

Case Research as a Methodology for Industrial Networks; A Realist Apologia

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Abstract

Researchers most often employ a form of case research methodology when carrying out research into industrial networks. Previously the basis for this choice has rested on the obvious common sense match between case research and the kinds of situations that industrial network researchers have chosen to study. The paper describes four different epistemological orientations; positivism, constructivism, conventionalism and realism. It is argued that only realism has properties which ensure a match with the particular characteristics of case research and thus provide a justification for case base knowledge claims. The implications of, and constraints on, each of the other epistemological orientations for case research are described and, finally, the ramifications of realist based case research for programmes of research on industrial networks are described.

Introduction

Few researchers involved in research in the business or marketing areas spend much time thinking about research methodology. Fewer still show any concern with or interest in epistemology. To an outsider this state of affairs might seem strange. After all such researchers would, most likely, if asked what they were doing, make claims such as "we seek to gain understanding" or "we are pushing back the frontiers of knowledge". And epistemology is the philosophical basis for claiming to know what we know; the substantive basis for our knowledge claims. It is even stranger that we, who research what managers do, and often criticise them for making decisions based on few or dubious data, do not apply the same criteria to our own activities.

It would be interesting to speculate at length why this anomaly has occurred. However for the purposes of this paper it will suffice to offer just one or two observations. It may be that we are so ensconced in our own paradigm that we simply take for granted that the methodologies we employ are correct because we are doing what everyone else does. Someone else has done the thinking for us. It may be that the research training we receive is inadequate; the apprentices learning from masters who themselves have little background in methodology. All this, perhaps, the result of being involved in immature disciplines. Another contributory factor may be that to many researchers the epistemological justification of their work is self evident. What you see is what you get. I collected these data and this is what they mean. So what is the fuss all about? Finally, for those who have dipped their toes in the waters of philosophy, they may seem very cold indeed. There are no tight little prescriptions. It is hard work and much of what is written appears incomprehensible. It does not help that philosophy proceeds by way of argument and controversy. It is much easier to call a plague on all your houses and get back to the practicalities of getting research moneys, finding and supervising research assistants, designing research methods and writing papers.

However the issue will not go away. The coming and going of post modernism, if nothing else, raised the consciousness of many to the problems of demonstrating that we do know what we claim to know. And if the diffusion of innovation model continues to operate in the social sciences in the way that it has in the past, then the death of positivism seen in the basic social sciences should, and is, beginning to have an impact on the more applied disciplines. An attack on, for example, the prevailing positivist position has been going on in Marketing for a decade. Hunt (1991) and Anderson (1986) have been assaulting the bastions of the key journals from two different directions and some argue that there is evidence that breaches are beginning to appear in the walls. Others are convinced the damage is purely cosmetic. It is noticeable, moreover, that consumer behaviour rather than marketing academics are in the forefront of the argument. Nevertheless a generation of doctoral students are aware of the arguments and the revolution make occur quicker than we think.

Closer to home, I would claim that we have a particularly acute problem in the field of Industrial Networks research. The traditional methodology, inspired by the IMP projects, has been a mixture of relationship or focal organisation surveys and case research. The former fits quite well into the current paradigm though misses out by not, in general, offering the level of operationalisation of variables and randomness of sample required by the more prestigious US journals. Johansson et al (1992) offers one of the few exceptions although the analysis was dyadic rather than network in form. Anderson et al (1994) provides another but the case material in this latter paper was suitably diluted by more traditional material. As a result of this espousal of a rather restricted form of positivism by traditional journals, case based writing appears mainly in books.

Yet I wish to argue in this paper that case research is perhaps the most appropriate methodology for research into Industrial Networks and that there exists an epistemological defence for case research which is at once powerful and appeals, certainly at the most superficial level, to our common-sense notions of the world. This epistemological position

is a sophisticated form of realism developed by, among others, Bhaskar, Harre, and Sayer and brought to bear on case research by Tsoukas (1989). One way of describing it would be as critical perceptual transcendental realism. All this means is that it is a realism that has been modified and articulated to take account of the many philosophical attacks made on naïve realism in the past.

