ATTITUDE, APTITUDE, ABILITY AND AUTONOMY: THE EMERGENCE OF "OFFROADERS", A SPECIAL CLASS OF NOMADIC WORKER

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Abstract
Freedom to choose when, where and on what to work might be viewed as mere telework. However, when we mix the adoption of ubiquitous technologies with personalities that take pleasure in problem solving and achievement for its own sake, a strong need for autonomy, the freedom to work wherever and whenever the mood strikes, and add a dash of entrepreneurial spirit, then perhaps we are seeing an emergent class of worker, and even the possibility of new organisational forms. This research draws on adaptive structuration theory to search for evidence of a different way of working, hidden among otherwise familiar patterns. It concludes by considering what implications the employment of such individuals might have for management processes with organisations.

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There is strong evidence that, during a relatively short period of organizational history, a new class of technology enabled nomadic worker has evolved from the teleworkers long known to industry. Attitude, aptitude, ability and autonomy seem to be their defining attributes. We believe them to be so different in kind from previously identified classes of teleworker that few organizations yet have a need for, or could presently utilise such workers. Indeed it may be that conventional organizations would need to rethink structures and processes in order to make use of them at all.

Searching for a convenient tag that expresses appropriately their ability to work away from the well worn highways and paths of conventional organization, we have adopted the term "offroader". In the remainder of this paper, we will define the term, then explore the environment within which offroaders work, both from the perspective of the workers themselves, and of the organizations for which they work. Using DeSanctis & Poole's Adaptive Structuration Theory (1994) as a guiding framework, we ask "how have mobility enhancing technologies helped to shape the socio-technical environment that is the offroaders' lifeworld."

We suggest that offroaders differ from conventional teleworkers in that they possess most or all of the following characteristics:

- they work from wherever they happen to be when the need or urge to work arises, making use of advanced technologies and networks to access the required resources;

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- they work on any day of the week, or at any hour of day or night if the need or urge to work arises;

- they find intrinsic value in the performance of the tasks they undertake, independent of any value placed by others on their achievement or outcomes and often immerse themselves in their task to the exclusion of all else (oblivious to people and surroundings);

- they tend , when working, to enter a state of temporal dissociation (oblivious to the passage of time);

- they prefer to work with a high degree of autonomy, largely free of direct managerial oversight, constrained only by agreed milestones;

- they may or may not choose to work as 'an employee', and often work for multiple employers or clients;

- they may or may not reside in the same time zone or even the same country as the employer;

- they are skilled in the techniques and application of ICTs, integrating this expertise with their domain specific knowledge;

- they are motivated:
  - by the opportunity to reinforce their own sense of self as someone with positively distinctive capabilities;
  - by the opportunity to solve complex problems of a non-routine nature;
  - by a reward system that reinforces their sense of self-worth; and,
  - by the possibility of doing something new at frequent intervals.

In isolation, none of the suggested characteristics is especially unusual or new, nor are the individual technologies employed particularly advanced. Yet, when viewed holistically, we argue that this combination of attitude, aptitude, ability and autonomy identifies a new kind of worker, not previously identified as worthy of study.

There are many kinds of worker who, enabled by technology, are physically distant from the organizations normal places of work. These include ordinary teleworkers, nomadic workers, and people whose job simply requires them to be 'on the road'. Among the commonly used labels are teleworker, telecommuter, virtual worker, nomadic worker. Such workers can be categorised on several dimensions including the extent to which they have autonomy, the extent of their embeddedness in the organization, and, most commonly, the mobility options open to them.

Adoption of the offroader lifestyle, or indeed the employment of offroaders need not be an all or nothing practice. We believe, however, that organizations mixing offroaders with conventional workers would face special challenges if collaboration between the two classes is required, or if offroaders are to be managed by the same managers who are also in charge of more orthodox resources. We expect that extensive adoption of offroaders is most likely to occur in organizations designed around them, or in organizations willing to undertake a radical redesign to accommodate them.

This research draws on DeSanctis & Poole's (1994) adaptive structuration theory (AST) to provide a guiding framework with which to explore narrative interviews conducted with nomadic workers and the managers of nomadic workers in Australasia during 2007 and 2008. Our focus is on what we regard as an emerging, technology enabled social structure. Along with De Sanctis and Poole (1994), we view the

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individuals, the technologies, and the client[1] organization collectively as a single socio-technical entity. We recognise, however, that the bonds between these various components vary widely in their strength. Social structures are enabled by technologies and can be seen to have structural features and a 'spirit'(De Sanctis & Poole, 1994). It is these two perspectives that allow us to explore the social structure in which offroaders operate.

