This article reviews the longitudinal tracer study in the context of the researcher–practitioner relevance gap. It proposes the tracer as a methodological middle-range approach that takes account of relevancy and which involves practitioners in the research process. An ESRC research project about hoshin kanri (policy deployment) is used as an example to explain the longitudinal tracer study approach. The methodological approach is consistent with middle range theory and thinking, and involves skeletal prior theory, tags, a practitioner network, and continuous reflexivity. It is concluded that the longitudinal tracer study can be a useful middle-range solution to help close the researcher–practitioner gap.

Introduction

The aim of this article is to explicate and extend the research approach known as longitudinal tracer studies. The article uses an example taken from an ESRC research project about hoshin kanri to illustrate the approach. It is suggested that the longitudinal tracer is a middle range methodology for involving practitioners more closely with the research process. As such, it goes some way to bridge the researcher–practitioner gap (Hodkinson, 2001).

Longitudinal Tracer Studies

Tracer studies were used in longitudinal research during the 1960s at Imperial College, University of London by Joan Woodward, to explore and to clarify the nature of management control systems (Woodward, 1970a). Management control was a largely unknown area of management studies at the time. The tracer approach was developed during this work as a response to data overload problems, which were largely because the interviews had been focused on too much social science theory (Woodward, 1965). Researchers had found themselves bogged down by the broad scope and detail of the collected data. The data were not just difficult to conceptualize, but were also difficult to translate onto paper as a coherent account of what had actually happened. So a more practice-focused approach was adopted for later work, which was based on the ‘actual as much as the perceived character of the work of the people interviewed’ (Woodward, 1970b, p. 251).

‘[A tracer study involves] the isolation of a particular order or batch of products, central to and representative of the firm’s . . . activity, and by following its progress through the planning, execution and feedback stages of the control system, observing the way in which people become involved in plans, decisions and tasks relating to it. (Kynaston Reeves and Woodward, 1970, p. 40)’
Following the progress of an organizational phenomenon is what defines quintessentially a longitudinal tracer study. It is the direction of an observed path of organizational activity rather than theory that primarily influences the selection of interviews, and which sets the boundaries for the extent of field observations. The interview questions are centred on the perceptions of the respondents in terms of the jobs they have to perform rather than prior theory.

The most comprehensive review of tracer studies is given by Hornby and Symon (1994). This covers tracer-based studies in several fields, including geography (Mossman, Holly and Schnoor, 1991), neuropsychology (Walsh, 1978) and information technology (Symon and Clegg, 1991). Hornby and Symon discuss the use of ‘tags’, which is a term not actually used in the Woodward work.

Tracer studies are a method of identifying and describing organizational processes (such as decision-making and communication) across time and stakeholder group by the use of tag(s) ... [for] following the unfolding process through the organization; prompting the discussion of the process with organizational members; and identifying further important sources of information. (Hornby and Symon, 1994, p. 167)

A tag enables a researcher to focus more narrowly on those aspects that are primarily centred on the specific element such as a management objective that an organization-wide process is there to support. It serves to focus interview data in order to make them more manageable for transcription and analysis. It also helps to focus the research task to identify relevant documents and the people who are important to key events and critical activities. However, while a tag is used to identify the participants in the process, Hornby and Symon argue that tracer studies are not concerned with analysing in detail the nature of the connectedness of the individual, as, for example, in social network analysis:

'[t]rascers are concerned with shedding some light on the process in which a group of individuals has taken part. This means that the focus of the study is not the connections between people, but the context within which these connections take place in relation to a given process. Tracers are not about providing a detailed analysis of relationships, but are a means of exploring the attitudes and ideas of individuals in relation to a process in which they have all participated in some way. (Hornby and Symon, 1994, p. 171)'

The use of tags enables the research process to follow a specific and uniquely appropriate path. This informs how a management intervention, such as a management control system, operates as an ongoing activity. The real-time nature of the research allows researchers to identify and to respond to emergent issues. These can be followed up quickly to examine them with the people involved and with others who might be affected. The speed of response and the role of a tag as an involving point of focus for a respondent during interview help to resolve potential problems associated with time lapse and memory. The tracer approach also enables researchers to constantly verify prior information. So when new considerations are raised in an interview these can be reflected upon afterwards by the researcher, and then be presented as an issue to the respondent in the follow-up interview(s). This feedback verification process helps to build consistency in field observations and allows for new issues to be picked up and recognized. This iterative mode of data collection has been recognized as a means for checking validity and reliability more generally in longitudinal (Huberman, 1990) and qualitative research (Morse et al., 2002). It also has a resemblance to snowball sampling, where one respondent is used to identify the next for observation and interview (Kimani, 2001).

