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Informal Slack in Organisations: a qualitative analysis of innovative organisations

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Abstract
This paper considers the relationship between organisational slack and innovation from a new perspective. Moving away from the traditional quantitative research approaches, semi-structured interviews and an activity theory framework are used to operationalize a qualitative view of how slack affects the innovation process. This reveals various kinds of formal and informal slack which are considered important by people involved with innovation in a variety of different organisations. In contrast with existing literature's emphasis on money as the purest form of slack, the data presented here suggest that time and other kinds of informal slack have important roles to play in the innovation process.

Introduction
The idea of slack hails from traditional economics. It is used by organisational economists to signify systems that are running inefficiently. In organisational terms, it means that companies that have slack or excess resources (e.g. capital, labour, capacity) are not operating in an optimal way. This is seen as poor management and ways are sought to reduce or eliminate the surplus.

This language of optimisation and efficiency has been inherited by modernist management writing and still pervades some management discourse, although it is not unchallenged. Cheng and Kesner (1997) have grouped proponents of slack into two groups. The first group take an external view and regard excess resources as a 'buffer' which can be drawn on in times of organisational strain or environmental uncertainty in order to aid the long term survival of the company (Chakravarthy, 1982; Hambrick & D'Aveni, 1988; Meyer, 1982; Staber & Sydow, 2002). There is also a group who take an internal view and defend slack in terms of its benefits to issues such as innovation and strategic development. An organisation which is operating at optimal efficiency in order to maximise its short-term gains may be damaging its ability to change, adapt, and be creative in the long-term (Damnapour, 1987; Mohr, 1969; Singh, 1986). The study described here is concerned with identifying the kinds of slack that key personnel in innovating organisations regard as important for their work and as such falls into this second strand of work.

This paper begins by outlining some of the important strands of theoretical and empirical work on organisational slack in the management literature. The methodological traditions in the field are then examined in terms of their implications for the kinds of contributions that have been made in the past and can be made in the future. A research project which makes use of an activity theory framework and a qualitative methodology to study slack in innovating

organisations is described. The results are discussed with respect to resonance and dissonance with previous studies.

Slack and Organisation Theory

In 1963, Cyert and March defined slack as a "supply of uncommitted resources". Organisation theorists found slack "intuitively appealing, since it conveys the notion of a cushion of excess resources available in an organisation that will either solve many organisational problems or facilitate the pursuit of goals outside the realm of those dictated by optimization principles" (Bourgeois, 1981). Since then a literature about the role and effects of slack in organisations has developed, with a number of themes and foci. To begin with, a lot of the writing in this area was theoretical, hypothesising relationships between slack and various organisational outcomes (e.g. Bourgeois, 1981) or conditions (e.g. Sharfman et al, 1998). The empirical work in the field followed more slowly (Greenley & Oktemgil, 1998), partly because of the practical difficulties of both identifying slack and isolating measurable bottom line effects.

Many studies have therefore considered quite straightforward kinds of slack such as "excess resources in budgets, unused capacity, employees' redundant time and excess short term profits" (Bowen, 2002). These studies are quantitative in nature and rely on secondary financial data (e.g. Geiger & Cashen, 2002) or highly structured questionnaires (e.g. Damanpour, 1987).

A number of different studies have attempted to identify theoretically different aspects of slack. Bourgeois & Singh (1983) made the point that different forms of slack within an organisation would take different lengths of time to mobilise. They outline three different forms of slack:

- Available slack consists of resources which "have not yet been assimilated" and could therefore be redeployed within the organisation immediately;
- Recoverable slack is resources which are currently part of the organisational design but could be recovered if the company needed them in times of difficulty;
- Potential slack exists in the firm's environment and could be tapped into in the future.

Singh (1986) has slightly modified this classification, in order to emphasise how easily different forms of slack might be mobilised within the current managerial cycle. He therefore distinguishes unabsorbed slack (corresponding to Bourgeois & Singh's (1983) available slack) and absorbed slack (corresponding to Bourgeois & Singh's (1983) recoverable slack).

Sharfman, Wolf, Chase and Tansik (1986) agree with the importance of these issues but their work has a slightly different emphasis: they differentiate between high and low discretion slack. They believe that slack resources can be defined by how many uses they could be put to, or, looked at another way, the variety of different options they give the management of an organisation. According to this classification, the ultimate high discretion resource is cash.

