

It's all about knowledge

The shift from the Industrial Age to the Information Age has transformed working life. As we saw in the introduction, the numbers of people working in industries that require manual dexterity and brute force are already limited and continue to decline. It is unlikely that they will reduce to zero, but with the increasing use of technology within the primary and secondary industries, the requirement for low skilled resources will continue to decline over the next 50 years. At the same time, the number of people who are employed in the knowledge industry or sectors that require data and information processing skills will continue to rise.

The ability to succeed in the future world of work will depend on our ability to manage information and harness our knowledge as well as that which exists within the companies we work for. If this is the case then the ability to learn is key. Learning involves taking our experiences and information and converting them into knowledge that can be packaged, applied and reused. Unfortunately knowledge is nothing without information, so it is important to know what information is. Huge amounts of information are transmitted around the world every day, and millions of peoples' jobs are defined by the information they handle. Information can be collected, protected and exploited for personal gain. It is the very stuff of the knowledge economy and the glue that binds the organization together through computers, networks and the way we work with our colleagues.

Understanding the difference between data, information, and knowledge is essential. Data can be considered the atoms of knowledge. They are the bare facts that we see on balance sheets, in statistics, and in everyday life. On their own they mean nothing, because we need to interpret and add meaning to them. This process of making sense of data allows us to convert it to information. Information is more than the sum of the data because we will determine its importance based upon our own views and the contexts within which we work and are using the raw data. Therefore, looking at sales data and concluding that prospects are improving or deteriorating, or that one market segment is more profitable than another involves using data to create information. Information can also be derived from spotting trends and establishing patterns within underlying data. However, information is not knowledge. Creating knowledge involves combining more than one source of information to generate ideas, products and concepts or to take our level of understanding to a higher plain. Knowledge often becomes accepted as axioms, standards, received wisdom and is transferable through education and books. Thus where as information can be interpreted in many different ways, knowledge is taken as the truth. This is not to say that knowledge cannot be questioned, reinterpreted or even changed, just that for many it has a value that is higher than information. A value that means it is not automatically questioned.

Nathan Rothschild shows the power of information when its implications are understood. Nathan took the information relating to Napoleon's defeat and combined it with his knowledge of the financial markets of his day. Combining the two allowed him to benefit very handsomely. Every trader in every financial market uses similar skills, but today the time difference between when they know and when the rest of the markets know is much smaller because computers pump information around the markets in near real time. Wait too long and the opportunity is missed, as is the opportunity to make a profit.

Tacit and explicit knowledge

Knowledge comes in two forms. There is tacit knowledge and explicit knowledge. The former consists of those things that we find difficult to explain. It is knowledge that we pick up as we develop, as we work with colleagues and as we navigate our way through our lives. Think for a minute about the unwritten rules that exist within your workplace. Such things as knowing how to behave, who to avoid, who not to avoid and how things are done all are tacitly understood. They are not written down anywhere and they were probably not told to you in your induction course. These are the things you have picked up through observation, conversation and interaction. They have been internalised by you and those around you. Similarly there are skills you apply every day that are deeply embedded within your brain and experience that you don't have to question or revisit. You just get on with it. The real advantage of tacit knowledge is that it can be applied automatically and instantly, there is no need to think before you act. When it comes to these skills and capabilities you are unconsciously competent. But tacit knowledge can present problems especially if it is wrong. It is also very difficult to change and most of all it is near impossible to communicate. This presents a challenge to us as we continue to learn through our working lives, because we must unlearn what we already know and rewire our brains to internalise new ideas, skills and capabilities. The only way we can achieve this is to transform our tacit knowledge into the other form of knowledge - explicit knowledge. Explicit knowledge is documented, held in manuals, can be captured, searched and reused. Our education taught us how to collate and manage explicit knowledge, and during the process of learning we began to internalise and augment this with our own experience to create our own interpretation of the knowledge we gained. Although many organizations have become very interested in making tacit knowledge explicit through such things as knowledge management systems, many have found it difficult. Why? First it is hard to formalise the knowledge held in peoples' heads. For example there was enormous interest in intelligent knowledge based systems during the 1990s which could be used to subsume the knowledge of subject matter experts, such as doctors. The problem was that, despite hours and hours of questioning, it was impossible to extract every piece of relevant information used by the expert. Moreover, because the software relied on rules, themselves generated from the extracted knowledge, they were unreliable. Organizations also have the same problem. It is impossible to extract the collective knowledge of the whole corporation. Plus, as many have found, capturing, maintaining and utilising knowledge requires a lot of management attention, new software tools, processes and above all commitment from everyone in the firm. A survey by the American Management Association found that main obstacles to effective knowledge management to be:

- Getting people to seek best practice
- Measuring the results
- Getting people to share their knowledge
- Knowing what to capture
- Making knowledge assessable
- Making knowledge usable
- Keeping the relevant technologies up to date
- Leveraging knowledge for competitive advantage
- Determining how to use what has been captured

- Finding the right people to manage the process.

What you tend to find is that there are usually only a few people who embrace the concept of knowledge management. The rest are not bothered. This is not belittling what organizations are attempting to do, but it recognises that it requires a lot of effort, careful planning and commitment to succeed. Second, organizations and people in general are more likely to question the validity of tacit knowledge than explicit knowledge. A good example of the consequences of questioning the value of tacit knowledge is the Challenger Space Shuttle disaster of 1986. Boisjoly, an engineer involved with the Space Shuttle Programme, was unable to convince NASA officials of the dangers of launching the Shuttle in low temperatures, when there was a risk that fuel could leak through poorly sealed 'O' rings. Without hard, documented proof of the risk, NASA refused to take him seriously. Then 73 seconds after take-off, Challenger exploded. The cause? Fuel leaking through the poorly sealed 'O' rings. Boisjoly's hunch was correct, but without firm evidence he was unable to prevent the disaster. Third, we all tend to subscribe to the knowledge is power frame of mind (see later), particularly if we are concerned about our job tenure. Fourth, over time we begin to depend more on our tacit knowledge rather than the available explicit knowledge around us. This may help to explain why resistance to change can be such a problem and why so few people actively learn. Despite the difficulties in transforming tacit into explicit knowledge, most organizations are able to convert at least some of the tacit knowledge into explicit knowledge and use this to create new products and services.

A helpful way of teasing out your tacit knowledge is to consider it along the dimensions below. A word of warning however. Even this will not capture everything you know, but it will help to bring some of it to the surface, and hence help to make it explicit (at least to yourself).

- Know-how. This is the knowledge you use to execute your work roles. It includes the raw processes and procedures you apply and the techniques and tools you use (paper based and electronic) to generate the outputs required of your role. Some of this may be explicit and written down in manuals, but the majority will be internalised tacit knowledge that you apply subconsciously as you go about your daily activities.
- Know-why. This is all about knowing the purpose of your role in the big picture sense. Many people work without knowing where or how they fit into the wider organization or economy. Understanding where you fit and what your role delivers to the business is key to understanding the value of your actions and your knowledge. This framing is useful because it not only helps you understand your current contribution, but it also allows you to identify what other knowledge you might need to make more of a contribution.
- Know-what. This relates to the specifics of action, be they the detailed activities required to complete a given task, or the information needed to come to a decision. In essence it is about data, either that which is needed to fulfil a process or procedural step or that required to inform action or decisions.
- Know-who. This is the softer side to your knowledge. These are the people who you need to know to get things done. Know-who extends to relationships, contacts and increasingly those within your external network. Understanding who knows what within your network is vital and should not be underestimated. Having a network is one thing, keeping it alive is another. The good news is that networking provides

additional opportunities for career advancement and a ready source of information and knowledge.

- Know-where. This is knowledge about where to find the information and knowledge you need. One of the most important lessons I learnt whilst at university was not what I knew, but where to find it. Knowing where to access knowledge (either your own, or someone else's) is a key skill. As we suffer from information overload it is vital to cut through the sea of information in order to identify that which is important and valuable.
- Know-when. This is all about timing and judgement. In essence it is about knowing when your knowledge should be applied. And although contingent on what you may be doing, or the situation you find yourself in, it is surprising how much knowledge you can apply to similar situations. Never underestimate the power of judgement as this is built upon years of experience and the build up of your tacit knowledge base.