The paper begins with a description of the features of the realist position that I wish to draw upon. It continues by defining a particular mode of case research and aligning it with the realist epistemology. In the third section I briefly show how case studies do or do not fit in with other, what I prefer to call, epistemological orientations, particularly positivism in some of its many forms. Finally, an attempt is made to identify some of the "realistic" causalities which appear to underpin Industrial Network phenomena.

A Realist Epistemological Orientation

In a recent work on methodologies for Industrial Networks research (Easton (1995)), I argue that four key epistemological orientations can be identified in social research. I used the label orientation to indicate a cluster of schools or positions which have certain aspects in common but which also have, within them, much heterogeneity. The four orientations are: realism, positivism, conventionalism and constructivism. I will deal with the issue of how the last three orientations relate to case research in a later section. In this section I wish to set out the structure of, and the arguments for, the particular brand of realism, hereafter simply realism, that can be used to justify knowledge claims arising out of case research.

What is it that we are trying to do when we do research? The realist position is that we seek valid explanatory knowledge. Explanation is a contentious issue in philosophy and there are many alternative views about what explanation comprises. However what should be apparent is that each meaning of explanation can only be understood in the context of

the epistemology that is being employed. What a valid explanation means in terms of realist epistemology will only become apparent when the basic postulates of the system have been described. However suffice it to say that it differs sharply from the deductive - nomothetic form that occurs in many forms of positivism. It has been argued, by positivists, that the ultimate aim of research is prediction. Again realists would argue that predictions, apart from the atheoretical predictions produced by forecasting techniques, is very rarely possible even in closed and well understood systems and that its value is, in any case, not easy to justify. (Sayer 1984 p130-138)

The fundamental assumption of the realist position is that there is a reality "out there" waiting to be discovered and that reality is independent of us. This may not seem a very radical notion but there are many adherents to constructivist and conventionalist positions that may make it seem so. They would argue that what reality there is is socially constructed or, that there is no reality and that all knowledge claims are relative to the system that produced them. What is not being assumed is a naive realism implying that reality is obvious or self evident or easy to discover. In fact precisely the opposite is claimed. "Our knowledge of that (real) world is fallible and theory laden.....Nevertheless it is not immune to empirical check and its effectiveness in informing and explaining successful material practice is not mere accident" (Sayer 1984 p5) We see through a glass darkly but there is something there to see. Or, using another metaphor, there is land below the aircraft but we get only occasional glimpses of it.

Bhaskar (1978) provides a more articulated view. He distinguishes between the real, the actual and the empirical domains. The real domain contains the independent -from - observer mechanisms which create events. The actual domain is where the events created by the interaction of the real mechanisms appear. Events can occur, of course, without their being observed. The empirical domain is where events are experienced by observers. Bhaskar's schema is shown diagrammatically in table 1.

Table 1. Bhaskar's Classification of the Real, Actual and Empirical Domains (Bhaskar 1978)

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	x		
Events	x	x	
Experiences	x	x	x

The events, and the experiences which stem from the events, may be out of phase with the mechanisms which create them. It is partly this quality of being out of phase which distinguishes between the realism described here and naive realism. It represents one of the forms of complexity which researchers have to decipher. In addition, events may be one offs or patterned in particular ways. Realism accounts for both types of occurrence. In one sense it might be argued that much of the operationalisation of the positivists is an attempt to bridge the gap between the actual and the experienced. The crucial link is, however, between the real and the actual. How these two domains are linked provides the basic *raison d'être* of realism.

Starting in the real domain, Bhaskar argues that mechanisms are "...nothing other than the ways of acting of things" (Bhaskar (1978 p14). Sayer puts it slightly differently. "There is necessity in the world: objects - whether natural or social - necessarily have particular causal powers or ways of acting and particular susceptibilities". The central concept is that of causality. This is not the causality as correlation or sequence of positivism but a realist causality inherent in the nature of things, or objects. Gravity makes apples fall from trees. People build houses. Firms downsize. Individuals create personal networks. This is not

only everyday causal language but also the kind of language we use when we theorise and report results. It should however be noted that in none of the cases above is the causal power of the initial object sufficient of itself to cause the event to occur though it may be necessary. It is therefore the realist project to discover what causal powers act in what ways.

