

# The Influence of Technical, Social and Structural Factors on the Effective use of Information in a Policing Environment

Vince Hughes and Paul Jackson  
Edith Cowan University, Western Australia  
[p.jackson@ecu.edu.au](mailto:p.jackson@ecu.edu.au)

**Abstract:** Throughout the world, police services are increasingly adopting a proactive, intelligence-led approach to crime management. These services operate within environments characterized by firm hierarchy, the command and control paradigm and high social sensitivity. The implementation of strategies for the exploitation of knowledge and information within such environments reveals particular insights into organizational knowledge management. Understanding these issues may be of great value, particularly as despite the commitment to intelligence led policing, the outcomes to date have not met expectations. This paper proposes that social and political issues have the ability to influence knowledge management strategy by drawing upon Pan and Scarbrough's socio-technical model to show the progression of the intelligence-led policing philosophy over the past decade.

**Keywords:** Knowledge Management, Business Intelligence, Public Service, Policing

## 1. Introduction

Knowledge is a critical organisational resource that is the foundation of sustainable competitive advantage (Pan & Scarbrough, 1999). Without knowledge, no organisation could make effective use of its materials, processes and financial capital to produce goods or services (Davenport & Prusak, 1988). Organisations that actively exploit knowledge and use it to create innovative outputs, do a better job of delivering customer satisfaction (Hoopes & Postrel, 1999), than those who ride on the "coat-tails of knowledge created by others" (Boisot, 1998 p. 42). Furthermore, globalisation and the concomitant hyper-competition are driving changes in the working environment which compound the need to manage and create knowledge (de Laat, 2001). As a result, "leading management theoreticians argue that it is much more profitable for a company to invest a given sum in its knowledge assets than to spend the same amount on material assets" (Probst, Raub, & Romhardt, 2000, p. 3). In striving for enhanced competitive advantage, companies are increasingly investing in systems, which collect and store accurate and up to date information about the world in which they operate. They are investing in information technology (IT) and information systems (IS) to manage the mounting volume of organisational information in order to glean insights that

can be leveraged for a competitive edge (Cody, Kreulen, Krishna, & Spangler, 2002). They are also investing in Knowledge Management Systems that support collaboration by knowledge workers in the use of non-structured information (such as documents, e-mails and multi-media files) within non-routine, knowledge intensive tasks. This has led to information management (IM) and knowledge management (KM) becoming the subject of intense interest by both academic and business organisations (Wastell, 2001). Whilst the public service does not compete in the open marketplace, globalisation has increased the complexity of the challenges and a relative funding decline has increased the pressure to 'do more with less'.

Over the past two decades, police agencies have endeavoured to implement the concepts of the 'learning organisation' (M. M. Brown & Brudney, 2003). The learning organisation is characterised by the commitment of a firm to the principles of sharing, innovating, critical review and systemic thinking. An organisational culture is nurtured, in which adherence to such principles is articulated, encouraged, rewarded and highly regarded. This philosophy is expressed in the writings of Peter Senge, Donald Schon and Chris Argyris. In policing, this investment is based on two overarching factors. The first is that the very nature of police work necessitates officers needing access to

timely, accurate and up-to-date information. Secondly, "the amount of data police officers come into contact with in the course of their work is astounding" (Luen, 2001 p.312) providing vast sources from which to collect information.

Information, in a policing context, covers a wide range of diverse organisational activities including crime and traffic management, budget and asset control, human resource deployment, record management and statistical analysis (Western Australia Police Service, 1998). For the purpose of this paper, the term 'information' relates solely to crime management data. The main sources of such data are usually the product of contacts police officers have with both law and non-law abiding members of the public. This is a largely non-structured, often tacit source of insight into crime-related events. Other data collection sources include personal and electronic observations, telephone and email intercepts, registered informants and data accessed via public and private organisations.

Prior to the introduction of computers into police stations, crime management related data was stored manually in text format on cards and filed in cabinets. This data was usually station or district specific. Data which was perceived to be important or relevant to others was duplicated and forwarded to centralised offices for storage. This data was usually managed and protected by an officer sometimes referred to as a "collator", whose task was to ensure that police officers recorded the important information they received in the course of their duty. The collator gave the information a rating scale and decided what information should be stored or discarded and what information should be disseminated to the officers. A criterion for the position of collator was an ability to intuitively and serendipitously link seemingly unrelated pieces of data to produce intelligence (knowledge) that could be used by other officers in the investigation of crime. A similar situation occurs today, however, the information is now stored in information systems and usually accessible to all officers, who must fulfil the role of 'collator' themselves. While information systems are being developed to assist with the management of the information, the sustainable ability to make

strategic links between obvious data trends and ad-hoc data in order to create new knowledge appears to be limited. The information systems do not seem to have obviated the necessity for a formalised role and the self-conscious and strategic analysis of the data that they administer.

