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# An Organisation on the Edge of Knowledge Management

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# An Organisation on the Edge of Knowledge Management

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## Abstract

*This study looks at how case management used in conjunction with information and communication technology (ICT) changed an organisation's culture to that of knowledge management (KM). This is an important issue as many organisations have failed at KM and one solution as will be shown is to use case management. The organisation studied was the Accident Compensation Corporation of New Zealand (ACC). The findings build on previous research by the author, where it was discovered that there are two stages to KM and that the first stage, building a knowledge infrastructure, is often neglected. This study was able to show culturally what it is like for an organisation that has completed stage one and is ready to move on to stage two, in particular what the workers' perceptions and technology use are at this stage. Thus this study extends the current theory on KM.*

## Keywords

Knowledge Management, Process Management, Case Management, Change Management

## INTRODUCTION

For the last decade companies have desperately tried to become knowledge managing organisations, to help them to survive the new highly competitive market place that arose in the 1990's. This new marketplace was customer driven and to remain in business you needed to keep your customers satisfied. Knowledge management (KM) was seen as a means to survive these turbulent times by capturing a company's most valuable asset, the knowledge that people hold in their heads, and using it to create innovative products and services, to retain their customers (Prusak 1996). Despite millions being poured into KM many attempts have failed (Bhatt 2002). Academics have stated that the main reason is that companies need a more holistic approach that seeks change at more fundamental level. Reengineering has been suggested as the means to achieve this, however reengineering has had a checkered past, especially as concerns the people in the system. The workers resisted reengineering, as often it was used to make them redundant rather than empowering them. This strategy seems in opposition to what is at the centre of KM, that is harnessing the knowledge of the worker. Another approach is needed to get KM working. In particular literature has stated the need for more human centred approach. Case management is one such method. However little research has been undertaken in this area.

This paper carries on in a series that looks at the research question of "how does information and communication technology support case management?" and explores the sub-question of:

*How has case management used in conjunction with information and communication technology changed the culture of an organisation to that of knowledge management?*

To address this question an organisation-wide study at Accident Compensation Corporation of New Zealand (ACC), a major public sector health insurer was undertaken. The study sought to understand holistic cultural change in KM, taking on the organisational behaviour view of culture being comprised of numerous subcultures and that each subculture interacts to transform into successful KM. In light of this, the research involved an indepth study at ACC to capture the holistic nature of this phenomenon. This allowed for the capturing of the workers perceptions to technology that had changed to KM. The work is founded in the theory of process management and knowledge work, and the results have relevance to both practitioners and academics.

## LITERATURE REVIEW

In the 1990's the business world was thrown into a new highly competitive era where companies had to fight to survive (Abell 2000). Companies had to become market focussed and listen to their customers' desires or risk collapse. One way to survive was to harness the knowledge in your company (Prusak 1996). This approach involved using the company's human capital to gain competitive advantage (Mårtensson 2000). This was made possible by the development of powerful new ICT tools that allowed for capturing and sharing information

within a company (Orna 1999). However for many companies KM failed (Bhatt 2002). There has been a call for much more holistic changes in a company to get KM working. Therefore to explore this issue, this review will look at the origins of KM, what approaches have been used and why KM may have failed. From here the review will look at holistic frameworks, which can help get KM working, in particular the practice of case management.

The concept of KM can be traced back 1960's where Peter Drucker (1993) envisioned that clerical workers would be supported by powerful new ICT that would empower them to make more decisions. Subsequently there has been much academic discussion regarding the knowledge age. In particular the defining the term KM has caused much debate, although no clear winner has emerged, these definitions provide insight into what KM involves. Originally KM was seen as simply a strategy of getting the right knowledge to the right people at the right time (O'Dell & Grayson 1998). From this concept often ICT was seen as central to KM (Hutchins 1999). KM was further extended with Eastern concepts, here Nonaka and Takeuchi (1995) defined KM as a process where an organisation magnifies the knowledge created by individual workers and crystallizes it as part of their knowledge network (McCarthy & Aronson 2002). This emphasised the social nature of knowledge where tacit knowledge was converted into explicit knowledge, this is called the knowledge spiral (Cortada & Woods 1999).

With the coining of the term KM, the scene was set for the knowledge age gaining momentum, now products and consultancies could market KM, and companies had a slogan to motivate employees to change the way they did work. However for many companies KM has failed to give the gains promised (Bhatt 2002). So why has KM failed for many organisations; academics have said that the reason for this lies in the lack of a holistic approach, as organisations focussed on either the technology or just the people side (Davenport & Volpel 2001). However there is more to this issue than simply combining these elements. To understand better the reasons for these failed attempts it is important to look back at Drucker's original vision, of clerical workers changing to empowered knowledge workers. It is the move away from this original concept that has led to failure. Also, the practice of KM has been confused due to the variety of academic fields that are interested in KM (Lytras, Athanasia & Poulymenakou, 2002). Added to this, commercial interest has led to significant input by software companies and below we will briefly look at these factors that have shaped KM:

Technology driven strategy has been heralded by information systems academics. These KM attempts have traditionally focussed on the use of groupware combined with Intranets, imaging and scanning technologies, data warehousing, data mining, Extranets, web portals, document and intellectual capital applications (Orna 1999). However simply investing in these systems has not resulted in the creation and sharing of knowledge within an organisation. Many groupware systems remained empty and unused.