While the tracer approach places an emphasis on empirical rather than theoretically derived data, the role for pre-determined or prior theory remains important. It is used to help choose tags as an influence on the content of questions used for interview and to provide a framework for data analysis. It is the scale of prior theory that matters. If it is too great then the research is likely to suffer the overload issues that Woodward encountered. The problem of theoretical scale is an old one, since it concerns how to compromise a theoretical need to generalize, while simultaneously producing research findings that are relevant to specific practice. Much organization and management theory is highly abstracted; this involves a degree of sophistication that makes it seem too removed from practice to have any practical value to those who manage. Some argue that this is a contributory factor to the creation of
a gulf between knowledge creation on the one side and practice on the other (Rynes, Bartunek and Daft, 2001). The question is how to bridge this researcher–practitioner gap. One solution is middle range thinking.

**Middle Range Thinking**

In a special issue about theory in the *Academy of Management Review*, Bacharach (1989) argues that management researchers who seek to influence practice are really craft-persons who look for limited or middle range explanations for organizational phenomena. Typically, rigour is to some extent compromised for relevance and the achievement of solvable problems. In the same issue, Weick (1989) suggests that organizational research should:

‘move toward theories of the middle range . . . theories [that] are solutions to problems that contain a limited number of assumptions and considerable accuracy and detail in the problem specification. The scope of the problem is also of manageable size. To look for theories of the middle range is to prefigure problems in such a way that the number of opportunities to discover solutions is increased without becoming infinite. (Weick, 1989, p. 521)’

The idea of middle range theories originated with the sociologist, Robert Merton (1957). He suggested them as a necessary pragmatic compromise on his view that sociological understanding must be based eventually on generally applicable concepts and mutually consistent propositions. Middle range theories:

‘lie between the minor but necessary working hypotheses that evolve in abundance during day-to-day research and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behaviour, social organization and social change. (Merton, 1968, p. 39)’

Worries about theoretical relevance in sociology also provided a context for grounded theory (Glaser and Strauss, 1967). In this approach a distinction is made between formal and substantive theory, where the latter is wholly generated from data without reference to formal or prior theory. Specific contexts are investigated to derive constructs that have only a limited degree of transferability between field settings. However, more recently, Glaser (2002) suggests that in practice many ‘grounded’ case studies do not yield usable constructs at all. This is often because qualitative researchers believe that theory should be realistic. In fact, theory is more pragmatic than most people think. Loasby, writing from the perspective of organizational economics, argues that theory should be sufficient rather than realistic.

‘A perfectly realistic model would be indistinguishable from reality . . . what then would be its use for investigation? One uses a model precisely in order to escape from reality into something more tractable, but nevertheless useful, from which it should be possible to work back to reality. Rationality operates not on reality, but on abstractions. What is required is an abstraction that is good enough; and what is good enough depends upon the problem, or more generally, on the stage reached in the attempt to solve it. (Loasby, 1976, p. 38)’

Thus, a good theory is one that enables researchers to simplify reality just enough to enable understanding of how to solve or to improve a situation. However, there is no objective test for ‘the stage reached’ and academic disciplines impose their own categories on the phenomena which they claim to investigate. This process is neither consciously controlled nor well understood by historians or philosophers of science (Kuhn, 1962; Lyotard, 1984).

More recently, Laughlin (1995, 2004) extends the middle range idea to ‘thinking’ rather than ‘theory’, by using middle range combinations of theory, methodology and change. He represents these as three points on a spectrum. At one extreme is a position where knowledge is general and its discovery requires the use of prior theoretically defined and definable methods of observation. At the other is a position where understanding is context-specific and may require little or no prior theoretical and methodological specification. In-between is a middle range position which recognizes that prior generalizations are possible, but that they should be skeletal and filled out with empirical detail to make them meaningful (Laughlin, 1995, p. 81). Laughlin posited German critical theory as a middle range theoretical approach. It is possible to see this more specifically in Laughlin (1987), when he uses Habermas to propose a framework
for research at a micro-organizational level – in this instance, to bring about change to accounting systems. The approach involves, among other things, a researcher-researched discourse as an involving activity that works to produce a collective understanding about change.