This limitation is not peculiar to police organisations, in fact it is a major point of concern within many private enterprises (Malhotra, 2002). Organisations drown in data, but gain no insight from it (Tiwana, 2000). It has been argued that within the policing environment this constraint is due to "the ever increasing capacity to store data which is causing an information overload and adding to the task of analysis, this in turn is impacting intelligence product outcomes. In one Western Australia police district alone *"during the two year period 1999-2001 a total of 28 information reports were processed, while in the two year period 2001-2003 this figure increased to 495"* (Crime Analyst # 4). *"...since the introduction of IMS [Incident Management System], there has been a huge increase in the level of data collected we now need more information analysis tools to keep on top of the data"* (Crime Analyst #2)

This paper will argue that although information processing and information storage capacity may be increasing, it is not the amount of data or the lack of analysis tools that are preventing the creation of knowledge. To turn *data* into useable and useful *information* through analysis and filtering requires a recognition of the importance of knowledge agents or knowledge creators in the knowledge creation process (Boisot, 1998). Furthermore, it is not the accuracy or the abundance of information that guarantees strategic advantage, rather it is how that information is interpreted and turned into knowledge that is important (Sutcliffe & Weber, 2003).

## 2. Methodology

Using the socio-technical model developed by Pan and Scarbrough (1998; 1999), this paper will contend that knowledge resides in the user and not in the collection of data (Malhotra, 1998), and while information systems and information technologies (IS/IT) have a role to play in knowledge management

strategies, without human expert interpretation these systems are merely tools that harvest information rather than create knowledge (Malhotra, 2002). Finally it will illustrate that value adding of information in terms of knowledge creation will not result from investment in technology itself, but from additional investment in specific people skills that can make best use of the information assisted by the technology (Harvey, 2003; Pan & Scarbrough, 1999).

The study explores how knowledge management initiatives have been implemented over the past ten years in the West Australia Police Service. It investigates how factors other than information systems have impacted the progression of knowledge management strategies with a specific emphasis on the relationship between government policies, police management orientations and knowledge creation. These factors will be analysed and discussed in relation to Pan and Scarbrough's socio-technical model. There are lessons that can be learned from this, which would be of value to any large, formally-organised organisation.

As one of the authors has been involved with policing for the past 23 years spanning two different police organisations, an appropriate methodology for this paper was deemed to be reflective interpretivist case study. An important factor in that decision was that a case study is the preferred method when how or why questions are being posed relating to contemporary phenomenon in which the researcher has little or no control over the events (Yin, 2003). In addition, a number of police personnel were contributed their experiences in relation to knowledge creation in the Western Australia Police Service. The contributors spanned vertical levels and functional units/groupings of the organisation that included general operations, specialists, unsworn public servants and managers. At all times they were aware that their comments would be part of a study.

The contributors were informally questioned in a casual setting relating to knowledge management strategies in the police service. No formal or structured questionnaires were developed or presented, instead participants were asked to talk freely about their own

perceptions and experiences. To encourage candid responses, the exact details of the conversations were not recorded, however, notes were made at the time or following the meeting. The quotations used in this paper are as close as possible to the original. Where there was any doubt about the content, the contributors concerned was asked to approve the quotation before it was used. In addition internal documents were also utilised to corroborate the findings. In total, 4 managers, 4 crime analysts and 8 operational officers contributed to this study.

The methodology relies on attitudinal perceptions and as such may be open to criticism for lacking rigour by researchers grounded in a more scientific approach. Nevertheless, it has been well substantiated that perceptions drive behaviours (M. M. Brown & Brudney, 2003) and, as such, is a suitable tool for this paper, whose purpose it is to gain insight into historical events from a knowledge creation perspective.

### 3. What is knowledge?

Many points of view, ranging from the operational to the philosophical, have been posited to provide an explanation and understanding of knowledge. The realist view claims there is a privileged position for certain types of knowledge that describe the world 'as it *really* is'. In contrast, the constructivist view eschews this absolutism and describes knowledge as manifest in conceptual frameworks that develop within social groups over time. Accordingly, there are many systems of knowledge that people use to manage the world of lived experience and none has a *priori* primacy. Knowledge has also been expressed as both a means and an end - as a means it is information and as an end it is understandable and useable, (R. B. Brown & Woodland, 1999). On another level it is described as any process or practice of creating, acquiring, capturing, sharing and using knowledge to enhance learning and performance in organisations (Quintas, Lefrere, & Jones, 1997). Others explain it as a cognitive process triggered by the inflow of a stimulus (Alavi & Leidner, 2001) or as 'a fluid mix of framed experiences, values, contextual information and expert insight' (T.H. Davenport & Prusak, 1998, p. 5). It can

also be viewed as the transformation from an 'unreflective' to a 'reflective' practice (Touskas & Vladimirov, 2001). Whichever definition or explanation is accepted, it is clear that while there is an obvious interplay between information and knowledge (Kane, 2003), the technical power must be used intelligently and deliberately (Igbaria, 1999), and that digitalisation cannot be a substitute for socialisation (Touskas & Vladimirov, 2001). This implies that the overarching factor in knowledge creation is the human and social role in the application of expertise, rather than the IS/IT role in the interpretation process (Boisot, 1998; Iftikhar, 2003; Kautz & Thaysen, 2001; McDermot, 1999).

