Accounting for time: managing time in project-based teamworking

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Abstract

In this paper, we investigate time management in project based teamworking, a form of work that is seen as becoming a significant feature in many organisations, and consider its implications for accounting control. The analysis is based on a perspective on time in organisations which, drawing on time-geography, considers the management of time in project-based teamworking organisations as part of the organisational actors’ ongoing active production and reproduction of their social context. We grounded this perspective in a longitudinal ethnographic study of project-based teamworking, which examined the development process of computer-based management information systems for top executives in a large multinational company. The extended time-geography perspective presented in this paper offers a theoretical framework within which various organisational practices may be explained and provides a better understanding of the social dynamics of time management than is provided by traditional accounting approaches. The implications of this perspective for the use of accounting practices in the management of time in project-based teamworking are discussed. © 2001 Elsevier Science Ltd. All rights reserved.

1. Introduction

Although time has recently begun to be recognised as an important dimension in the study of accounting practices in organisations (Ezzamel & Robson, 1995; Hopwood, 1989; Loft, 1990) research on the topic has been predominantly conceptual, with limited empirical grounding. Moreover, as Ezzamel and Robson argue, the majority of accounting research remains based on a narrow conception of time and adopts a similarly restricted appreciation of organisational work practices (Roberts & Scapens, 1985).

Drawing on social theories, especially on the work of time-geographers (Carlstein, 1982) as developed by Giddens (1987), this paper seeks to outline a perspective on time in accounting, which considers the management of time in organisations as part of the organisational actors’ ongoing active production and reproduction of their social context through their work practices. This paper grounds this perspective in an empirical study of project-based teamworking, drawing on data gathered through participant observation of the development process of a computer-based management information system for top executives in a large multinational company.

Project-based teamworking, in which relatively autonomous staff collaborate in the performance of complex tasks requiring specialised knowledge and expertise, may be argued to provide a particularly
important site for the study of time management for a number of reasons. It is widely argued (e.g. Hammer, 1997) that this form of work is becoming a significant feature throughout many organisations. Moreover it is characteristic of organisations, such as professional service organisations, which are seen as forming an increasingly important sector of modern (post)-industrialised economies (Mohrman, Cohen & Mohrman, 1995). It is also a form of working that appears to be poorly served by traditional time management techniques, as evidence of the frequent late delivery problems in the software industry (Sauer, 1993), where this form of work is widespread. Finally, from an accountancy perspective it is characteristic of professional work, the control of which, Abernethy and Stoecker (1995) argue, has received relatively little attention in the accounting literature.

This paper suggests that the approaches to time management on which traditional accounting has been based provide an inadequate understanding of the organisation of time in project-based teamworking. Thus, rather than work following an orderly, managerially-imposed timetable comprising discrete activities with predictable durations and interactions, it may be seen to be socially-organised and characterised by both significant elements of routine and unexpected interruptions and improvisation. The management of time in project-based teamworking organisations may be understood, therefore, as part of the organisational actors’ ongoing active production and reproduction of their social context.

While recent developments in computer-based management information systems might appear to offer a means of exerting greater control over the organisation of such work, in practice this would seem unlikely to be achieved. This is not just because it would seem difficult to standardise some important aspects of project work, but also because teamworking requires the coordination of relatively independent individuals with complex complementary skill sets. Moreover, these individuals are likely to be aware of the conditions of their own surveillance and may be technically capable of subverting the control systems to which they are subject.

The next part of this paper contrasts the perspectives on time in traditional accounting with those offered by extended time-geography. In the following section the research approach adopted in this study is outlined and the research setting described. A detailed description of organisational work practices observed during a 7-day period is then presented to illustrate the way in which time was experienced and managed in the information system development team. This case description is then analysed using concepts from extended time-geography as a sensitising device. The discussion section draws together our theoretical interpretations to illustrate some significant features of time management in the case, focusing on issues of routines, control, and the role of accounting. This also serves to highlight a number of limitations of the time-geography perspective. The rich insights gained from this study are finally used to outline some implications for accounting research and practice.

1.1. Time in accounting

Time in accounting is predominantly conceptualised in terms of measurable clock-time (Ezzamel & Robson, 1995; Loft, 1990) which enables precise timing of activities and thereby their coordination across a particular place. Thompson (1967) has argued that this clock-time is an important feature of capitalism, necessary for the control of the labour process. Through standards, budgets and plans, accounting therefore seeks to mobilise cost and effort in temporal terms and to manage time as a scarce resource. In this way accounting is seen as providing a neutral, objective and calculable domain that would allow organisations to be governed (Miller & O’Leary, 1993).

In order to enable management control, accounting practices typically treat organisational work as decomposable into discrete activities, the duration and interactions of which are capable of precise definition and measurement, and which may therefore be reliably estimated. The majority of these activities are also seen as being organised into orderly processes, the discrete phases of which are considered to follow a regular sequence. The management accounting task is thus to devise an optimal schedule and then to allocate the activities to suitably qualified staff and monitor their completion against the predicted time-budget.
and report variances. These variances may often be linked to corporate reward schemes. Such approaches are therefore typically mechanistic, seeing the organisational work process as essentially programmable and amenable to the precepts of Scientific Management in which execution and control of work are separated.

The mechanistic model adopted applies not just to work, but also to the organisations in which it takes place. Thus it is typically assumed that the performance of activities follows some masterplan orchestrated by the senior levels in the organisational hierarchy and that tight control of those lower in the hierarchy responsible for carrying it out is both necessary and effective.

Although many accounting practitioners would no doubt acknowledge the limitations of the mechanistic model, and accept that it is based on an unduly simplistic view, it nevertheless underpins the main accounting techniques used for time management. Project management techniques, such as PERT for example, are based on critical path methods which assume that work practices can be decomposed into discrete tasks which can be combined in consistent and standardised ways. Even if these techniques are treated primarily as a necessary fiction to present an image of control [as Sapolsky (1972) suggests was always the case], their instantiation in manuals and software packages which permit the detailed elaboration of this illusion, provides a powerful incentive for their adoption. The pursuit of alternative approaches, which might undermine the claims of these techniques, is thereby also discouraged.

If accounting is to develop better techniques for organisational time management, then this would seem to require a more nuanced understanding of how time is actually organised in work practices. One potential source of such understanding is social theory, and in particular the work of time geographers. As this work is likely to be unfamiliar to accounting researchers, we will give a brief introduction to its main concepts.

1.2. Time in social theory

Social geographers (e.g. Carlstein, 1982; Hägerstrand, 1975) have developed a time-geography approach to analyse human activities across time-space. This approach looks at the physical environment in which human activities are carried on, tracing how this influences (and is influenced by) the daily movements or paths of human agents and groups. Time-geography seeks to analyse human activities across time and space. It gives particular attention to the source of constraints over human activities deriving from the physical properties of bodies and their environment. Three main types of constraints are identified (Carlstein, 1982). “Capability” constraints are limits set by the physical constitution of individuals, such as the indivisibility of the body which means that people cannot be in two places at once; “coupling” constraints are limits set by the ability of people (and resources) to come together in particular places to interact with one another; and “authority” constraints relate to the limits set by social power relationships, such as the permission to perform certain activities.