Knowledge is power

In general we all tend to hold onto the traditional view of protecting those things that have scarcity value. In the past finding something out usually took time, effort and in some cases money. And because of this, it was felt the outcome of this activity was a personal possession. However, in the modern workplace, with so much information flying around, this type of mindset is outdated and counter productive. Yet, we hear time and time again that people withhold knowledge that can be used to advance their careers or maintain their position in their organization. The start of this possessiveness about knowledge can be traced back to the downsizing of corporations that occurred during the 1990s. As well as the problems that delayering subsequently brought to the organization - such as increased costs, removal of the wrong staff, and difficulties in meeting client demands with a reduced and demoralised workforce - downsizing has had another side effect; the removal of some of the traditional sources of power within the once deeply layered organization - typically status and position. This absence of power was soon replaced by another - information. If an organization is so dependant on its information infrastructure, then what better way to gain power than through the control of information? The shift to information power was probably going to occur anyway, but the 1990's downsizing accelerated it significantly. Holding onto information is now a very common behaviour and is damaging organizations' effectiveness. For example, a recent survey of the United Kingdom's Times Top 1000 companies revealed that critical decisions were being taken without access to vital facts because of the information is power attitude prevalent in corporate culture¹⁰. Islands of information jealously guarded by the managers that possess them is leading to decisions being made in the absence of the right information. The survey also revealed that these same organizations typically had computers on every managers desktops, and yet they often complained of not having access to the information they really needed. Clearly, the power that information gives is like any other form of power, to be retained and jealously guarded, rather than freely shared. Another study found that 20 per cent of employees believe that it is not in their best interests to share knowledge, preferring to hoard it to win promotion, or move to another employer. For those who develop new skills, advance their knowledge and maintain their edge in their careers, this new power is a ticket to long-term career opportunities. For example, I know of contractors within the software industry who deliberately hold back knowledge to ensure they can stay longer with their clients. It is clear that holding back essential information is a sure fire way of getting that contract extension and even an increase in daily rate.

The paradox of the information age is that sharing knowledge is power, rather than the other way around. Sharing knowledge need not be so traumatic, as when we consider the degree to which most of our knowledge is tacit, rather than explicit, it would be impossible for someone else to know exactly what we know. Sharing knowledge has a number of benefits:

- re-articulating what you know actually reinforces your knowledge and keeps it current because it usually requires you to revisit it
- other people can add to your knowledge and understanding by offering further insights and ideas, thereby increasing your own understanding
- if you are willing to share what you know with other people they are more likely to reciprocate.

Ultimately, sharing knowledge is a collective process, where everyone in an organization is willing to take part. As a result we all collectively learn and the organization benefits. The key advice is to share your knowledge as widely as possible and maintain a network of knowledge sources. Holding back on your knowledge is increasingly a counterproductive mindset as it fails to demonstrate your capabilities and skills to your colleagues, managers and employer. The bottom line is that you don't need to worry about sharing what you know because it is impossible to pass on every piece of knowledge you have.

Increasingly information and knowledge are being used as a political tools within companies. Andy Grove found this with Intel, and you have probably seen this within your own organization. So part of your ability to manage your knowledge and the knowledge of those you need to tap into is the ability to understand and navigate the political landscape around information.

Generalist or specialist - which is it to be?

One of the questions you will need to ask yourself as you develop your lifelong learning strategy is the degree to which you need to acquire specialist and generalist skills. The answer to this will depend on a number of things, including:

- Where you see your career five years from now and what mix of specialist and generalist skills you will need to fulfil your objectives
- The importance placed on specialist and technical skills in your profession and workplace
- How long you intend to remain at your current employer
- What employer and position you will be seeking the next time you change jobs
- Your current level of education

The breadth of knowledge you need to accumulate over a lifetime of work depends on your chosen career path. It is clear that some professions require deep levels of expertise throughout and hence for those that follow them, acquiring specialist knowledge is more important than acquiring general business skills. For example, there would be little point in a physician developing generalist skills when his or her ability to perform their job depends on their skill of diagnosing and curing disease. Furthermore, their ability to advance in their profession requires them to continue with their specialist education in order to maintain the

currency of their knowledge. If we are to look at the job of a physician the knowledge content of their work has increased dramatically. For example when compared to the doctor of 100 years ago, the modern day equivalent has to understand microsurgery, antibiotics, ultrasound, x-rays and increasingly genetics. All of this requires continuous learning.