Culture driven strategy has focussed on creating a culture where tacit knowledge is shared by building networks of knowledge workers (Davenport & Volpel 2001). This is achieved by rewarding knowledge sharing, by setting up communities of practice, or providing flexible work practices (Mentzas et al 2001).

Management and Process driven strategies have been led by the library science field. They state that knowledge needs to be organised and coded, on systems, before it can be used to achieve knowledge creation. Still other authors have stated the need for information to be managed at a much more basic level before organisations can manage their tacit knowledge. They need to ensure that the core information is correct and that the best flow of this information is used to support business processes (Fahey & Prusak 1998; Gao, Li & Nakamori 2002).

Customer focussed strategy goes back to the original reasons for most companies taking on KM (Abell 2000). However many KM initiatives are not built around customer focus but on sharing and creating knowledge whether electronically or face-to-face. For consultants this approach has been appropriate as they are already customer focussed but for other organisations this has not been the case, particularly in hierarchical companies where customers pass through functional departments, where customer focus is harder to find. It seems that this original concept has been lost from the KM tools that have been developed.

Consultants have historically led KM strategies based on knowledge managing systems (KMS) and methods they developed for their own agencies; further they had a keen interest in selling these as products (Prusak 1999; Mentzas et al 2001). Nevertheless, the skills that consultants have are quite different to those of the knowledge workers that Drucker envisioned. This may explain why many initiatives have failed, as they are not about transformation of ordinary workers, but of consultants who already have technology and knowledge sharing skills, and a customer service outlook. Added to this, consultancies have developed KM into marketable packages. This has resulted in the partitioning of KM into specialised areas as it is easier to re-brand existing products around KM and also it is easier for smaller firms to focus on niche areas (Mentzas et al 2001). This argument is supported by the task-technology fit theory. This theory has been recently applied to KM, this theory sees that the mismatching of computer tools to workers skills, results in a lack of motivation to use systems (McCarthy & Aronson 2002). Hence this may be why KMS are often found empty. Consequently, for clerical workers to become knowledge workers, a much more holistic approach is needed. Academics have suggested the use of reengineering (Snowden 1998; Bell 2000).

## Reengineering as a Framework for KM

Reengineering is a process-focussed technique, that was developed in response to the highly competitive business era of the 1990's. The aim of this process focus was to deliver tailored services to the customer. Reengineering started with a vision of how a company should be, rather than on what it currently was (Hammer & Champy 1993). Change was to be rapid. This called for a leader, usually the CEO, who had the ability to enthuse the whole organisation to accept the new way of doing business. However reengineering met with mass failure. The concept of worker empowerment was often neglected (Hammer & Champy 1993; Knights & McCabe 1998). Reengineering was often used to justify mass redundancies or downsizing (Uzzi 1995). Frequently ICT was employed to eliminate, not enhance, the human component (Manion 1995). Despite this, reengineering does offer some important areas to help a company transform to KM: the reorganisation of knowledge at a fundamental level and the focus on building a core infrastructure. Secondly reengineering does contain a strong message about being customer focussed, an aspect neglected by many KM initiatives. However the knowledge workers themselves are the ones sorely omitted from reengineering, as such there may be other practices that better use process and customer focus. Case management is one such practice.

## Case Management as a Framework

Case management in contrast to reengineering, has a human focus, both the internal and external customer. It may be better to consider developing a new framework from the practice of case management that is much more people focussed. In particular the new form of case management that has evolved from the traditional health and social welfare sector is now large scale and enabled by ICT, as the following definition confirms:

The case manager role represents a break with the conventional approach to the division of work. Individuals or small teams perform a series of tasks from beginning to end, often with the help of information systems that reach through the organisation. Case managers provide a way to increase organisational efficiency, timeliness, and customer satisfaction. (Davenport & Nohria 1994, p.1).

This philosophy centres on building a lasting and effective relationship between case manager and client (Biestek 1957). To achieve this, organisations focus on their core business processes, so that one worker or one team performs the entire service (Davenport & Nohria 1994). In this way the client focus is kept throughout the process and quality and speed of response is enhanced. Case management seeks to improve the delivery of service to the customer through improved satisfaction of employees (Davenport & Nohria 1994). In this organisational culture, the employee becomes an asset or 'human capital', to be supported, encouraged, and enhanced. Part of this support will be provision of necessary information to complete the job.