There is little ambiguity with regard to structural features. We regard the structural features of a system as being the combination of its inherent rules and resources (Giddens, 1984). For the purposes of this research, practical examples of structural features include (but are not limited to):

- assignment of complete responsibility for certain finite or ongoing achievements to individuals on behalf of one or more clients;

- possession by those individuals of knowledge, skills, personal attributes and technologies necessary to carry out the assigned work

- ability of the individuals to contact, and to be contacted by the client(s) as required, using appropriate technologies, regardless of physical location;

- ability of the individual to access relevant and necessary portions of the client's information resources to assist in the performance of the assignment at any time throughout its duration;

Most users of AST have tended to focus on the structural features of a social structure, and have neglected the concept of spirit (Markus & Silver, 2008). Spirit is

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[1] We use the term 'client organization' to accommodate the characteristics of the offroader as detailed above – particularly that an offroader may work for multiple organizations. In this sense we refer to the organizations as client organizations.

interpreted by most scholars as the intention of the technology's designer, or the general intent of the structure. This is somewhat problematic in our research, as it presumes the existence of a conscious and widely accepted design or purpose. To date, we see little evidence, among those we regard as offroaders, of any such thing. Rather, we observe that, as lateral thinking individuals, relatively unconstrained by the structures in place in conventional organizations, they have adapted the combination of relationships, rules and resources at their disposal to create a unique, coherent, but still evolving, social structure within which they operate to maximise their own levels of job satisfaction. In short, they have ignored previous paradigms and consistent with the hypotheses of AST have moulded their environments to create a customised and sometimes radical design of their own making.

Although most of our participants tend to be equipped with state of the art mobility enabling appliances such as iPhones™ and advanced wireless broadband networks, we regard these as somewhat incidental components within the structural features of their particular social structure. It is the sum of all the participants, the rules and resources with which they operate, and their approach to the self-created spirit of their working environment that constitutes the lifeworld of the offroader.

This evolving socio-technical structure obviously also involves the client organizations and the offroaders' managers. Based on our data, they also seem to acting and reacting without any 'design intention': very much in an ad hoc mode. According to AST, one would expect that these ad hoc processes will eventually result in a restructuring of this socio-technical entity of actors, structures and technologies and many of the stories gathered reflect this, at least to some extent. It is this ongoing emergent process that we find so exciting, and the application of AST to understand it, so challenging.

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We set out to identify the emerging themes and to consider the probable consequences for individuals, managers, and organizations, of people working in these new ways. We begin with a brief exploration of recent relevant literature, then we describe the data collection process and subsequent analysis. We conclude with an exploratory discussion of the implications of our findings for the future workplace.

OFFROADERS AND THEIR ANTECEDENTS, THE TELEWORKERS

People working, with the aid of technology, away from the office, have been the subject of study and the locus of predictions about the future of work from many perspectives over many years (Eder, 1983; Harris, 2003; Hartman, Stoner, & Arora, 1992; Hill, Hawkins, & Miller, 1996; Perez, Sanchez, & Carnicer, 2003; Rush & Miles, 1989; Wilkes, Frolick, & Urwiler, 1994). Indeed, a literature review by Siha and Monroe (2006) identified over 2,100 journal articles on the topic. For clarity, we define telework as any work that, by the use of technology, is routinely performed at a site or sites other than the employer's premises. Mobility, in this context, is seen as the ability to change the location of the workplace at will.

From the beginning of the modern technological age, there have been predictions that technology would allow individuals to work in different ways, and to live different lifestyles (Gill, 2006; Mello, 2007; Wicks, 2002), and for many, it has proved to be so. For some this amounts to nothing more radical than working from a fixed site of their own choosing, usually their own home, but even this is a transformational change. By facilitating mobility for their employees, employers have been led to expect cost reductions (Martinez-Sanchez, Pérez-Pérez, Vela-Jiménez, &

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de-Luis-Carnicer, 2008; Topi, 2004), morale improvements (Tietze & Musson, 2003), and productivity gains (Meadows, 2007/2008; Ruth & Chaudhry, 2008). Again, to an extent, it has proved to be so (Kaczmarczyk, 2008; Martinez-Sanchez, Pérez, Carnicer, & Jiménez, 2007; Morgan, 2004; Ruth & Chaudhry, 2008; Shanks, 2007), though the claims are challenged by some (Hill, Miller, Weiner, & Colihan, 1998).

Motives for the adoption of telework vary. Individuals value the incremental autonomy that comes with working away from immediate managerial oversight (Brey, 1999; Hunton, 2005). Individuals and governments value the reduction of pressure on transportation in all its forms, including a diminished demand for fuel (Andrey, Burns, & Doherty, 2004), and of course, the reclamation of commuting time to more productive uses. Organizations have benefited from telework in many ways, such as reduced need for costly office space (Gibson & Luck, 2006; Kaczmarczyk, 2008), increased productivity arising from the elimination of commuting (Davis, 1995), enhanced flexibility (Hyland, Rowsome, & Rowsome, 2005; Martinez-Sanchez et al., 2007) and improved employee retention (Kaczmarczyk, 2008; Kowalski & Swanson, 2005).

Considerable attention has been paid in the literature to the problems and issues arising from telework, both for individual teleworkers, and for their employers. Frequently mentioned are the problems of managing "out of sight workers" (Gerke, 2006; Meadows, 2007/2008; Peters & den Dulk, 2003), and how to overcome the conservative mindset that assumes teleworkers cannot be relied upon to work without direct oversight (Manochehri & Pinkerton, 2003). Also commonly recognized is the issue of effective collaboration between those who telework, and those who work conventionally (Golden, 2007).

