualities, such as IT (Ashcraft *et al.*, 2009). By considering 'behavioural and social technologies encoded in material technologies' (Willcocks, 2004, p. 289), it enables us to explore changes prompted by IT in the microphysics of power (Young *et al.*, 2012), which affect time and space configurations, control, privacy, and identities. Third, this framework develops a dialogic, relational, contextualized conception of social reality, which supports a better understanding of identity–IT interrelationships. It relies on a specific link between social structure and agency, overcoming the shortcomings of both interpretive and critical approaches adopted in most prior IS research on identity–technology relationships. These perspectives either uncritically praise the social and political context, claiming that 'individuals can freely construct their identities' (Gal & Kjaergaard, 2009, p. 9), or ascribe too much power to IT-based discourses that reshape individual identities and power in predictable ways (Brown & Coupland, 2005). By exploring the ways existing identities may both shape and be shaped by decisions about new IT assimilation, a Foucauldian approach can address IT–identity interrelationships by reconceptualizing the processes by which identity and technology co-construct throughout the IT assimilation process.

We apply this re-conceptualization to a case study of a longitudinal IT assimilation process by a French telecommunication company, whose technicians were equipped with a global positioning system (GPS) that seemed likely to affect their identity. The assimilation of 'a non-voluntary adoption where the organization made the initial decision to adopt a new IS and made its use compulsory' thus reflects 'the extent to which the use of the technology diffuses across the organization' (Van Akkeren & Rowlands, 2007, p. 696). We studied the assimilation process over 30 months, starting with the decision to adopt the new system, through its deployment and use for several months.

We provide an overview of relevant research on the IT–identity relationships and underline the main contributions and challenges. We outline Foucauldian thinking in the next section, to analyse how to appropriate its concepts and increase understanding of identity–technology interrelationships. Our proposed conceptual model provides a backdrop for exploring a problematic field situation. Finally, we discuss our findings and offer some conclusions.

IT–identity relationships

IS research provides valuable insights into two key IT–identity relationships. First, identity influences and

drives the evolution of IT assimilation. With many social repercussions, IT adoption by an organization raises political questions (Kling, 1980; Markus, 1983; Newman & Noble, 1990; Wastell & Newman, 1996) that demand a better understanding of how identity shapes the assimilation process (Van Akkeren & Rowlands, 2007). An IT deployment is a social project, involving many actors with diverse goals, interests, expectations, and values (Kling, 1980; Markus, 1983), who make sense of technology through their moods, feelings, affectation, attunement to the situation (Ciborra, 1999), and self-identity (Walsham, 1998). An existing identity may interact with technology to shape assimilation; even if the adoption is mandatory, the assimilation process reflects social actors' identities and context (Van Akkeren & Rowlands, 2007; Young *et al.*, 2012). Prior research on IT adoption and acceptance ignores the question of individual identity though (Gal & Jensen, 2008).

Second, identity may result from IT assimilation. Most IS research pertaining to identity explores links between the introduction of technology and changes in workers' identity, such as existential anxiety, de- and re-skilling concerns, or empowerment (Walsham, 1998; Barrett & Walsham, 1999). Because IT uses transform professional activities, people incorporate changes in organizational settings into their identity; technology provides a foundation for professional identities (Lamb & Davidson, 2005). Moreover, identity can be shaped during IT assimilation, as a discursive construction. Power relations and discourses might shape professional identities through technology use (Prasad, 1995; Doolin, 1998, 2002; Alvarez, 2008). Particular identities are associated with certain practices and definitions of reality (Knights & Murray, 1994). For example, people come to depend on technology if their identity is shaped by discursive practices associated with its use (Prasad, 1995). The power-laden effects of such discourses then influence their identity (Doolin, 2002), because dominant interests get inscribed into the technology (Alvarez, 2008).

Previous studies provide key insights: Identity might both shape and be shaped by IT assimilation. Yet few studies combine both perspectives to conceptualize the processes by which technology and identity articulate over the course of IT assimilation (cf. Lamb & Davidson, 2005). Several limitations into identity and technology concepts have prevented a full understanding of the IT-identity interrelationship, despite recent trends addressing these difficulties.

Identity has long been considered as fixed, reified concept; a stable, permanent obstacle to organizational change and IT assimilation; a fixed state threatened or challenged by new IT (Walsham, 1998; Barrett & Walsham, 1999); or a predetermined form of subjectivity shaped by discourses (Knights & Murray, 1994; Prasad, 1995; Doolin, 2002). These views prevent any analysis of the evolving interactions of identity and technology. However, a growing trend in IS research treats it as a dynamic construct (Gioia *et al.*, 2000), recognizing the

evolving nature of identity-technology interactions (Cornelissen *et al.*, 2007; Gal *et al.*, 2008; Gal & Kjaergaard, 2009; Introna & Hayes, 2011). Similarly, early IS research offered a limited view of identity, without defining the concept clearly as distinct from professional attributes or work transformations (Walsham, 1998; Barrett & Walsham, 1999; Alvarez, 2008) or focusing on 'negative implications of IT for professional identities' (Lamb & Davidson, 2005, p. 3). A developing trend demands a more holistic understanding of identity, including the relationships of its social and personal dimensions and their influence on the formation of professional identities (Alvesson *et al.*, 2008; Gal & Kjaergaard, 2009). Thus IS research advocates a broader understanding of identities that emerge in ongoing, co-constitutive relations of individuals and technologies (Introna & Hayes, 2011).

Similarly, the treatment of technology in past IS research has been problematic. Most studies examine non-constraining technologies, over which people have control (Lamb & Davidson, 2005) or that influence work without involving the user's intrinsic identity (Walsham, 1998; Barrett & Walsham, 1999; Albert *et al.*, 2000). Very few studies offer in-depth analyses of the processes by which technology and identity articulate and affect technology assimilation (Lamb & Davidson, 2005; Van Akkeren & Rowlands, 2007; Alvarez, 2008). Although its key goal is not to contribute to such interrelationships, recent research features more constraining technologies, such as enterprise-wide IS, and raises the idea that technology, structure, and a worker's professional identity evolve in a mutually constitutive relationship (Van Akkeren & Rowlands, 2007; Alvarez, 2008).

We build on these developments to deepen understanding of the identity-technology interrelationships in IT assimilation. Despite recent advances, the lack of in-depth analysis of these processes makes it crucial to investigate the relationship in relation to constraining (e.g., identification) technologies, adopted at the organizational level, that likely affect not only the worker's attributes and roles (Introna & Hayes, 2011) – as studied previously (Walsham, 1998; Barrett & Walsham, 1999; Lamb & Davidson, 2005; Van Akkeren & Rowlands, 2007; Alvarez, 2008) – but also the broader sense of self. We find tremendous potential for this effort in Foucault's theoretical framework.

Foucauldian perspective on identity-technology relationships

Foucault's thinking has long been associated with notions of discipline, panoptic structures, and normalization. In IS research, it facilitates studies of the control capabilities of surveillance technologies, databases, knowledge management systems, and IT-based discipline (Poster, 1990; Willcocks, 2004; Berente *et al.*, 2010; Young *et al.*, 2012). However, Foucault's thinking goes beyond this use. It brings the relationships among identity, subjects, technology, discourse, and power into sharp focus and suggests

three key processes that underlie identity–IT interrelationships that evolve through assimilation over time. First, discourses associated with the new IT get imposed to facilitate the construction of workers’ ascribed identities and regulate the assimilation process. Second, discourses continuously interact with the identity that workers design for themselves, as well as with the interpretation of technology, to influence self-perceptions. Third, IT assimilation results from the confrontation of processes embedded in organizational politics, through which identity and technology continue to co-evolve.