#### **4. The socio-technical perspective on knowledge management**

Pan and Scarbrough (1999) argue that organisational knowledge (a) is socially constructed, (b) shaped by the emergent interplay between technical and organisational factors, and (c) structured between tacit and explicit forms, and by organisational context (p.363). This interplay between social and technical factors is illustrated through the socio-technical perspective model of knowledge management. Knowledge in its tacit form is described as personal knowing, generally gained through experiences and cannot be easily formulated, articulated and communicated and therefore can be difficult to capture (Polanyi, 1966). One reason posited for this difficulty is because tacit knowledge is embedded in the "neuro-anatomy" (Boisot, 1998, p.42). Explicit knowledge, on the other hand, is formal, relatively easy to use, and is usually codified or written data such as industry specific information, instructions or policies and procedures (Nonaka & Takeuchi, 1995). Nevertheless, effective codified information is dependent on the complexity of the phenomenon and is related to intellectual and observational skill (Boisot, 1998).

According to Pan and Scarbrough's (1999) model, three multi-layered systems with loosely coupled technological, informational and social elements interact over time with each other to determine practical knowledge creation outcomes. The perspectives are explained as follows:

- *Infrastructure* – comprises the hardware and software that enables the physical and communicational contact between network participants;
- *Infostructure* – moves beyond mere technology and incorporates the formal rules governing exchanges and sense making between the participants; and
- *Infoculture* – is the background knowledge embedded in social relations and work group process.

#### **5. What is knowledge within a policing context?**

It is accepted that within the crime management portfolios of policing environments the term intelligence and intelligence-led has become an accepted term within the "lexicon of modern policing" (Ratcliffe, 2003, p. 1). In fact a search by Ratcliffe of all police web sites in Australia established that the term intelligence was found in each site. While the term may be used frequently, it appears that the concept and application of intelligence is not fully understood by many within policing organisations (Her Majesty's Inspectorate of Constabulary, 2001). The exact reason for this misunderstanding of the term cannot be easily explained, but the following assertion by a senior member of the Western Australia Police Service provides some explanation.

*Because we have not able to clearly articulate what policing style is effective, we adopted what many other police agencies are espousing, which is the intelligence-led policing model. In my opinion the term intelligence-led is a misnomer, with everyone having a different opinion about what it means. To say that we are implementing an intelligence police approach implies we have not been using intelligence in the past. In my opinion what it really meant to encapsulate was the creation of knowledge so that informed decisions could be made. If the term knowledge had been adopted it may have reduced some of the confusion we have today. Some officers still believe there are three types of policing – reactive, proactive and intelligence-led. What these officers fail to realise is that there is only*

one type of policing with a fluid mix of reactive and proactive each fuelled by intelligence. Reactive policing is non negotiable and will never cease to exist and will always devour most of our resources and time. Proactive relates to the reduction of crime through various crime reduction strategies.. (Manager #1).

Currently the bulk of policing is reactive. The need to shift the weight from the reactive and incorporate a more proactive style is the aim of practically every contemporary police organisation. This need is best described by the “riverbank” analogy (Stevens, 2001), which is explained as follows:

*Being a policeman in the 21st Century is like being the man who was standing on the bank of a very fast flowing river. In that river he could see hundreds of people being swept along struggling to stop from drowning. As each moment passes their numbers swell until there are thousands of people all gasping and shouting to the man on the bank to help them. What do we do as police officers? Go in and help as many as we can? Or do we take a walk*

*upstream and find out who is throwing them all in? I have a feeling that most of the time police have been wading in to the rescue! And so begins a reactive cycle of uncontrolled demand and equally uncoordinated response. The police become like life guards frantically swimming against the tide from one incident to another, employing different tactics in a disjointed and unfocussed manner with little or nothing to show for it at the end of the day (p. 3)*

To move from the cycle of uncontrolled demand and uncoordinated response requires a strong knowledge base to guide the shift. The provision of such a knowledge base can only be achieved through the development of an equally strong knowledge support infrastructure. Figure 1 illustrates the relationship between reactive and proactive policing and knowledge and intelligence. It represents the business of policing supported by both a weak Intelligence/knowledge creation infrastructure and a strong Intelligence/knowledge creation infrastructure.