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Offroaders and their Employers

Most of the literature on conventional forms of telework takes for granted the continued dominance of traditional bureaucratic organizational forms in which there continues to be an ongoing, stable, hierarchical, and for the most part, exclusive relationship between the employee and the organization. In such a relationship the individual worker is a permanent employee, constrained to the performance of regular tasks appropriate to his or her known capabilities, and accountable to an immediate superior within a known hierarchy (Weber, 1922).

Radical technology driven restructuring of organizations has been a recurring theme made most explicit in Business Process Reengineering (Hammer & Champy, 1992; Kawalek & Wastall, 2007; Venkatesh, 2006). Fuchs (2002) argues that such extreme departures from established practice would be deleterious to the organization, since they do not seem to value institutional knowledge, or the hard won core competencies which give an organization competitive advantage. We might agree with these arguments for conventional organizations manufacturing tangible products as described in the article. We tend to agree, however, with Murphy & Pauleen (2007) who argue that knowledge workers – those that produce much of an organizations intellectual capital - require new styles of management, in particular the ability to manage paradoxical situations, just the kind that offroaders present. We can envisage an appropriately managed organization being able to respond to its clients needs by producing non-routine intellectual property using the intellectual horsepower of a teleworker or offroader.

Another useful perspective from which teleworkers, and by extension, offroaders have been examined is that of Human Resource Management (HRM) (Allen, Renn, &

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Griffeth, 2003; Harris, 2003; Moustafa-Leonard, 2007; Perez et al., 2003; Peters, Tijdens, & Wetzels, 2004). While acknowledging the wide spectrum of telework types, this stream identifies the importance some teleworkers give to autonomous working conditions as means by which they can take responsibility for the active pursuit of their own career aspirations (Taskin & Devos, 2005). It is precisely the kind of teleworker who revels in working autonomously, and who accepts all the associated risks and responsibilities of his or her individual success in career and business, whom we have identified as an emerging and special class of people , i.e. offroaders. In discussing autonomy in the context of telework, much of the literature continues with the presumption of a conventional employer-employee relationship and tends to regard management control and autonomy as a zero sum game in which any increase in one is at a cost to the other (Langfred, 2000; Taskin & Devos, 2005). Indeed, autonomy is usually defined in terms of the extent to which control is ceded to the employee.

Yet another important concept worthy of examination in the context of offroaders is that of 'career'. Traditionally, the notion of a career has implied an orderly upward progression through a hierarchy of functionally related jobs, often within a single industry, sometimes a single organization (O'Leary, 1997; Wilensky, 1961). With each career step, there was usually an increase in financial rewards and/or status. Another perspective offered by Carlson & Rotondo (2001), is that a career is about growing the individual's competency to meet the prerequisites for better jobs. We believe the offroaders occupy a different and self-contained space, in which success is measured not in terms of progression through steps defined by someone else, but rather in the increased value placed by peers and clients on their problem solving

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abilities, and hence their ability to command premium prices, and to choose what work they will undertake.

ENCOUNTERS WITH REAL WORLD OFFROADERS

This research has its origins in prior work on the impact of technology adoption on work-life balance *(reference omitted until after peer review)*, during which a small number of participants demonstrated many of the characteristics which we now ascribe to offroaders. Having a vision of the ways that work away from the office might evolve, we set out to find more participants who might help us shed light on the implications that such workers have for organizations and management.

Perhaps because they tend to work from home, at airports, on trains or almost anywhere other than normal organizational centres of work, real offroaders are often not easy to find, so we used our prior participants and personal contacts to expand our pool using snowball techniques (Patton, 2002). We conducted narrative interviews up to an hour in duration with each of 37 individuals from Australia (12), the USA (1) and New Zealand (24). Just seven of our participants were women, 24 were employees of commercial organizations, and four were civil servants and the remainder refered to themselves as self-employed or independent contractors.

After being informed of the context of the research, each individual was invited to share the story of his or her interaction with ICTs for work and leisure. These narratives were transcribed and then subjected to thematic analysis to find strongly emphasised or recurring patterns and themes (Aronson, 1994). We do not suggest that more than one or two of our subjects could be categorised as offroaders in the fullest sense of our definition, but we were struck by the extent to which many of them shared some or all of the same values. We believe our participants provide strong

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pointers to new ways of working, and new kinds of relationship between organizations, and those who do work for them. Values of interest were explicitly identified in narrative fragments provided by the participants, or else were directly observable in their behaviours, or in the contexts of their working lives.