Even for those that follow a generalist career path, some degree of specialist knowledge is still required, especially in the early stages of their career. If nothing else this provides a route into an organization and provides a selling point to a prospective employer. However having established a foundation, the need to expand skills into other business areas is likely and usually expected of an employer. Therefore for the majority of people the requirement to follow a single specialism throughout their career is less important. Indeed holding on to specialist skills for too long may actually become a hindrance to long-term career prospects. If for example you aspire to senior management, a deep technical background is not as important as a wide experience and knowledge base.

Whatever mix of specialist and generalist skills you decide you need, it is important to recognise that both require a lot of effort to develop. Whereas we may understand that the commitment required to become an expert in particular field is significant, we often underestimate how much effort is needed to follow a more generalist path. For example, consider how long it takes to become a doctor, dentist, architect or engineer. Having spent between three and seven years at university further study and professional exams are also required, which can take up to a further two to three years to complete. Even after that, reaching the pinnacle of a chosen profession requires continuous professional development and constant learning, often monitored by a professional body. Although this may sound like a long slog, the advantages of following a single vocation is that the path to the top is well defined and the learning needed to achieve success is well established. Also, for those who follow the major vocations such as medicine, dentistry, and teaching there is unlikely to be any need to change tack in career.

From a learning perspective adopting a generalist career would appear to be a much safer and easier path. But this requires more planning and the acquisition of a wider range of skills, as well as dropping those skills that become outdated. Think about your career so far. You have probably worked for a small number of organizations, worked in different functions and been involved with various projects. All of this has required you to adapt and learn new skills and capabilities. In a generalist career it is more important to have skills and capabilities that cover a variety of disciplines coupled with one or two that are more specialist in nature. This has long been the view taken by consultancies who attempt to develop 'T' shaped consultants who have a particular specialism, for example supply chain, augmented by more general skills, such as team working, problem solving selling and so on. This is important within consultancies because of the need for staff at all levels to sell as well as deliver assignments. The same principle should apply with your career, especially if you desire to move into senior management roles. Having skills that are more general in nature ensures that you can adapt more readily to the changes around you. Many people get caught out when the skills they have acquired and used over the years are no longer useful.

Organizations will often reassess the skills, attitudes and behaviours they need to remain competitive, and even more so in times of crisis. Recessions are usually the time when this occurs, with the 1990-1992 recession was a good case in point. The behaviours associated with the command and control organizations that had existed up until then were no longer valid. Out with tell and do and in with leadership and teaming.

Unfortunately, many middle managers did not know how to change because they had not developed those kinds of skills. They were more comfortable with what they had grown up with and were certainly not used to the working closely with their subordinates to get the job done. Inflexible attitudes and resistance to change led to the massive fallout within the middle management community. Many were devastated because they did not, could not and would not understand why they were on the scrap heap. Those that survived were able to adjust, drop old skills and develop new ones; they learnt. Increasingly skills associated with adaptability are far more important than deep technical capability.

Tapping into the knowledge you need

We all need knowledge to survive in the workplace, but where do we get it from and how can we access it? This does not just relate to the knowledge that you have, it also includes knowledge you need from those around you. The one thing you have to become good at when it comes to managing knowledge is being able to seek it out and Hoover it up. You also have to be good at converting your tacit knowledge into explicit knowledge so that it is more useful. This involves following a continuous process of making tacit knowledge explicit, updating it and then re-internalising it so that it becomes tacit again. This not only ensures your knowledge is kept up to date, but it also allows you to drop knowledge which is no longer valuable. This is very similar to how successful organizations manage their knowledge and transfer best practice to other parts of the enterprise. Accessing your own and other peoples' knowledge is best achieved through effective questioning. Unfortunately, we are all guilty of asking too few questions, and yet we all love to answer them. It is a sad fact that we often pay more attention to someone asking questions than someone delivering the answers. According to Dorothy Leeds, author of Smart Questions knowing when to ask smart questions gives you the edge in any situation. In particular she believes questions help to:

- Persuade people
- Gain information
- Plant your ideas into other people's minds
- Clear up thinking
- Motivate employees
- Solve problems
- Open communication between warring functions
- Overcome objections
- Get co-operation
- Reduce risks

In many instances we fail to ask questions at all, even our most burning ones. And, once the instant has passed it is often very difficult to ask, for fear of appearing stupid. We should all take our lead from Lieutenant Colombo who asked so many simple questions that he appeared to be a simpleton to his quarry, but he was always able to solve the crime and get his man.