The notion of skeletal generalizations was first raised by Laughlin (1995). This is theory that imparts some prior broad understanding of the phenomena to be investigated. It is a particularly useful idea for longitudinal tracer research, which Laughlin conveys well in the following:

‘a methodology which sets ‘skeletal’ rules for processes of discovery which still allows for variety and diversity in observational practice . . . Instead of arguing away diversity, through theoretical categories, the low [generalizability] prior theorisation position respects the detail that is there. This respect for detail but also the possibility of learning from other situations through theoretical insights, which is the strength of the high [generalizability] position, is preserved in the medium position perspective on theory. [The] design and use of skeletal theories, which cannot stand on their own but need empirical flesh to make them meaningful and complete, is a way to preserve both the strengths of the high and low perspectives while avoiding their respective weaknesses. (Laughlin, 1995, pp. 82–83)’

Laughlin (2004) emphasizes that the middle position is not a compromise between two extremes. Rather, the middle range position is a distinct position in its own right. In the rest of the article, we take an example of the longitudinal tracer study approach that was used to investigate hoshin kanri (sometimes called in the Western literature, ‘policy deployment’). Hoshin kanri is a Japanese-derived approach for the implementation and execution of strategic objectives in daily management. Our aim is to illustrate how prior (skeletal) theory is used and, when combined with tagging in the tracer approach, can be used to flesh out from the empirical detail not just a theoretical understanding, but one that is relevant to practitioners.

The Hoshin Kanri Project

A particular feature of hoshin kanri is its deployment and organization-wide management of a small number of corporate annual ‘hoshins’. These are brief statements of top management policies, which include a strategic objective and an outline of the strategies (means) to carry it out. The principle is to involve everybody, so that at the end of a company’s annual cycle a significant overall change will have been achieved. Hoshin kanri was introduced in Japan in the 1960s to give senior management more control of cross-functional management. Several Western companies have adopted its ideas, and good examples include Hewlett-Packard (Witcher and Butterworth, 2000) and Xerox (Witcher and Butterworth, 1999). However, hoshin kanri is largely unreported in the Western organizational literature. This may be because observers mistake it for management-by-objectives, total quality management or even as the balanced scorecard (an approach originally derived from hoshin kanri practice). The research was sponsored by the ESRC to find out what hoshin kanri was, how it worked in the UK and its theoretical place in strategic management; an account of the project’s main findings is given in Witcher and Butterworth (2001). Woodward’s research had similar aims for its investigation of management control, and it was this similarity that persuaded the research team to choose the longitudinal tracer as a useful way to capture the holistic nature of hoshin kanri.

Three Japanese-owned subsidiaries, NSK Bearings, Calsonic and Nissan Yamato Engineering Limited (NYEL), were used as field sites for the research. These have plants located conveniently close together in north-east England, and preliminary enquiries suggested they offered good examples of practice. The companies are first-tier suppliers to the automotive industry, including Nissan and Toyota. Other reasons for the choice were the willingness of management to collaborate and the likely success of isolating worthwhile tags. To follow tags effectively requires open access for the researchers, and this must be guaranteed for the research period. In other words, the quality of the researcher–practitioner working relationship must be sufficient enough to facilitate a researcher’s comings and goings as the tracer study unfolds over time. This requires trust in the practical relevance of the research as well as in the personality of the researcher. So the companies were chosen as much for their commitment to long-term collaboration as they were for being exemplars of hoshin kanri. It took
the research team a substantial time and many visits to arrange and to determine the conditions for the research. It was also necessary to have someone inside each organization to act as gatekeeper. This fell to general managers who agreed to champion the research. These individuals were instrumental in facilitating access, and were used for periodic interviews to provide updates of a general nature.