Foremost among the offroader beliefs and values espoused by our participants was the intrinsic value of achievement. This is commonly manifested through the display of a single minded focus on the task at hand, to the exclusion of all else. Termed cognitive absorption by Agarwal & Karahanna (2000), specific characteristics include temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity. Typically, such people have no time for recreational media, and in many cases, the goodwill of family and friends is stretched by the sustained emotional absence of the person concerned. Conspicuously absent from the stories of our participants, was any explicit mention of spousal responses to their preoccupation. This may well be the unmentioned 'elephant in the room'. A close second was personal autonomy in respect of when, where, and for how long to work, and how to prioritise among the many tasks in which they were engaged. Technology was discussed, not so much as a focus of attention, but pragmatically, as a necessary infrastructure on which the capabilities and productive capacity of the participants were based. Apart from occasional recreational uses such as game playing, technology was not identified by our participants as an end in itself.

Work life balance was worthy of discussion for some, but it was clear that these people spend more time on the work side of the ledger than most people. [*Cite omitted until after peer review*] These aspects of the offroaders' life will each be discussed in turn.

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Achievement as an End in Itself

Although acquisition of wealth was rarely mentioned, it might be taken for granted as a the natural corollary of the levels of achievement attained by offroaders. Some participants saw the scale of the financial reward as an analogue for the esteem in which their achievements were held by peers and clients. Several identified mastery of their craft, or achievement of assigned or adopted goals as being important to them. One self employed participant described his work as enjoyable activities that happened to generate an income.

> *I'm lucky that, what I do, I don't consider so much work, as fun stuff that I earn money doing, and that's one of the key things that I think that helps motivation.*

More prosaically, one of the public service managers who participated, attempted to share with his subordinates his own belief in the intrinsically rewarding nature of their work :

> *I always tell my staff "your reward for doing a good job is more work, and better work and more opportunities."*

For offroaders, it seems that the very tasks they undertake are intrinsically rewarding, and are thus a major factor in their motivation. Intrinsic motivation is contentious in the organizational behaviour literature, but there is support for the idea that work that reinforces the individual's awareness of his or her own competence tends be intrinsically motivating (Arnold, 1985; Katz, 2005). For some, the reward mechanism is neatly captured in the phrase "time flies when you're having fun", which again reminds us of Agarwal and Karahanna's notion of cognitive absorption

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Although the participants would probably not use the label cognitive absorption to describe their behaviour, their stories were consistent with most of the characteristics of the phenomenon.

Inseparable Task and Technology

Commitment to, or dependence upon, enabling technology was a central feature of many narratives. Notwithstanding the business purpose of the tasks with which they were engaged, many of them described their activities in terms of "using technology to achieve …". Conversely, those with an outcome focus just took the technology for granted, and to the extent that they talked about it at all, saw it simply as a background enabler by which outcomes were achieved. Participants were rarely without access to ICTs at any hour of day or night, and many were uncomfortable when deprived of it, as in the case of a highly mobile systems architect while practicing karate:

> *When I go to [martial arts] training I can't have my cellphone on me while I'm kicking and punching. It doesn't work. So I have put my cellphone on silent. I haven't been able to get myself to turn it off. I'm not happy if it's off but I will put it on silent. I will put it out in the changing rooms and then every time we get a water break I pop out and just quickly check that I haven't been called out because it's a two hour training session.*

It is appropriate to distinguish between the technology (the cellphone and its related networks) as a tool, and the all important connectedness by which this respondent can be assured that all is well in his domain.

Except where the output of their labours was itself a form of technology, few participants chose to see technology as a topic worthy of discussion. Despite this, our participants without exception were highly skilled in the use of the technologies

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appropriate for their work. Several participants told of significant and complex installations of technology at home, often significantly in advance of the kinds of equipment normally provided by employers to facilitate remote work.

> *I've got six computers at home including a server and a multimedia computer ... It's one that I kind of built myself.*

Some who spend all day every day with technology, use still more of it at home. As one young sales executive, married, with no children observes:

> *At home we have three computers in the household. We have one primary machine that I use which is my gaming machine really, and that holds a copy of my Groove information and my wife has her own laptop, and I have a laptop as well.*

It is apparent in these cases, that the people we have labelled as offroaders have a more than usual level of comfort with technology and, in keeping with the role of cognitive absorption (Agarwal & Karahanna, 2000), are often seen to be immersed in a technological environment to a depth not commonly attainable or even desired by other people. From our observation, participants who exhibited this achievement centred motivation, all operated within a stable but evolving working environment, shaped at least partly by the choices made in terms of technologies used, choice of location, and interactions with the organization(s).

Nearly Autonomous, Not in the Office and doing Business in their Own Time

While some participants articulated the importance of autonomy in their lives, it was clear that the freedom to set their own priorities, to work when and where they want, is a defining characteristic of offroaders. Foremost among the aspects of autonomy discussed by our participants was the freedom to choose the time and place

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where they would work on a specific task. Volitional engagement in a task, working on something because it is 'fun' is intrinsically motivating Volitional engagement in a task, working on something because it is 'fun' is intrinsically motivating (Gagné & Deci, 2005).