Slack and Innovation

The question of how organisational slack affects innovation is a well established one (e.g. Damanpour, 1987;1991; Nohria & Gulati, 1996; 1997). Some of this work, like the more general literature, is also concerned with slack as the opposite of efficiency. For example, there is a tranche of work which attacks the effects of downsizing on the ability of companies to innovate (e.g. Fisher & White, 2000; McKinley, Zhao & Rust, 2000). They suggest that short-term efficiency gains have been made at the cost of long-term competitiveness through the loss of adaptability.

Others (e.g. Jensen, 1993) have taken their lead from organisational economics and have argued the opposite case: that slack (in their eyes waste) reduces innovation. They believe that in times of excess resources, management controls are less vigilant and internal politics and personal agendas lead to the sanctioning of "pet projects", which will benefit individuals or particular functions, but not the organisation as a whole.

In their important study, Nohria and Gulati (1996) reconciled these theoretical positions by hypothesising an inverse U-shaped relationship between slack and innovation. They went on to show empirically that slack had a positive relationship with innovation up to a certain point, after which the benefits tailed off, eventually leading to a state where slack did have a negative impact on the organisation's innovation levels (For further work on this issue, see also Geiger & Makri, 2006; Herold, Jayaraman & Narayanswamy, 2006; Tan & Peng, 2012).

A new interest in slack

With the demise of the 1990's boom economy has come a new interest in efficiency and a new set of writers defending the notion of slack in organisations. Some have attempted to complexify the approaches taken to defining and measuring slack in companies. Some of this is in the traditional vein, such as Geiger & Cashen's (2002) study, which essentially seeks to update Nohria & Gulati's (1996, 1997) work. Others are widening the scope of the concept to embrace new areas. Bowen (2002) for example has implemented Bourgeois' (1981) classic framework in the field of environmental management.

Perhaps the most interesting development is that some writers are now moving away from the established notions of slack as physical and tangible resources altogether. Instead this work uses the notion of slack in a much more casual way, or as a metaphor to help understanding of how organisations change or learn. Much of this work regards slack as providing necessary resources for change (Cheng & Kesner, 1997) and is therefore particularly relevant to this study.

Lawson, for example (2001) updates the downsizing debate by pointing out that adaptability and learning in organisations need slack and believes that companies ought actively to design in slack. Slack is used in a similar way in Davenport & Prusak's (2000) Knowledge Management text. They assert that, "Some companies have driven out the 'slack' necessary...to function well"

(p39). In his recent book aimed at management practitioners, Tom DeMarco (2002) eloquently argues the case for slack from a common-sense point of view. He believes that without slack, in the form of what he calls the organisational white space, organisations cannot change. Organisations that are designed to be highly efficient at one set of operations or processes are excellent at running day-to-day. However, precisely because they are efficient, the people who operate within them never have time to consider the future. Worse, like a perfectly honed production line that produces perfect car after perfect car, it becomes obsolete if the public's definition of perfect (or even their demand for cars) changes. They cannot change because change requires excess resources and completely new thinking, and these organisations have vilified both.

Methodological tradition, limitations and developments

As has been discussed above, the chief concerns of writers in this field so far have been to a) theorise and classify different forms or effects of slack and/or b) measure different forms or effects of slack. The research questions that have been asked have been defined, and to some extent limited by quantitative methodologies (Marino & Lange, 1983). What can be proved or disproved by this tradition depends on two things: which hypotheses can be conceived and how well the instruments designed to test these hypotheses can approximate the essence of slack. Kmetz (1980) notes that "while it is simple to conceptualise...slack may be very difficult, if not impossible to measure in objective terms". In a similar vein, Lant (1985) believes that "anyone in an organisation has 'felt' slack" although quantitative researchers have found it difficult to work with, "both conceptually and operationally".

In order to move the field forward and research the less concrete forms of slack suggested by recent writers, a different empirical approach and insights from another tradition of management research will be needed. Qualitative research in this area has been very scarce. Bowen (2002) and Thompson and Millar (2001) both make use of in-depth interviews to identify levels of slack in organisations. However, both studies are using qualitative methods to operationalize a largely quantitative, resource-bound definition of slack.

Kmetz (1980) on the other hand advocates research designs which make use of 'perceptual' measures of slack. He believes that measuring slack resources objectively is only one way of studying slack as a phenomenon. In his study he asks managers about their perceptions of slack in their organisations. Despite this openly subjective approach, Kmetz uses structured questionnaires with a series of closed questions measured on Likert scales. In a mirror image to Bowen (2002) and Thompson and Millar (2001) he uses quantitative techniques to pursue his qualitative notion of slack.