For those who may be sceptical, it is quite easy to demonstrate that causal language is indispensable to everyday life. When we put pen to paper it makes a mark. More convincing for the theorist, however, is the extreme difficulty that adherents to other epistemologies have in describing their work without recourse to causal language. Positivist rarely stick to correlation when they report their work. Explicitly or implicitly they equate correlation or invariant sequence with causality. Constructivists argue that reality is social constructed i.e. that humans cause a reality to occur and describe how these realities are created. Conventionalists argue that there is no reality except that agreed by convention but such conventions are caused to occur by human actors.

Sayer has elaborated Bhaskar's original model and the concepts are summarised in figure 1.

Figure 1 here

Objects, in Sayer's terms, may be simple or complex, social or material, abstract or concrete and are characterised by their relations. But "Neither objects nor their relations are given to us transparently: their identification is an achievement and must be worked for." (Sayer 1984 p88). Similarly relations are of various types; substantial and formal: contingent and necessary; symmetric and asymmetric. Thus networks comprising firms have a whole set of relations and it can easily be demonstrated that their internal relations provide examples of all of Sayer's kinds of relations. Similarly structures can exist which are comprised of internally related "objects". For example, social networks overlay

economic and communication networks and have relations with them. But while understanding the nature of objects and their structures is important, their causal powers are more important to explanation

"On the realist view, causality concerns not a relationship between discrete events ('Cause and Effect'), but the 'causal powers' or 'liabilities' of objects or relations, or more generally their ways-of- acting or mechanisms. " (Sayer 1984 p 105). Causal powers may also be attributed to the structures that objects are involved in. If firms are objects, networks of firms (their structures) have emergent causal powers above and beyond the causal powers of the simple aggregation. Objects not only have causal powers but also liabilities i.e. ways in which they themselves are acted upon by other causal powers; their susceptibilities. It is tempting to argue that causal powers define objects (a manager controls subordinates) but that should not be the case. The key distinction is to be clear what it is about a manager that allows her to control subordinates and not to allow explanation to descend into tautology. Another issue in this conceptualisation is that of agency. Realism is eclectic on this point. People clearly have causal powers but they do not control all the events they are involved in. Conversely people's behaviours are not simply the result of causal powers of objects outside of their control.

A vitally important aspect of the realist view of the action of causal powers is that they are contingent. Causal powers depend upon certain conditions in order to operate. Hardware manufacturers cannot sell computers unless other firms sell software. In general the conditions take the form of other objects with their associated powers and liabilities. Not only are they contingent in terms of operating but also how they operate when they do so. Everyday experience suggests that we acknowledge this view. To make a meal we assemble the ingredients, heat the oven and collect together the utensils. The outcome would be different if we missed an ingredient, failed to heat the oven or used a different utensil. Thus it seems strange when this realist view of the operation of causality is attacked for being particularistic and too complex. However it is vital that the

contingencies are used as explanations via causal mechanisms. It is not enough, for example, to show that networks operate differently in service and product defined industries. It is essential that the mechanisms that lead to this observation are uncovered.

Thus valid explanatory knowledge in this realist epistemology requires the researcher to identify the contingent causal powers that are operating in the particular situations under research and the ways in which they combine and interact in order to create the particular events observed in the empirical domain. The generalisation of this type of explanation will be dealt with later in the paper.

Case Research and Realist Epistemology

The term case research is generally used very loosely even among seasoned researchers. However, in adopting a realist epistemology, the nature of case research can be made much clearer although other uses of the word cannot be denied to those who want to use the term to mean something else. Authors have discussed the definition of case research for some years. The holistic nature of case research has been emphasised by Goode and Hatt (1952). "It is a way of organising social data so as to preserve the unitary character of the social object being studied" (p331). Hakim (1987) offers another important, discriminating dimension. "Case studies take as their subject one or more selected examples of a social entity" (p61). A case is a single example or instance. Of course we may use more than one case but, as will be made clear case research cannot depend upon numbers for its epistemological justification.