Consistent with their previously identified tendency to deep task absorption arising from enjoyment of the task at hand (Kinman & Kinman, 2001), our participants demonstrated a high level of temporal dissociation, whereby the passage of chronological time ceased to be important to them. Instead they could be said to be "in their own time", or as Orlikowski and Yates (2002) and Czarniawska (2004) would have it, in kairotic time. Almost as a matter of perverse pride, participants revealed working patterns that are far from normal office hours. Occasionally, the need or desire to spend time with dependent children was raised as a reason for being in non-work mode during what are conventionally regarded as core business hours.

> *But it's that sort of flexibility that's important and that's where the tradeoffs come in. That's an extra bonus for me because I get to talk to [my daughter] when she's bright and bubbly just after school as opposed to when she's almost ready to go to sleep and forgotten about school.*

Some exercised this option only in case of emergency:

> *Now you know I can you know if I need to pick the kids up from day care for instance, if my wife's away I'm here. If anything crops up I'm still technically at work.*

More frequently, participants spoke of hours spent late at night, or early in the morning, absorbed in a work related challenge while the household sleeps around them.

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When you're not working in a synchronous mode all the time, you can organise your day to best suit your lifestyle. So I would often be up at 4.30 or 5 o'clock in the morning and I'd work through until my daughter got up when she was a little kid, then I'd spend time with her and help my wife out while getting breakfast done and that sort of thing.

Another participant paints a similar picture, mixing the virtues of family time with the satisfaction of meeting improbable work goals:

I promised to give someone something first thing tomorrow morning and I can do that. I go home and do that overnight. And sometimes I wake up at four in the morning and work on it then and that just works for me because I go home, relax with [my daughter] and my wife. [My daughter] goes to bed early, she's a little kid and so I'm relaxed it's the best time for me to sleep then, then I get up in the early morning and be really ready for the day.

Just as the freedom to work at convenient times was important to some, so too is the freedom to work from wherever they need to be:

My wife had a contract [in North Queensland] recently for three months, I went up there with her and it was about four days of me working up there before I told the guys back in [Head Office] that I actually wasn't at home and they said "we didn't know". It didn't matter.

The same participant, living in a different time zone to his company and his customers, combined his preference for early morning work with the benefits of being in a different part of the world:

I have got into the habit of getting up at six o'clock in the morning and heading straight to work ... In fact it's quite good that by 2 pm in Queensland, New Zealand's closed. So if I have to call customers I can't. I can't really call

them after 4.30 New Zealand time or even 4 o'clock because it's all too busy.

So I can finish work at 2 o'clock then I've got the rest of the afternoon to

myself.

This particular participant is simply displacing his work day in relation to the time zone where he lives, to align with that of his employer and customers. Time shifting is a different, though perhaps equally useful phenomenon from the notion of kairotic time wherein time takes on a different meaning. Obviously there are practical limits to number of time zones by which an offroader can be separated from employer or customer, unless there is an understanding as to the amount of synchronous interaction required, and the offroader will be available in that window regardless of local clock time.

ANALYSIS

The relationship between new technologies and the social environments into which they are incorporated has been extensively, but inconclusively debated in prior literature. Consistent with De Sanctis & Poole's (1994) Adaptive Structuration

Theory, most agree that, although technology is permissive of change, perhaps even influential in bringing it about, there is no hard evidence of a causal link between the adoption of a new technology, and a change in the social environment.

There are seven central propositions advanced by De Sanctis and Poole in their exposition of Adaptive Structuration Theory. We have attempted to see how these propositions might be seen to explain offroader behaviour by providing examples of ways in which technology adoption modifies, or is modified by their socio-technical environment:

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Table 1. Application of AST propositions to Offroaders

Proposition derived from AST	Example of how the proposition can be seen to apply in the case of offroaders
Each new socio-technical system appropriated has an influence on social interactions according to its specific and unique architecture and intended purpose.	The decision to use instant messaging or SMS texting will alter the frequency, kind and nature of communications that shape the relationship between the offroader and the person(s) being communicated with.
The influence exerted on social interactions by the structures associated with appropriated socio-technical systems is dependent on the tasks for which they are being used and influences from other sources of structure at the time.	Videoconferencing tools using VOIP (e.g. Skype) are so cheap and reliable that offroaders routinely use them to initiate day to day discussions rather than waiting for formal meetings such as project review or contract negotiations.
As new technologies and their associated rules and structures are implemented within a socio-technical system, further influences for change will emerge	When necessary, offroaders assemble agile teams facilitated by technologies such as broadband networks, cellular phones, PDAs, and videoconferencing. The technology creates a new communication environment in which the offroaders and their collaborators can and do discover additional ways to collaborate.
The technology driven capabilities and restrictions are reflected in social interactions over time and enable the emergence of new social structures.	The limitations and in some cases, the new capabilities of adopted technologies such as instant messaging shapes the ways in which offroaders interact with others and leads them to form small communities of interest in which the tools techniques and practices become recognised as the way things are done.
Interaction processes will be altered by the adoption of specific technologies.	Offroaders tend to work at different times and in different places from those with who they need to interact. Unique technologies such as SMS (texting) tend to alter the ways in which the participants interact. Typically, this results in more frequent, less formal, sometimes trivial communications, often bypassing organizationally preferred hierarchies.
Decisions about the acquisition of new technologies will vary with the prior knowledge, expertise and characteristics of the decision maker(s).	Offroaders have a high degree of technical self-confidence, and tend to make independent acquisition choices in accordance with their existing knowledge and prejudices.
Technologies adopted in accordance with their intended purpose and structures and with positive intention will tend to achieve the purposes for which they were acquired.	Offroaders tend to make technologies work to achieve the purpose for which it was acquired, even if it takes considerable time and technical skill to achieve this. Regardless of the designers' intended purpose, they also have a knack for finding other uses for the technologies.