The work described here uses a qualitative method and methodology to research qualitative forms of slack. The study focuses on the relationship between organisational slack and innovation, using qualitative interviews and employing Activity Theory as a theoretical framework. This approach was successful because despite the complexity of isolating and measuring slack using quantitative techniques, managers can easily grasp and discuss the

implications of the concept for their organisations. By moving away from the question of how to measure slack, it has been possible to consider a wider range of kinds of organisational slack, discuss less tangible forms of slack and think about how slack is manifested in, and supported by, organisational culture.

In order to surface as many ideas about slack as possible and not limit interviewees by researcher pre-understanding (Gummesson, 1991) participants were asked to discuss innovation in their organisations rather than slack. The aim of this approach is to give respondents free reign to discuss whatever they feel is important for innovation and learning, and they may raise a wider range of issues than they would if asked about a pre-selected list of concepts. Therefore, by employing a grounded approach it is possible that this study will present the opportunity to both cross-validate and extend the concepts currently debated in the literature.

Method

This study draws on data sourced from six different UK companies through a series of around 30 semi-structured interviews. The companies range from start-ups through SMEs to large, well-established and international players.

Case Companies	
Spirits International	An international company incorporating many distilleries
Specialist Metals	A company producing bespoke orders and small batches of metal components
Application Ltd	A small, family run software house with a few established products
Recover	A not-for-profit furniture recycling venture aimed at both providing low-income households with start-up kits for their first homes and giving work to people with long-term mental illness
Medires	A university spin-off company founded by a medic and two scientists in its early stages of formation
High Tech	A company making electro-optical products for the defence industry

Figure 1. Brief descriptions of the case companies

All of these companies are committed to both product and process innovation and therefore see themselves as competing through their ability to innovate

and/or learn. They have been selected through a process of theoretical sampling (Gummesson, 1991) by selecting cases which might represent 'extreme' positions. Thus the sample includes representatives of start-up and spin-out companies, companies with a highly developed innovation management structure, and companies operating within ultra-high technology environments. See Figure 1 for details of the companies involved in the research. All the company names have been changed.

Theoretical Framework

In order to analyse the findings from this study, Activity Theory has been used as the theoretical framework. Activity Theory is based on the work of Russian psychologists Vygotsky (1978; 1986) and Leont'ev (1978; 1981) and has been used in many fields. The form that the analysis presented here is based upon has been adapted from this work by Engestrom (1987; 1990) and centres on the relationships shown in the diagram in Figure 2.

Activity theory concentrates on three things and how they relate to each other:
*   how a group or individual conceives of themselves;
*   what it is they see themselves as doing, (the object of their activity) and;
*   who they see themselves as doing it with (their community).
This is represented by the inner triangle on Figure 2.

These relationships are thought to be complexified in two ways. Firstly each of the relationships are mediated by other factors. So for example, social rules mediate between individuals and their communities of practice. These mediators are represented on the diagram in Figure 2 by the outer triangle.
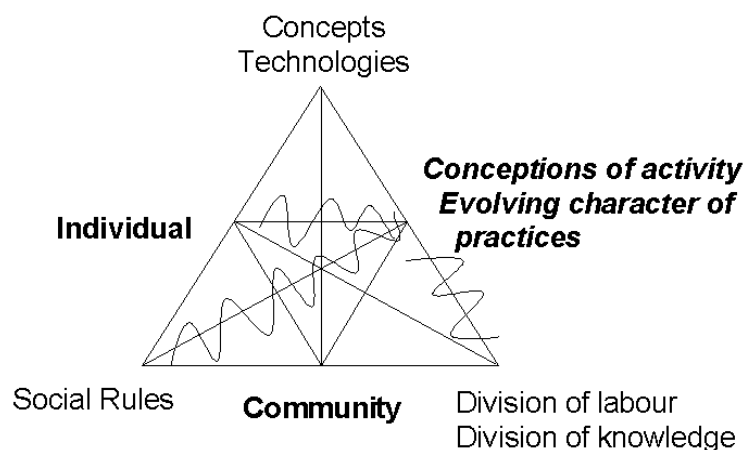

Figure 2. An activity system diagram

Secondly, activity theory believes that activities do not proceed in a smooth, uninterrupted fashion. Rather they see activity systems as 'disturbance producing' entities which are full of contradictions, mistakes and problems.