The tracer approach involved selecting two hoshin objectives in each of the companies and following these through as they were developed, deployed and managed through daily management. Each company had a small number of annual hoshins and the ones chosen as tags were selected after interviews with senior management. The purpose of these meetings was to determine how prospective tags might impact upon the organization, and to examine minutes and planning documents to identify as far as possible those people who were likely to be most involved. Documentation was used throughout the course of the research; this included company brochures and newsletters, which proved to be useful indicators of the general context in which the hoshins were managed. More specifically, other documents written to support the hoshin kanri process, as well as agendas, minutes and memos used for review and other related meetings, were used to corroborate and to augment the evidence collected from the tracer interviews. The criteria for choosing particular tags corresponded in general terms to criteria suggested by Hornby and Symon (1994). These were that: a tag should be understandable as a referent and be relevant to respondents, its form should be appropriate to catch significant emergent issues, and it should offer up sufficient data to generate and develop theory.

Although the research team was unaware of Laughlin’s ideas, the tracer approach used prior theory in a similar way. The extant hoshin kanri literature was used by the research team to sketch a theoretical skeleton or a set of theoretical categories. This was based on four themes that run through much of the Japanese practitioner-oriented literature (especially Akao, 1991). These concern the role that senior management has in implementing and executing strategy: (1) setting a vital few annual objectives to focus the organization; (2) ensuring other priorities and management systems were aligned to these objectives in plans; (3) facilitating integrative approaches for the daily management of these objectives; and (4) to review the enabling processes of implementation and execution. A position paper was circulated to colleagues (and later published by the ESRC) that outlined these themes as an integrated focus-alignment-integration-review managed framework, which was labelled the ‘FAIR model’ (Witcher, 1999). This prior view was used in the first instance to help select the tags and was later used to provide a framework to flesh out theoretical themes during data analysis. It was expected at the beginning of the research that the course of the tracer was likely to surface issues which reflected FAIR concerns. It was also expected that at certain times in a company’s annual cycle the relative importance of FAIR would change and the nature of organization-wide management would shift. Thus, the FAIR framework provided the research process with a starting point for thinking about how the research might progress. It was then useful as a context for the evaluation of the findings as the tracer studies progressed and as the direction of observation and interviews changed.

**Tagging Hoshin Objectives**

One of the hoshins at NYEL chosen for the study involved an objective designed by senior management to achieve an organization-wide breakthrough in the quality of spot-welding. This was a core cross-functional process, which was chosen largely because it was likely to involve a wide cross-section of people working at different levels of the organization. It was likely to give a comprehensive view of the hoshin kanri process. In fact, for the two hoshins selected at NYEL, 66 semi-structured interviews were conducted between 1997 and 1999. The majority of respondents were interviewed several times as issues from previous interviews required clarification or development for the research. Spot-welding was a key activity in the assembly of car components and it involved a number of complex technical processes. The process was subject to routine incremental improvement in daily management, but it became the focus for a hoshin following a complaint about weld failure in a customer’s factory.
The spot-weld interviews began with the members of a cross-functional team that had taken ownership of this hoshin. The responsibility of the team was to coordinate and to review progress. Its membership comprised managers from production, quality and maintenance, and included engineers who had specialist knowledge of the welding process. The team’s work started with the identification of several targets and the means to achieve them (targets were always decided together at the same time with the means to carry them out). Each target was allocated an owner from within the team. There were three different activity routes that flowed out from this team and the interviews followed all three. The first route followed the progression of a target and means largely within an individual owner’s normal scope of responsibilities. So, for example, an individual who was in charge of equipment for testing spot-welds was wholly responsible for the management of this side of the hoshin. The second route followed activities that took place wholly within a functional area. So the target owner had to seek cooperation from within the department that had the means to achieve this target. This sometimes meant a target had to be translated within the department concerned into further targets and means. So, for instance, a department modified its existing annual targets and developed several new ones, such as a new training programme for maintenance technicians specifically related to spot-welding. The third activity route was cross-functional, and in this instance, the means to achieve related targets were often unclear, so projects were formed to clarify the possible issues and to find solutions. In one instance, a project was formed to evaluate spot-weld activity on two production cells that were presenting special concerns. The project team concerned involved cell operators, as well as design, maintenance and quality engineers. There was also activity that was unsanctioned and uncoordinated by the spot-weld team. This typically arose because of a rise in general awareness that spot-weld was a priority for the organization. The research found that some individuals had followed through ideas independently and had raised spot-weld issues at routine management meetings. In fact, a lot of activity was generated around the need to consider how hoshin work impacted upon other work. The intensity of all this activity varied, and as different issues arose and were later closed, the involvement of people varied at different times. These diverse routes meant that the course of the tracer (the spot-weld activity) often travelled off in different directions and so the frequency of interviews varied at different times.