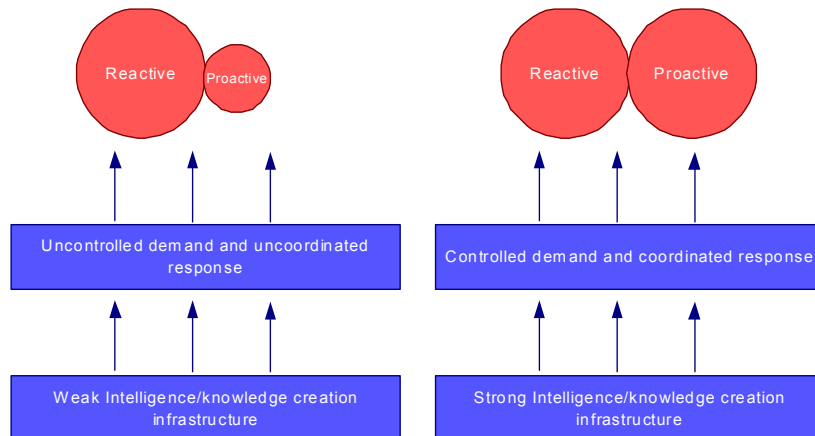


Figure 1: Policing and intelligence

The diagram contends that when policing is supported by a weak Intelligence/knowledge creation infrastructure the style of policing is one of uncontrolled public demands and uncoordinated police response ultimately leading to a greater emphasis towards reactive style policing. On the other hand when the policing is supported by a strong Intelligence/knowledge creation infrastructure the style of policing is one of a more controlled demand and

coordinated response, ultimately shifting the emphasis towards a balance between reactive and proactive policing styles.

The diagram also suggests that the terms intelligence and knowledge can be used interchangeably. This suggestion is not without foundation when the two meanings are conceptualised. The term knowledge has already been discussed in this paper, arguing that the overarching factor in knowledge creation is the human and

social role in the application of expertise. While many definitions have been espoused to explain intelligence (Her Majesty's Inspectorate of Constabulary, 2001; Smith, 1998; Western Australia Police Service, 2003) the basic elements of the definitions relate to the creation of knowledge via the collection and analysis of data to inform decision making. The human and social role is, again, foremost in that an effective intelligence system requires an investment in people (Ratcliffe, 2003).

## **6. Knowledge eras within the West Australian (WA) police service**

To explain knowledge creation strategies within the WA Police Service, three distinct knowledge-epochs have been selected. The term knowledge-epoch refers to a specific timeline where knowledge management strategies have been evident. The epochs identified are:

- IT Adoption 1989-1994
- Professionalism 1994-1999
- Knowledge Management 1999 - present

The Professionalism epoch has without doubt been responsible for one of the greatest reform initiatives within Western Australia for the past two decades (Bogan & Hicks, 2002). For this reason it is appropriate to use it as a benchmark from which to measure previous and present knowledge management approaches.

### **6.1 IT adoption**

This period relates to the five-year period 1989 - 1994 prior to the Introduction of the IT Adoption Program, and typified the image of police officers who saw their role as crime fighters rather than crime preventers (Sarre, 1997). This approach to policing was cultivated by the management style of the time which was heavily weighted towards a paramilitary philosophy of management with an emphasis on strict discipline, autocratic command, centralised decision making and a multiplicity of ranks (Etter, 1993). Such a style encouraged knowledge as being seen as a source of power (Western Australia Police Service, 1998). Most knowledge was tacit in nature and what was codified tended to be in systems that were antiquated and inadequate in addressing corporate needs (Western

Australia Police Service, 1999). For example, a review of the information systems (IS) found that the service had over 800 different data repositories. These information repositories, also described as information silos, existed within individual portfolios and units and catered for the specific needs of specific functional areas. Consequently decisions tended to be portfolio-centric, were made without sufficient analysis and without considering their impact on other areas of the organisation (Western Australia Police Service, 1998). This lack of evidence based decision making was recognised by the Commissioner at the time, Brian Bull, and in an effort towards a knowledge management approach he instigated the first moves towards encouraging universities to become involved in applied police research initiatives in Western Australia (WA). This epoch also witnessed a comprehensive review of public sector finances culminating in recommendations that can now be regarded as the starting point for contemporary public sector reform in WA. Included in this report was the observation that in order for the Police Service to provide a greater police presence, improved support facilities were urgently needed (McCarrey, 1993, p. 185).

This era, when analysed against the Socio Technical model, indicates that IT infrastructure including hardware and software was not utilised in a symmetrical way to effectively enable the physical and communicational contact between network participants. To that end this epoch could be not classified as fitting into any of the model's perspectives.