Many people who struggle with the concept and demands of lifelong learning believe it is not for them because their current role does not require the acquisition and application of new skills. If you find yourself in this unenviable position, it is about time you sought out a new opportunity in your company (or outside of it if necessary). Apart from moving to a different function, one of the most effective ways of gaining new knowledge is to get involved with projects. Indeed these days what separates the mediocre from the star performers is not their position in the organization, but the complexity and value of the projects they work on. As we have seen title matter less in the modern corporation. Far more important is the ability to demonstrate capability and build on experience. And, for those who want to enhance their skills and capabilities, one of the most effective means is through projects. Projects provide the ideal opportunity to:

- assimilate new skills
- gain a better understanding of the inner workings of the organization
- develop the skills of an innovator

Also because projects are about changing the status quo, if you get involved with them you will gain invaluable experience of your organization, change management and innovation. They also provide the training ground for developing the vital skills of influencing, politics and stakeholder management. As organizations reinvent themselves over and over, they become more reliant on project management skills to do so. If you develop these skills you will be in high demand.

Keeping it - maintaining your personal knowledge advantage

Let's be clear about one thing, maintaining your competitive advantage through knowledge requires effort. Your knowledge degrades very quickly if it is not used. It is a case of use it or lose it. For example, Motorola found that their trainees would begin to lose what they had learnt within 30 days if they did not apply their newly acquired knowledge. Ian Robertson, author of *Mind Sculpture* highlights some very interesting research into the functioning of the brain. It is generally accepted that we use less than 10 per cent of our brain's capacity, but what we didn't know until recently was that our brain is shaped by the work we do and our education. Detailed post-mortems found that the more education someone had had, the greater the complexity and number of branches there were in the parts of the brain that dealt with language. The conclusion they drew was that education fosters the growth of the brain by stimulating the development of dendrites, the branches which connect the various parts of the brain together. It was also found that learning was not only good for developing your mind and your career, but it also protected you from the ravages of old age, particularly Alzheimer's Disease. This last point is supported by research from Italy that showed that people with no education were fourteen times more likely to suffer from senile dementia than those who had received five years of education. So the next time you think that there are few benefits to lifelong learning, maybe you should consider how it can keep you healthy when you retire!

Ian Robertson also offers us some very useful advice on how to keep our memory (and hence knowledge) current. This involves linking what you are trying to learn to the things you already know. He recommends the use of the PQRST method as a practical way of achieving this, with the acronym standing for:

- Preview. Before learning something new, form a rough idea of what it is about

- Question. Ask yourself what you might already know about the topic and any questions you would like to answer by learning it
- Read. When learning about the new topic do so actively by asking yourself the questions you have posed as you proceed
- State. When you have finished learning the new topic, review it and attempt to relate it to the knowledge you already have
- Test. Test yourself on what you have just learnt.

The good news when it comes to maintaining your personal knowledge advantage is that so few people bother to enhance what they already know. So it is easy to set yourself aside if you embrace lifelong learning. However, as more people wake up to the need to maintain their intellectual capital, the competition will undoubtedly increase, but for the time being there are plenty of people who just can't be bothered. I believe it is far better to be at the vanguard of the knowledge economy than with the laggards. First mover advantage is still open to many of us. All we need to do is to take it. Keeping it current then requires us to remain active in our learning activities.

Knowledge is at the heart of lifelong learning. It is also at the heart of our working lives. As the world becomes more knowledge rich we too must develop our skills associated with our personal knowledge and knowledge management. As we have seen, there are many dimensions to knowledge and fundamental to use harnessing it is our ability to learn. The next chapter will look at how we learn, which lies at the heart of lifelong learning.