The exact nature of an individual’s participation in hoshin work was problematic. This was because work shifts, labour shortages and other things combined to take individuals away from meetings or sometimes to cancel them altogether. These could be important moments for the research, since absences might indicate problems for the accommodation of hoshin-related work. In these cases, follow-up interviews were conducted with attendees to confirm reasons and the consequences for others. For example, the inconsistent attendance of one manager prompted the research to examine spot-weld activity for some of the cells under his responsibility. The operators in these areas had increased spot-weld monitoring, but this had become inconsistent largely because they were unaware of its continuing importance since the manager had become distracted with other priorities. This specific instance of loss of momentum in hoshin-related activity led the research to focus in greater depth than was originally foreseen on the effectiveness of review as a company-wide managed process. It is unlikely this issue would have been picked up so quickly without a tracer approach, since researchers were able to follow-up the implications of what was actually happening in real time to see for themselves.

Decisions about which leads to follow and who to ask next were made on the basis of the analysis of data collected at interviews. The interviews were loosely structured around how a particular target and its means were managed in the context of the respondent’s work. These were taped and transcribed, and the transcriptions were then passed on to the respondents to ensure accuracy and as a check that the data adequately reflected their views. Respondents were free to request amendments and make additions, but they were not involved in the subsequent process of analysis when inferences were drawn from the transcripts. The involvement of multiple respondents gave opportunities to check respondent interpretations from a variety of different stances.

While a tag serves to set boundaries for the collection of data, the volume of data recorded in
the transcripts was still large. Figure 1 depicts in a stylised form how the data were grouped over time, from the beginning preparatory phase \( (t = 0) \) to the last (phase \( t = N \)). The top part of the figure indicates how a tag was followed through time and how the course of the interviews followed several paths, suggesting how the research took off in a number of directions but eventually levelled out towards the end of the tracer study. This is depicted in the figure by the increase and fall in nodes and grey arrows at each phase. The frequencies of the organizational phenomena covered in these interviews, shown by the round nodes in the top diagram, were grouped within a matrix, which comprised the hoshin kanri FAIR framework.

The FAIR issues that surfaced from the interviews required the judgement of the researchers to class the data, and this involved assigning each a code. This consisted of the ‘in-vivo’ type of coding, borrowed from grounded theory (Strauss and Corbin, 1990), where ‘parent’ and ‘child’ issues were separated by decimals in the code and grouped within one of the FAIR

![Figure 1. Illustration of a Tag in action and the Tracer Methodology](image-url)
themes. A coding tree was drafted to understand how these issues related to the entire strategic management context of *hoshin kanri*. The generalized understanding that stemmed from the classification formed the informational flesh on the skeletal framework (see middle diagram of Figure 1). For an illustration of this kind of content analysis (for research in regulated utilities, see Chau and Witcher, 2005). Frequency counts were used to focus the analytical process. It should be noted that the identified issues were not forced, but were grouped loosely, and where data did not fit well within the original FAIR framework, additional classes were added to it. These are depicted by X, Y and Z in the figure. Most of these misfits related to broader issues. For example, certain issues emerged that seemed to have particular relevance to the transferability of Japanese techniques to UK management and there was an associated question of whether non-Japanese-owned companies should adopt *hoshin kanri*. While this was important, it was not the central purpose of the research, which was centred on the question of what is *hoshin kanri*.