Yin, who has written what many believe to be the definitive work on case research, defines a case study in the following terms. " A case study is an empirical enquiry that: investigates a contemporary phenomenon within its real life context; when the boundaries between the phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Yin (1989) p23). The notion of multiple sources of

evidence can be extended to include different types of data; qualitative and quantitative. Even quite seasoned researchers make the mistake of conflating qualitative and case research (e.g. Bonoma (1983). The vast majority of case studies will largely comprise qualitative data because the data available to examine complex, rich, "contemporary phenomena" are of this kind. But it is possible to conceive of a largely, or even wholly, quantitative case studies and it could be argued in closed and metric systems these do occur. In one sense, every piece of research is a case study if the boundaries of the case are taken as the time and space limitations of the particular study.

Yin offers a further important qualification when he describes the use of case studies for explanatory purposes, though his use of the concept explanatory is rather different from that a realist would use. "...how and why questions are more explanatory and likely to lead to the use of case studies, histories and experiments as the preferred research strategies. This is because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence" (p18). Case studies need to be concerned with dynamics and time if they are to be explanatory in either Yin's or a realist sense. Realist can only identify casual mechanisms if they operate to cause events to happen, a time based phenomena. The use of the word contemporary in the original definition is thus explained. Cases are different from histories, where data cannot be created or events followed, and from experiments where the system is closed and if / then effects observed.

We are now in a position to compare case research and the realist epistemology. Realists argue that the world is composed of real objects and their relations, though they cannot be directly apprehended, which have structures but, more importantly, causal powers which combine in complex ways to create events which occur in the actual world and may be researched in the empirical domain. Case research can, in theory, be used to describe empirical events and, by its use of multiple data sources, trace out links over time, digging ever deeper, and following through the actual to the real domain. A useful, though not

entirely appropriate metaphor, is that of peeling off the layers of an onion. The "peeler" in this case is the use of the question why consistently and continually. Why did this actor behave in this way at this time? Because they wanted control of a key resource? But why did they want control of this key resource at this time but not earlier or later?

The inappropriateness of the metaphor quickly becomes apparent. This is no easy or mechanical process. What happens at any one stage of researching the case depends upon what is found at the previous stage. The process is reactive. It may be necessary to go back over old ground but in a different way. It is also apparent that simply peeling away will not necessarily reveal "reality". There are acts of creation and induction to be carried out. "Real" concepts have to be induced from the data or, alternatively already existing concepts need to be employed to see if they provide some sort of match with reality. The complexity is compounded when the realist notion of the ways in which causal powers combine contingently is taken into account. The non occurrence of events does not imply that a particular causal power is not operating but simply that the configuration of other objects and their casual powers is such that it remains a potential unactualised. For example, a new IT system may have the potential to increase the interaction between a customer and its suppliers but the software is not designed to help this happen.

Earlier it was stated that "case research can, in theory, be used....". Implicit in this statement is the idea that case research, in practice, often lacks any explicit epistemological base. Some case studies are simply rich descriptions of events from which the reader is expected to come to their own conclusions. Others are really examples of data that appear to provide, at best, partial support of particular theories or frameworks and are used in a quasi deductive theory testing way. A third kind employs multiple "case studies" in a way that suggests that they are relying on some notion of statistical generalisation. Case research which would wish to lay claim to a realist epistemology must be carried out in a different way; to be inquisitive, to look for the roots of things, to disentangle complexities and to conceptualise and reconceptualise, test and retest, to be

both rigorous and creative and above all to seek for the underlying reality through the thick veil which hides it.

Case Studies and Other Epistemologies

The most obvious epistemological orientation that provides a useful contrast with, and alternative to, realism is positivism. There are many schools of positivism and what I present here is a simplified and lowest common denominator version. One of the crucial distinguishing features of positivism is that the basis for explanation must spring from empirical data. It was, put crudely, a response to pre scientific armchair theorising and assertion and, in that sense, offered a significant advance in scientific thought. However it led to the notion that unobservables must be rejected, in sharp contrast to the realist view.

However the sharpest distinction occurs in terms of the role of laws or invariance in the two epistemologies. This is clearest in the form of positivism labelled logical empiricism though it is present in other forms. The resulting method has been labelled nomothetic / hypothetico deductive. Law like relationships are hypothesised among a set of operationalised, and therefore empirically measurable, constructs and data are collected, and analysed, using the methods of statistical inference, to see whether the original variables are correlated. It is argued that the relationships are only law like and not lawful because of problems of sampling and measurement and therefore 100% correlation cannot be expected. As a result rules have been evolved which help researchers decide whether the correlations, in whatever form calculated, are significant. If they are not significant then the hypotheses are rejected. If they are not (technically) not rejected, it can be assumed that the original model / theory received some measure of confirmation. More tests of the same model / theory lead to increasing confirmation. Other forms of positivism use the logic of refutation but the principle is similar.