As can be seen, case management addresses many of the issues arising within traditional KM and reengineering frameworks. Preliminary research by Richardson and Hope (2003) revealed that there are in fact two stages to KM. The first stage involves getting core processes in control so the knowledge workers have the right information to serve their customers needs. The next stage utilizes more advanced software tools. Parallel to this research, Gold et al (2001) have also shown the need for a holistic approach. Gold et al (2001) have built their framework around the traditional components of organisational culture:

**Technology infrastructure/Artefacts:** This includes rudimentary systems as well as KMS, that need to be fully integrated to allow free flow of information and collaboration for knowledge creation.

**Structural infrastructure:** These are the norms that an organisation exhibits which bind members together in a social cohesion. To enable this, organisations need to have ICT and processes that reach across these boundaries.

**Cultural infrastructure:** This is seen as the most important aspect of KM, as at the heart of KM lies the cooperative interaction of workers, which occurs when the organisational culture promotes such behaviour. To achieve this, workers need to be led by a vision, which incorporates the values of trust and openness.

Here we can see that in the first stage of KM, a knowledge infrastructure needs to be developed composing technology, structure and culture. At the second stage the knowledge infrastructure is combined with a knowledge process architecture, of acquisition, conversion, application and protection. This research espoused that many organisations may not in fact have the correct knowledge infrastructure to move into KM.

## Cultural Change

Although Gold et al's (2001) model provides a framework, in the past such loose couplings of ideas have not been enough to change an organisation successfully. What is needed is for theory to be built from the ground up of successful examples of how KM can be holistically achieved, to give a clearer map to follow when attempting such initiatives. This study hopes to begin this process by linking qualitative descriptions from case management

with the quantitative framework of Gold et al (2001). In particular it is important to clearly set out and develop a framework that includes the cultural changes that need to occur, hand in hand with the technological changes. This can be achieved by talking to the different cultural groups within an organisation, which have successfully passed through the first stages of developing the KM infrastructure. To conclude this review we use a quote from Malhorta who states that:

...technology is only part of the KM puzzle. "Buying a typewriter does not make one a better writer," "...similarly, just buying new information technologies does not make an organization better at managing knowledge. What is critical is acceptance and effective utilization of the technologies. And getting people to accept and effectively utilize KM technology means changing their work habits and attitudes—not an easy task..." Malhorta (2001).

This quote demonstrates the need to understand the cultural changes necessary in a knowledge worker's psychological and day-to-day work practice with technology, before KM is ready to fly in an organisation. A framework is needed that includes the human transition that must occur before moving into stage two. It is the aim of this research to begin to build a theory, from the ground up, that takes in such predispositions.

### **Case Management at ACC**

ACC is a government-administered organisation, established in 1974 to provide a comprehensive range of benefits for accident injuries. Compensation is payable regardless of fault, making it a form of compulsory social insurance. ACC has changed from an organisation whose focus was on claims processing to one that is focussed on aiding recovery. The transformation began in 1994, when ACC adopted the practice of case management to reduce cycle times, reduce costs, and improve client satisfaction. Initially case management did not yield the promised gains (Walker 1996), but from 1995 ICT has been gradually introduced. Changes to Government policy placed ACC in an environment where they had to compete commercially (Hoskings 1998). Survival required ICT be brought up to the industry standard with specialised software, call centres, Intranets, and Extranets. By 2000 ACC had achieved business success.

## **RESEARCH DESIGN**

This research was bounded by a three-month period yet sought to gain a holistic insight that would end in a rich description to portray the reality of the organisation. The chosen method was interpretive case research, which allows for the study of contemporary events, of a single social unit, in a natural setting, and within a bounded time and duration whilst allowing for an intensive, holistic description (Yin 1979; Merriam 1988).

The principal researcher was the primary instrument for data collection and analysis. Data were mediated through the researcher, who clarified and summarised data as the study continued. This was enhanced by the researcher reflecting on her own work experience and using it to negotiate a shared reality with participants. This also aided in collection of sensitive data due to the trust-building associated with this activity.

### **Data Collection and Analysis**

**Site Selection:** ACC is a New Zealand government agency that has adopted case management. ACC was selected for this study because it has experienced success with this approach through investment in ICT.

**Participant Selection:** Participants were selected from different levels within the organisation to gain a holistic view. Participants included the CEO, three ICT/business development managers, and four case managers. Clients were not included due to privacy concerns. Managers in ACC undertook the selection of case managers. A major selection criterion was that participants be competent to discuss the computer system used. Two of the case managers were power users, while the other two were confident users but not power users. All had long-term experience as case managers within this or another organisation. Participants include both males and females and a variety of ethnic cultural groups. All participants were interviewed for one hour.