The typical patterns of movements of individuals can be represented as the repetition of routine activities across days or longer spans of time-space, which are subject to the above constraints. In seeking to analyse human activities across time and space and the routinised character of daily life, time-geographers use dynamic “time-space maps” to represent these daily paths and the overall ‘boundaries’ limiting behaviour across time-space provided by the above constraints.

The conduct of an individual’s day-to-day activities often leads to successive association with certain locales and individuals. The locales or settings of interactions will be spatially bounded, leading to a “regionalisation” of time-space. The patterns of interactions within locales are also limited by the overall organisation of constraints. Carlstein (1982) illustrates this using a concept of “packing” of “bundles” of time-consuming activities of different sizes and durations into a group time-budget.

Time-consuming activities are analysed in terms of the time demands for human activities and their distribution within the population. Demands may arise from an individual’s own requirements, for example to meet physiological needs or personal aspirations, or from other individuals or institutions. As human social activities are often recursive, much of these requirements are of a fairly routine
nature. The timing of activities is also facilitated by the order in social systems, for example, expectations of who is supposed to do what, and what should happen in certain locations.

Human agents, however, are seen not merely as mobile bodies along the time–space trajectories of their daily activities but as intentional beings with purposes, referred to as “projects”, which they seek to realise through time-demanding activities. Given these constraints, only a limited number of time-consuming activities, however, can be “packed” into a given temporal period.

Individuals’ time availability to satisfy time requirements varies because of the different ability and capability constraints attached to each individual that prevents them from being treated as equivalent and interchangeable. The temporal location of time requirements and time availability also gives rise to allocation problems, as it is usually difficult for individuals to be engaged in more than one activity at a time. Where time requirements exceed the resources available at a particular location, some activities will not be able to be fulfilled. Time not subject to any specific requirements, however, will be automatically filled with some kind of activity, because it cannot be stored. The population time-budget is therefore fully packed with activities.

These ideas have been extended by Giddens (1987) who discusses how individuals carry out the recurrent activities of their day-to-day lives in particular spatial settings (contexts), and through this repetition, sustain the structure of social life. Time is thus seen to be constitutive of social activity. Additionally, Giddens proposes that individuals should be seen as knowledgeable social actors, who actively create (and sustain) the social rules and resources by which they are influenced. Thus the management of time in organisations may be considered not as the product of the activities of independent and autonomous agents, or as the working out of an externally-imposed masterplan subject to immutable constraints, but as part of the actors’ ongoing active production and reproduction of their social context.

Giddens (1984) also criticises time-geography for its focus on the constraining properties of the body, in its movement through time–space, which overlooks the role of constraints in enabling actions. Thus the physical capabilities of the body, for example, are as much sources of enablement as constraints on human action. This emphasis on constraints is linked by Giddens to a culturally-specific, commodified view of time as a scarce resource rather than as the medium of ongoing social action. The theory of power adopted by time geography is similarly seen to be inadequate. Thus Giddens argues that the “authority constraints” are vaguely formulated and conceive power only as a source of limitations upon action, rather than as exhibiting a dialectic of control in which the exercise of power relies upon the acquiescence of subordinates.

Time geography, as extended by Giddens, therefore provides an alternative way of examining the temporal and spatial organisation of work to that provided in traditional accounting analyses. More specifically, it provides a framework for the analysis of: time-consuming activities in work practices; the potential time resources available to meet these demands; and the actual performance of these activities, taking account of the constraints arising from the physical properties of the body and the environment in the context of the ongoing, often routinised, production and reproduction of social practices.

In introducing an explicit temporal, and spatial, dimension, this extended time-geography perspective thus complements other approaches to the analysis of work practices. Hence, for example, the control of work organisation is seen as a process of social interaction operating over time and space which forms part of larger patterns of temporally and spatially reproduced social practices. In drawing attention to the situated and routinised nature of these practices, this extended perspective also moves away from a purely commodified treatment of time (time as an “objective” resource) to an understanding of its role in the constitution of social institutions, including the management of time itself.

2. Research setting and approach

In order to illustrate the contributions of this extended time geography approach to the understanding of time in accounting, we will consider an ethnographic study of the development of a computer-based management information system
in LMC (a pseudonym), a Large Manufacturing Company. The study is based on intensive overt participant observation by one of the authors who worked as a full-time member of a team responsible for the development of the executive information system at LMC for 6 months during 1990–1991. The focus of this study was the everyday practices of the team members. During this period a daily log was kept of the activities of the team members (including the researcher’s) along with observations and notes of team meetings and discussions.

The field notes were written up into a detailed case description which was used to develop an understanding of the processes observed at LMC (Pettigrew, 1990; Strauss & Corbin, 1990). In the current analysis, extended time-geography was adopted as an initial sensitising device (cf. Walsham, 1993), providing us with concepts to structure our interpretation. At the same time the analysis seeks to go beyond a simple “application” of the theory, and to remain reflexive about its role in shaping our perceptions and its limitations in understanding the processes observed at LMC.

This approach to qualitative data collection and the writing of the description is characteristic of organisational ethnographies such as Van Maanen (1979, 1988) and Kunda (1992) and has also increasingly been used in accounting research (Covaleski & Dirsmith, 1990; Power, 1991) to develop what Geertz (1973) terms “thick descriptions” of the research context. The aim of such studies is not to produce information suitable for conventional statistical analyses and hypothesis testing but to develop understanding of the complex social processes of accounting practices. The validity of such research depends on gaining sufficient access to the knowledge and meanings of actors to enable a plausible, credible, and relevant representation of their interpretations to be generated (Altheide & Johnson, 1994).

3. Case description

3.1. Company background

LMC Europe comprises the European businesses of LMC, which is a volume manufacturer of high-value consumer products. It has a multi-billion-dollar turnover and employs over 100,000 staff throughout Europe. The Headquarters (HQ) of LMC Europe, the site under study, formally coordinates the strategic planning and provides advisory specialist support services, including computing (Management Information Systems), for its national companies. LMC has a strong management hierarchy with several layers of senior executives and a divisional structure within the company. The main operational functions are coordinated by the President and by the Vice Presidents (VPs) of the support functions such as Finance and Manufacturing.

The project team under study at LMC was involved in developing an Executive Information Systems (EIS), a computer-based management information system which provided online access to financial reports for top executives, such as Divisional VPs. This development work was carried out by the “EIS team” which comprised a leader, William2 (the EIS Manager), three analysts (Mark, Luke and David) and a trainee (Phil). The researcher (Joe) joined the team as an additional member. Ben, an analyst from a foreign branch was also associated with the team because of his responsibilities for coordinating the team’s activities in his branch.

The EIS team was located in a large “open-plan” office along with other finance and systems groups, in the HQ building of LMC Europe. The EIS manager’s office was also in the same area as the team members’ workspace, but partitioned off from it. The executives’ offices were located in the same building, but in a “penthouse suite” with private access from the car park. An extract of the organisational chart of the HQ of LMC Europe depicted in Fig. 1 indicates the formal organisation of the EIS team and their hierarchical status.

Normally the EIS team had no contact with executives and regarded the hierarchy at LMC as much stronger than at other companies. In contrast to the findings of Orlikowski & Baroudi (1989) who argued that the information systems profession is only weakly institutionalised,

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2 Throughout this paper, the names of individuals and their actual job titles have been changed to preserve anonymity.
EIS team members at LMC generally regarded themselves as professionals. They demonstrated this by, for example, being members of the British Computer Society, and keeping up-to-date with the latest developments in the field through reading and attending training courses.