### **6.2 Professionalism program**

In June 1994, a new commissioner, Commissioner Falconer further enhanced knowledge management initiatives. Commissioner Falconer's arrival heralded the beginning of major management reform within the Western Australia Police Service. He believed that knowledge was one of most important assets of the police service, without which it could not meet its mission nor perform any of its core functions and that information should be accessible and shared at all levels. "*The underlying rationale was to enhance decision making at all levels by providing better quality, more relevant and more timely information to be delivered to the right people at the right time*" (Manager

#1). In addition he further encouraged the participation of universities in the move towards evidence based policy decision making within the policing environment.

Another fundamental initiative was the buy-in of knowledge creators or knowledge agents across many portfolios. This buy-in of knowledge creators included financial analysts, business analysts, human resource analysts and intelligence analysts was also supported by the Government who funded the initiative. In the crime management area, unsworn crime analysts were introduced with a specific function to create knowledge by analysing data gathered by operational officers and provide an intelligence (knowledge) product to better inform decision makers. Having regard to the IT investment and the buy-in of knowledge creators the police service was strategically elevating its performance within the *Infostructure* dimension of the socio-technical model with some improvements within the *Infoculture*.

### 6.3 Knowledge management

After the retirement of Commissioner Falconer in 1999, the knowledge management initiatives introduced during the Professionalism Program continued to be supported by the new Commissioner Matthews through strategic reform. The primary emphasis of this period was on strategic planning. This new approach, coupled with the outcomes of the Professionalism program, probably would have witnessed the agency moving into the *Infoculture* perspective of the socio-technical model. However some internal and external influences have almost prevented this shift and some crime analysts and managers within the agency believe that these influences have caused the knowledge management initiatives to regress. For example, while Commissioner Falconer's investment in IT/IS was necessary, one outcome was that managers began to rely heavily on the assistance of IS/IT to provide solutions to problems (Western Australia Police Service, 1998). This resulted in Commissioner Matthews being faced with a strong push towards IS/IT with many within the service equating knowledge with technology. Consequently this saw many of the new knowledge agents being utilised to provide superficial and retrospective crime statistics data at the

expense of new knowledge creation. This situation is characteristic of many organisations who tend to be more focussed on IT (Kautz & Thaysen, 2001) at the expense of knowledge agents (Boisot, 1998). A crime analyst in a district office supports this point:

*My district cannot keep up with the level of crime. But instead of having me analyse [serendipitous] pieces of information that might give investigators some help in targeting the crims, I am forever producing colourful reports relating to what was instead of what could be. One of the main reasons I do this is because I can. So can the 'level 1' customer service officer but they are not asked to do that because it is not in their job description. If we employed more support staff who could use some of the database packages maybe I could get back to doing what I should be doing – creating intelligence*

Another reason is the implementation of Government policy. An examination of the State Government's crime reduction policies indicate that their key crime initiative is to make Western Australians feel safe in their homes and in their community (Labor Government, 2001). While this is a laudable initiative, the strategy is predominately based on recruiting 250 more police officers. Evidence relating to the impact of police numbers on reducing crime rates is rather mixed, with some academics suggesting that more police on patrols will not reduce crime (see for example, Edwards, 1999; Mulgan, 2003; Normandeau, 1993). Equally there are others who maintain an increase in police numbers has a direct impact on the reduction of certain offences (see for example, Marvell & Moody, 1996; Sherman et al., 1998). This debate relating to effectiveness of police patrols on the reduction of crime will remain for some time and a definitive answer will probably not be forthcoming. What is obvious though is that the constant appeal, by police managers, police unions, the media and the public, for more police officers is not practicable considering the expense. It has been estimated that the cost of recruiting and training 1000 police officers is approximately \$70m (Weatherburn, 2002).

The impact of the government policy is described below:

*...what Commissioner Matthews endeavoured to do was to move from the Professionalism philosophy away from all the information, right away and everywhere, to ensuring the right information at the right time in the right place. However current government policy of reducing unsworn officers appears to have put a stop to any moves Commissioner Matthews may have wanted to make in order to improve intelligence management within the Service (Manager #3).*

It can be argued that the 'increase operational resources' policy approach to policing is akin to the previously discussed "riverbank" analogy where the government is prepared to throw more officers into the river in an attempt to save those drowning, but may be better served by going up stream to see why so many are falling into the river. A reflection of the continual reliance on increasing police numbers at the expense of knowledge creators can be seen from the fact that approximately 24 per cent of recorded crimes are detected, and only nine per cent result in a conviction (Home Office, 2001). It goes without saying that if a private business could only deliver nine per cent of its product or expected services, then it would not last for too long. Policing is no different.

The most practicable way to improve police outcomes is through enhanced effectiveness and efficiency in the use and management of physical assets and human resources and the support and flexibility it needs to deliver a first class service to the public. However, efficiency initiatives must be driven by evidence based strategies. Evidence based strategies require knowledge and knowledge needs to be created, therefore the need for knowledge creators.