Shaping workers’ ascribed identities and regulating assimilation through discourses

Foucault (1972, 1976) shows that identities are produced by disciplinary mechanisms that permeate our being. Various ‘technologies of domination’ govern people and position individuals as subjects. Foucault (1972, 1976) describes the social effects of knowledge produced by discourses. Discourses that aim to reveal a truth both create and control the objects they claim to know, so the social world is discursively organized and normalized. Discourses are not simply mirrors of social reality but constitute a ‘crucial way’ to exercise power (Foucault, 1977). Discourses are vested with power-effect characteristics, which influence the ways ideas serve to regulate the conduct of others. Foucault (1977) thereby reveals discursive ways in which others seek to govern, according to ideas about the particular identity, behaviours, and characteristics a person should exhibit. The subject’s modern identity emerges from the productive and regulatory power of discourses, which ‘directly form and shape realities and subjectivities’ (Rose *et al*, 2006, p. 89).

Identity thus appears as an externally imposed normalizing classification, an *ascribed identity* (Weir, 2009) with the power to include or exclude people from socially constructed categories. Subjects are constituted through *dividing practices* that assign them to social categories. The fixed, ascribed identities that define a person’s character and behaviour are enforced through *disciplinary technologies* and complex mechanisms of self-surveillance, based on the use of time and space, that regulate the body, classify subjects, and define who we are. Disciplinary technologies make activities visible and identify departures from pre-established performance norms (Doolin, 1998). Identity, as the categories produced through discourse, dividing practices, and disciplinary technologies, thus fixes limits and delineates the boundaries between *normalcy* and *deviance*. ‘The modern individual is produced through the disciplines in which he is described, judged, measured, compared with others, in his very individuality; and it is also the individual who has to be trained or corrected, classified, normalised, and excluded’ (Foucault, 1977, p. 191). Ascribed identities are a form of subjugation and way of exercising power over subjects, to prevent them from moving outside fixed boundaries.

The analysis of dominant discourses is crucial to understand identity construction. Certain discursive practices may legitimate authority and induce subtle forms of social control (Barker, 1993; Brown & Coupland, 2005). Discourses in organizations constitute regimes of truth and discipline, so they act as powerful constraints on organizational members (Barker, 1993; Jackson & Carter, 1998; Berente *et al*, 2010). They contribute to the construction of subjectivities and impose ascribed identities in organizations – political arenas where actors manipulate discourses to control individuals and foster normalization. In IS research, this perspective emphasizes the incarnation of power in discourses that convey representations of the organization and technology as objects of power (Dourish, 2001). Power relations are inscribed in IT decisions (Willcocks, 2004; Young *et al*, 2012), and discourses influence the acceptability of solutions (Harvey, 1998). This perspective is useful to grasp how discourses associated with new IT get imposed to facilitate the construction of particular workers’ identities and foster IT assimilation. For example, an early step of IT-enabled change is to impose new identities on others (Wastell & Newman, 1996), which is not easy when people resist attempts to shape their identities (Broadbent *et al*, 2001; Empson, 2004).

Identity construction at the intersection of human agency and organizational discourses

Beyond this focus on disciplinary practices, selfhood and liberty are central to Foucault’s thinking. ‘Technologies of the self’ develop alongside ‘technologies of domination’, such that ‘Maybe the target nowadays is not to discover what we are, but to refuse what we are ... we have to promote new forms of subjectivity through the refusal of this kind of individuality which has been imposed on us’ (Foucault, 1983, p. 121). To understand what it is to be a subject, Foucault questions how to ‘govern oneself’, which provides a starting point for understanding the ‘relationship to oneself’, which is ‘imperative to know oneself’ (Foucault, 2000, p. 87). This specific relation with oneself is ‘ethics’ (Foucault, 1985b) and includes various technologies of the self, through which the individual creates an identity and constitutes the self as the moral subject of own actions.

Foucault (1985a,b) recognizes individuals as *moral agents*, aware of their moral conduct, responsible for their own behaviour, and able to find satisfaction in constraining situations through technologies of the self. Subjects recognize their moral obligations and attempt to criticize the ways they are socially constituted, in terms of fixed identities (Weir, 2009). Thus Foucault ‘focuses on a more active, individual subjectivity, less imprisoned in and less constructed through scientific discourse and power relations’ (Willcocks, 2004, p. 248). Foucault also highlights the *means* by which individuals transform and work on themselves. Through different *practices of the self*, people regulate their bodies, think in pursuit of pleasure and ethics, and attempt to fulfil themselves (Rose *et al*, 2006).

These practices ‘permit individuals to effect by their own means, or with the help of others, a certain number of operations on their own bodies and souls, thoughts, conduct and way of being’ (Foucault, 1988, p. 18). Even though technologies of domination are imposed on people, they also act on themselves to produce particular modes of identity. A sense of ascetism, or a conscious or unconscious commitment to an authentic relation to oneself, leads to self-disciplining, so the self behaves according to self-dictated principles. The individual reflects on the sort of person to be and performs ‘an exercise of the self on the self by which one attempts to develop and transform oneself, and to attain a certain mode of being’ (Foucault, 2000, p. 282). This ethos requires not only the critique of ascribed identities but also a capacity to engage in a self-creation process, which gives life meaning beyond conformity to ascribed identities (Weir, 2009).

These views relate to Foucault’s particular conception of identity, inscribed in the evolving relationships with the self and others. This fluid, relational concept is neither a fixed entity nor a set of qualities but always a shifting and temporary construction. This approach considers identity situational and mobile. It rejects the idea that the individual has an inner or fixed ‘essence’ that constitutes an identity, because it ‘is not a pre-given entity which is seized on by the exercise of power. The individual, with his identity and characteristics, is the product of a relation of power exercised over bodies, multiplicities, movements, desires, forces’ (Foucault, 1980, p. 74). Instead of erecting barriers between identities (Alvesson *et al*, 2008), Foucault explores how the self is shaped by diverse sources, inter-related in practice. This relationship further implies that the subject constitutes him- or herself actively (Kuhn, 2006), through the practices of the self, which are proposed, suggested, and imposed by culture, society, and social groups (Strozier, 2002).

Organizational scholars recognize the contributions of Foucauldian thinking for understanding the construction of identity and the role of human agency in the workplace (Jermier *et al*, 1994; Fleming & Spicer, 2003; Berente *et al*, 2010). Disciplinary techniques act on the individual and define personal identity from the ‘outside in’, but people also act on themselves through technologies of the self to define identity from the ‘inside out’ (Covalesski *et al*, 1998). For our study, this framework suggests that organizational discourses, which seek to shape workers’ identities, continuously interact with the identity that workers design for themselves through practices of the self, which opens the door to various actions regarding managerial discourses and IT-based projects.

Continuous and evolving interrelationships at the nexus of technologies of domination and the self

The point of contact at the intersection of technologies of domination and of the self defines Foucault’s (2000, p. 225) representation of ‘governmentality’, that is, the ‘encounter between the technologies of domination of

others and those of self’ (Foucault, 1997, p. 225), which refers to techniques used to govern the conduct of individuals. At this nexus, identities, practices, and organizational realities evolve through dynamic *power relationships*. Power is dynamic and permeates the social body, so it ‘must be analyzed as something that circulates; that functions only when it is part of a chain’ (Foucault, 1976, p. 98). Power generates consent by drawing on discourses that transform people into disciplined subjects, but it also generates change, resistance, and discontinuity, because power relations are multiple, heterogeneous, and conflicting (Knights & Murray, 1994).