The team was responsible for the development of new executive reports for the EIS (referred to as “projects”) and for maintenance and support activities, such as modifying and amending reports, fixing hardware and software-related problems, software upgrades, documentation, and security. Many of these reports provided data relevant to executives’ work, for example key performance indicators such as daily reports on production and inventory levels at each European plant, monthly financial budgets and results, company news as well as external data including competitor analysis and financial and general news. New projects were continuously added to the EIS, often in response to requests from VPs who wanted to have all their reports provided through the system. Occasionally divisional data providers would also request a new project to present a report to executives.

### 3.2. The role of accounting systems

Under LMC’s accounting system, the Systems Division allocated the EIS manager a group budget for the EIS team. The main item in this budget was for staff costs, enabling him to retain a given number of team members. Other items covered staff training, non-project-related travel expenses, software and hardware purchases for team use, and the hire of external consultants. Costs, such as travel or hardware and software purchases, directly related to a project were generally charged to the commissioning Division. The team manager’s performance was assessed in terms of timely delivery of projects against this budget. He was also able to bid against other groups in the Division for...
additional funds to cover necessary overtime. Further resources could be obtained by seeking permission to recruit placement students as trainees on the central training budget.

Within the team, however, there was little direct use of accounting systems. Although estimates of time schedules for individual projects were established (based on standard timings for a wide range of activities, such as up-grading a computer, writing program code, or developing a new project prototype, which were set out in Divisional manuals) these were regarded largely as informal guidelines to assist developers. Unless there was a major discrepancy between the estimated and actual timings or deadlines were not met, therefore, a project would be unlikely to attract the attention of the Systems Director or commissioning Division.

The assignment of particular individuals to carry out a project was decided by the EIS manager who sought to balance loads between different team members and to match their particular skills. The allocation was discussed at a weekly team meeting along with progress reports on existing assignments. Accounting systems were often explicitly discussed in these meetings, for example in deciding which budget to charge an item, such as travel expenses, to, or moving an item or person from one budget to another, such as from a project to system development and maintenance.

The more detailed organisation of work activities was generally left to the individual team member. This could involve negotiation with colleagues for use of their specific skills, or with other company members, such as data providers, whose collaboration was required for a particular activity. The EIS manager, however, made sure that team members were present during office hours, unless they were known to be on leave or working elsewhere, and also kept an eye on whether members appeared to be either under- or over-loaded.

The way the group budget was handled by the EIS manager influenced time management directly through the allocation of permission for team members (other than the trainee) to book overtime. The large overtime budget for the EIS group was used to meet tight project schedules but also allowed the manager to reward team members on his own discretion. The EIS team’s overtime budget was seen by other managers in the Division as an indication of their status as high achievers and of the importance of their work to LMC. As one analyst put it, “EIS guys always work late”.

The budget was also used to attempt to manage time through the adoption of software (CASE) tools which automatically generated flow diagrams and program codes. The purchase of these tools was justified in terms of time savings, based on standardised estimates of time requirements per line of code.

Once the budget level was set the manager sought to maintain the level of work for the team by continuously finding new projects. Moreover, if the number of new projects generated exceeded the team’s capacity then this could be used to seek additional resources. The success of the team in delivering projects to time and budget and the visibility of the EIS in LMC was used by his superior to assess the EIS manager’s performance.

3.3. The organisation of time in EIS development over a typical 7-day period

The description given below is an excerpt from the 6-month participant observation field notes covering a period of 7 days. This was chosen as providing sufficient data to illustrate the way in which time was experienced and managed in the team at LMC. Table 1 presents the actors involved and their main tasks during the 7-day period. While a longer period could have been covered in this paper, this would only have been possible at greater length or in less detail. Some activities in which team members were engaged during the period of participant observation are therefore not described here. In particular, short interruptions and some of the regular social breaks taken by the team members are not included. For example, Mark and David went to the smokers’ area together several times a day for short breaks. The team members also crossed the foyer a few times a day to get drinks from the coffee machine, and often stopped along the way to have a chat. They also went to lunch together in the staff restaurant in the LMC building.
3.3.1. Monday

All PCs were started up early and team members were busy checking mail and daily EIS reports. William had a meeting with Mark to discuss various projects and future strategies. William then talked with Joe to find out how far he had progressed with the new screen design for a prototype system concerned with product development. Joe spent all morning testing this prototype for a planned presentation. While installing the prototype on the demonstration computer, however, Joe encountered several technical problems which delayed his planned work. In the afternoon, Mark who had been sorting out a problem on William’s computer, helped Joe to sort them out. David spent most of the day quietly studying the reports he had received from the data providers for a project relating to personnel. Phil, who had been assisting other team members on various projects, was asked to prepare a document on the current status of computer installation for executive users. William wanted this document, which would show EIS uptake at LMC and his group’s progress against plans, for a meeting with Systems Executives to try to persuade them to provide more resources for the team. Because of the company convention that development staff should not work on an executive’s computer while he was in his office, Luke had to wait until one of the executives was away to upgrade his PC with the latest version of the EIS software. He therefore spent his time on other activities, such as reading a professional manual.

3.3.2. Tuesday

In the morning, various data provider managers dropped by and team members’ work was often interrupted. William was also away at a meeting. He later met with Peter, a Financial Analyst from the Production Finance Division, whom he had made several previous unsuccessful attempts to meet. They discussed a possible screen layout for a new report on inventory levels (a previous EIS project relating to inventory performance had been suspended for over 6 months) and Joe, who had earlier been improving layout and presentation of various executive reports with some help from Phil, was asked to take on development of this new project. Joe spent the rest of the day in discussions with Peter and studying the inventory reports. Mark continued implementing the new and more secure logon procedure for communication between computers and also spent time catching up with administrative work. During a short discussion over coffee, Luke enthusiastically talked about the improved features of the new EIS software, which he had read about in the manual. Mark commented on the possibility of using such features to monitor executive usage. Ben from the overseas site, who was responsible for upgrading and maintenance of the EIS in his branch, had encountered several problems which he could not clarify with Luke over the phone. He therefore came to the HQ to learn more about the new release of the EIS software. Luke spent the whole day advising Ben. David continued working on the project relating to personnel and Phil on the installation document.
3.3.3. Wednesday

Team members were very busy in the morning. Joe set up his PC for the new inventory EIS project. Mark helped Joe to set up the file space and password configurations according to the company conventions and then continued with his work on implementing the logon procedure. Joe refined the screen layout for this new project and developed a prototype which was reviewed by William. Luke spent the morning with Ben before upgrading a computer in the HQ building. David was carrying out programming and file transfers for the personnel project and Phil had to wait for him to finish before he could get some advice on the documentation work.

3.3.4. Thursday

The office was quiet, with many team members away in the morning. On his way to the coffee machine, Peter came to see Joe about the inventory prototype. Joe demonstrated it to Peter, and this lead to a proposal to develop more graphs to show summary data. William who had been out on meetings on company matters most of the day, agreed to this new proposal. Peter agreed to prepare the inventory data in the required format. Mark, on his own initiative, tried out a new procedure to speed up the computer procedure to update reports. This did not work however, and, frustrated, he went to the smokers’ area together with David for a short break. He then went to a nearby site to set up new computers. David spent most of the day on catching up with administrative work and also advised Phil. Luke spent most of the day, including some overtime, on office and administrative work and also caught up with reading.