It can also be argued, that the Government's investment in recruiting 250 extra police officers, and its continued investment in IT tends to be at the expense of knowledge creators who are essentially unsworn public servants and, while it is not generally known, the police service receives no funding to increase unsworn positions. This lack of funding for public servants was acknowledged by

Commissioner Matthews who stated recently, "we [the police service] are not funded to increase the number of unsworn officers" (Western Australian Parliamentary Debates Legislative Council - Estimates Committee, 5 June 2003, p. E641).

*This was put into perspective by an operational officer who maintained that: "...without the means to create appropriate intelligence products, police officers will continue to be utilised in a vacuum. Later on public dissatisfaction in police will become another political platform and competing parties will promise more police resources in the form of more police officers. We [the police service] continue on as we did before and keep on feeding the monster "*

## 7. Discussion

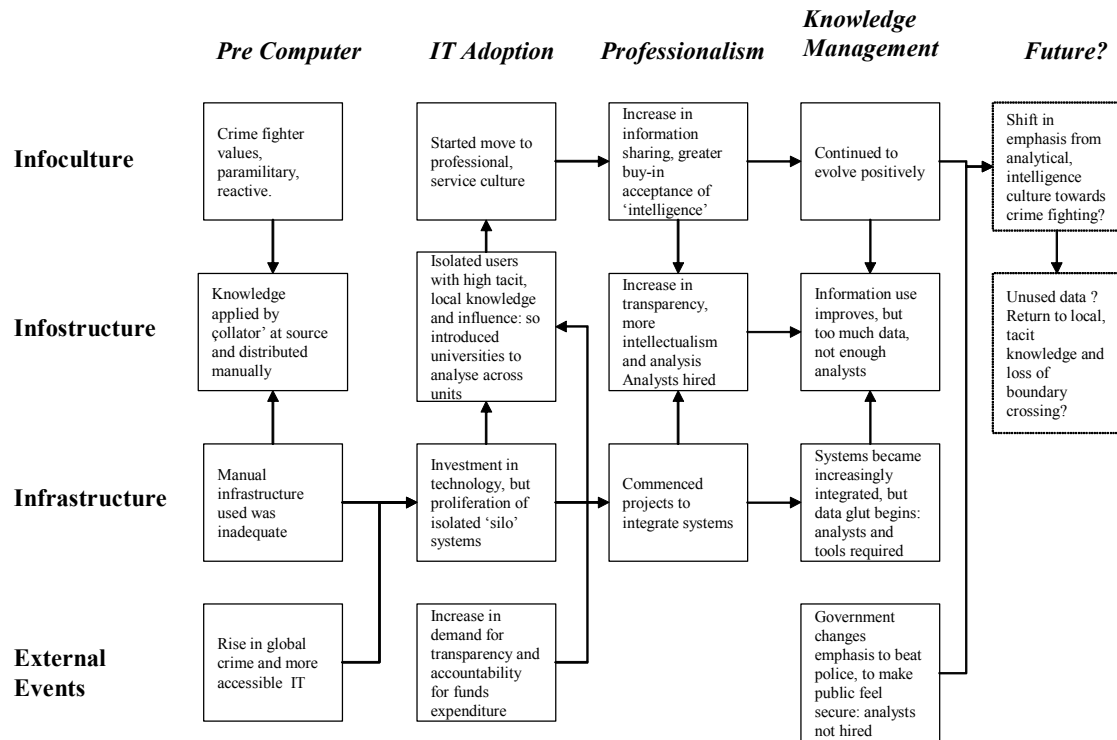
There are complex relationships between the internal and external forces that have impacted the evolution of knowledge management within this particular police service. Through observing each epoch in isolation, we can explain and describe specific characteristics and factors relevant to each period. This leads to a better understanding of the interplay across each of the socio-technical categories. Figure 2 is a high level causal analysis of events in terms of the socio-technical model.

In the pre-computer epoch, the Infostructure of pre-computerised policing applied intelligence and created knowledge at the point of data capture by an experienced operative. The Infrastructure was inadequate for sharing and using it to effectively to combat crime. The Infoculture was one where policing was a crime-fighting, largely 'tribal' organization. Subsequently, Information Technology was introduced, improving the Infrastructure but during this phase, the systems design allowed fragmented, non-integrated databases to proliferate and data was not utilized to best effect. There was a recognition that the 'Infostructure' was not working and steps were taken to improve the management of information. Moving into the 'professionalism' epoch, the situation was addressed and improvements taken up on all fronts and continued by improving the Infrastructure,



the technical integration of the information systems, and the Infostructure, through the use of analysts to use that information to predict crime patterns and assist investigation. The Infoculture became more professional and transparency of decision making increased, leading to a decline in tribalism. In the 'Knowledge Management Epoch', improvement would

have continued but government policy diverted budget and managerial effort to placing policemen on the beat. If the intelligence-led argument for improving policing is correct, one might anticipate increasingly fragmented and reactive policing, due to the neglect of the 'infostructure' for properly exploiting the data that is now available.