Realists would argue that the assumption that invariances exists anywhere outside fully closed systems is mistaken. " If positivistic claims about the natural and social sciences were true, scientific activity would not have been possible because most events in the natural world take place in open systems, in which events do not invariably follow a determined and recurrent pattern" (Tsoukas 1989 p552). Positivists put their faith in regularity and co- occurrence. Their "laws", to the extent that they can be found, reflect covariation and not causation. Since positivists cannot have recourse to unobservables they cannot explain in any meaningful sense. They may be able to show that there are complex patterns in the data that they collect based upon measuring techniques they have devised but they cannot say why. Their "explanations" are simply superficial summaries of relationships among artificially created variables. It is acknowledged that this critique of positivism caricatures a broad, and often sophisticated epistemology but it does identify some of the main issues.

What is the relevance of positivism to case research? Clearly, since positivism relies on correlation to infer causation, the role of individual cases must be marginal. A case is a single instance; statistical inference requires many hundreds of cases in a sample, depending on the number of variables involved, in order to provide a powerful and sensitive test of the model. Cases are only useful as exploratory devices; identifying the likely variables and the relationships among them. And the qualitative data they include must be converted into metrical or logical form before it can be helpful.

This comparison between realism and positivism can also be used to explore, perhaps, the most contentious issue for case researchers; generalisation. What can one case tell you ? is the way that the question is often posed. The answer for positivists is clear; very little indeed. The basis of the statistically base nomothetic approach is inferential. The form of generalisation, which is highly limited in practice, is generalising to the population from a sample. The larger the sample the more that can be said about the population. However, if one accepts a realist view, one case is enough to generalise: not generalising to any

population but to a real world that has been discovered. Yin uses the term analytical generalisation. " The short answer is that case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a sample and the investigators goal is to expand and generalise theories (analytical generalisation) and not to enumerate frequencies (statistical generalisation). " (Yin 1989 p21) Unfortunately Yin is rather coy about the process of analytical generalisation. He need not have been so. It matches exactly the realist notions discussed earlier i.e. research should be aimed at understanding and explaining the reality underlying every and any event or set of events (i.e. case) by unpacking and describing the contingent causal powers of the objects that brought them about. One case can create and / or test a theory to the extent that it uncovers reality.

Even enthusiastic case researchers often fail to appreciate the distinction that Yin makes. They seek to do a number of cases studies as if greater numbers, by and of themselves, increased the explanatory power of what they have been doing. Eisenhardt (1989) for example argues that a minimum of 8 cases seems reasonable but on what grounds?. Yin's concentration on research designs for multiple cases betrays the same belief. Ragin () offers a more sophisticated design which captures something of the notion of contingent causal powers. He suggests that by doing relatively large numbers of superficial cases and noting the presence or absence of particular factors, one can begin to see how contingent variables work in combination to create effects on a dependent variable. However, in this situation, there is attempt to get behind the conjunctions to discover what the causal powers and mechanisms might be. Researching greater numbers of cases, with the same resources, means more breadth but less depth. One may be able to identify other contingent causal powers but at the expense of discovering how they operate "in reality". This is clearly an alternative research strategy but one which should build on deeper knowledge to start with.

Realists should not however reject positivist methods but rather use the possibility of reversing the normal role of case and, for example, survey work. Surveys, given their superficial nature, might be used as the first stage of research to provide a broad overview of the research domain and to guide more in depth explanatory studies: in a word to provide something to explain. They offer the chance to identify the contingent variables. An example from industrial networks would be a survey of the links between a net of firms and subjecting them to a clique detection programme. Case research would then seek to explain how, for example, one of the cliques came into being, how it has changed over time and, of course, why.