3.3.5. Friday

Joe received the new inventory data files from Peter in the morning and commenced work on the prototype. Peter came over later to decide the sequence of the reports to be displayed. It had been expected that the new version would be ready within a week to be demonstrated to Peter’s manager. Noticing the progress on the inventory project, Luke had a discussion with Joe about the necessary security procedures and documentation and advised on updating the authorised user list for access. This discussion continued over lunch where Mark claimed that the main reason for the suspension of old inventory EIS had been due to a strike in one of the plants in the previous year which had resulted in adverse inventory levels. This had lead the Production Finance Division to suspend the report to avoid drawing executives’ attention to the problem. Luke spent most of the day reading and word-processing a report. Mark returned to office after installing a new computer for an executive. William spent most of the day on office work, looking very busy, telephoning and talking to various managers. The weekly team meeting took place in William’s office as usual in the afternoon. Mark had to leave his work on setting up a new computer for an executive unfinished for the duration. In the meeting Luke reported that he was behind schedule in upgrading PCs. Joe agreed to complete the inventory prototype by the following week. William also reviewed progress with other assignments and asked David to look at procedures for formalising the EIS projects. After the meeting Mark returned to the executive’s office to finish setting up the executive PC. David carried out further development work on the EIS project relating to personnel. He also assigned Phil the task of writing a computer program to input data for the project relating to personnel and Phil then spent the rest of the day working on this.

3.3.6. Monday

Rather than working on the inventory project as planned, Joe had to revise the product development prototype again as the data providers wanted to test the system before their presentation. As a result it was evident that the inventory project would not be ready that week so Joe spent time on catching up with office work, sorting out his computer files, and learning to use the new graphical capabilities of the upgraded software. Mark spent most of the day assessing the performance of the new logon procedure and then carried out extensive checks to ensure that the information system for executives was running correctly. He found, by chance, that there were errors in the Daily Production Report and corrected these. He also dealt
with a technical problem with one of the executive computers in accessing the external news services which he found to have been caused by a loose cable. Because of the restrictions on access to executives’ computers Luke was again prevented from making progress with upgrading and spent most of the day talking with another analyst in the executive’s division. This was noted by William who had a lengthy discussion with him about the situation. The team members also debated who should carry out the upgrading of the executive computers in an overseas branch which was situated in a holiday resort. Phil continued writing the program for a project relating to personnel while David was on leave, but his work was often interrupted by taking phone messages for David.

3.3.7. Tuesday

Joe continued work on the project relating to product development and resetting the prototype for the demonstration. Peter made some comments on the inventory screen layouts to William, who then went to coach the executive who had just had a computer installed. Mark and Luke spent most of the day on office work, taking phone messages for William and David and also talking on general issues. Luke claimed that it was unnecessary for Phil to write the computer program for inputting data for the project relating to personnel, as a program was already available to do this. Although Phil believed that the old program was unsuitable, he abandoned his effort. As he was awaiting guidance from David, he could not proceed with the preparation of the document on installation of computers so he went to a leaving party for a friend. When William returned he assigned Phil the task of carrying out improvements to the layout and presentation of executive reports.

4. Case analysis

The above case description provides an illustration of the management of time in project-based teamworking which would seem poorly explained by the mechanistic top-down model of work organisation traditionally adopted in management accounting. Although there was a process of hierarchical work allocation and the setting and monitoring of completion targets according to accounting-based guidelines, the detailed organisation of work relied more on individual initiative and mutually-negotiated collaboration of the team members. Moreover the pace of work was variable, involving ad hoc adjustments in the light of emergent contingencies and frequently dependent on interactions with other company members, the timing of which could, at best, only be weakly controlled by the EIS team.

We may therefore consider whether the alternative approach of extended time geography provides a richer understanding of the processes observed at LMC. In the following sections the temporal and spatial organisation of EIS team members’ activities is analysed by reviewing the effect of each of the key elements of this perspective on the management of time in the EIS team.

4.1. Operation of constraints

Each of the three types of constraint identified by time geography may be seen to have influenced the organisation of time in the LMC EIS team. Thus capability constraints were in evidence at the time of the team meeting, where Mark had to suspend his upgrading work in the executive’s office in order to attend. Capability constraints were also visible in terms of the skills of particular individuals and the availability of data, equipment, and other technical resources. For example Mark was the team’s technical expert and was usually called upon to solve hardware problems. As this shows, capability constraints were closely linked to coupling constraints. Team members frequently had to wait for others with necessary information or expertise to be available in order to make progress with their own work.

Authority constraints also affected time management. For example, William was required to approve team members’ work and could allocate tasks, albeit subject to some negotiation. Similarly, senior team members were able to assign work to Phil. The authority to influence work was not confined within the team. For example, the request for Joe to give priority to work on the
product development prototype over the inventory project arose from the product development Division’s imminent presentation. Authority constraints could also prevent activities taking place. For example, the rule at LMC that developers should never be in an executive’s office when they were present meant that Luke was delayed in progressing with the upgrade. Luke was also able to countermand Phil’s efforts to develop the data input program.

For individual team members, therefore, their work was subject to multiple, sometimes conflicting, constraints, which shaped the activities in which they engaged. There did not appear to be any persistent ordering of the priority of these constraints, however. For example, authority constraints could be subordinated to coupling constraints, as when Ben from the foreign branch came to the HQ, leaving his regular work for his manager, in order take advantage of Luke’s availability, but in other situations, such as where Joe was expected to work on the product development prototype despite the availability of Peter’s expertise on the inventory project, the situation could be reversed. Similarly there was even a degree of flexibility in the extent to which capability was constraining. For example, systems security or maintenance problems were dealt with by other team members when David or Mark, who specialised in this field, were unavailable or absent. The individual team members were thus able to retain an element of personal control over their response to constraints. Indeed constraints could be used to preserve individual autonomy, such as when Luke chose to read a manual whilst being prevented from working on upgrading the executive’s PC, invoking authority constraints to justify his inactivity.

Following Giddens’ criticism of the focus of time geography on the disabling nature of constraints, we may also note their enabling character in the team’s work organisation. Thus, rather than simply preventing activities from taking place, these constraints were also opportunities for enablement. For example, the new software manual which Luke read because he could not upgrade the executive’s PC, provided information on new features which, it appeared, could help to overcome constraints on assessing executives’ usage of the EIS. Similarly, the limited personnel resources of the team meant that they were able to book greater amounts of overtime and hence to acquire a reputation as high flyers. The EIS teams’ power relationships were also at times an enablement. Thus, the fact that they were working for senior executives gave the analysts greater status with their peers, even if, in practice, they were forbidden from directly interacting with their users. In drawing attention to this dual quality of constraints, we may shift the focus from their negative features, to highlight the ways in which they may also be seen as opportunities.