**Data Collection:** Information was gathered from interviews held in a meeting room and from limited observations of computer screens and workstations. Interviews were semi-structured with open-ended questions designed to encourage disclosure. A grand tour question was used, with a series of subquestions designed to prompt participants, if issues of interest did not naturally arise (Spradley 1979; Merriam 1988).

**Data Analysis:** This occurred simultaneously with data collection, starting at first contact and ending on completion of the writing of the rich description. Data analysis involved looking for patterns, which were not known in advance but were left to emerge from the analysis. Significant meaning was gained from single instances as well as from repeated comments (Stake 1995). The researcher continually checked with participants to verify these patterns. This approach to analysis is taken from de Laine (1997), and involved the selection and

definition of the phenomena, and the incorporation of individual findings into a rich description. Interviews were coded with single words or phrases that tied related concepts together (de Laine 1997).

### **Verification**

Internal validity was viewed as the accuracy of information and whether it matched reality. Triangulation using different sources was not possible due to the sensitive nature of work and prohibition on observation and document collection. Instead the study employed: triangulation within and across groups, checking validity of interpretations, acknowledgment of researcher bias and checking for plausibility and credibility.

Generalisability for this study comes from the ability of the rich description to create a portrait of reality for this organisation that allows the reader to reflect on their knowledge and experience and gain insight beyond this single case (Merriam 1988). The second form of generalisability is seen in the ability to extract hypotheses from this research for future studies, both qualitative and quantitative (Yin 1979).

## **THE FINDINGS**

### **ACC an Organisation on the Edge of Knowledge Management**

ACC is an organisation that had to change to survive. To do this they have used the strategy of KM. They have taken a traditional bureaucratic government organisation and used powerful ICT within the practice of case management to get control of the information they have so that the case managers can deliver quality service to their clients. ACC is now an organisation that is on the edge of KM. They are entering the phase that most authors consider "true" KM. This phase is marked by the use of intranets holding groupware with FAQ, best case practices and portals. Coupled with this technology transition they are aware that culture will dictate how this evolution will proceed, who is ready for access to what knowledge and how best to deliver that knowledge in a palatable way, using technology.

### **Knowledge Workers**

This story begins by looking at how case management coupled with ICT change has culturally impacted on the case managers themselves, for the case managers are the knowledge workers. These knowledge workers are now ready to start spreading their wings to the higher levels of KM. It is the case managers themselves who will determine whether ACC can reach the lofty heights of KM. As the CEO drives the company forward with the vision and the IT department plan new forms of knowledge delivery, storage and distribution, the crux of the adoption will rest in the hands of the case managers. It is early days yet and what has been seen is the wishes, beliefs and hopes that technology may bring to the case managers, to help them achieve better outcomes for their clients. So let us see what these knowledge workers on the edge of knowledge work see.

### **Views on technology**

In the past case managers were scared to use technology, but now case managers at ACC are anticipating what technology could do to help them, they do not fear it. There are several sub-cultures of case managers. There are those that are "computer whizzes". They immediately know what they would like; such as scanning and imaging abilities for all documents. Another sub-culture is of case managers, "who are confident users", nevertheless they were shy to predict future technology, yet when urged on gently they come up with splendid business applications for technology. The e-business manager, a man with 20 years experience in computer industry, a background in EDI, sees this as part and parcel of the new age where people accept technology not reject it:

...it's fairly amazing how many people you talk to now and say "Did you know that you could do such and such with a system now?" It's like: "yeah, I always thought you could". "Or it does not surprise me." "Gee that sounds really, really interesting." or "Wow I could really use it." But five years ago,...people would say, "So what does that mean?", "How does that work?", "What's in it for me?". People are just much more aware and much more interested in technology and how they can apply it.

So at ACC we see knowledge workers on the edge are embracing new technology and hungry for more. They want it to help with specific business tasks. This was shown in the most extreme case where one case manager who had never used the Internet came up with an innovative use that would greatly enhance case manager's work, despite initially feeling they knew little about computers:

...I wouldn't mind having access to the Internet...when you meet with a client, you could sit down with them and browse the net, and they can see that this one (job) would suit them or this one would suit them...They get to a stage where they think they can't do anything, so if you can sit down with

them and show them...and say you could do that, that and that. It gets them motivated, gets them interested...

### **Technical Needs of Case Managers**

These new knowledge workers are now actively seeking technology to help them do their work better. This is a considerable cultural step forward for case managers who initially were nervous of using technology. Now case managers are able to generate many ideas on how technology could help them in their jobs. So what technology did the case managers say they would like:

Laptops: Case managers all agreed that laptops would be a vital tool for them when visiting clients in their homes. At the moment they had to spend a large amount of time preparing notes for meetings. With a laptop this time would greatly be reduced, as access to their systems would mean all the information was at their fingertips. Further they would be able to use the same techniques they currently use on-site, such as, guiding clients through their records, showing them letters that had been sent to them. As one case manager explains:

We do not have laptops. So if we are going to a case conference with a doctor or an employer we take the physical file, so that is why it is important to have all the hard copies in there because we need to be able to reflect back on them. We take notes with us. But because we are out there [in the field] case managers, we need to take our information with us...