As with the general characteristics identified earlier, we don't suggest that these

examples are unique to offroaders. Rather it is the picture of the whole that illustrates

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the relationship between the offroaders and the socio-technical systems that they appropriate.

DISCUSSION

To restate our findings, off roaders are individuals who, at times and in places of their own choosing, work autonomously on tasks that require the application of high level skills. Few of our participants could be identified as a true offroader to the fullest extent of our classification. The extent to which our participants had some or all of the suggested characteristics indicates that being an offroader is not an all or nothing condition, but rather that there are degrees to which the offroader model might be adopted. We challenge the conventional wisdom that autonomy granted to the offroader means loss of control. Rather, we suggest that the autonomy given to offroaders creates the need for new levels of control for management, or in the terminology of AST, new structures must develop. We believe that the zero-sum model of control should be discarded.

To address the obvious "so what?" question, we need to explore, as promised, the implications of this emergent group, for the individuals, the organizations, and their managers. We suggest that the very characteristics by which we have defined offroaders tend to raise issues that must be negotiated carefully by the offroaders themselves, their employers, managers and peers.

Defining the Offroader.

In this section we paint a broadbrushed picture of how fully developed offroader might evolve bases on what we see in our mostly 'pre-offroader' participants.

Offroaders are specialists, with some parallels to soldiers of fortune. They are people who have highly developed skills, "workers who [care] deeply about being the

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best, but [are] not loyal to an organization" (Bell, 1996, 20). This is not to say that they can not be loyal to an employer, but rather that their higher priority is to the achievement of the job at hand. An offroader is one who, like a mercenary, wants to be recognised as having scarce and valuable skills, together with the dedication to task and the technological capability to deliver solutions to problems in circumstances that most others would find difficult.

Those of our participants who are closest to being true offroaders can be seen to have evolved from being conventional office based employees in the first instance, through some limited form of technology enabled mobility or nomadic working situation, towards their present situation with demonstrable and recognised skills, and the autonomous working conditions they now enjoy.

The attributes associated with offroader success include a positive attitude toward work and life, superior aptitude in communication and decision-making, the ability to reliably deliver high quality work , and a need for, and comfort with, high levels of autonomy. Furthermore they must have the technological resources and the skills to to work largely unassisted in whatever work situation they find themselves..

As well as obtaining challenging and rewarding work from clients, we have found that those with aspirations to become an offroader need also to recognise the impact of such a choice on family and friends and recognise that some effort may be required to accommodate their needs and preferences in terms of time and attention. The decisions made by offroaders do have consequences for good or bad, on personal relationships.

Offroaders, must also establish a track record or reputation. Central to the development of a good reputation are trustworthiness, personal knowledge management, and communication skills.

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Essential to the establishment of trust are the ability to grasp the nature of complex problems; the business maturity to make good decisions in the best interests of the client;the wisdom to know when to refer issues back to higher authority; and the work ethic to devote appropriate time and resources to the completion of a client's tasks to a high standard, in a timely manner.

Closely related to trust is the ability to manage knowledge. An intense commitment to the intrinsic worth of the topic in which the offroader practices will lead to the practice of personal knowledge management, which will manifest itself in a great deal of time spent reading and practicing to stay at the forefront of knowledge in that topic. By demonstrating advanced knowledge and skills in combination with a successful track record, the offroader is enhances his or her attractiveness to potential employers.

Finally, communication skills are important, including the personal ability to be persuasive, select and the use of appropriate channels and communication styles for the purpose and circumstances of the subject at issue.

High levels of achievement as an offroader carry with them their own intrinsic reward structure, different in nature to the rewards that come from progression through the hierarchy of conventional bureaucratic organizations. Similarly they each have their own issues and a comparison between the two lifestyle choices is made in Table 2 below.