4.2. Temporal and spatial organisation of activities

The organisation of activities in the LMC EIS team may be seen to have been spatially and temporally differentiated into a number of distinct “locales” such as the EIS office, the foyer and the restaurant. Each of these were associated with particular types of activity and served as the venue for particular types of routinised social practices which were often associated with particular times of the day or week. For example, coffee breaks were, by convention, taken at 10.00 am and 3.00 pm each day in the foyer, lunch was at 12.30 pm in the restaurant, while team meetings were held in William’s Office at 2 pm on Fridays. More generally the LMC building was recognised as the predominant location for “work” activities, and team members were expected to be present there during normal working hours, unless otherwise approved. The mobility of team members was additionally restricted by the structural properties of LMC such as the formal organisational norms. For example, the analysts’ presence on the executives’ office floor was highly restricted and subject to sanctions if unauthorised.

While acting in some ways to constrain team members’ activities, this time–space regionalisation can also be seen to have been constitutive of the team’s ongoing social organisation. Thus members were expected to make the effort to attend the weekly team meeting. They also lunched together most days and Mark and David took regular breaks together to go to the smokers’ area in
the Foyer. Both formal and informal routine thus contributed to group identity.

Another aspect of routine that appeared to be influential on team members’ time management was the relatively repetitive nature of many of their work activities. This was geared to cycles at several levels. For example there was the daily updating of reports, weekly team meetings, projects of several weeks duration, annual budgeting rounds, occasional software upgrades. In each case, prior practice provided norms for subsequent action. Thus, although each new project might involve novel challenges, much of the practice would be carried forward from previous experience. New team members were inducted in these practices through advice sessions, such as that offered by Luke to Joe on security procedures and documentation.

A notable feature of time management in LMC’s EIS team was that members were often engaged in several different “projects” and types of work simultaneously as well as participating in the regular round of formal and informal routine. Many different activities were therefore competing for team members’ limited time resources and had to be fitted into, and interwoven with, the stream of their other activities. Team members were largely able to switch between different activities during the day on the basis of personal interest providing that overall deadlines were met. It was also necessary to be responsive, however, to requests and opportunities for collaboration with colleagues, and to changes in external conditions. For example, Joe was requested to prioritise work on the product development prototype to enable the data providers to test the system in advance of a presentation to their managers. Some activities also required coordination and collaboration with other groups such as data providers, or relied on technical resources, the availability and performance of which were often beyond the team members’ control. Considerable elements of the team members’ work were therefore, of necessity, improvised, and even planned activities were continually changing.

Team members’ work was also regularly subject to interruptions, for example by phone calls, taking messages for absent colleagues, sorting out technical problems for other team members, or responding to problem reports from executive secretaries. Although any individual interruption might typically take up only a few minutes, in total they could amount to a substantial diversion from sustained activity. Thus, even where members sought to dedicate time to a particular project, their ability to do so was often unexpectedly curtailed. Further interruptions were created by the breaking up of the day by a series of social “times” (cf. Roy, 1973) such as “smoke time” and “break time”. While these times fragmented the periods available for sustained work they also contributed to the structuring of social interaction and served as important venues for knowledge sharing, as team members socialised and exchanged ideas.

As time geographers argue, all activities need to be “packed” into a time budget which cannot be exceeded. Any time not allocated to particular projects will therefore be made up with other activities since it cannot be saved. Thus Luke had to fill in a lot of time with reading and administration while waiting for the executive to be out of his office. In practice, it appeared that team members also had a fair degree of discretion in deciding which activities they could fit into their time budget. Thus Joe was able to decide that he would sort out his computer files rather than re-commence the inventory project, based on his view that there was insufficient time available for the latter. This is not to suggest, however, that temporal and spatial constraints were simply a discursive resource that could be unilaterally employed by team members. Rather, there were accepted bounds within which team members’ autonomy was permitted, and which were monitored, as William’s eventual action over Luke’s inactivity indicated.

Within the EIS team, the “unexceedable” time budget was also given a degree of flexibility through the use of overtime. In contrast to descriptions of the work of accountants (Anderson, Grey & Robson, 1997; Coffey, 1994), however, overtime for the LMC EIS team was not considered to be a compulsory rite of passage, nor an essential demonstration of corporate loyalty, rather it was a form of reward, controlled by the
team manager. Thus good work could receive recognition through payment for the inevitable additional hours. Since there was also an incentive for the team manager to ensure high levels of overtime working by the EIS team to maintain their image as high flyers, and also to justify increased resources under his control, then this situation was mutually beneficial for the manager and team alike.

4.3. Production and reproduction of context

Following Giddens (1987), it may be argued that the structural properties of locales are continuously reproduced through individuals’ daily allocation of time. Thus, by their regular presence in the EIS office throughout most workdays, members served to reproduce the attendance norms. Similarly, in accepting LMC’s hierarchy and not directly interacting with executive users, the team members also helped to reproduce these constraints. This reproduction was not restricted to activities within the EIS development process. The team members’ status within LMC directed the legitimate time–space paths that they could follow — where they could go in the LMC building, where and when they worked or ate, with whom they interacted. Team members’ view of their career structure and identity as computing professionals also influenced the choice of training courses they pursued, their reading and their social interactions. Within the team, members served to reproduce social norms, by, for example, attending team meetings and following their colleagues’ established design guidelines.

At every instant of action and interaction, however, there were also potential opportunities to transform these constraints. Thus, features of the updated EIS software were seized upon as a potential means of monitoring executives’ use of the system, even though this was not designed to provide such a capability. On a subsequent occasion William was able to use a chance encounter with an Executive in the car park to obtain his views on the effectiveness of the EIS. Thus there was the possibility that even relatively strong norms of hierarchy could be partially overcome by such indirect strategies.

Within the EIS team authority constraints can be seen to have relied upon the acquiescence of subordinates. Thus members had the potential to influence William’s allocation of tasks; for example, to negotiate who would carry out the upgrad-
ing in offices in desirable locations, or who would receive overtime or a new project. Similarly, although William was expected to monitor the analysis’ attendance, he was often away from the office and they were also able to evade surveillance by taking smoke breaks, or by arranging meetings and visits of their own.

Team members were most easily able to modify constraints in relation to their own work practices and those of their colleagues. For example Joe’s exploration of the graphical capabilities of the new software lead to proposals for a new style of presenting data, the adoption of which he was able to promote amongst his colleagues.

The picture of time management that emerges from such an extended time geography analysis, therefore, is not that of a discrete activity, restricted, as Anderson et al. (1997) discuss in the context of audit firms, to a single aspect of temporal structuring, but that of a pervasive characteristic of the constitution of the ongoing social practices. Adopting this broader view of time management provides us with a richer perspective on the temporal and spatial organisation of work practices than that of traditional accounting systems as will now be discussed.

5. Discussion

Compared to the view of traditional accounting systems, the management of time in LMC’s EIS team appeared to be characterised by routine as much as by progress milestones; by interruption and opportunism as much as by regularity; by individual preference and mutual negotiation as much as by management control; by improvisation as much as by planning, and by time–space regionalisation of practices more than undifferentiated workspace. These aspects will now be considered in more detail and the implications for accounting control explored.
5.1. Routines

The routines evident in team members’ work practices may be seen as examples of cyclical time (cf. Ezzamel & Robson, 1995) and as constitutive of larger cycles, such as those of the accounting year through which accounting control is exercised (Anderson et al., 1997). It would seem difficult, however, to see them as supporting a reversible view of time in the LMC context as the progressive and cumulative nature of EIS development provided a trajectory against which activities could be tracked. Thus the weekly team meetings were focused on monitoring the completion of a changing portfolio of projects against deadlines, rather than the regular repetition of a set of standard activities. It was not therefore a matter of either routine or progress monitoring, but of the one in support of the other.