For example, the identities of individuals in organizational contexts are not just imposed by external regulatory forces but also require the individual’s accepted way of being. This way of being may depend on the regulatory nature of discourses, but technologies of the self also lead the person to internalize, adapt, and reflect on acceptable behaviours (Young *et al*, 2012). This encounter implies there is no power without *resistance* (Jermier *et al*, 1994), so the individual is ‘the personal space where both active and passive, regulated and resistant possibilities for human agency emerge’ (Willcocks, 2004, p. 258). Complex outcomes result from power relationships, because individuals constituted as subjects both accommodate and resist attempts to control them (Brown & Coupland, 2005). Without addressing identity–IT interrelationships in assimilation, some organizational scholars stress the relevance of this framework: In response to management attempts to discipline behaviours, workers may resist pressures toward conformity (Covalesski *et al*, 1998) or dominant discourses, as well as question ascribed identities (Holmer-Nadesan, 1996; Young *et al*, 2012) through acceptance, resistance, and negotiation (Doolin, 2002; Fleming & Spicer, 2003).

Identity construction and behaviours are effects of continuous interactions between human agency and organizational discourses, rather than determinants of either. For our research, this framework suggests that IT assimilation exists at the intersection of technologies of domination and of the self, in the form of the continuous, evolving interaction between organizational IT-based discourses and self-construction (Figure 1). Technology-based discourses contribute to the production of ascribed identities and the coordination of social action; actors simultaneously create a sense of technology and of self through behaviours and interactions. Therefore, IT can be positioned as part of a process in which technology, identities, and organizations get redefined through discursive practices and power relationships (Doolin, 2002).

Methodology

A longitudinal case study

Our objectives led us to case study methods (Eisenhardt, 1989), which are pertinent for grasping theoretical questions and obtaining rich explanations of processes, anchored in local contexts (Miles & Huberman, 1994).

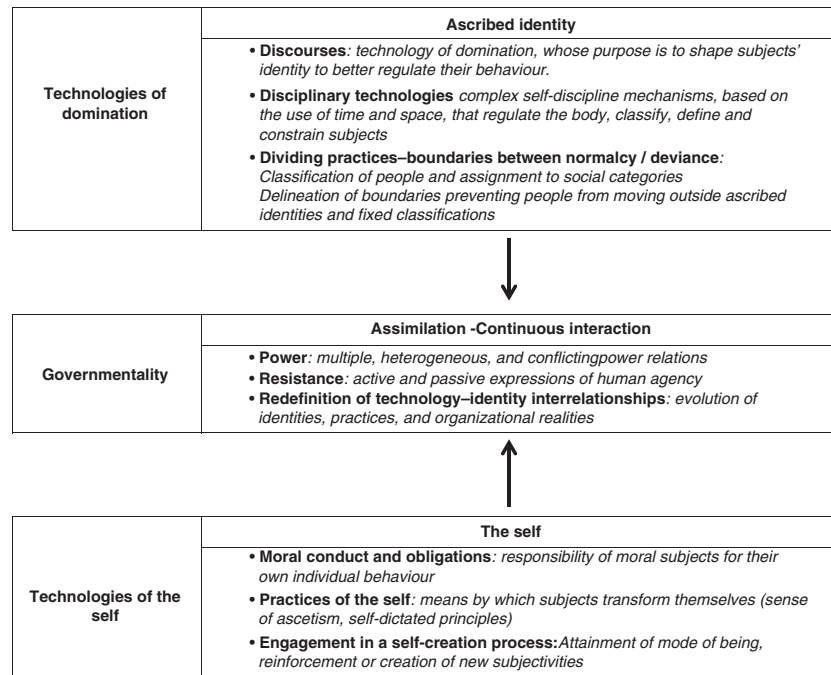


Figure 1 Foucauldian theoretical framework used to analyze identity–technology relationships.

With a qualitative, interpretive longitudinal IS case study approach, we examine the co-construction of identity and technology in IT assimilation. We build a rich understanding of the identity–IT interrelationship for IT assimilation in a single company. To understand the role of technologies that likely affect the basis of individual identity, we considered an appropriate IT: GPS. We used the case study for exploratory purposes by building a rich understanding of the co-construction of GPS users' identity and assimilation over time.

We conducted our research during January 2006–May 2008 with Gammacom (a pseudonym), a large, young, French mobile phone and Internet service provider that serves millions of customers. This sector is characterized by strong growth and a dynamic environment. Tough competition obliges Gammacom to provide good service to customers. Its core business offer is based on its telecommunications network, managed by the network division, which employs 280 people (management, technicians, and administrative staff). Guaranteeing an effective network requires technicians' responsiveness. Technicians depend on regional agencies located all over France. About 100 technicians cover the territory to perform either curative or preventative maintenance in telecommunication sites. To improve technician reactivity and increase maintenance quality, Gammacom decided in 2006 to install GPS, located in technicians' cars, and a smartphone that features software to plan the technicians' assignments. Implementing a surveillance device was then a particularly touchy topic in France: A strong debate about privacy protections raged throughout the political scene.

Data collection and analysis

The case study relied on a combination of data collection techniques, which supported triangulation. First, in observation studies that took place over 78 days (at headquarters, two regional agencies, and network sites), we studied managerial discourses, work procedures, technicians' perceptions, and IT use. We obtained rich insights into users' perceptions, the evolution of their identities, and their actual use. We also undertook unstructured observations with technicians in the field or at the local agency. We followed 18 technicians before, during, and after their maintenance operations; we also shared time with them during travel by car, at lunch, or after work, which provided a deeper understanding of the situation, including the informal tone at the workplace, as well as background information and validation for the interviews. We cultivated relationships to understand them not only as technicians but as social beings with their own sense of self, values, motivations, and emotions, beyond their professional lives. After each observation, we took notes, including verbal and nonverbal elements.

Second, we conducted 48 semi-structured onsite interviews with employees (Table 1). The choice of interviewees relied on a snowballing method, starting with an area manager known to the research team, who in turn suggested other contact names. Our goal was to identify and interview the main actors involved in this IT project, both at headquarters and in local agencies, to gain a good understanding of the project and its consequences. We interviewed top managers at headquarters (CEO, CIO, HR manager, Director of Network Division, and project head),

Table 1 Summary presentation of collected data

	Before deployment January 2006–September 2006	During deployment September 2006–July 2007	After deployment September 2007–May 2008	Total
<i>Headquarter</i>				
CEO		1		1
CIO	1		1	2
HR manager		1		1
Director of network division	1	1	1	3
Project head		1	1	2
Local agency manager	2	2	2	6
<i>Local agencies</i>				
Area managers	1	2	1	4
Technicians	5	16	8	29
Total	10	24	14	48

to understand the goals pursued with this project. We interviewed middle-level managers (local agency managers and area managers) to gain alternative views on the project and its presentation to technicians, as well as to determine impacts on work perceptions, identities, and uses. To understand the technicians' reactions and the impacts of the project on their jobs and relationships with their identities, we interviewed technicians, focusing on their actual behaviours and practices. That is, we asked them to describe their daily activities, uses of the new IT, and perceptions. The technicians represented two local agencies, chosen to ensure a variety of profiles and perspectives (i.e., in terms of age, locations, personal situation, background, qualifications, seniority, technological abilities, levels of adoption, union membership). Each 60- to 120-min interview was recorded and fully transcribed. Different rounds of interviews (cf. Table 1) took place before, during, and after IT deployment, to gain an overview of the evolution of identity–IT interrelationships. Each interview began with a promise of confidentiality, followed by general questions about the respondent. It covered wide-ranging topics linked to societal, economic, and personal conditions. Other, more organizational and IT-oriented questions related to technology's role and consequences for work conditions, procedures, reasons and justifications for implementation, origins of the project, and perceived IT role. We focused on consequences for technicians' professional and private lives, identities and self-perceptions. The difficulty of discerning identity clearly prompted us to rely on the Foucauldian framework, including the practices of the self technicians designed, moral principles that guided their lives, and modes of being they wished to attain.