Table 2 Comparison between Bureaucrat and Offroaders Considerations

Aspects	Bureaucrat	Offroader
Job Security	Stability in normal circumstances	None, but offset by the possibility of multiple employers
Freedom to have multiple employers	Rarely if ever	The possibility exists, though employees may be contractually constrained. Those who are self employed and function as

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		contractors will usually have multiple clients.
Remuneration	Usually linked to progressions through bureaucratic ranks. "Moonlighting" usually not permitted	Premium paid for ability to deliver high quality work in abnormally fast time frames. Possibility to earn parallel streams of income from multiple clients
Autonomy	Limited by position in hierarchy and roles assigned	Unlimited within the context of the task undertaken, and complete in respect of all other matters
Working hours	Normally core business hours, and constantly available to managers, customers, peers and suppliers	Unlimited except for need to communicate with clients and customers when necessary. Commonly working hours considerably in excess of conventional roles
Technology	Usually supplied by the organization in accordance with predefined standards, upgrades usually in accordance with accounting standards. Not usually at the cutting edge.	Offroaders' own choice (and cost), limited only by the need to be able to deliver outputs in the format, and via channels specified by the client. Upgrades to the cutting edge can be made at will, as and when needed and as finance / cash flow permits.
Technical support	Provided by the organization	Self supporting or occasionally outsourced.
Personal growth / technical development	As provided for by the organization	Self driven at own cost in time and money, essential to stay "ahead of the game'. Practitioners of personal knowledge management.
Workplace	As provided by the organization, usually a fully equipped office or work station in a secure environment	Place(s) of own choosing, often a room in or attached to home, but for some, with total mobility
Social	Surrounded by peers and managers, commonly situated in cities adjacent to facilities	Usually isolated in the work place, with social contacts limited to whoever else is in the house. Often in suburbia or remote places, distant from urban facilities. However, social networking tools and instant messaging may meet this need. Given a tendency to cognitive absorption, it is not a problem for all.
Transportation	Daily commuting is common model	If working from home, no commuting required.
Domestic issues	Reasonable expectation of separation between work and private time. Not usually convenient to deal with private matters in work time.	Boundaries between work and life become blurred. Freedom to attend to domestic matters such as child care during working day.

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Issues for Managers of Offroaders.

Using offroaders can be an attractive proposition for employers at a number of levels, not least the expectation of higher performance than is expected through conventional channels. There is considerable evidence that most forms of telework provide a positive return on investment, even in cases where the organization funds the provision of technology (Kowalski & Swanson, 2005; Martinez-Sanchez et al., 2007; Meadows, 2007/2008; Ruth & Chaudhry, 2008). Chunks of high quality work delivered faster than from in-house resources may provide additional incentive to meet the premium that might be required for offroaders. Offset against any such premium is the reduction in office space, technology provision, training costs, technical support costs, and all of the usual overheads associated with conventional employment.

Different approaches are obviously required for the management of offroaders than would be required for in-house employees (Davis & Blass, 2007). It is not the responsibility of the organizational manager, as it would be for an internal employee, to arrange for matters of health and safety, to mentor the offroader, or to ensure ongoing training and upskilling (Golden, 2007; Ruth & Chaudhry, 2008; Vassie, 2000).

By definition, the offroader is out of sight, largely autonomous, not bound to be "at work" during any particular time slot. To a large extent they are accountable only for the delivery of the required outcome at or in advance of the agreed time for the agreed cost. Managers need to relinquish their conventional role of monitoring the

processes of production, and instead take a more macro view of the business, judging and acting on the basis of milestones reached (Mello, 2007; Taskin & Devos, 2005).

In the cases where offroaders fail to perform to the required standard,. consequences should follow? We suggest that the answer depends on what the shortcoming really costs. Minor failings might be penalised by reduced opportunities for further work, or perhaps a reduction in the scale of fees the organization is willing to pay until work is again being delivered to a premium standard. Significant failure would probably result in a permanent severance of the relationship with that particular offroader, and to the greatest extent allowed by contractual arrangements, a reduction or elimination of fees to be paid for the defective work.

Clearly the tools available to the manager are in the nature of blunt instruments, and care is required, at least in new relationships, as to how contracts are drawn up. However, there is no reason to suppose that approaches to performance, rewards and penalties would be different to those used in any outsourcing situation (Morgan, 2007). Ideally, however, relationships with offroaders will be based on trust, and on experience-based expectations of positive outcomes. Characteristically, offroaders enjoy their work. They take pride in their achievements, and seek recognition and reward on the basis of work well done. Careful selection of those who will work in offroader roles should allow managers to minimise time spent watching for, or taking corrective action in respect of, poor quality work. Nevertheless, prudence suggests that managers should avoid "betting the farm" on the performance of any one offroader. Business critical work should be spread across multiple providers, and any single chunk of work that is a show stopper should obviously have a quickly accessible "plan B" which can be invoked at the first hint of trouble. We suggest that the strategic work planning role of manager responsible exclusively for offroaders is

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different in nature from tactical management of the time and attitudes of individuals carried out in more traditional work places.

Managers who retain responsibility for conventional in-house employees must continue to be accountable for all aspects of their employees' work, and to demand accountability for such aspects as timekeeping, skills growth, and attitude. We suggest that managing conventional employees calls for different skills, and a different mindset to that needed for offroaders.

Relationships with peers

Almost by definition, given their typically solitary work habits, their tendencies toward temporal dissociation and focussed immersion, offroaders tend not to be working directly with others, and for them, the question of peer relationships may not arise. However, from the manager's perspective, work given to any teleworker, often including offroaders, may need to interface with work done by other employees who are peers in organizational terms. Often this is more a problem for in-house employees or even other teleworkers who do not have all the perceived privileges or rewards available to the offroader (Golden, 2007).