Nor does the significance of routine in team members’ work practices imply that their work was predictable and unchanging. Certainly there was repetition and regularity but, as Pentland and Reuter (1994) argue, routine need not preclude exceptions, interruption or variety. Following Giddens (1984) they propose that routine may also be understood as an effortful accomplishment of practically knowledgeable agents. In this sense, a routine is not an automated response giving rise to a single pattern, but a repertoire of possible patterns from which organisational members enact particular performances.

This view of routine may be seen to be borne out by the change with continuity enacted in the design of each new project. That there was a repertoire of established methods, for example, did not mean that Joe could not try out the graphics capabilities of the new software. Even without the excuse provided by the software upgrade, it would still be possible for team members’ to introduce new ideas, for example Mark’s initiative, albeit ultimately unsuccessful, to devise a faster procedure for updating reports. Social innovation was also possible. For example Phil brought in some computer games and Mark and David routinely shortened their lunch break to join him in playing them.

5.2. Control of work organisation

The picture of variety and fragmentation of work practices exhibited by EIS team members may be familiar from studies of managerial work, such as those of Mintzberg (1975), Kotter (1982) and Stewart (1979) and from other arenas of professional work. The present study, however, illustrates its relevance in apparently less autonomous organisational levels. Thus, despite their self-identification as professionals, the EIS team members were largely considered within LMC as technical functionaries. It was noticeable, however, that the extent to which team members accepted this “technician” role appeared to be influenced by their personal background. Mark, for example, who had worked his way up from a low-level technical position to become a founder member of the EIS team, complained that executive secretaries treated him like a maintenance man. Luke, on the other hand, who had joined the team from the Finance Division did not experience the same problems.

Team members’ individual agency in their response to their designated status notwithstanding, however, it might be expected that such technical workers would have been subject to greater management control than appeared to be the case. That team members work practices seemed to be closer to those of managers than those specified by the precepts of scientific management would therefore seem to suggest that there were particular difficulties in controlling this type of work which necessitated greater autonomy, for example due to task complexity, specialist skill requirements, and ad hoc problem-solving capabilities which could not be easily pre-planned. This improvisatory character of the team members’ work practices, would seem to be similar to the tinkering/bricolage described by Ciborra (1996) as typical of knowledge work. It may also be seen to reflect the complex interdependence and highly variable nature of the team’s work environment.

In highlighting what appeared to be relatively low levels of control over team members’ time management, and the improvisatory character of their work practices, this should not be taken to imply that they were entirely autonomous in their
actions. Rather, they were subject to various forms of social control, for example norms promoting collaboration with colleagues, professional design standards and established routines such as team meetings and shared lunches. Moreover there were clearly more overt social and organisational power relationships, for example in management/employee relations, which significantly shaped team members’ actions. To the extent, however, that such influences may be seen to be present in all organisations, then the comparative freedom apparently enjoyed by the EIS team members in organising their time would seem deserving of attention.

Compared to other professional groups such as accountants (Anderson et al., 1997; Coffey, 1994) this relative autonomy did not appear to be accompanied by the same degree of fetishisation and objectification of time. Thus team members were aware, through the Divisional accounting system and guidelines, of the budgets available for EIS development and the expected timescale for completion of particular projects, and employed tactics to maintain evidence of controlling projects within time and budget, for example by prioritising projects approaching a deadline, using overtime, or moving items from one budget heading to another. They did not, however, systematically engage in detailed time-planning or record-keeping, nor was there an obligation to under-report time spent on a project, or to undertake compulsory overtime. Rather the approach to time management was relatively informal and relaxed, at least within the team, with impression management being reserved primarily for external audiences. Moreover, since the EIS team was an internal service department, there was not the same concern with “chargeable” time. Thus, so long as projects could be reported as being reasonably on schedule at weekly team meetings and there was sufficient evidence of appropriate effort, then more detailed accounting for individual time management appeared to be considered unnecessary.

Another feature of the team members’ work was its temporal variability. Rather than a steady flow of time towards regular milestones, the team members’ work was marked by significant changes of pace. Periods of relative inactivity, for example while waiting for a colleague to be available to complete some joint task or for an executive’s office to be free, were matched by intensive efforts as deadlines for projects approached or the opportunity for interaction with a colleague arose. What this would seem to point to is the existence of multiple temporalities, as Kavanagh and Araujo (1995) propose, rather than the uniform clock time of traditional work study (and, indeed, of time-geography).

Looking at from the point of view of a particular project, for example, time might typically start off at a comparatively leisurely pace, as the first elements of the design were put in place. As interim presentations approached, time might speed up, only to slow down again afterwards as other activities, postponed by the immediate deadline, took precedence. Changes to the design might lead to time dragging even more, as enthusiasm flagged. Approaching the planned final delivery date, time might accelerate again, or even be suspended as deadlines were extended. Interspersing this type of pattern with those of other activities, each with their own variable rhythms, therefore, leads to a highly variegated picture of the time experience of team members. Rather than a uniform flow of homogenous time distributed across multiple, standardised projects, the intensity of time for individual team members was constantly shifting as projects at different stages of completion were interwoven.

Such an analysis of time experience may be extended to consider a variety of other dimensions which are similarly poorly served by traditional invariant models of space–time. Thus time geography adopts not just an “objective” standardised view of time, but also a material realist view in which physical distance is the primary measure of space. As the time space regionalisation of work organisation in LMC’s EIS team indicates, however, space was perceived by team members as highly differentiated. Each individual, for example, could be seen to have their working space, informal interaction space, private space. Although these might normally be associated with particular physical locales, it was also possible for these to be redefined. Thus the car park could become a working space, or informal interaction take place
in the EIS team office. Moreover, small variations in physical space might signal significant differences in perceptual space. For example, a part of the work area out of the line of sight of the manager’s office might be seen quite differently from one subject to direct surveillance. Evidence for this was observed at LMC when the EIS team refused to accept an office reorganisation which would have placed William’s desk in their midst.

We may therefore identify a variety of perceptual spaces fluidly overlaid on the physical space. Perhaps the most important of these in the present context could be seen to be that of “control” space. This could be mapped in a similar way to that of traditional time geography but with the spatial axis being the degree of perceived visibility to management control. Thus the team meetings, taking place in William’s office, would be in a zone of high visibility. Areas within the team office subject to William’s direct surveillance, as noted above, might be differentiated from those out of his sight, while the foyer would be relatively weakly controlled. The character of such spaces would not be fixed, however. For example, William’s absence from the office on Thursday might be seen to have made it a relatively uncontrolled space for the duration, as indicated by the simultaneous absence of several team members.

Control, of course, does not depend solely on direct observation. As Zuboff (1988) has argued, the potential of information technology to textualise or “informate” work practices can make them accessible to management surveillance at a distance. Thus, in principle, the electronic traces provided by the EIS software could have been used to monitor team members’ work in William’s absence, even if this did not seem to have been applied in practice. Variations in control space may also be effected by indirect means such as through organisational hierarchy, disciplinary mechanisms, and professional standards. Thus Phil was subject to greater control than other team members as the other analysts as well as William had authority to manage his work. The sanctions on the team members’ presence on the executives’ office floor and the analysts’ belief in their professional status similarly served to control their activities in the absence of direct surveillance. Finally, we may turn to perhaps the dominant formal mechanism of control, that of accounting.