Constructivism is a set of beliefs which centre on the idea that the knowledge of the world is constructed, most usually socially. There is no reality to be discovered. What we regard as knowledge is that which we, as social animals, choose to accept as knowledge. When we collect data we use our perceptions of the world to decide what to collect and we only recognise that we have concepts for. When we analyse and interpret, we do so through language that is, in turn, a socially conditioned tool. Hegel was one of the first to argue that the world cannot exist independently of our perceptions of it. Berger and Luckman (1966) were among the first to coin the phrase - the social construction of reality. The movement has had an enormous influence on social research and, because it has represented a radical alternative to positivism, with its reliance on sense data, there have been mighty battles in the literature between the proponents of different views.

Constructivist would, of course, argue that the case study is as it is because of who has written it. Since there is no ultimate reality to guide us, many other case studies might have been written and while they are not all equally valuable, since there are other criteria one can use to judge, nevertheless there is not "one true account". Interpretivism is one form of constructivism and one can use it to show how cases might be used in this genre. A summary of interpretivist views might include the following; human beings construct multiple realities, the researcher and the researched are mutually dependent, cause and

effect cannot be separated and research is never value free. Thus the value of cases studies is minimal to interpretivist. The depth that they offer is a snare and a delusion. What is required instead is multiple interpretations of the same "text". Similarly the power of the case to combine material and social data is largely lost on the interpretivist. They would argue that there was no distinction anyway but concentrate on the worlds of those being researched. And, of course, the process of research, which is largely separate for the case studying realist, is part and parcel of the content for the interpretivist.

While the constructivist might reject the case method except as one rather interesting way of producing text to analyse, the case researcher can and must learn from the constructivist. Sayer, for example, accepts the social nature of the realist project. "Social phenomena such as actions, texts and institutions are concept dependent. We therefore have not only to explain their production and material effects but to understand, read or interpret what they mean." Sayer (1989 p6).

The final orientation, conventionalism, is similar to constructivism but different enough to warrant separate consideration. Knowledge, in this view, is determined by convention. Conventionalists thoroughly reject realism and make either certain convention based knowledge claims (e.g. each individuals own personal knowledge) or none at all (anything goes). The conventions for judging the worth of theory can be many and various and are often quite admirable; humanity, creativity, beauty, mode of production etc. However proximity to reality does not figure on the list.

One key concept that realists can accept from conventionalists is that of criticality. Sayer again offers a useful summary of how it might be incorporated in a realist epistemology. "Social science must be critical of its object. In order to be able to explain social phenomena we have to evaluate them critically". (Sayer (1989) p6) Put another way, it is not enough to simply understand the world and accept it. Beyond understanding there are judgements to be made about whether that world is acceptable according to the criteria

that we as individuals and / or we as society can agree on. Two of the issues in industrial networks which deserve critical attention are those of power and co-operation. Networks can act to distribute or concentrate power; should there be public policy initiatives to favour the former at the expense of the latter. Industrial networks involve both competition and co-operation of many kinds and at many levels. Should we make suggestions to managers as to how to increase co-operation and reduce competition? In other words, can industrial network researchers really claim that their work is value free and objective or should they recognise the conventions that they use have values incorporated in them and strive not only to surface them but to judge whether they are personally or societally appropriate.

Case Studies, Realism and Industrial Networks

Having provided a description of a particular kind of realism and the underpinning it can provide for case research, the final step is, briefly, to apply both of these concepts to the special case of researching industrial networks. Industrial networks comprise large numbers of organisational actors where the boundaries between one net and another are, at best, indistinct. The connectedness among and between actors means that Yin's prescription that cases should be used where the boundaries between the phenomenon and the context are not clearly evident is wholly applicable. The notion, for example, of surveying networks as a sample of independent actors or links or dyads or triads is risible. The essential element of a network view is lost in this situation since connectedness is assumed away. Conversely a sample of one looks far more defensible if the one is a net comprising large numbers of actors. Similarly, the complexity of the links within and between actors requires a methodology which can handle rich sources of data and multiple forms of data collection. Networks have consistently been portrayed as dynamic forms. Again the case method with its attention to changes over time is well suited to providing longitudinal data . In summary, it is hardly surprising that much, if not most, research in the realm of industrial networks is case based. We have been driven to cases because they

make sense of the phenomena we have sought to understand. We have a common-sense rationale, as summarised above, as to why we have been making the right choice. The thrust of this paper is that we now have an epistemological justification through new critical realism.