These are termed tensions and they are represented on the activity system diagram by the wavy lines.

For a full explanation of the origins of activity theory in organisation studies, see Blackler, Crump & McDonald (2000). For a more detailed discussion of these concepts and an example of them being used in practice, see Blackler, Crump & McDonald (1999).

Results and Analysis

The interview transcripts were analysed by searching for interviewees' descriptions of slack and their effects on innovation and learning processes. These data were developed into categories as patterns of common themes and concerns were established. What follows is a presentation of these findings interspersed with an activity theory analysis.

An analysis of the formal, or how slack is being 'built in'

At a very general level of analysis it is possible to discern a number of ways in which organisations have tried to build formal slack into their working practices. Not all the companies that were included in the study have made explicit attempts to foster slack in order to promote innovation or learning in their organisations. The companies that have deliberately sought to make space in their organisations have tended to do it structurally, or for specific, unusual tasks.

Slack can be provided structurally by separating out a section of the company and making it responsible for innovation. Thus the 'normal', day-to-day or operational concerns are formally removed from a group or individual in order for them to concentrate on the long-term, creative or strategic. This is probably the most common way for a company to resource slack for innovation and learning.

One of the most striking examples of structural slack in this study was the designation of a full-time Innovation Manager at senior management level in Spirits International. This role has been created to give support to other departments in their attempts to think differently about what they are doing and how they are doing it. Early work for the Innovation Manager concentrated on using creative problem solving techniques with established work teams. He sees his role as a facilitator and as a promoter of innovation within the firm. A lot of his work is about raising awareness about what innovation means. Interestingly, when I spoke with him, a year after his post had been created and again a year later he was still trying to relinquish responsibilities from his previous role in the company and had lingering operational commitments due to staff shortages. This shows that even within a healthy multi-national that has innovation explicitly written into its goals it can be hard to ignore the operational even when your job description is 100% strategic.

Another large-scale example of a structural form of slack was found in High Tech's approach to some of its new product development. For the development of two of its most important new products, one a new generation

of a core product and the other an important new technology and market, High Tech set up two pilot teams. The teams were multidisciplinary, co-located, staffed by the cream of the design and manufacturing engineers and generously funded. Their intention was not only to generate these important new products, but also to pilot new ways of working for the company.

Companies sometimes resource innovation or learning by dedicating specific time for these activities. Once a year the husband and wife team that are the driving force behind Application Ltd take themselves away from their business for 24 hours. They book into a hotel in the country where they have dinner and stay over. The next day they spend a full working day in one of the hotel's conference rooms, completely out of contact with both staff and customers. They use this time to work on their strategy. They think about what they have done in the last year, and make decisions about their priorities for the next one. They gaze out of the window. They ask some very difficult questions. This is protected, creative, future-oriented time. This is an example of a common kind of slack used to support strategy-making efforts.

In all of these cases, the company has enlarged its object of activity to include an explicit innovation goal by sectioning off part of the company, either physically or temporally, to concentrate on innovation. For the group or individuals involved, it certainly means a new (or in most cases actually an added) object of activity. Making these changes has also involved a change in the concepts and technologies used: in High Tech co-location, for example, in Spirits International, the idea of an Innovation Manager, and new, creative problem solving techniques.

From the point of view of the company as a whole however, this is an example of increasing slack through manipulation of the division of labour and knowledge. Little has changed apart from a superficial alteration of the concepts. The transformation has only been a reality for either a small sub-set of the organisation, or for a short period of time. This might have an impact on particular innovations, but the presence of a pilot team or an away day only adds to the message that this is unusual behaviour and does not promote organisational learning.

An analysis of the informal
There are also a number of informal, less deliberate kinds of slack at work in these organisations.

Time
At the end of each interview, interviewees were asked what they would do first to encourage innovation in their organisation if they were suddenly omnipotent. By far the most common answer was time. But respondents often qualified this – they didn't want more of the same kind of time, they wanted more unstructured time that did not have specific outputs or procedures attached to it. The managing director of Application Ltd put this very well when she yearned for, "time to play…time to gaze out the window…time to let things settle…time to read and react". This is echoed by one of Medires' founders who had the idea to pursue the notion that their primary product development

work is based on whilst on sabbatical in Australia where he, "spent some time under [his] duvet". These very honest and personal accounts of time are not really what you might expect from ambitious entrepreneurs.