5.3. The role of accounting

Although accounting measures did have some influence on time management, this was largely at the level of the team. Thus the EIS manager was given a budget for the EIS as a whole, sought units of work to justify or increase this, and was assessed in terms of his performance against it. There was perhaps greater individual accountability in terms of the overtime budget, in the sense that the team members’ ability to claim overtime depended on demonstrating a need for additional work to the team manager. Even here, however, the degree of control of individual time management was limited, both because overtime payments were only loosely related to actual effort, being more a reward for commitment than specific hours worked, and because both team members and manager had a vested interest in maximising the overtime budget to enhance the team’s status.

To the extent that the EIS manager was successful in ensuring timely completion of projects and acquiring new ones, the accounting controls may therefore be seen as enabling, permitting the manager to retain staff resources, to maintain or enhance the team’s status within LMC, and to justify investment in productivity applications, such as CASE tools. The restriction of accounting measures to the team level also enabled the team to present an image of control to outsiders whilst protecting their flexible internal work organisation. The accounting system, however, could also be used to constrain activities of team members, for example by limiting travel expenses, or restricting the use of external consultants to overcome development bottlenecks.

Within the team, the manager translated this budget into specific tasks and planned completion of these in the light of the skill resources available from individual team members. Thus he was responsible for task allocation, albeit subject to some negotiation, and monitored team members’ presence and workload to assess their performance against his overall plan. This was reinforced through the weekly team meetings. Individual
team members, however, were largely responsible for organising their own work to meet these deadlines, although this frequently depended on collaboration with colleagues or members of other LMC Divisions. The way in which the work was carried out also reflected personal and career goals and was organised to maintain impressions of diligence, competence and expertise with the team manager.

Accounting practices were therefore only indirectly influential on the management of team members’ time. Moreover, the mechanistic model of work on which the accounting controls were based was widely recognised as inadequate for the management of team members’ practice. Indeed, the unintended consequences of these controls sometimes acted to reduce the effectiveness of team members’ works. For example, the exclusion of Phil, the trainee, from being able to book overtime meant that he was not motivated to put in the time needed to cope with unexpected demands.

That these techniques continued to be applied and that the team manager sought to respond to them may thus be seen as reflecting the importance attributed to maintaining the impression of management control. Time was recognised as a significant domain of management authority and the symbolic enactment of control through the work allocation process served to reproduce this. For team members, their acquiescence to this control was tempered by their ability to negotiate their work allocation to some extent and to arrange their work space and practices to avoid direct surveillance. In practice, the organisation of their time appeared to be more controlled by their mutual obligations to their colleagues and by their professional identity and career objectives.

5.4. Implications for accounting control systems

If it is accepted that flexible and collaborative work organisation of the sort observed at LMC is a necessary feature of effective project-based teamworking, then it would seem that formal accounting measures are likely to be poorly suited to its control. For example, as Ciborra (1999) argues, improvisation, which we have identified as an important aspect of such work, operates outside the objectified clock time on which traditional accounting systems are based. Thus the implementation of traditional accounting measures could even make the organisation of such work practices less effective. To explore this further we may consider both the feasibility and possible outcomes of implementing different forms of accounting controls in project-based teamworking.

The traditional focus of accounting control of time organisation has been through attendance-monitoring systems, as described by Loft (1990). These would seem particularly ill-matched, however, to the complexities of project-based teamworking. Thus, quite apart from the symbolic significance of such systems as constraints on the autonomy of team members, attendance would seem weakly related to productivity. Although EIS development does require some investment of time resources to produce output, the quantity of time does not necessarily reflect the contribution of particular activities to the end result. For example, a major new feature may be relatively quick to implement (especially with CASE tools), but debugging a routine may require a lot of time for limited visible benefits. Moreover, individuals’ productivity may be dependent on events over which they have little control, such as the movement of executives, with the result that they are forced to “waste” time if they do not have suitable alternative tasks to fill the unplanned waiting period. Individual work may also be frequently dependent on assistance from colleagues, the provision of which appears to rely on complex relationships of reciprocal obligation rather than predictable patterns of interaction. For a number of reasons, therefore, monitoring attendance would seem unlikely to provide effective control of time management in project-based teamworking.

An alternative to attendance-based measures might be to pursue detailed activity-based control systems perhaps, as has been noted, through exploitation of the “informing” capacity of modern information technologies. The technical problems, however, in comprehensively monitoring individual work practices, some of which may not involve direct use of information technology, allocating activities to projects, and monitoring progress should not be underestimated and would
seem likely to incur significant costs if pursued in any detail. More importantly, though, it is not clear that such a system would not still face problems in providing effective control. Thus, even if time could be appropriately charged to projects with acceptable costs and no effort on the part of team members, the weak relationship between their inputs and project progress and the variable intensity of activity over the course of the project would seem likely to limit the value of the measures obtained as mechanisms for control of members’ work practices. Such a system would also not provide a solution to the problem of coupling constraints. Interaction between team members, may not be a distraction from task completion, but an essential feature of it. Even waiting for an executive to be out of the office may be largely unavoidable. Team members’ work appears, therefore, to be too inter-dependent, variable and improvisatory to be amenable to a control system based on an assumption of discrete, uniform, and uninterrupted time.

We may also question the likely effects of such control on team members’ motivation. The effect of Phil’s exclusion from overtime has already been noted, and it was also noticeable that during a period when restrictions on overtime working were introduced, team members showed little enthusiasm to do more than the minimum necessary. While these effects may have been related to the status associated with the comparatively high overtime budget of the EIS team, they may also represent a response to the increased formalisation of work practices implied by the requirement to conform to company rules.

Further insight on the effects of detailed surveillance of work practices in project-based teamworking may be obtained from the study by Orlikowski (1991) of the introduction of new forms of information technology, including CASE tools of the sort adopted at LMC, at a large software consultancy, SCC. Her findings suggest that such technologies can indeed serve to extend control of developers’ work practices, but at the cost of a loss of “professional” problem-solving abilities, initiative and creativity. As she also notes, however, these effects are always subject to the developers’ willingness to accede to their own control, particularly where they possess the technical abilities to disrupt or subvert surveillance.

The EIS team’s ability to negotiate their work allocation and to restrict observation of their activities would therefore suggest that they may have been better placed than the SCC consultants to resist the imposition of new forms of surveillance. This may reflect differences in organisational culture and the status of development staff between LMC and SCC, but also in the nature of the work in the two organisations. Thus the ad hoc origins of the EIS projects, limited the scope for standardisation of work practices. The diversity of skills within the small EIS team and the dispersion of the knowledge on which members needed to draw, also meant that the completion of their work was frequently dependent on collaboration with others. The complexity of the consequent coordination constraints lead to the need for a flexible, improvisatory approach to individual time organisation and to significant investment in the maintenance of trust relationships to sustain reciprocal support. Even if information technologies were able to extend accounting control to the level of individual work practices, therefore, there is no guarantee that this would ensure effective management of the EIS team members’ time. Indeed, there is evidence to suggest that it may even be counter productive in terms of their performance.