The FAIR theoretical skeleton was based on prior theory about *hoshin kanri* and was used primarily to group interview data in a way that filled in the detail of what *hoshin kanri* was in a UK context. This process was progressed for the whole tracer period as the skeleton was fleshed out and misfit data used to extend the FAIR prior theory. This activity is ably illustrated by Laughlin:

‘Where the empirical details do not fit the theoretical ‘skeleton’, the empirical data provides a basis for extending and/or reforming this framework. In this sense the ‘skeletal’ theory guides the discovery process but in such a way that can be reactive to the ‘fit’ of the detailed ‘flesh’ that is being added. This is in marked contrast to reliance on ‘complete’ prior theories where the empirical detail is seen only as a way to either confirm or falsify the theory. (Laughlin, 2004, p. 268)’

The heavy shading shown in the matrix in Figure 1 reflects an increasing focus on particular issues as the analysis threw up themes that were followed up over time as important elements of *hoshin kanri*. So, for example, the importance of how organization-wide review is managed became more featured in questions as the research process progressed. The issues associated with review accumulated as a key theme, especially in relation to how the process of *hoshin kanri* was reviewed as a managed senior-level business process. The bottom section of the figure illustrates that while the volume of data extraction at a particular interview phase increased generally over time, there came a point when it began to fall away as saturation points were reached. This occurred when additional observations began to yield little that could be judged as new to our understanding, and where ‘no additional data are being found whereby [the researcher] can develop properties of the category’ (Glaser and Strauss, 1967, p. 65). The same part of the figure also depicts the quantity of cumulative information over time. This (quantity) increases over time, although the rate of its increase, shown by the gradient of the line, levels off because of the saturation of data extraction. This increasing volume of cumulative information reflects the fleshing out process of the middle diagram.

Data analysis followed Huberman and Miles (1994), which consisted of three concurrent flows of activity: data reduction, data display and conclusion drawing. The tags acted as a form of non-probability sampling for the collection of data, which were then summarised using FAIR as a tentative and skeletal framework through which the interview data were organized to identify issues and to build themes. The working out of themes, or the theoretical implications, was essentially located outside the observations provided by the tags and was primarily the concern of analysis.

**Researcher–Practitioner Propinquity**

Once the research was under way, the researcher–practitioner relationship had to be sustained continually as key respondents moved jobs, changed roles and changed their responsibilities. Because longitudinal tracers work over an extended time, it is never certain which direction and which respondents will become involved and remain involved. Compound this with anxiety that people feel when outsiders examine their work, look at their company’s strategy, view confidential documents and ask for taped interviews, then the importance of developing and sustaining a close and trusting relationship is
essential. An important support for this relationship was the project’s practitioner network.

In addition to the three tracer companies, other *hoshin kanri* practitioners were invited to join a research panel, which was formally called the *Hoshin Kanri* Practitioner Network. Case histories were made of each of these, but these companies were not directly involved in any of the tracer research. However, the network became an important enrichment of the researcher–practitioner relationships established in the tracer companies. The involvement of the other companies in the network helped to strengthen the legitimacy of the relevancy of the research within the tracer companies. This was in part because the tracer companies hosted the network at their premises, facilitated tours of their organizations for the other members and participated in selecting presentation topics, sometimes involving foreign experts. During the course of the research some respondents moved on to other companies but stayed in touch through the network. One of the network’s advantages was that it gave managers an opportunity to interact with people who were experiencing similar work issues to their own, including managers who worked for rival companies. The network meetings were organized quarterly and were used to monitor and to inform the course of the research perspectives as issues surfaced and theoretical themes were developed during the time of the research. The meetings served as a sounding board to test the generality of issues as they emerged during the research and to assess their relevance for specific contexts. In addition, practitioners implemented ideas learned from others in the network, and on occasions researchers were invited by individual practitioners to their organizations to evaluate practices and sometimes to report on these to management. This served to build trust and to strengthen relationships across the network.

However, the close relationships of longitudinal research and practitioner networks can act to colour the independence of the research. Also, the very act of transferring knowledge meant the research itself was influencing, if only in terms of small interventions, the subject of the purpose of the research itself – what *hoshin kanri* might be! In general, the very fact of closeness means that a relationship has a power of its own, which is greater than the sum of its parts. The pull of this propinquity had to be checked for how it turned back on and biased the nature of the research process. Propinquity bias holds true for much qualitative research, and so at the outset of the *hoshin kanri* work it was decided to monitor and assess reflexivity as the interviews and analysis progressed as part of the research process. Reflexivity concerns essentially the influence of the research on the researched subject. This idea dates back to at least Garfinkel (1967) in ethno-methodological research; for its origins in organizational research, see Symon, Cassell and Dachler (2001) and Symon and Cassell (2004), and in business and management specifically, see Brannick and Coghlan (2004) and Johnson and Duberley (2003).