**Figure 2:** A causal analysis of the evolution of knowledge management using the socio-technical model.

## 8. Conclusion

While the police service has been progressing towards an effective knowledge management infrastructure, external factors including government policy have had a constraining impact on the progression. An analysis of the progression in relation to the Socio-Technical model indicates that the police service has not progressed, any further than it was during the Professionalism-epoch (see below).

If Government policy relating to increasing police officers without an appropriate knowledge creation infrastructure continues, the situation in relation to knowledge management improvement within the police service does not augur well for the future of intelligence/knowledge led policing. This assertion, however should not be taken as

an indictment on government policy implementation, rather it should be seen as an acknowledgement of Mulgan's (2003) argument that there are inherent complexities at work, which derive both from the nature of government, itself and its duty to create public value.

It would seem that the management of knowledge creation within police organisations and the move towards a supportive Infoculture and Infostructure cannot be sustained if external and contradictory influences such as government election commitments are dominant. There is a need for harmonisation of police service strategy and government policy, otherwise development of an intelligence-led or knowledge creation policing philosophy may well be frustrated.

## References

- Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25(1), 107-136.
- Bogan, R., & Hicks, S. (2002). *Western Australian Police Service Qualitative and Strategic Review of Reform: The Way Ahead*. Perth: Western Australian Police Service.
- Boisot, M. H. (1998). *Knowledge Assets: Securing Competitive Advantage in the Information Economy*. Oxford: University Press.
- Brown, M. M., & Brudney, J. L. (2003). Learning organizations in the public sector? A study of police agencies employing information and Technology to advance knowledge. *Public Administration Review*, 63(1), pp 30-43.
- Brown, R. B., & Woodland, M. J. (1999). Managing knowledge wisely: A case study in organisational behaviour. *Journal of Applied Management Studies*, 8(2), 175-198.
- Cody, W. F., Kreulen, J. T., Krishna, V., & Spangler, W. S. (2002). The integration of business intelligence and knowledge management. *IBM Systems Journal*, 41(4), 697-714.
- Davenport, T. H., & Prusak, L. (1988). *How organizations manage what they know*. Boston, MA: Harvard Business School Press.
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: how organizations manage what they know*. Boston, MA: Harvard Business School Press.
- de Laat, M. (2001). *Learning in a community of practice: Creating and managing through networked expertise*. Paper presented at the 2nd World Conference: Modern Criminal Investigation, Organized Crime & Human Rights., Durban, South Africa.
- Edwards, C. (1999). *Changing Policing Theories for 21st Century Societies*. Sydney: The Federation Press.
- Etter, B. (1993). Future directions of Policing in Australia. *The Australian Police Journal*(March), 43-54.
- Harvey, S. (2003). Knowledge management: how do you do it? *Training Journal*, July 2003.
- Her Majesty's Inspectorate of Constabulary. (2001). *Northamptonshire Police: Intelligence led Policing and Proactive Investigation of Crime. Best Value Review and Inspection Report*. London: Her Majesty's Inspectorate of Constabulary.
- Home Office. (2001). *Police Reform White Paper presented to Parliament by the Secretary of State for the Home Department by the Command of Her Majesty, December 2001.*: HMSO Publications Centre.
- Hoopes, D., G., & Postrel, S. (1999). Shared knowledge, "glitches" and product development performance. *Strategic Management Journal*, 20, 837-865.
- Iftikhar, Z. (2003). Developing an instrument for knowledge management project evaluation. *Electronic Journal of Knowledge Management*, 1(1), 55-62.
- Igbaria, M. (1999). The Driving Forces in the Virtual Society: Examining the factors propelling the evolution to a virtual workplace and the arrangement being used to implement these changes in a societal context. *Communications of the ACM*, 42(12), pp. 64-70.
- Kane, H. C. (2003). Reframing the knowledge debate, with a little help from the Greeks. *Electronic Journal of Knowledge Management*, 1(1), pp.33-38.
- Kautz, K., & Thaysen, K. (2001). *Knowledge learning and IT support in a small software company*. Paper presented at the 9th European Conference on Information Systems, Bled, Slovenia, June 27-29.
- Labor Government. (2001). *Election 2001 Policies: More police, better policing*. Retrieved September 22, 2003, from [http://www.premier.wa.gov.au/policies/more\\_police\\_better\\_policing.pdf](http://www.premier.wa.gov.au/policies/more_police_better_policing.pdf)
- Luen, T. W., Al-Hawamdeh, S. (2001). Knowledge management in the public sector: principles and practices in police work. *Journal of Information Science*, 27(5), pp, 311-318.
- Malhotra, Y. (2002). Why knowledge management systems fail? Enablers and constraints of knowledge management in human enterprises. In C. W. Holsapple (Ed.), *Handbook on Knowledge Management 1: Knowledge Matters* (pp. 577-599). Heidelberg, Germany: Springer-Verlag.
- Malhotra, Y. (1998). Tools@work: Deciphering the knowledge management hype. *The Journal of*