Third, we collected internal documents (official presentations) and press reviews to unpack the official discourses. The user guide technicians received, which summarized project goals, helped us analyse how the GPS was presented, as well as compare official and unofficial discourses. We used sector analysis and popular studies about geolocation to put the discursive practices into wider contexts. The sector analysis also ensured a better understanding of the

company setting (i.e., the telecommunications sector, its dynamism, its evolution, and requirements in terms of service provided to customers); geolocation studies also provided background information, to give sense to the interviews and observations and clarify the sensitivity of this topic in the French business context.

We subjected our data to a qualitative content analysis using a thematic coding procedure with Nvivo software. We employed double-coding to check reliability and applied a three-step coding procedure (Richards, 2005). *Descriptive coding* stores information describing the case. We created 'attributes' that store information about people involved in technology assimilation, their jobs, system descriptions, contextual elements, and links with identity formation. *Topic coding* allocates passages to topics that correspond with conceptual entities. The analysis followed both deductive and inductive reasoning: First, we identified the main topics (informing the interview guide) related to Foucauldian constructs (technologies of domination and of the self, identity construction, power relationships). Second, we gathered themes that emerged from the data (e.g., forms of identification and disidentification). We thus identified four major categories (discourses, identity, impacts, and technology assimilation), each of which included several themes and dimensions (Appendix A). Finally, *analytical coding* interprets the meaning of extracts in context. We identified the node intersections to understand the simultaneous occurrence of themes and attempted to determine how technicians' sense of self related to variations in their behaviours. We built a comprehensive story of the identity–technology interrelationships in IT assimilation.

Findings

Legitimation of the IT project through discourses that shaped technicians' identities

The interviews with management before deployment helped us understand their initial objectives, which were

not exposed to technicians: 'Efficiency' and 'productivity' were their watchwords. A prevalent theme was the need to improve technicians' poor productivity. They were responsible for maintaining network sites all over France, so they were very mobile, with 40–50% of working hours devoted to travelling across sites. However, some tried to take advantage of the flexibility, to the detriment of the company's objectives, as mentioned by the project head:

In the past, technicians visited their local agency every day to receive assignments, which left them free to select the interventions they wanted.

Then technicians produced a paper report that they submitted to their manager each week, listing the number of their interventions and the time spent travelling and at network sites. Several problems occurred with this method, such as lack of coherence in technicians' declarations, loss of some information, and missed deadlines. Moreover, some teams had been accused of prioritizing their own interests instead of optimizing their rounds, as one manager admitted:

Human nature has led some technicians to choose their destinations for reasons that are not economic ones. We thus had to find a solution to control them.

Therefore, to restructure technicians' activities, a new system was installed, composed of a smartphone linked to a geolocation system that would dictate the jobs technicians had to perform. However, their real objectives were not presented as such to technicians. Our analysis reveals gaps between official management's discourses addressed to technicians, which attempted to shape the latter's identity to foster IT assimilation, and the unofficial talks developed in their absence.

As recognized by management just before deployment, the GPS was restrictive and mandatory, making it a sensitive subject. It could affect technicians' identities and jobs. The head of the project explained:

This system is sensitive for technicians; it's a very delicate topic, in particular when you consider its effects on the way they do their jobs, their relationships with management, and questions of privacy.

Some similarities emerged in managerial discourses, revealing their interpretations of the technician's identity and its potential impact on IT assimilation. Management shared a preconceived, stereotyped view of technicians' identity, as an un-educated and non-technology-savvy population, which led management think that technicians would not accept the new GPS, according to an area manager:

Generally technicians have chosen this job because they couldn't do something else. If we don't explain it clearly and don't give them good reasons, they will certainly not understand the role of this technology.

Therefore management relied on specific discursive practices to regulate the conduct of technicians and

attempt to shape their identity to encourage assimilation, as noticed by the Director of Network Division (DND):

The system could be a threat for them. It can really be seen as a snitch to track them. It's crucial that we present other objectives in a subtle manner. It's a necessity.

Discursive construction of technician's ascribed identity

First, specific discourses, conveyed by managers, served to build and disseminate a particularly pessimistic and unfavourable identity of technicians and their current positions in the company, on the verge of improving thanks to the technological deployment. From the beginning of the project, local management tried to empathize with technicians and build their identity as unrewarded, vital links in the company, noting the difficulty of their work conditions. For example, before ever mentioning the new project, management painted technicians in a bad light, and constantly sought to communicate a pejorative, disadvantageous identity of technicians, linked to their unappreciated current positions, unfriendly working environment and high turnover, and lack of recognition of their profession, as revealed by interviews with management and on-site observations. Management insisted that technicians represented a population that had not been recognized sufficiently as the heart of the company and emphasized their crucial role, insisting they would grant technicians more importance. They exploited the cutting-edge image of the company to progressively introduce the idea of providing technicians with modern devices (smartphones) that would match the importance of their role. During an official presentation, the DND explained:

You are a population that has long suffered difficult working conditions. You have a risky and insecure job, and you don't have lot of autonomy and flexibility. Our new project will soon help you improve that.

Management progressively created a certain truth to condition technicians to technological change. The managerial discourses that aimed to reveal the true conditions of technicians' professional life actually shaped their identity and attempted to better control their behaviours.

Second, this view was contrasted with the ascribed identity of technicians during implementation, also discursively shaped by management. Management sought to justify system existence, legitimate its use, and foster assimilation by shaping new identities for technicians. In particular, management strived to govern behaviours by leading them to act according to ideas about the particular identity, conduct, and characteristics that a good technician should exhibit, which would be rendered possible through the system use. Managerial discourse aimed to construct an image of a more autonomous, empowered, secure technician. The new identity was constructed and ascribed to technicians, as empowered professionals at the heart of the company, managing their autonomy.

Managerial discourse defined what constituted legitimate and expected practices. The handbook also communicated productivity, efficiency, empowerment, and autonomy as desirable attributes for technicians. A prevalent promotional theme in the official presentations focused on 'independence', 'role enhancement', and 'empowerment' for technicians. Paradoxically, the GPS represented a subtle mechanism of surveillance, which increased the rigour of practices and provided a form of distance surveillance, yet managers emphasized the increase in flexibility and autonomy. During one official presentation of the project, a manager explained:

This new system will allow you to be completely independent from the agency and from your manager. You'll definitely be more flexible, mobile, reliable, responsible, and secured.

The HR director also claimed:

With this tool, you have the possibility to manage yourself. What you have always dreamed of will become true: you won't need your manager anymore!

Finally, to show consideration for technicians and legitimate the system, managers' discourses relied on inferred effects, such as technicians' safety and well-being.¹ The technician's ascribed identity emerged from the productive power of management's discourse, used as technologies of domination, because the purpose was to shape technicians' identity and regulate behaviours.

Disciplinary technologies This process of identity formation was enforced with the use of a GPS, acting as a disciplinary technology, which regulated the practices of technicians and defined who they were. In contradiction with the discursive identity's glorification of technicians, the geolocation device was both a surveillance device and a powerful means to discipline technicians' behaviours, especially in relation to their location in time and space. The system also obliged technicians to complete a report, in real time on their smartphones, about each intervention before they could start another one. Management configured the system to measure time spent at each site and travel times, then record and transmit it automatically. As illustrated by the DND during the project implementation:

The technicians are required to follow a given route, so we know exactly and in real time where they are, at what time they start in the morning, how much time they take for lunch, and at what time they finish.