Control of project-based teamworking may therefore be more effective if it is only loosely-coupled with individual work practices. Thus, rather than trying to control individual time management, it may be sufficient for accounting measures to be applied at the team level, whilst within the team, social control based on mutual obligations, norms and routines may achieve an adequate balance between individual autonomy and collective productivity. Such team-level accounting mechanisms could be of several forms, each of which would, on the evidence of the LMC case, have its advantages and disadvantages.

Perhaps the most obvious form of team level accounting would be to adopt individual projects as the primary unit of budgetary control. Thus a team might be allocated funds for the delivery of a
project to a particular specification at a particular time. Such a mechanism is typical of contracts with independent software development companies and has the advantage of being linked to an apparently natural unit of output for team members. The evidence of time management in LMC’s EIS team, however, would suggest such an approach would seem likely to face a number of problems. Thus many of the costing issues discussed in relation to activity-based approaches would appear to apply equally to project-based measures. The assignment of costs to individual projects, for example, assumes an ability to identify discrete and relatively continuous units of independent work that can be charged to a particular project. The allocation of the team’s overhead costs to projects would seem likely to face similar difficulties, particularly where, as at LMC, a relatively small team with diverse skills makes most projects dependent on collaboration.

Another potentially significant drawback of project-based costing would be the need to establish a detailed project specification against which performance can be measured. This nullifies one of the advantages of in-house development over employing an external developer, its flexibility. This may be particularly important where, as at LMC, initial specifications may be vague and subject to frequent later change. The organisational relationship between “customer” and “supplier” with in-house development may also facilitate the delivery of more effective, rather than contractually-compliant, projects. In the context of the LMC EIS team, for example, the organisational status of their “customers”, the Divisional VPs, meant that timeliness was often a higher priority than cost. Thus changes in specification would be accommodated and all necessary efforts applied to ensure timely delivery. Indeed the ability of the EIS team to deliver effective projects on-time was important in justifying their continuing funding. Rather than invoke financial penalties for late or unsatisfactory delivery, therefore, the organisational relationship between the EIS team and the executives was used to ensure that projects were on-time and met requirements, and also to legitimate additional costs (some of which may even have been offset by the commitment of team members to LMC’s success).

An alternative form of team-level accounting control might be target cost management (Tanaka, Yoshikawa, Innes & Mitchell, 1993) applied to the team as a whole. While such an approach might encourage greater accountability and cost consciousness among team members, it would also seem likely to restrict their ability to respond to customer requirements. As has been noted, for example, the executives’ organisational status at LMC meant that their requests received high priority and legitimated the EIS team in disregarding the group budget, by commencing new projects, in working exceptional amounts of overtime, and in requesting additional staff resources. The potential for such flexibility would seem likely to be lost by rigid application of target costs.

It would not seem clear, therefore, that alternative methods of accounting control would necessarily offer significant advantage compared to the team budget approach adopted at LMC. This appeared to provide the flexibility necessary to address the capability and coupling constraints arising from the variability of the EIS team’s work, whilst promoting accountability through social control. Its main disadvantage would appear to lie in the potential for team members and leaders to conspire in restricting their output and inflating their requirements. The risk of such collusion, however, would seem inherent to any form of control not based on monitoring of individual work practices, the costs of which, it has been argued may be greater than its benefits, in the context of project-based teamwork at least. This is not to suggest that LMC’s team budget system could not be improved. For example: more systematic review of team performance and budget allocation might help to restrict the risks of collusion; support for team integration might strengthen social control; and enhanced selection, training and support for team leaders might increase their influence and control. Working to develop accounting systems that acknowledge the socially-organised character of work practices in project-based teams and seek to support them, may therefore be more effective than seeking their elimination.
6. Conclusions

In this paper, we have sought to ground an analysis of time in accounting in a detailed study of project-based teamworking, drawing on extended time-geography as a sensitising device. This analysis indicated that perspectives on the management of time provided by traditional management accounting approaches are too mechanistic to be able to capture the complexity of such organisational work processes. Rather, time management in such processes would seem to be better understood in terms of the organisational actors’ ongoing active production and reproduction of their social context.

The contribution of the extended time-geography perspective was in highlighting the dynamic interweaving of multiple strands of different activities in project-based teamwork rather than viewing it as a sequence of pre-planned stages. It also drew attention to the variety of constraints which influence the organisation of these activities across time and space, and to the enabling, as well as disabling, character of these constraints.

Routines appeared to be another significant influence on the organisation of work practices and also constituted an important element of group identity for the team members. Routinised social practices also organised time–space into a number of distinct locales, the structural properties of which were continuously reproduced through individuals’ daily allocation of time.

Individual time paths typically involved the interweaving of a variety of different activities during the course of a day. The way in which these were packed into the available time-budget was influenced by individuals’ own purposes or preferences, their particular skills and influence in relevant power relationships and their interactions with co-workers. The daily time budget did not comprise a continuous period, however, but was broken up into a series of social times, and further fragmented by unexpected interruptions.

The improvisatory character of team members’ time management, that appeared to be necessitated by the complex interdependence and frequently changing nature of their work practices, indicated a greater degree of variability in time reckoning than would be suggested by traditional work study, and also by time-geography, both of which are based on standard clock time. The standardised, material view of space offered by time-geography would similarly seem deficient in understanding the multiple perceptual spaces within which team members appeared to organise their work. In particular, ideas of a variable control space would seem relevant to the analysis of such work practices.

Accounting measures, operating at the team level, appeared to control team members’ time management only indirectly. Social controls, such as norms promoting collaboration with colleagues, professional design practices and established routines appeared to be a more significant influence. The mechanistic model of work, on which accounting controls are based, would therefore appear to be inadequate to manage team members’ practices, and may even produce unintended consequences which reduce the effectiveness of team members’ work.

Time appeared to be recognised, however, as a significant domain of management authority and the symbolic enactment of this control, for example through the work allocation process or by maintaining good attendance, served to reproduce this. Team members were able to reduce this control and avoid direct surveillance, by their ability to negotiate work allocation and to organise their own work space and practices.

Thus, although modern information technology may now make it possible to extend surveillance to individual work practices, the evidence of the LMC case would suggest that this is unlikely to be effective in achieving greater control of project based teamworking. The social organisation of time management observed at LMC appeared to facilitate the coordination of the relatively independent individuals with their complex, complementary skill sets. The type of work in which team members were engaged also regularly required ad hoc problem-solving skills and abilities such as creativity which could not be easily pre-planned. Moreover team members were protective of their professional autonomy and aware of the conditions of their surveillance and possessed the technical skills, at least in this case, to
be able to reduce the effectiveness of IT-based
surveillance had this been introduced.
If there is concern about time management in
project-based team working, therefore, it would
seem that it may be better for accounting
mechanisms to be focused at the team level, rather
than seeking to impose standardised clock time at
the individual level (which may even be counter-
productive). The need for responsiveness and flex-
ibility would also suggest that a simple approach
based on regular review of an aggregated team
budget may have advantages over project-based or
target cost mechanisms. The richer understanding
of the social dynamics of time management pro-
vided by the extended time-geography framework
presented in this paper may provide a basis for
developing and improving such mechanisms.

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