Opening up of the system to customers: Case managers have evolved to see that information sharing with customers as not only acceptable but now an important area to improve their work. This is not how ACC employees ten years ago would have viewed open systems. The concept of an open system had two benefits as the case manager saw it. Firstly, this would mean that routine queries could be done by the clients themselves:

I have a lot of claimants ringing me up saying sorry "case manager one" I just want to know this one thing, I know this is the third time, can you just iterate this for me, tell me this again. And it is their property, so why can't they have access to it. If someone wants to access it in writing we have 28 days to supply it, as per legislation. On the web you have Internet banking...

Secondly, in the front-end team, client access was seen as a natural extension of how they already work; they sit down with the claimants and show them their records on the computers provided in the interview rooms. They see these records as being jointly developed between the case manager and the claimant. As such they do not see gaining access to these records would be a concern but a natural progression.

Tailoring Systems to Clients Needs: The case managers go further than simply wanting clients to be have access to the system, they want the system to be tailored more to clients' abilities. As one case manager states:

...I think the wages side of the things, it is sometimes a bit over their head. The information that comes out...is sometimes over their heads...They cannot work out how they calculate the wages. It is a barrier, and they have to ring and we have to explain it to them.

Scanning: Another area case managers all agreed on was that they would like more information on-line. They stated that much of the information they need is still not available on the system. One solution they wanted was to have more information scanned in. They saw much of their time was wasted having to photocopy documents, as triplicate copies were needed. If these were scanned in, this task would no longer be necessary. Added to this, the information is not able to be shared with other branches around the country:

...if we can scan everything, we would not need the paper trail we now have. The advantage is that anyone in the country could access that...[if] someone may have moved from the North to the South Island, and haven't told us, until they bowl into the South Island branch. They only know what is on Pathway, the activity log, but they can't get any verification, specialist reports or medical certificates.

Access to the Internet: Access to the Internet is just beginning to be a tool that case managers would like access to, as we saw earlier with the case manager who wanted to search out jobs. This use is very much tied to helping their clients achieve their goal of getting back to work.

More Knowledge on Medical Subject: As case managers have become more customer focussed and hence true knowledge workers, they are now wanting to know more about the medical practices that are part of healing the claimant. One case manager described how he pro-actively sought out information for himself:

I try and actually go out and visit the physio centres and try and learn about what the clients actually going to have to go through. Because there is not much point of just referring someone if you don't know what it entails. Because that gives you more credibility with your clients...

So to summarize, what we can see here is that case managers have made a cultural change to actively seeing IT as a means to help them better perform their job, to provide better services to clients, to achieve the vision of the company. It is the cultural change that for many KM initiatives has been the cause of failure. ACC has, unlike other organisations, started managing knowledge at a much lower level, which strongly takes into consideration the cultural needs of the people who operate within their systems. This emphasizes the idea that there are two phases to KM, phase one focuses on controlling processes, developing a sound infrastructure and developing a culture of customer focus. This has culturally readied ACC for stepping up to phase two where KMS tools can be used, which marks the transition to what many people consider to be "true" KM. So how has ACC managed culture to achieve this readiness?

### **Cultural Change**

Culture, is more than a word at ACC, it is an ongoing commitment to how they do business. They understand that culture is not a static element, that with each step towards the company's vision, the culture changes. Frequently literature has stated that change management needs to be led by a vision, ACC has a strong vision, called the four nineties. This is a dynamic vision with a virtuous circle, of staff satisfaction leading to customer satisfaction, this circle spirals upwards, as higher levels of KM are reached. Such cultural change is dynamic and ever changing. They see that for each step towards KM there will be new cultural impacts that occur. So what have been the steps to cultural change at ACC and what has technology's role been in adapting ACC to a knowledge culture?

Sharing Information: Unlike many KM initiatives, ACC have faced few problems with information sharing. Case management is a practice that empowers workers and delays an organisation by its very nature. Case managers are interested in helping their claimant. If another worker has knowledge to help them they go to them. They have a "buddy" who helps them look after their client. They see that by entering records in the system, they are helping their "buddy" take care of their client, which is what they want. Further sharing of information is seen as positive, as the case managers feel empowered that they are helping corporate head office when they enter data too. In terms of ICT, information has been freed, as no longer is information locked in paper files unable to be shared, now it is computerised a culture of information sharing can occur. This indicates that information sharing is strongly linked to being customer focussed and is achieved by a strong vision that motivates them to work towards customer satisfaction, and all this is strongly supported by ICT.