When I started to ask the managing director of Application Ltd to tell me about innovations she began to describe a whole series of procedural changes that had been made to the business in order to make it operate more efficiently. However as she went on to explain, these efficiencies were not ends in themselves, but means by which she could protect more 'real' time in her week to do more important, strategic tasks.

On the face of it a request for more time could be thought of in terms of an injection of traditional slack. However this would not really capture the nature of the requests made in the interviews. What they imply is that there is something important about the nature of that extra time. The reason that the first two accounts of time might seem surprising is because they challenge existing notions of work. What the respondents are actually asking for is quite a fundamental alteration of current frameworks of social rules to incorporate gazing out the window and thinking under the duvet as legitimate forms of work for knowledge workers. Equally it implies a change in the practices that must be declared as objects of activity. This is a very profound and difficult change to affect.

Difficulty, Problems and Failures
One of the other things found in many of the interviews is a sense of the difficulty of achieving innovation. The managing director of Recover talks of the impossibility of working with different bits of the council, of trying to balance the conflicting demands of various funding bodies and of dragging people together who have different ways of working to try to focus them on her agenda. She often finds herself working outside of, or even despite, the established system. She describes many iterations of trial and error until she finally succeeds. The Innovation Manager in Spirits International goes further by using the image of a globe spinning to represent the business as it is and depicting himself as trying to oppose that path and make it revolve the other way. He says that if innovation is going to become widespread, "we need to make some space, we need to push". One founder of Medires noted that when we write research up in academic journals, we write a sanitised, linear story in which, "people don't talk about failure or the mess of research".

These notions of difficulty are not necessarily problematic for the respondents. There is a sense of challenge and achievement in these stories. The Analysis Manager in Spirits International told a story about someone making a mistake in a straightforward test procedure and getting an unexpected result. They couldn't explain what they found but realised that if they could repeat the result then they could test for a whole range of alcohol properties in a new way. He said, "we had an unknown and that's meat and drink to the guys in here". The failure is seen as "serendipity", an opportunity to solve a problem and to find a new way of doing things at the same time.

The company environments that they work in do not always officially support these kinds of view of innovation however. A senior manufacturing engineer in High Tech tells me that once you have settled on direction for a project and a design process is underway, "the last thing you want is a good idea" because of the timescale implications it will have if the project is to be re-worked. Clearly he is working in an environment with little or no slack and little regard for innovation and learning. In the past this has been a problem for Spirits International where, "people almost had to do things underground".

The question of how systems reinforce their own norms and how legitimate it is within an organisation to challenge, work round, or ignore those norms is one of the basic questions of organisational learning and has been written about widely (see e.g. Daft & Weick, 1984; Orr, 1990). However an activity theory perspective would emphasise the tensions that arise between the individual and their object of activity when the means to reaching their aims may not be seen as legitimate within their working environment. The social rules within the activity system must be adapted to allow failure, iteration and the difficulty of forcing existing systems into new ways of working to be recognised not as anti-objects of activity, but as positive sub-objects of activity.

Expertise
Another issue that featured in many of the interviews for this study was expertise. This is not so much in the sense of a company employing an individual who is highly qualified, but rather in terms of the experience of others and how it is possible to have access to that experience so that you can engage with it, or have it engage with your problems. One of the founders of Medires spoke with great satisfaction about how the formalisation of the company had brought him real and direct access to scientists who could answer his questions and realise his ideas in a concrete and practical way. They all worked within the same university, but without the formal link of the company structure, he believes he would never have dug them out of their departments or got them to take his problems seriously.

Sadly the freedom to meet and talk directly with both academics and industrial scientists was something no longer afforded to the researchers in Specialist Metals. This fact was lamented by their site manager who used to travel widely both to meet customers and to speak at conferences. The CEO however did still see the importance of this sort of exchange. He told me that he devoted some of his time to attending meetings of the industry association and other gatherings of senior industry figures. It was his firm belief that nothing could compare with the way you understood issues if they were presented to you first hand and discussed amongst peers. This gave him invaluable insight into the future of both markets and technologies relevant to his company.