If critical incidents emerged, the area manager could reorganize technicians' routes immediately. Technicians

also could choose more interventions close to where they were located. Work times could be compared with the average times needed for similar interventions, enabling management to measure and compare technicians' performance.

Dividing practices toward a normalizing classification The discursively shaped technicians' identity, enforced through disciplinary technology, helped management impose a normalizing classification on technicians. Management was able to divide the technicians' practices to identify and assign them to categories, differentiating good from bad technicians. By constructing technicians' ascribed identity, it was possible to judge and compare technicians with others, and to include or exclude them from the socially constructed category of 'good technician', as shown by the monthly recognition of the 'best technicians'. Such dividing practices also enabled management to designate IT project champions, selected on the basis of their performance, to represent the project to external parties and encourage others to assimilate.

The ascribed identity of technicians thus also served to fix limits and delineate boundaries between normalcy and deviance in practices. When management identified differences in technicians' productivity, some became deviant professionals. Dichotomies among technicians emerged when management pointed fingers at union members who, unlike non-unionists, tended to reject the project; and at older or more experienced technicians, who tended to resist management goals more than their younger colleagues. This imposed classification provided a means to identify technicians in need of training, correction, penalization, or exclusion. After a few months, management started referring to possible sanctions for technicians who displayed deliberate negative attitudes, as explained by the CIO:

We can't accept that they don't comply with the new system – of course, some need more time to adapt, but every technician will have to use it. And if they don't want, the door is wide open!

Our analysis thus reveals that the discursively ascribed identities of technicians are enforced by disciplinary technologies and dividing practices, which define, classify, and constrain who technicians are (Table 2).

Interactions of technicians' discursively shaped, ascribed identity and sense of self

Technicians responded according to the values, motivations, and self-perceptions that were constitutive of their self. They appeared as *moral agents*, responsible for their own behaviours, aware of their selves and the project's impacts. Managerial discourses continuously interacted with the identities that technicians designed for themselves, according to their desires to reproduce or transform their selves. Various *practices of the self* led them to create their own identities and constitute themselves as moral subjects of their own actions to engage in a self-creation process. The relationships we cultivated with

¹Technicians climb communication aerials to repair network sites. Official presentations indicated that the project would improve technicians' safety, evoking two recent, serious accidents (one fatal). The DND mentioned 'the need to guarantee technicians' safety and know exactly where [they] are at any moment'.

Table 2 Uses of technologies of domination at Gammacom

Discourses	Deployment of managerial discursive practices to shape technicians' identity and regulate their behaviour <ul style="list-style-type: none"> ● From technicians as unrewarded vital links in the company (before implementation) ● To empowered professionals at the heart of the company, who manage their autonomy (after implementation)
Disciplinary technologies	A powerful system that accompanies discourses to prescribe and discipline technicians' practices and behaviours, in relation to location in time and space
Dividing practices - Normalcy/Deviance	Identification, classification, and assignment of technicians to categories defining and comparing their performances <ul style="list-style-type: none"> Calculation of technicians' productivity and extent to which they depart from a performance norm Identification of technicians needing to be trained, corrected, or penalized

each technician enabled us to understand their vision of themselves as technicians and social beings, and the role that social pressure and belonging to social groups played in the formation of their selves. They had a sense of what they wanted to be or not, in professional and private spheres, and how they wanted to be perceived. Identity influenced their relations to others, their perceptions of work conditions, their predictions for the future, and their beliefs about how they would appear if they used the technology. They made sense of the self through identification or disidentification with their ascribed identity.

Identification During implementation, various drives, related to technicians' sense of self, led them to identify with management's purposes and appropriate their ascribed identity, which was not only a barrier to their freedom but also a source of meaning. They accepted managerial orders for reasons inherent to their sense of self. Dedication and willing obedience are two forms of identification exhibited by technicians.

Dedication Some technicians saw themselves as dedicated social conscious professionals, motivated by an intense work ethic and commitment to their job. Animated by a strong will to satisfy their moral obligations, they incorporated their social conscience into their work. They portrayed this work ethic and commitment as an essential component of their identity. The search for professional status, a desire for recognition, and background reasons attached them to the values of a job well done, loyalty, and professionalism. A sense of professional responsibility was inculcated through their shared background (most technicians came from the working class and saw their job as an opportunity). It is an authentic relation to themselves that led these technicians to act according to moral self-dictated principles. They appropriated managerial discourses that echoed values and norms of behaviour in line with their own conceptions of existence. To justify their line of action, many referred to their memories, education, familial reasons, or examples among their relatives, which

formed their own self-perceptions of how to be, as one explained:

It's a way of life; my parents have always inculcated important work values, like the importance of a job well done and loyalty. So I consider it is my role to accept management decisions and to obey managerial rules.

Moreover, they internalized managerial discourses and devoted themselves to this change, because they derived a sense of importance from the internalization. They established no particular boundary between their private and professional lives; their job provided self-fulfilment. By identifying with managerial discourses, they reinforced their self-perceptions as specialists, equipped with up-to-date technologies that revealed their importance. Their high engagement and desire to be integrated gave meaning to their professional and social lives, in accordance with their own sense of self. They were particularly concerned with the care-taking aspect of their job and perceived their job as critical to the organization, as mentioned by a technician:

For me, this technology is a sign of status, and also an element of recognition. I think it shows the importance of our mission at the heart of the company, and our social utility to serve clients.

They considered their profession one of the most important means by which their lives gained meaning and clarity, not only for themselves but also for others important to them (relatives and family). They were motivated by a deep sense of dignity, revolving around their familial interests. For example, their smartphones offered a means to present themselves as valued social beings outside work to important others. Interpersonal influences shaped their representations of socially valued people, as explained by one of them:

I feel valued because I gain a sense of pride from showing the smartphone to my family, especially my

kids. Such recognition is very important for me; it contributes to my well-being not only at work but in my life in general.

Beyond conformity to ascribed identities, they engaged in a self-creation process, which gave their life meaning. Self-affirmation through compliance with managerial goals helped them preserve their identity to secure both organizational and social status and build a meaningful life.

Willing obedience Willing obedience is another form of identification exhibited by some technicians, who internalized managerial discourses, but for other reasons. These technicians felt relatively unsettled by the project and initially expressed resignation, but they ultimately appropriated managerial discourses, motivated by their strong aversion to conflict and fear of sanctions, related to their own personality traits and memories. For example, some referred to their past jobs, internships, and experiences of change to explain why they accepted managerial decisions and obeyed:

I know from my past experience in another company that it's very difficult and stressful not to align with the hierarchy and comply. I think it's more comfortable not to make waves ... I really want to keep the peace at any cost. I don't really care about this tool.... They tell us to use it, so I use it.

Another mentioned:

I've always obeyed hierarchy.... You know, I'm not the kind of man who can defy authority. I'm not inclined to protest.... I really don't see what it would bring to me to protest and tell my boss that I refuse their project, except tensions and problems.

Our observation revealed that most had a negative image of their status, which undermined their sense of self-worth and prevented them from expressing deviant opinions. These conflict-avoiders followed dedicated technicians, whom they considered referents and next to whom they took refuge. They identified with managerial discourses because doing so appeared in their interest, considering their sense of self and inner motivations.