As such, ACC has undergone a significant cultural change, case management with their computer systems has helped this change occur. Case management has allowed these workers to be customer focussed but without ICT they would still not be able to deliver efficient services and the customer focus would be lost. But beyond customer focus, smaller yet significant steps towards empowering a knowledge work culture have emerged.

Diligent about record keeping: Firstly they have had to become diligent about keeping records. This is not a glamorous aspect of KM but without it the systems that support the case management are lost. It is the most basic form of knowledge sharing, but it has proven to be the foundation that ACC has based their transformation on. Unlike many KM initiatives ACC has started at a basic information systems level. They have not introduced or placed emphasis on higher level tools until they had control of information at this level. They have insured that their case managers are knowledge workers before bringing in tools, such as groupware. As such their information system shares and delivers information to be turned into knowledge, when the case managers interact with the claimants, the right information is brought at the right time, at the right place, so this information can be used, and in its use it is transformed into knowledge. The e-business manager confirms that organisations need to evolve into KM, that an organisation cannot just change overnight into KM:

Technically you can't change that quickly and organisationally you can't change that quickly. We have tools in ACC, right now that allow us to do a lot of things, and we don't use them...The human side of all this, is much bigger than a lot of people think, that you just chuck up an intranet site and people will use it, chuck up a knowledge base and they will use it, give them a fancy case management tool and they will use it. But no, they won't unless you train them properly and also they have to, evolve themselves and it becomes habitual.

A Subculture of Computer Whizzes: An interesting aspect to the successful uptake of new technology and ongoing use of technology at ACC has been the subculture of computer whizzes that exists. Each area had one who was the person you would go to when your machine locks up. They also actively like to create helpful applications on Excel and demonstrate new features to the other case managers:

Pathway is forever updating...they have these little release notes telling you this is new (features) on Pathway...I have to tell my colleagues in my team what's new...



They also have a network of people they can ring at other branches that help them with a “sticky” computer problem. This function has evolved not because of poor helpdesk but in addition. However the day-to-day workings are often helped by the friendly computer whizz who is easy to approach:

...we all use 4 or 5 features...mind you we do have case manager one in the tail team, he's our techno whizz. So if you have lost anything you can go to him, and say can you get that back for me.

Despite this costing the computer whizzes time they are happy to oblige, it gives them status but further they simply enjoy helping people in a technical capacity. It is the significance of this sub-culture to technology adoption that may have been missed by many larger loftier KM initiatives.

Training: The role of computer whizzes leads to the role of training, this is an aspect that ACC would like to emphasise more, everyone from case manager, to business unit manager, to IT manager to CEO cannot emphasise that they want to focus more on this aspect. However these computer whizzes are playing a crucial role in ensuring that people remain up-to-speed. Further case managers felt in contrast to management that people were now entering the role of case manager with computer experience. Schools were now teaching spreadsheets and word processing so new employees were coming in with better computer skills.

### **So what are the IT Department Planning for their new Knowledge Workers?**

Now that ACC has found business success by getting their internal systems going by controlling information flow internally and allowing case managers to perform in a competent level, ACC have new initiatives to make their case managers more effective. This moves them into the second level of KM where the traditional tools espoused by KM literature are moved in. However, some of these tools have not traditionally been emphasised as part of KM, such as the importance of linking and opening up systems with external parties. These new initiatives will be explained below:

Linking: One of the big drivers for ACC is to harness the flow of information. They have managed to control the information within ACC, now they want to control the external flow. They want links to their external partners such as doctors, so that information is in real time. This allows greater control of how case managers do their job, quicker results for the claimants and less financial risk for the doctors. As the e-business manager remarks:

Right now we are looking at automating the life cycle of a claim. By that I mean, taking paper documents that come from doctors and turning them to electronic, documents...The main idea is so we don't have paper flowing through the claim process, we have electronic data...So what we want to do by getting electronic data...we want to assess that form electronically, so that is near on instantaneous feedback to the doctor and then to the patient, that we have received the form and accepted liability...

However to gain such linkage cultural change needs to happen to the external parties, many who traditionally have not used IT such as the medical profession. Thus cultural change happens to a wider community of users. ACC have taken this into account and realised that to achieve this they cannot expect all doctors to submit claims electronically so are prepared to scan claims in for those with less technological sophistication.

Open Systems: Open systems are one of ACC's next steps to KM. The idea is to let the doctors, employers and claimants have access to their own records. This is a significant cultural change for a government organisation, which has traditionally closeted information, where you have to apply to see your information in writing and wait weeks to get it back. The case managers at ACC have also shown that they are ready for such change. So sharing of information is a change in cultural mind set, as much within an organisation as to outside. Externally networking can thus be argued as an important part of KM and that linked with opening up of systems can help case managers conduct knowledge work, by allowing them to have more time to work on KM task rather than answering routine enquiries. Secondly this means a cultural change in the relationship with the external parties, which helps represent a new era of trust, which will result in better working relationships with their clients.