- Quality and Participation*, 21(4), pp. 58-60.
- Marvell, T. B., & Moody, C. E. (1996). Specification problems, police levels and crime rates. *Criminology*, 34(4), 609-646.
- McCarrey, L. E. (1993). *Report of the Independent Commission to Review Public Sector Finances: Agenda for Reform Volume 1*. Perth: Independent Commission to Review Government Finances.
- McDermot, R. (1999). Why information technology inspired but cannot deliver knowledge management. *Management Review*, 5(1), pp. 103-117.
- Mulgan, G. (2003, April 21/23). *Government, Knowledge and the Business of Policy-Making*. Paper presented at the Facing the Future Conference: Engaging stakeholders and citizens in developing public policy, University of Canberra.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company*. New York: Oxford University Press.
- Normandeau, A. (1993). Community policing in Canada: a review of some recent studies. *American Journal of Police*, 12(4), 57-73.
- Pan, S. L., & Scarbrough, H. (1998). A socio-technical view of knowledge sharing at Buckman Laboratories. *Journal of Knowledge Management*, 2(1), 55-66.
- Pan, S. L., & Scarbrough, H. (1999). Knowledge management in practice: an exploratory case study. *Technology Analysis and Strategic Management*, 11(3), 359-374.
- Plewhe, R., & Wettenhall, R. (1994). Policing In Australia: Historical And Machinery-Of-Government Perspectives. In D. Moore & R. Wettenhall (Eds.), *Keeping the Peace: Police Accountability and Oversight*. Canberra: University of Canberra and the Royal Institute of Public Administration Australia.
- Polanyi, M. (1966). *The Tacit Dimension*. London: Routledge and Kegan Paul Ltd.
- Pratley, J., Magill, P., & Butler, S. (2003, 30 June). Curfew Success Claimed. *The West Australian*, p. p. 9.
- Probst, G., Raub, S., & Romhardt, K. (2000). *Managing Knowledge*. Chichester: Wiley.
- Quintas, P., Lefrere, P., & Jones, G. (1997). Knowledge management: a strategic agenda. *Long Range Planning*, 30(3), 385-391.
- Ratcliffe, J. H. (2003). Intelligence led policing. *Trends and Issues in Crime and Criminal Justice*, April 2003(248), 1-6.
- Sarre, R. (1997). Crime prevention and police. In A. Sutton (Ed.), *Crime Prevention In Australia* (pp. 64-83). Sydney, Australia: The Federation Press.
- Sherman, L. W., Gottfredson, D., MacKenzie, D., Eck, J., Reuter, P., & Bushway, S. (1998). *Preventing Crime: What Works, What Doesn't, What's Promising*. Washington DC: National Institute of Justice.
- Smith, A. (1998). *Intelligence-Led Policing: International Perspectives on Policing in the 21st Century*. Lawrenceville, New Jersey: International Association of Law Enforcement Intelligence Analysts.
- Stevens, J. (2001). *Intelligence-led policing*. Paper presented at the 2nd World Conference: Modern Criminal Investigation, Organized Crime & Human Rights, Durban, South Africa.
- Sutcliffe, K., M., & Weber, K. (2003). The high a cost of accurate knowledge. *Harvard Business Review*, May(2003), 75-82.
- Tiwana, A. (2000). *The Knowledge Management Toolkit: Orchestrating IT, Strategy, and Knowledge Platforms* (second ed.). USA: Prentice Hall.
- Touskas, H., & Vladimirov, E. (2001). What is organizational knowledge. *Journal of Management Studies*, 38(7), 973-993.
- Wastell, D. (2001). *Barriers to effective knowledge management: Action research meets grounded theory [case study]*. Paper presented at the 9th European Conference of Information Systems, Bled, Slovenia, June 27-29.
- Weatherburn, D. (2002). *Does Australia have a law and order problem?* Paper presented at the Tyree Room, School of Social Science and Policy to mark the author's appointment as an adjunct professor, 21 May 2002, University of New South Wales.
- Western Australia Police Service. (1998). *Strategic Information Management: A Review of Information Management in the Western Australia Police Service*: Management Audit Unit.
- Western Australia Police Service. (1999). *Review of statistical information*

- services and research functions in the Western Australia Police Service.* Perth: Data Analysis Australia.
- Western Australia Police Service. (2003). *Intelligence-Led Policing In The Western Australia Police Service-Proposed Framework.* Perth, WA: Strategic Reform Program.
- Western Australian Parliamentary Debates Legislative Council - Estimates Committee. (5 June 2003). (pp. E634-E644).
- Yin, R. K. (2003). *Case Study Research: Design and Methods* (3rd ed.). London: Sage Publications.