One of the aspects of his co-founders' expertise that one respondent at Medires particularly valued was that it was quite different from his own. This sentiment was echoed by the MD of Recover who often sought out views other than her own, testing her ideas and plans with many different kinds of

people whose expertise could help shape them. Her board was deliberately made up of people who represented a wide range of different knowledge bases, experience and networks of contacts. She believes that experience does not necessarily bring any greater chance of having seen a problem before and knowing how to solve it, but rather that it brings confidence that a solution will be found. The Analysis Manager in Spirits International also enjoyed this kind of confidence. He believed that the skills and experience of his analysts gave him access to an important kind of flexibility that can solve any problem and question the status quo. The same attitude to problems and confidence in in-house expertise was found in Specialist Metals. Application Ltd cited their Technical Director's programming skills and experience as one of their most important assets, giving them crucial flexibility in an extremely fast-moving and competitive market.

This is an important kind of slack. It feels like insurance. It can be used reactively to solve problems and proactively to make new connections between fields or new relationships. Whether it comes from bringing together people from different backgrounds or specialisms as in Medires, or having had a number of careers like the MD of Recover, or simply working in many different parts of the same industry like the Technical Director of Application Ltd, this sort of expertise gives an organisation real potential for innovation.

In terms of the activity system, these groups or individuals seem to have an extended sense of their community of practice. Their object of activity includes a long-term or wide-frame view. Their social rules include a respect for the contribution of other disciplines or individuals. This has a lot in common with the ideas of Boland & Tenkasi (1995) who talked about experts 'perspective making' within their own disciplines and 'perspective taking' across the boundaries of other disciplines. Above all the kind of expertise described by these respondents means that people become extremely adept at managing the tensions in their systems. They don't try to patch them up when they are broken but have the confidence to reconfigure them, or to see them for what they are and learn from them. Resonance can also be found with other organisational learning literature: These skills are reminiscent of the 'heedfulness' described by Weick & Roberts (1993) in their study of workers co-operating on an aircraft carrier.

Discussion

The first, more formal kinds of slack found in the companies that were studied have a lot of similarities to the kinds of concepts reported in the literature reviewed above related to slack and innovation. These kinds of structural alterations that companies have made in order to provide slack sit comfortably with the established notion of slack as resources. They involve resources that can be measured and tracked over time. These resources have a physical or self evident form: Management time, dedicated hardware, money for training, space on the mezzanine. However an activity theory analysis highlights that these changes are mainly superficial, being restricted to the outer triangle of the activity system. Further, the mediators that these structural changes affect tend to be those that can to a degree be directly influenced by management, such as the divisions of labour and the technologies and concepts.

In the second part of the analysis, another range of factors was considered. These issues are more informal and less tangible forms of slack and they are not often discussed in the innovation and slack literature (Bueno, Aragon, Paz Salmador & Garcia, 2010). They have a lot more resonance with the organisational learning or culture literatures. On the face of it, there are ways to link these issues with the extant slack literature. Excess managerial or worker time for example is certainly one of the factors considered by organisation theorists as slack. You could argue that expertise is just a form of human resource combined with an element of excess capacity. However this would be to ignore the qualities of the time described by the respondents, and the dynamic flexibility of the expertise that was valued. These concepts go beyond what is accounted for in the quantitative models that measure slack in conventional studies.

Introducing many of these informal forms of slack relies on changes both in the social rules of an organisation and in the objects of activity. These sorts of changes are less straightforward to make as they both have elements that can be only be indirectly controlled by management. Making this sort of change is akin to making meaningful changes in organisational culture. They are neither easy nor comfortable changes to make. Activity theory can help show why this is the case. Any changes that require significant adjustment to objects of activity mean altering the inner triangle of the activity system. Changing one part of this will cause tensions in both an individual's conceptions of themselves and which others they see as part of their community of practice. This reconceptualization is a profound and difficult one.

Perhaps the most striking difference between what is written about slack and what the respondents in this study were concerned about is their respective attitudes to money and time. In the organisation theory literature money is everywhere. It is considered to be the ultimate high discretion slack (Sharfman et al, 1986), it is the unit of measure of slack in organisations (Chakravarthy, 1982) which all other resource forms can be translated into (Bourgeois, 1981), and it is the definition of success.

By sharp contrast the forms of slack discussed and valued by respondents in this study are not concerned with money. What they value is time. This is

evident in both the formal, structured types of slack they describe and the more informal kinds.