Disidentification Managerial discourse also stirred strong resistance in response to the dissonance between technician's ascribed identities and sense of self. They criticized the ways management attempted to ascribe them fixed identities and engaged in a self-creation process, to give meaning to their behaviours. Frustration and insubordination are two forms of disidentification exhibited by technicians.

Frustration Considering the threat to their valued sense of self, some technicians expressed frustration to defend their identity. They had developed strong affective relationships

with their work, which they considered an integral part of themselves. Because work was constitutive of their identity as social beings, they exhibited attachments to their colleagues and working conditions. They had years of work experience at Gammacom (generally, 15–25 years), so the obligation to use the GPS generated bitter disappointment, as explained by one of them:

I've always seen me as a respectable organizational member.... For me, this project is a real betrayal. Geolocation is really humiliating; you can't imagine.... I also fear that we lose interpersonal relationships and humanity in our job.

They did not understand the logic of the project, which was incoherent with the trust management had always placed in them. Although they considered themselves critical to the company's performance, they found themselves treated as unreliable workers. A technician commented:

I deplore the lack of trust.... It's a disillusion. I'm a good professional, who has always proved myself. I don't need these tools. It's an offense. I'm not dumber than a machine to schedule my time.

They perceived a contradiction in managerial discourse and suffered from an identity crisis, stemming from the dissonance among their ascribed identities and sense of self. Such dissonance raised a feeling of shame. Their frustration and anger reflected their fear that it would damage not only their own self-esteem but also the image that others, such as their families, had of them:

I've done this job for several years and I had never needed any 'carrot or stick' to do it. It's an insult to my job and the way I've always done it.... I can't imagine what my wife will think, when she knows that I have an 'electronic snitch' in my car to be sure that I do my job well.

As long as they had been working for this company, they had integrated their job as an essential part of their self, which influenced their perceptions of the project and led them to express hostility to organizational goals.

Insubordination Other technicians not only criticized the way they were constructed by management but also created new subjectivities for themselves as resistant and insubordinate technicians. They questioned the right of Gammacom to install the system, which conflicted with their sense of self, and refused the ascribed identity that management wanted to impose. Personal circumstances that determined their sense of self, seniority, previous experience of change, family support, self-confidence, and membership in social groups (e.g., political party, union) led these technicians to refuse any hierarchical authority or managerial decision, especially if it affected their sense of self. Those who dared to challenge management showed strong determination. They shared a sense of

bravado that enabled them to feel good about confrontation and conflict. Animated by such strong self-confidence, one technician described himself as:

a determined and stubborn person.... I know what my job is and what I want in life ... and I can tell you I'm not ready to comply with enslaving technologies.

Their self-identity as resisters emerged out of solidarity, friendship, and a strong desire for association against management interests. They perceived the inscription of management interests in the technology, which diverged from their selves, as one explained:

It's clearly a means of control over our activities. I won't use it because I don't want to be a party to supporting the interests of the strong. I'm not afraid of being fired, as long as my honour is intact.

They often referred to the metaphor of leadership to express their will to represent others' interests, as evidenced by their participation in political parties or union movements. Through the existence of an out-group of technicians who accepted the project, their in-group identity was shaped and became salient for individual perceptions and attachment. Embracing comradeship values based on solidarity, technicians sought protection in the collective identity they formed with other resistant workers. Thus technicians who disidentified with their ascribed identity were not only organizational members resisting change but individuals managing their selves, dealing with their complex lives and personal circumstances.

Beyond their ascribed identity, technicians also acted as social beings with selves that formed on the basis of different sources, interrelated in practice. Their reactions were framed as identity-based choices grounded in various motivations, professional choices, values, personal preferences, familial interests, or generational differences. Organizational discourses continuously interacted with technicians' sense of self, which forged their representations of the impact that the system would have on their presentations to others.

We provide a summary of the main forms of identification and disidentification (Table 3), relying on Foucauldian concepts related to technologies of the self.

IT assimilation and further identity–technology evolution

In the months following deployment, these forms of identification and disidentification opened various alternatives for action and led to two kinds of IT assimilation (compliance and rejection), which contributed to the evolution of technicians' selves over time.

Compliance and identity re-enactment Over time, the identification of some technicians with ascribed identities led them to develop practices in line with managerial expectations. Dedicated professionals complied with

the prescribed IT and found satisfaction in this situation, which allowed their self to evolve. They used the visibility offered by the device to show their importance to managers or even go beyond the company's expectations. Knowing that all interventions were directly transmitted to management, they did their best to improve their productivity, for which they expected more recognition. Consequently, as explained by their manager:

It's amazing! We observed an increase in the productivity of some technicians due to psychological factors.... What we got is an increase of 20% in the number of interventions, simply because they know we have better visibility on their performance.

They increasingly were recognized as good and reliable professionals, whose results were praised while also being contrasted with the results attained by underperforming technicians. Such behaviours had the indirect effect of reinforcing dividing practices between technicians. Their sense of self and internalization of ascribed identities sometimes encouraged them to collude with managerial goals, such as by tattling on deliberate misuses or resistant actions by others.

However, technicians' identities were not just imposed by management. Our observation revealed that the technicians themselves had reflected on acceptable behaviours. For example, recognition of their performance by management seemed to give them a feeling of self-fulfilment, which reinforced their self-perception as good professionals, satisfaction, and self-confidence, leading them to strive to maintain this conduct. They also accepted their condition, because it gave them a way to affirm themselves as professional subjects, responsible for their self-valorization, and as producers of their own identity as reliable employees. It also enabled them to perceive control over their career and the equilibrium between their professional and private spheres.

Similarly, technicians who willingly obeyed, despite initial resignation, tried to find sense, by using the device as a tool to build their self-presentation as efficient, reliable professionals and valued social beings who accomplish a modern life through commitment to work. They found satisfaction with the constraining artefact, while attempting to improve their sense of self. More technicians wished to be recognized as good professionals with strong work ethics and efficient IT uses, shared as implicit criteria for membership to this valued category. Some technicians even wanted to morally redeem themselves through specific IT uses. To overhaul their sense of self and presentation to others, they strived to show they were more committed to their job by rendering visible the number of interventions per day and the time they started and finished work. As avowed by one technician:

In the past, I was a kind of free-rider.... There was no control; it was too easy to take advantage of the

Table 3 Forms of identification and disidentification

<i>Interactions of technicians' ascribed identity and sense of self</i>	<i>Forms of identification/disidentification</i>	<i>Moral conduct</i>	<i>Practices of the self</i>	<i>Self-creation process</i>
Identification	Dedication	Sense of professional responsibility, moral self-dictated principles, loyalty and professionalism, respect for managerial authority, deep sense of dignity, desire for recognition, self-confidence in expertise	Work ethic and commitment, satisfaction of personal and moral obligations, sense of importance derived from internalization of ascribed identity	Dedicated social conscious professionals
	Willing obedience	Strong aversion to conflict, fear of sanctions, lack of dignity	Peace keeping, adoption of the behaviours of referent technicians, compliance with managerial goals, securization of organizational and social status	Conflict-avoiders, followers of dedicated technicians
Disidentification	Frustration	Strong affective relationships and identification with job, self-esteem	Misunderstanding of the logic of the project, expression of fears, conflict with sense of self, hostility to organizational goals	Respectable organizational members, humiliated by management initiative
	Insubordination	Refusal of hierarchical authority, shared sense of bravado, leadership feelings, sense of solidarity	Strong resistance, critics of their social construction by management, engagement in union movements	Resistant self, insubordinate technicians, reactionary workers

situation. I am not proud of the way I did my job. But now I really want to change. Looking back, I think the new system is a great opportunity for me, because I can demonstrate my involvement to my managers. It's really important to me now, it's strange to say that about my job, but I feel happier.