To avoid misinterpreting what was really happening it was necessary in the *hoshin kanri* research to monitor continuously and to reflect frequently upon the interaction of the researcher and respondent in what was a shared social field. In other words, friendships evolved and it was necessary to think hard about how these influenced data and analysis. In the case of NYEL and the spot-weld *hoshin*, the company was subject to major changes in organizational structures during the two years of the tracer study and this coloured the relationships respondents had with researchers. For example, the owner of a spot-weld target viewed his involvement in the research as an important management development opportunity. He used the research process as a way of developing and improving the process itself within his own areas of responsibility. This process included requests for interim reports of findings to assist him in his job. This was apparent for several individuals, who were generally very positive about *hoshin kanri* and this enthusiasm had to be allowed for in questions at follow-up interviews. In contrast, a quality technician, a member of the spot-weld improvement team during the second year of the research, questioned the company’s approach to everything. He was viewed by others as a rebel and was the subject of disciplinary action throughout the research time. In fact, he identified what turned out to be a key element in the spot-welding process, and his role in the research could almost be seen as that of agent provocateur. There was also a difference between individuals in management style, which influenced how individuals preferred to be interviewed and how they responded to questions. This difference
was influenced by personality and pressures of work. All these influences, as far as the research could identify them, were recorded and used to check the observations of individuals in the transcripts. So, for example, differences in management style were examined closely and led to a more detailed investigation of leadership as a factor for conditioning ‘catchball’, a participative and enabling form of planning, which requires a facilitative style if it is to work effectively.

Reflexivity was also used to qualify the research’s final results. A good model of hoshin kanri was obtained from the research carried out in the three companies. The findings, however, were qualified by the specificity of the tracer approach itself, as well as by the contexts in which the respondent companies operated. The idea was to investigate hoshin kanri by observing tags in daily management. Many things intervened in daily activities. An important forum for checking distortion in the picture of hoshin kanri that was emerging in the tracer studies was the practitioner network. It enabled apparent differences in the cases to be tested against the views of the network group as a whole through research presentations and panel discussions. The presentation of ideas and the subsequent interplay of theory and opinion at network meetings helped to contain and refine the boundaries of the investigation. The network was used to agree a consensus about a general representation for hoshin kanri. In fact, the involvement of practitioners as a network enhances the chances that theoretical insights will have a high degree of relevancy – the reason for middle range theory in the Mertonian sense. It also facilitates a researcher–researched discourse as an involving activity, suggested by Laughlin (1987) ‘to produce a collective understanding about change’ (see above). The administration of the network involved researchers in a lot of extra work, but it was important in the development of our ideas as middle range theory. Both sides of the researcher–practitioner partnership were learning in an active way from the interchange of theory and practice.

The Researcher–Practitioner Relevance Gap

Some of the recent literature makes a distinction between Mode 1 and Mode 2 research (Gibbons et al., 1994), notably Tranfield and Starkey (1998) and Starkey and Madan (2001). Mode 1 is discipline based and rigorous, while Mode 2 is transdisciplinary and focused on practitioner relevance. Tranfield and Starkey, following Becher (1989), argue that management research has a weak theoretical unity, with a low sense of knowledge progression, a lack of disciplinary cohesion and shared purpose for research, and has a low concentration of researchers on particular topics (see also Whitley, 1984). The subject of hoshin kanri belongs primarily to strategic management, and the Tranfield and Starkey view holds for strategy research. For example, Aram and Salipante contrast the views of Ansoff (1991) and Mintzberg (1990, 1991) to suggest there are ‘substantive ontological and epistemological differences between contextual and general knowledge’ (Aram and Salipante, 2003, p. 190). This reflects differences between the subject’s dual purpose to inform how to manage (a managerial position) and to understand generally how organizations behave in the context of how society works (a social science and critical theory position). Laughlin has sought, in our view, to bring the two together in his presentation of a middle range view, recognizing, as he does, the possibility for interplay between what he terms technical and social fields. However, the extent to which middle range thinking can relate to transdisciplinary research is problematic.