The other thing we are looking at with e-commerce is we are looking at the premium payers...we are primarily targeting employers first, to provide them with information that they can't easily get, either, because we can't or they have to write in or phone in, or go into a branch to get... (e-business manager).

Portals: Linking and openness, is part of developing the ACC portal. Another aspect is introducing the Internet to ACC. Again it has been clearly realised that this will involve significant change in culture. As such ACC has not rushed in, they want the people ready to use the Internet as a business tool. As seen earlier the case managers are now ready. The e-business manager discuss this issue:

...So the portal project is aimed at...the concept that we call “my ACC”. Whether you are external to ACC or Internal ACC it is “my ACC”, “my ACC” is what I want to see, and what I am authorized to see. And bit-by-bit we will begin to release it...The CEO for example, does not want every single person in ACC to have access to the Internet, over time yes, but not now. He is absolutely adamant that people are using it [inappropriately], we can monitor that, and it is not a problem, but he just wants to work though the cultural impact of releasing it.

Intranet Based Tools: ACC is also preparing to have intranet that has areas where FAQ and best case practices, can be loaded. Now here too the cultural change has been taken into account, now they are seen as publishing work, they know that the case managers will have to adopt this new mind set to make it work. Many organisations omit to worry about quality, as the e-business manager emphasises:

People have to get their head around the fact that they are in effect now publishing pieces of work and when they publish that piece of work, it has to be in a state that is fit to be published. You know it has to be controlled from a version point of view. It has to be version one. There can't be five versions around, which is the latest one. It is a big job. Technology is the enabler but at the end of the day there is a big people component that will make it work or fail.

Customer Relationship Management (CRM): The use of CRM technology is another means to increase the openness and flow of information, so information is seamless, between branches, call centres and head office. The e-business manager comments:

...Pathway [the main information system], is the repository system for as much as we have electronically about a particular claim. But with the e-CRM technologies, it is getting to the point where you are a case manager or you are someone in the business service center, and you are dealing with a query, you have a single view of ACC systems, and whatever interaction takes place between a claimant, or a health provider, employer or premium payer,...you can see what's been going, so if I end up dealing with a query that someone else has been managing, I can see what they last did.

More Knowledge on Medical Subjects: ACC is now ready to put more information online to help the case managers be more informed on medical subjects, as the CEO describes:

Each case that comes in is classified under a basic medical unit called a reed code. Under each reed code we have established normative tables, of treatment and protocol...there is a lot of guidance. In the past we have assumed case managers would pick up these things intuitively...So case managers have been exposed to that and understand that system, it is increasingly becoming available on the computer.

#### Focussing the Knowledge Workers on Knowledge Management Tasks

Another aspect that comes from these tasks is that case management has allowed automated IS to remove menial and laborious tasks and at the same time allowed case managers to make more decisions. Both these have been stated by the literature as central to KM initiatives. The aim of these is to focus in on the task that add value, that is the knowledge work within an ordinary business processes, and allow more time for knowledge workers to focus in on these tasks (Davenport & Volpel 2001). The e-business manager explains how this is being achieved:

...the case managers do a lot of coordinating...They organize it all...Right you will need home help, we will organise that, you will need crutches we will get that organise that, you will need this...They have got a lot of people that they need to coordinate with, and with e-business the way I see it is that there is an opportunity to connect a lot of the parties, and automate a lot of what is going on,...to allow them focus on ...more important things, and have some of the menial tasks done by via computer system...

The ICT tools described in the last section will all be introduced gradually to cope with the cultural impact these will have on case managers. Also there are cultural limitations to their external partners such as doctors that have limited exposure to technology and claimants that cannot afford Internet access. Therefore the move to KM is not overnight, it is a continuous process that evolves as ACC moves at a pace that suits the cultural adaptation of its case managers, doctors, employers and claimants. So at ACC the people culturally adapt to new forms of technology but this adoption is matched at the pace that culturally suits the people involved.

## DISCUSSION

KM has been hard to realise for many organisations, the reason has been said to be that KM attempts have focussed on either technology or culture, consequently a holistic framework is needed. This discussion considers how a holistic KM framework can be developed for practice using case management, and how this research in turn helps build up the theoretical understanding of the KM process.

This paper builds on the author's previous work and links these findings with those of Gold et al's (2001) KM framework. For successful KM this framework sees that a company needs to develop a knowledge infrastructure and knowledge processes. This study used the lens of case management to extend this framework. Firstly, the building of a knowledge infrastructure and knowledge processes are now viewed as sequences in time. To successfully adapt to KM, a company firstly needs to develop a knowledge infrastructure that consists of an

appropriate KM culture, knowledge structure, as well as sound data and information processes that support the day to day activities of the workers. Then a company can develop the capability for advanced knowledge processing, such as acquisition and collaboration using sophisticated KMS. This concept of an evolution into KM is important as most KM initiatives rush into the second stage and this results in failure.