Evolving Organizations

In the course of our investigations we did not encounter any new organizational forms, or even organizations specifically adapted to maximise the benefits to be had from working with offroaders. Nevertheless we suggest that the emergence of such organizations is highly probable, in much the same way that agile organizations emerged to capture business opportunities.

CONCLUSIONS

While offroaders may look similar to other classes of mobile workers, we believe them to be positively distinguished from most of the more familiar and well established classes of teleworker. In particular we suggest that the task centred motivation is evidence of the kinds of industry and creativity that are desirable in certain roles. An experienced offroader, being intrinsically motivated to acquire the necessary deep knowledge and skills for the job at hand is, in our expectation, capable of taking responsibility for a wider range of complex tasks than most conventional employees. We do not suggest that the offroaders' lifestyle is for everyone, nor even that it is likely to become a common or predominant model. Rather, we identify it as just one of many possible ways in which the nature of work may change. Neither do we predict that this particular emergent phenomenon will result in significant changes for those who work in fixed roles as employees in workgroups within conventional bureaucratic organizations.

We postulate the emergence of offroaders as a small but interesting and important subset of the class of people described as remote or nomadic workers. As with other changes in the nature of work, offroaders carry with them the implication of different styles of management and leadership (Davis & Blass, 2007). We go further, and believe they will most likely be working for new and different kinds of organization, perhaps in small agile company, and in a relationship more akin to that of contractor than employee[2].

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[2] It should be clear that whereas most offroaders will function as contractors, not all contractors can be classified as offroaders. Often, conventional contractors lack the autonomy, the mobility, and the leading edge skills that characterise the offroader. The term "contractor" merely describes the legal and financial mechanism by which a worker is connected to the organization, and produces work in..

Having established the offroader as a new and bonifide category of nomadic worker and having suggested that changes in organization structure may, in some cases, result, we can now return to the question we posed in the introduction, "how have mobility enhancing technologies helped to shape the socio-technical environment that is the offroaders' lifeworld." And what role does AST have in understanding this 'shaping' of this social-technical environment.

Implications for Future Research

Researchers intrigued by the notion of offroaders (whether or not that whimsical appellation sticks), have many avenues for fruitful exploration. Analysis is needed in respect of the economics of the offroaders phenomenon. The real long term costs of working with offroaders versus conventional in-house employees have yet to be established.

From the perspective of AST and particularly with regard to the individual offroader, his/her social world and client organizations, we must ask if AST as it is currently understood able to explain the changing socio-technical system as it appears in the case of offroaders to be emerging. We believe it has provided a useful framework for understanding our participants' narratives and in making some sense of the data.

Furthermore AST does help us formulate a set of questions that are of consequence to organizations, such as: Can organizations restructure to meet changing work practices? Will offroader numbers grow until they instigate organizational restructuring by sheer numbers and force of spirit or will offroaders ultimately be forced to return to the straight and narrow? Will continually changing technology

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accelerate the trend of developing offroaders? Further directions for research, some from an AST perspective, some not, are also suggested as follows:

Social dimensions of the offroaders lifestyle raise some important questions. Domestically, what kind of people are these, as spouses or partners, as parents, as neighbours and as citizens? Given the propensity for offroaders to spend more time working than being with others, there are issues to be explored around their most important relationships. Do apparently normal people become offroaders, or did they always have the personality traits that led to their current work and achievement orientation? In what ways do opportunities or limitations presented in the workplace shape them or encourage them to develop as offroaders?

From the perspective of wider society, does the lack of workplace interaction with peers, managers and subordinates create a new breed of social isolates, or even antisocial people? The possibility exists that the emergence of such an inward looking group might represent a shift in societal values. If offroaders are encountered only as the producers of finite chunks of work, might the lack of supervision of such obviously talented people provide opportunity for, or indeed temptation towards, improper or fraudulent activities?

From a career prospective, it may be that there is room for the emergence of degree programs and other tertiary training that lead to a future as offroaders. What would be the curriculum for any such initiative, and might the mere existence of such a course be incentive for a counter-cultural rebellion? If an attempt is made to bring structure to the preparation for life as an offroader, it seems probable that someone with a divergent view will immediately seek an alternate model.

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Are there, as yet sufficient offroaders to justify regarding them as being worthy of serious scrutiny? To be honest, we don't know yet, but like Voltaire, we find ourselves wondering whether, if they don't exist, will it be necessary to invent them?

Limitations

As we have been at pains to point out, this discussion of the existence and the characteristics of offroaders is based to a large extent on the existence, attributes and behaviours of people whom we judge to be pre-offroaders. Just as a discrepancy in the observed orbit of a distant star can be indicative of the presence of even more distant objects, our assessment on the real nature of offroaders as a class of people is based on the sum of many pointers. We suggest that the best way to confirm or disconfirm our projections is to continue watching for evidence.

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Attitude, aptitude, ability and autonomy: ther emergence of "off-roaders", a special class of nomadic worker

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