The fact that time is an important factor in both formal and informal slack gives rise to two different insights. The first, more straightforward point is that formal and informal slack do not make separate contributions to innovation, but that they are interdependent. The away day is a good example of this because although it comes about through the deliberate input of formal slack (restructuring the working week to include time apportioned to creative or strategic tasks) it could also provide elements of informal slack (time to gaze out the window). In this way managers are not directly providing informal slack, but if the social rules, concepts, technologies and divisions of labour within the company form an appropriate backdrop, formal slack such as away days might also provide opportunities for the kind of reflection described by the respondents in this study. In other words, it may be possible for organisations to effect (or begin to develop) informal slack through the manipulation of formal slack. However this is not an automatic relationship: it is perfectly possible to imagine an away day which is productive in that it produces a new strategy for a department but does not furnish its participants with an unstructured and supportive environment for creative reflection. Informal slack depends very much on organisational culture.

The other insight offered by these data offers a much greater challenge to the existing literature. What the respondents of this study are saying is that they regard time (and not money) as the ultimate high discretion slack. If this is true then it is possible to revisit Bourgeois and Singh's (1983) classes of slack and reconfigure it in terms of time. Available slack in monetary terms might be excess profits, but in terms of time would be uncommitted time. Recoverable slack might be things like the Innovation Manager, whose salary is already accounted for in the organisation, but might be redeployed to support a difficult phase in a product development process (Ruiz-Moreno, García-Morales & Llorens-Montes, 2008). The expertise outlined above can be seen to have elements both of recoverable slack (problem solving skills) and potential slack (the ability to call on a network of contacts in the wider environment). The key comparisons are summarised in Figure 3.

Clearly money and time are related. It is possible to argue that other studies are simply using money as a proxy for time, but this would be to miss the point: the argument here is not only about the amount of time, but also about the qualities of that time. It may be that many studies are concentrating on money simply because it is tangible and because they aim to *measure* slack. Their goal is to simplify and model reality, and they use money as their measuring stick because it is a ubiquitous and 'objective' unit of value. The data presented here highlight the difference between what is privileged by the existing literature and what is sought by the scientists and managers involved with innovation in real organisations.

Conclusion
This paper draws on ideas from a wide range of work about slack. Its qualitative approach has allowed a wider range of concepts to be investigated

from the perspective of the organisations themselves. The use of Activity Theory has helped to analyse the implications of different kinds of slack being introduced within organisations. It has both complexified the notion of organisational slack and moved the analysis of it to a deeper level. Less tangible forms of slack have not been considered in the literature explicitly. These are important concepts as they may underpin other forms of slack and determine their effectiveness for learning and innovation. Informal slack is difficult to study and very difficult to design into organisations. Activity theory can help as it provides a sophisticated framework to investigate the organisation's cultural architecture and can articulate the dynamic nature of the tensions that these changes can bring.

Most importantly this study has challenged the implicit privileging of money as the most crucial form of slack. Moving the stand point of the researcher from 'outside looking in' via publicly reported data to 'inside looking in' through the beliefs and experiences of key personnel involved in innovation has given a very different picture of how slack works in organisations. In particular it shows the importance of informal slack. This work does not negate other studies but expands them and provides an additional view.

The data presented here suggest that unstructured, protected time is the kind of slack (formal or informal) that is most highly valued in the field. Informal slack is also afforded by experienced individuals who are part of extensive professional networks both inside and outside the organisation. Finally, informal slack is both provided and supported through the culture of the organisation in terms of attitudes to problems, set backs, failure and the messy reality of innovation. What is needed now is more qualitative and mixed method studies to enrich our understanding of informal slack and particularly how it can be managed.

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Concept	Definition	Existing Literature	Respondents
High discretion slack (Sharfman et al, 1998)	Resources which can either be used in a wide variety of situations or give managers a number of options	**Cash**, unskilled labour	**Time**, experienced individuals
Available slack (Bourgeois & Singh, 1983)	Resources which have not yet been assimilated and could therefore be redeployed immediately	Cash and marketable securities	**Informal slack:** Unstructured, uncommitted time
Recoverable slack (Bourgeois & Singh, 1983)	Resources which are currently part of the organisational design but could be recovered in times of difficulty	Accounts receivable and overheads	**Informal slack:** Problem solving skills and attitudes, Expertise **Formal Slack:** Innovation manager, Away days, Pilot teams
Potential slack (Bourgeois & Singh, 1983)	Exists in the firm's environment and could be tapped into in the future	Capital raising potential represented by changes in stock price	**Informal slack:** Experts' external networks

Figure 3: Rethinking central concepts in the slack literature in terms of time