The second modification was that case management requires the vision of the company to be built around customer focus, both of the internal and external customers. At ACC such a vision created a culture of customer focus, which in turn led to the development of ICT, business processes and norms that support this customer view. These norms are essential for the successful uptake and utilisations of ICT by case managers. It is the customer focus that led to the development of knowledge sharing norms, as well as norms associated with technology use. Hence the concept of customer focus is seen as an important addition to frameworks cultural component, as it is the customer focus that drove ACC workers to culturally change to knowledge workers.

Another important element that extends the framework is the linking and opening up of systems to external parties, at stage two. This marks a significant cultural change from bureaucratic closeting of information to having a culture that allows sharing beyond departments and company walls. These benefits are seen in business terms for the employees, as they are able to deliver better service. Nevertheless this will not just enable the employees but also it will see the customers and the suppliers becoming empowered to take more control of decisions that affect them by having open systems. This element needs to be focussed on more in the framework. Since the original study collaborative technology has grown rapidly due to cheaper costs of internetworking with e-business. Once again the effective use of these technologies has been reliant on cultural adaptation of users.

The last element that was observed at stage two, is at a society level change. Here we saw the workers had become more accepting of the benefits that technology could have. There has been an evolution socially where people have a much higher exposure to technology, even if not hands-on expertise they can still see the strategic application of technology in their jobs. At ACC we saw the business world being able to take advantage of this new knowledge, but only once the workers had gained a customer focus and had grasped basic technology skills were they able to gain this insight. So now workers have reached stage two they are much more capable of determining what best meets their business needs. Added to this nowadays workers that have come straight from school have much higher levels of computer skills than they did in the past. For these reason, the impact of social change also needs to be taken into account and added to the framework.

As can be seen from, this study, case management can not only adapt Gold et al's (2001) framework but also the actual definition of KM too. In particular the definition needs to be widened so as to include these practices to achieve success. Firstly most literature today does not emphasise enough the importance of having a customer focus, this is the reason that most companies start KM. However few definitions include customer focus. Also the concept of the knowledge worker is extended to include the customers and suppliers of a company, not just the employees. This paper would like to subsequently propose the term of knowledge customers and knowledge suppliers. In this study ACC is actively seeking to harness the human capital of all three stakeholders. This leads to the KM being defined for ACC as:

The harnessing of the human capital of employees, customers and suppliers of an organisation to gain success, by creating a culture of customer focus by using process management and powerful ICT to control the flow of information, which then allow for the effective introduction of advanced knowledge management systems to enhance knowledge processes.

Lastly this paper has supplied practice with a clearer road map for achieving successful KM by expanding Gold et al's (2001) framework and further by providing practice with a grounded insight into what an organisation is like when ready to move into stage two or "true" KM. In particular the reader can gain insight into the technological mindset and norms that these knowledge workers need to have before they are ready for higher levels of KM. This paper further provides insight into what a company needs to do to help develop this readiness. The findings in this paper can thus be used to reflect on the reader's own organisation and see if their employers are in fact ready for stage two or that they have to firstly go back and develop a sound KM infrastructure before using more advanced KM tools.

Also this study has emphasised for practice how important it is to choose KM tools by continually consulting with the knowledge worker and not just dictate what they should use, as the technology required may be quite different than the technology a consultant or software advertisement may tell the CEO, CKO, or IT manager. One recommendation this study makes is that this can be aided by the use of focus groups that ACC used or survey's that task-technology fit theory uses (McCarthy & Aronson 2002). However it is important to remember that the assessment of users needs has to be a continual processes as the workers are culturally continuing to change and their technology needs will also evolve. Added to this, companies need to realise the importance of "computer whizzes" in enabling the uptake of technology, and that these workers are an under utilized resource.

## CONCLUSION

This study has shown what predisposition a company needs to be into move into what is considered “true” KM. That not until an organisation has built a knowledge infrastructure built not of stone but on the merging of human culture with technology readiness, will an organisation be ready for the higher levels of KM. This study used the practice of case management to help in develop the framework further for KM organisational change. Case management has been shown to help change a company’s culture to having a customer focus, that is needed to make KM work. It is hoped that the discussion and the descriptions in this study will be able to be used as a foundation to extend current frameworks to develop a comprehensive procedure for companies to enact in future KM attempts. Thus Drucker's vision of knowledge worker may be able to be fulfilled, where clerical workers are able to manage knowledge. Further, future longitudinal study is needed to capture the on-going stages to successful KM and to continue to develop our theoretical understanding on knowledge management.

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