Reinventing the meaning of IT offered means to legitimize their role and create a more positive sense of self. They progressively experienced this consideration as self-conscious professionals, which improved their sense of self.

IT rejection and identity assertion In parallel, disidentification by many technicians forced the company to acknowledge the strength of resistance. The dissonance between organizational discourses and technicians' sense of self led some to reject the system, which served as resources for identity enhancement. Animated by frustration, technicians used managerial discourses to reverse the situation. For example, some expressed dissatisfaction through strategic uses of the technology that undercut managerial intentions. They would switch off the geolocation device in their cars during what they considered private moments (e.g., lunchtime), a move not allowed by management. These technicians drew on contradictions in managerial discourses, which opened a space for choice and helped them affirm their selves. For example, though technicians were forbidden to touch their GPS, they used management's own arguments to legitimize their

resistant actions, like a technician who explained during an unofficial conversation:

Managers say they don't care.... They claim they don't need to know everything.... For example, the boss said he has many other things to do than staying behind his screen to track us. So I guess it's not a problem for him that I switch it off!

These technicians tried to take advantage of the technology by adopting different hidden practices that would enable them to reaffirm their identity as rebels. Their sense of self was also reinforced by a deep will to denounce and distinguish themselves from other technicians, especially those designated by management as project champions or who complied and colluded with management goals. A technician's identity could thus be reinforced through disavowal of the out-group of dedicated professionals, as explained here:

I don't want to be associated to this bunch of hypocrites, who act as accomplices of management. They are wimps. By accepting geolocation, they let themselves get controlled and dictated how to do their jobs.

Several months after implementation, technicians ended up rejecting the system, to the point of initiating a national strike, with the help of a strong union. Approximately 20% of technicians stopped working for three days, which paralysed operations. Despite their subordinate position, they embraced power linked to their sense of self, which made them less willing to obey. Some perceived themselves

Table 4 IT assimilation and uses, power relationships, and identity evolutions

IT assimilation	Uses	Power relationships	Further identity evolution
Compliance	IT uses in line with managerial expectations Practices that go beyond company's expectations Use of the visibility offered by the system to get more recognition	Compliance with prescribed practices Internalization of management discourse Collusion with management goals, tattling	Reinforcement of dividing practices between good and bad technicians Affirmation of technicians as modern subjects responsible for their self-valorization Moral redeeming
Rejection	Circumvention of the geolocation device Strategic uses undercutting managerial intentions Rejection of the system	Use of contradictions in managerial discourses to open a space action Disavowal of the out-group as accomplices of management Resistance (national strike)	Reaffirmation as rebels and insubordinates Assertion of identity as representatives of technicians' interests Recreation of technicians' sense of self through social and political engagement

as competent and inspiring leaders, with the help of a devoted group of followers. They also tried to take advantage of the institutional context, which featured a strong debate about workers' privacy and companies' rights regarding surveillance. Management was obliged to recognize the interests of technicians and take measures to accede to their demands, which advanced the assimilation process and enabled technicians to assert their identity. The device was modified to allow technicians to switch it off outside working hours, clearer policies about their rights were established, and a financial bonus was granted as compensation for additional interventions. Moreover, the resistance gave them the opportunity to reinforce their selves as dissenters, who became strong representatives of other technicians' interests, such that the company had to take more consideration of them when making decisions. An increasing number of technicians enrolled in unions, which gave sense to their actions and recreated their sense of self through their social and political engagement.

Evolving power relationships thus characterized the relationships between identity construction and IT uses. Table 4 summarizes these findings.

Discussion and conclusion

We provide an explanation of the identity–technology interrelationships in IT assimilation, a topic rarely analysed in IS research (Gal & Kjaergaard, 2009). We have investigated a company that implemented a GPS, which provides insights into the evolving co-construction of identity and IT assimilation, as well as the technological concerns raised by the implementation of identification technologies. The GPS emerged as a disciplinary technology, legitimized through specific technologies of domination, such as managerial discourses and dividing practices that attempted to orient individual behaviours. To encourage IT assimilation and legitimize deeper changes, managers sought to shape the ascribed identity of technicians.

However, such discourses did not completely determine the identity of technicians, who behaved according to

their sense of self. As social beings embedded in social contexts (Alvesson *et al.*, 2008), technicians thought, felt, and acted in accordance with their own sense of self. They understood their selves and made sense of them through social and organizational roles. The discursively shaped, ascribed identity of technicians continuously interacted with the self, which they forged through variant perceptions and behaviours formed from inter-related sources. Power relationships and political dimensions were central; the subjects criticized the ways management attempted to constitute them and instead constructed their own identity (Foucault, 1985a,b; Strozier, 2002). Through more or less intentional behaviours and practices, they reflected on their condition, analysed their positions in power relations, and engaged in projects of self-creation (Kuhn, 2006).

Various possibilities for emancipation and resistance arose from these power relationships and interacted with the personal, social, and organizational conditions in which the technicians operated. They regulated behaviours through technologies of the self, leading them to critically interrogate who they were and wanted to be, and to make voluntary choices to create the self. They were able to interpret managerial discourses, so that they could choose the extent to which they identified or disidentified themselves from their ascribed identity. Some technicians internalized and adapted the self to regulatory discourses, which became part of their 'internal voice'; in the meantime, they could develop positive attitudes, retain their identity, and become established and valued workers. They crafted identities by integrating their sense of self with their ascribed identity, which gave sense to their actions. Others established individual and collective forms of resistance, motivated by their sense of self and the dissonance between their ascribed identity and its concrete operationalization. They managed to exploit gaps in managerial discourse to overturn managerial intents, so the project opened new discursive spaces for action and identity evolution (Doolin, 2002). They eventually constituted themselves as producers of a resistant self, in line

with their self-interpretation and identification with alternative defining communities. Every technician thus exploited power relations to make sense of IT, pursue goals, and constitute or transform a sense of self (Alvesson *et al.*, 2008). Therefore, diverse patterns of interaction emerged among managerial discourses and technicians' identity, resulting in distinct IT assimilation types that contributed to the evolution of their identity.

Theoretical contributions

A Foucauldian perspective provides great insight into the identity–technology interrelationships in IT assimilation. It offers a rich view of the identity concept, which deepens understanding of the interactions of IT and people in organizations. This perspective confirms the fluidity of identity and its evolution through time (Gioia *et al.*, 2000; Gal *et al.*, 2008; Gal & Kjaergaard, 2009), such as when technicians' identities are subject to multiple changes during IT implementation. We respond to Lamb & Davidson's (2005) call to study how identities change over time due to IT use. Moreover, this perspective details the relational and dynamic nature of identity (Gal & Jensen, 2008). Identities are constituted, negotiated, threatened, re-enacted, and overhauled in an ongoing process of interaction (Broadbent *et al.*, 2001; Empson, 2004; Alvesson *et al.*, 2008). This more holistic understanding of identity suggests a relation between the personal level (i.e., practices of the self, which allow technicians to constitute themselves) and the social level (i.e., the organization, social groups, class, family, and society, which frame practices of the self or enrol others in identity construction). Accordingly, this approach renews the question of the relationship between the collective and the individual.