But can realism do more and provide a direction or strategy that we might adopt in carrying out research into industrial networks? I believe it can. First of all there are a whole series of process prescriptions that become apparent in the design and conduct of realist case research. These include; the acceptance of small sample numbers, the creative use of alternative data sources, an emphasis on process as the key area to be understood and, above all, the need to identify the causal mechanisms that underlie the processes that we are observing by continuing to ask the question why and collecting more data until we believe we have an explanation.

Perhaps even more important there are content implications which will be unique for industrial networks. What, for example, are the objects we seek to study? Hakansson and Johansson have put forward the actors, resources and activities model which has been the basis of many recent studies. Although there could be alternative models it will be useful to examine how the ARA model can be treated in a realist fashion. Clearly actors and resources can be identified as objects that cause events to occur. Should we then identify events with activities? It would seem to be a reasonable first step to do so. After all activities are caused by actors and resources. However some activities also cause other activities and activities can have a causal impact on actors and resources. Perhaps all three concepts should be regarded as objects. Actors, resources and activities also have relations and, combine, to form structures which themselves have emergent causal powers.

A key step in terms of theory development is the identification of the causal powers of the objects we study. There are already a number of candidates in the set of dialectics that have been used to describe network processes; stability and change, centralisation and

decentralisation, co-operation and conflict, hierarchisation and heterogenisation, structuring and destructuring. An important problem in using these dialectics has been to account for the end result of their operation in terms of some kind of combination or interplay among them. For example, do industrial networks grow more quickly if relations among actors are more co-operative than competitive. The crucial step in overcoming this problem is supplied by Sayer's realist notion of the varying combination of contingent causal powers. Thus a particular network or net or even relationship develops in a particular way because of a particular configuration of contingent causal powers. For example, hierarchisation is nullified by heterogenisation in this case because of the particular constellation of actor and resource structures which are involved, and so the network remains stable.

The previous discussion suggests three kinds of realist research may be relevant. Theory development research should largely be confined to describing processes not previously examined. It is to be expected that new objects and new causal powers will be adduced. Where theory exists, because research into the processes has been carried out, two alternative research programmes are possible. The first kind articulates existing theory by examining how the causal powers already identified act contingently in different situations. The second kind seeks to discover alternative conceptual causal powers i.e. to develop new theory to explain existing data. In each case the process may be similar but the output will differ. Realistically, it is likely that much research will continue to contain elements of all three kinds.

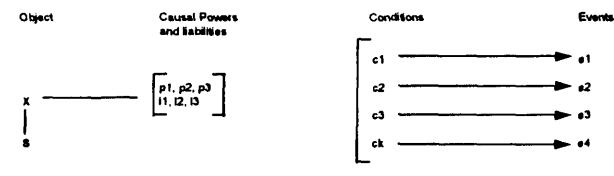
At first glance it may seem that these types of research programme could apply to any epistemology. However a crucial distinction between this type of research and, for example, a positivists mode, separate from the obvious methodological differences, is the realist's insistence on the pre-eminence of relatively few fundamental causal powers creating different outcomes because of the way they contingently combine. Positivists are

much more likely to rely on many more variables in their models as a way of coping with the many different outcomes experienced across different research situations.

Conclusions

Case studies are a powerful research method and one particularly suited to the study of industrial networks. The prevalence of case study research in the industrial networks field lends support to this assertion. However up to the present the justification has been at the level of praxis. Case research has been carried out for a series of practical and common sense reasons. In this paper I have attempted to show that there is a strong epistemological justification for using case studies based upon a particular form of realism. However the argument does not depend on the employment of all the details of, for example, Sayer's schema. The logic is more robust than that. It may be that case researchers would prefer to derive alternative views about how causality operates in detail. The key assumptions of realism would not be disturbed by such changes but would still remain in place providing, I would hope, industrial networks case researchers with a more secure feeling as they write up their methodology sections or chapters.

Figure 1 The Structures of Causal Explanation (Sayer 1984)



Object X, having structure S.....necessarily possessing causal powers (p) and liabilities (l).....under specific conditions (c).....will:

- (c1) not be activated hence producing no change - e1
- (c2) produce change of type e2
- (c3) produce change of type e3 etc

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