The experience of Woodward was that there can be too much social science theory to make sense of tracer interview data. Merton and Laughlin’s middle range thinking is premised on the idea that prior theory is too general. Transdisciplinary research could in fact suggest more, not less (general) social science theory, which would make relevance all the harder to achieve. There are worrying questions relating to relevance in recent transdisciplinary research conducted by Pettigrew, Massini and Numagami (2000), and Pettigrew et al. (2003). This work gives excellent insights about innovative forms of organizing, especially for what it argues about complementarities in relation to thinking about strategy. However, it fails to yield much about how organizing and complementarities are managed. There is nothing about hoshin kanri in this international study, which is surprising given its importance to firms like Toyota and Nissan. These companies claim hoshin kanri as a strate-
gically driven core capability for managing complementarities; in other words, it is an organizing approach. This is an important finding from the ESRC-sponsored research. In this, it is not the characteristics of organizational forms that are significant, but how management interventions are managed, especially by senior managements, that are important in explaining issues such as high productivity. This is supported by reviews of evidence presented in recent AIM-sponsored work (Bradley et al., 2004; Leseure et al., 2004; Pittaway et al., 2004). These suggest it is how working practices interact that sustains unique sources of competitive advantage. Taking this one step further, the hoshin kanri research indicates that it is the way this ‘how’ is managed that really matters. The middle range idea seems to counsel caution about the generality of multi-perspectives in transdisciplinary work.

In principle, there is nothing wrong in bringing a range of epistemological perspectives to bear on the task of managing. The point is that longitudinal tracers are premised on using an essentially managerial context for observation, where complete prior theories are replaced by skeletal theory. There is a further issue if Mode 2 rests on the mistaken assumption that social science disciplines can combine to give a common perspective. It is the strength of individual disciplines that they are distinct from one another; so ultimately they must be ontologically different. In fact, Hodgkinson, Herriot and Anderson (2001) argue that a full adoption of Mode 2 would not bridge the theory–relevance gap. They demonstrate theoretical/methodological rigour and practical relevance in a form of a distinct two-by-two matrix of high and low positions. The gap can only be bridged by a position that is high in both theoretical/methodological rigour and practical relevance.

The explosion of management education in modern times might be weakening the grip that social science has on business management teaching. Much of teaching is focused on managing and problem solving. Indeed, the real ‘gap’ facing the profession may be another one entirely: a gap between teaching and research. Much of teaching is informed by narratives and explanations founded on stories infused with slogans – unfounded facts that float and bob up and down and which, perhaps as teachers, we find only too easy to repeat in the classroom. Many of these come from stories written by consultants; see for example the story for business process re-engineering (Micklethwait and Wooldridge, 1997, ch. 1) or total quality management (Witcher, 1995). This may seem more like a call for rigour rather than for relevance, but really it is a call for a balance of both.

**Conclusion**

This article has considered the origins of the longitudinal tracer study, which lie with Woodward’s response to grapple with theory overload and how she developed a practitioner-focused approach to guide field observations as a solution. Subsequently Hornby and Symon developed more specifically the idea for tagging organizational phenomena. This serves to limit the role for prior theory and is consistent with middle range thinking, which, following first Merton and then Laughlin, suggests a skeletal approach for prior theory. The hoshin kanri longitudinal tracer was used in conjunction with a practitioner network. This combination is a unique feature in the sense that it has not been used before for other longitudinal tracers. Little has been written about tracer studies and we hope this article has introduced something of its flavour to our colleagues. We have used the hoshin kanri project as an example of a tracer study to illustrate the nature of tracer research, and we recommend its approach as a middle range solution to accommodate theory development and practitioner relevance.

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Vinh Sum Chau is a research associate in strategy and innovation at the School of Management, University of East Anglia, where he conducted his doctoral research on the strategic management of regulated utilities. He teaches strategic management on the undergraduate degree and business research methods at the postgraduate level. He is also a member of the ESRC Centre for Competition Policy, UEA. His research interests are in strategic control, research methodology and economic regulation.

Barry Witcher is a senior faculty member of the School of Management at the University of East Anglia, where he lectures on strategy and performance management. His research is focused on strategy implementation and execution in daily management. This involves the study of senior level management frameworks, which combine the balanced scorecard with hoshin kanri (policy deployment) to give senior management tools for managing strategic and diagnostic objectives (operational effectiveness).