The Foucauldian perspective also provides a valuable conceptualization of technology (Willcocks, 2004; Young *et al.*, 2012) and its relationship with identity. It accounts for the political conditions and consequences of technology development (Knights & Murray, 1994; Young *et al.*, 2012). Technology is embedded in the micro-physics of life, discourse, power relationships, and identity construction (Willcocks, 2004). Moving beyond past research that focused on flexible technologies with limited impact on people's identity (Barrett & Walsham, 1999; Lamb & Davidson 2005), the restrictive technology in this case

affected technicians' sense of self and representation of themselves to others. The discourses associated with this disciplinary technology continuously interacted with the identity that workers constituted for themselves. Then IT assimilation resulted from the interaction of these intertwined processes, embedded in organizational politics (Young *et al.*, 2012). By exploring the ways existing identities shape and are shaped by IT assimilation, this approach fills a research gap, allowing for a better understanding of identity–IT interrelationships, and opens the way for more research in the substantiated field of IS implementation (Gal & Jensen, 2008).

Practical implications

This study has several practical implications. Instead of efficiency and return on investments, organizations need to consider the human, social, and psychological aspects of new technologies, as well as their links to identity. A reluctance to adopt new IT often reflects not just changes in work practices but also in people's sense of self. Companies that understand the real impacts of identification technologies are rare, at least in France, even though such technologies mandate new practices, affect the bases of collective action, and alter users' identity. Finally, this study raises questions about ethics and social responsibility, particularly in terms of the development of control systems enabled by identification technologies. This issue appears all the more salient because the focal technologies generated a form of remote and continuous control, both during and outside working hours. We suggest the need for mobile populations and management to jointly develop well-established practices and regulate technology uses, to enhance both employee efficiency and fulfilment.

Foucault invites us to identify the contingency of mechanisms used to produce truth. We acknowledge the relative validity of the knowledge produced here, because we examined only one kind of technology with a single case study. However, as Foucault suggested, our goal was not to promote new truths but rather to develop original reflections. Our theoretical developments provide a basis for further research, which could extend our Foucauldian-based work and apply it to other technologies (e.g., biometrics, RFID) to gain a deeper understanding of the identity–technology interrelationships.

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Appendix

Table A1 Thematic coding

Categories	Themes	Dimensions	Codes
Discourses	Project goals	Increase in productivity	[DISC-PRGO-PROD]
		Surveillance	[DISC-PRGO-SURV]
		Reporting	[DISC-PRGO-REPO]
		Reduction lack of coherence	[DISC-PRGO-COHE]
		Time optimization	[DISC-PRGO-TIME]
		Network effectiveness	[DISC-PRGO-NETW]
		Security	[DISC-PRGO-SECU]
	Official managerial discourses	Autonomy	[DISC-OFF-AUTO]
		Flexibility	[DISC-OFF-FLEX]
		Empowerment	[DISC-OFF-EMPO]
		Security	[DISC-OFF-SECU]
		Wellbeing	[DISC-OFF-WELL]
	Interpretations by technicians	Control	[DISC-INTER-CONTR]
		Lack of trust	[DISC-INTER-TRUST]
		Humiliation	[DISC-INTER-HUMIL]
		Dehumanization	[DISC-INTER-DEHUM]
		Autonomy	[DISC-INTER-AUTON]
		Empowerment	[DISC-INTER-EMPOW]
		Efficiency, productivity	[DISC-INTER-EFFIC]
		Security	[DISC-INTER-SECUR]
Identity	Evolution	Before project implementation	[ID-EVOL-BEFORE]
		During uptake	[ID-EVOL-DURING]
		After project implementation	[ID-EVOL-AFTER]
	Role of identity in identity-IT relationship	Driver	[ID-ROLE-DRIVER]
		Effect, result	[ID-ROLE-EFFECT]
		Discursive construction	[ID-ROLE-DISC]
	Technicians self-representations	Existing identity (self-perception)	[ID-SELF-EXIST]
		Relationships to others	[ID-SELF-REL]
		IT influence on self-representation	[ID-SELF-ITINFL]
		Awareness of ascribed identities	[ID-SELF-AWARE]
	Identity construction	Individual	[ID-IDCONS-IND]
		Familial context	[ID-IDCONS-FAM]
		Professional reasons	[ID-IDCONS-PROF]
		Socialization	[ID-IDCONS-SOCIALIZ]
		Memories, history	[ID-IDCONS-MEMOR]
		Social/group pressure	[ID-IDCONS-GRPPRES]
		Sense of belonging	[ID-IDCONS-BELONG]
	Identity self-formation	Practices self-designed	[ID-SELFFOR-PRACT]
		Mode of being, objective	[ID-SELFFOR-MODEBEING]
		Moral principles	[ID-SELFFOR-MORAL]
		Self-fulfilment	[ID-SELFFOR-SELF-FULF]
	Ascribed identities by management	Negative	[ID-ASCR-NEG]
		Positive	[ID-ASCR-POS]
	Confrontation presc. id./self.id	Identification	[ID-CONFRONT-IDENT]
		Disidentification	[ID-CONFRONT-DISIDENT]
		Indifference	[ID-CONFRONT-INDIFF]

Table A1: (Continued)

Categories	Themes	Dimensions	Codes
Impacts	Further evolution	Reenactement	[ID-FURTH-REENACT]
		Overhaul	[ID-FURTH-OVERHAUL]
		Assertion	[ID-FURTH-ASSERT]
		Abandon	[ID-FURTH-ABDON]
	Organization	Processes	[IMP-ORG-PRO]
		Structures	[IMP-ORG-STRUC]
		Network	[IMP-ORG-NETW]
		Competition	[IMP-ORG-COMP]
	Technicians	Productivity	[IMP-ORG-PROD]
		Job	[IMP-TECH-JOB]
		Roles	[IMP-TECH-ROLES]
		Work practices, procedures	[IMP-TECH-WORKPRAC]
		Space/time	[IMP-TECH-SPACETIME]
		Productivity	[IMP-TECH-PROD]
		Motivation	[IMP-TECH-MOT]
		Control	[IMP-TECH-CONTR]
		Trust	[IMP-TECH-TRUST]
		Future	[IMP-TECH-FUT]
		Pride	[IMP-TECH-PRIDE]
		Emotions	[IMP-TECH-EMOT]
		Values	[IMP-TECH-VAL]
		Private life, privacy	[IMP-TECH-PRIV]
	Relationships	Power dynamics	[IMP-REL-POWER]
		Peers	[IMP-REL-PEERS]
		Hierarchy	[IMP-REL-HIERAR]
		Relatives, family	[IMP-REL-RELAT]
		Other	[IMP-REL-OTHER]
	Time	Pre-conditions	[IMP-TIM-PRE]
		During deployment, uptake	[IMP-TIM-DURING]
		After deployment	[IMP-TIM-AFTER]
Assimilation	Perception of technology	Sense, meaning	[ASSIM-PERC-SENS]
		Needs, usefulness	[ASSIM-PERC-USEF]
		Pleasure	[ASSIM-PERC-PLEAS]
		Empowerment	[ASSIM-PERC-EMPOW]
		Frustration, anger	[ASSIM-PERC-FRUST]
		Hostility to organizational goals	[ASSIM-PERC-HOST]
		Uselessness	[ASSIM-PERC-USELESS]
		Indifference	[ASSIM-PERC-INDIFF]
		Rejection	[ASSIM-APPROP-REJECT]
		Resistance	[ASSIM-APPROP-RESIST]
	Patterns of assimilation	Resignation	[ASSIM-APPROP-RESIGN]
		Valorization	[ASSIM-APPROP-VAL]
		Compliance	[ASSIM-APPROP-COMPL]
		Reinvention	[ASSIM-APPROP-REINV]
		Circumvention	[ASSIM-APPROP-CIRCUM]
		Defence	[ASSIM-APPROP-DEF]
		Indifference	[ASSIM-APPROP-INDIF]