

SLOW COMPANY – how procrastination and delay improve the quality of knowledge, collaboration and understanding

Victoria Ward (author for correspondence)

Sparknow
2 Dufferin Avenue
London
EC1Y 8PQ
+44 20 7250 1202
victoria@sparknow.net

Clive Holtham
Bull Information Systems Professor of Information Management
City University Business School
Frobisher Crescent
Barbican Centre
London EC2Y 8HB
+44 20 7477 8629
c.w.holtham@city.ac.uk

Maike Bohn
Sparknow
2 Dufferin Avenue
London EC1Y 8PQ
+44 7250 1202
maike@sparknow.net

Even its slow tempo feels political. Cinema so badly needs to slow down and take stock these days.

Tom Charity writing about David Gordon Green's film 'George Washington'
Time Out, 24 September – 2nd October 2001

The phenomenon of globalization offers, among other things, a great opportunity for exchange and diffusion, but it does tend to level out differences and conceal the peculiar characteristics of single realities. In short, it proposes median models which belong to no one and inevitably generate mediocrity.

From the website Charter of the Slow Cities Movement started in Italy, 1999

KEYWORDS:

tempo, risk, memory, knowledge, understanding, artefacts

1. A Starting point

On the 21st May 2001, as we were drafting this paper, an historic part of City University burnt down. This caused our thinking to focus on speed in relation to the emergency services, and we draw both on our earlier study of that sector as well as further work carried out subsequently during the summer. It turned out that the main loss felt by the academics whose belongings were destroyed was not that of data, or work materials, but of personal mementos of family, or of turning points in their careers. This reinforced our thinking about the importance of objects and artefacts (even those which are quaintly redundant, like the ticker tape with no device to make it accessible any more) as codes for important memories, episodes and histories.

This paper seeks to explore the tempo of work life, and the role of objects and artefacts in shifting the tempo, and in keeping the past present as the future unfolds. It was conceived of, and mostly written, before 11th September 2001. We made no deliberate attempts to make it more or less relevant to the unfolding events which relate to this tragedy.

2. The context

The technological speeding up of communications has been dramatic over the last two centuries. This has also often been accompanied eventually by reductions in the cost of communications. Benjamin and Yates (1991) illustrate this, as shown in Figure 1, where they compare the time and cost of sending one page of text between New York and Chicago.

Distance/Time/Cost Ratios				
Transmitting one page of text from New York to Chicago, approximately 850 miles				
	Prerailroad 1840s	Railroad 1850s	Telegraph 1850s	Data communication 1988
Time (hours)	252	48	0.083	0.0019
Speed (mi/hr)	3.37	17.7	10,240	447,000
Cost (dollars)	0.25	0.03	7.50	0.31
Mi/hr/\$	13.5	590	1,370	1,440,000

Benjamin & Yates (1991)

Figure 1

The rhetoric of modern information technology, of the internet and of advocates of virtual and new company forms, is predicated on the assumption that faster communication is intrinsically beneficial. Becoming a fast company is seen as an end in itself. Fast is good. Slow is bad. The business magazine *Fast Company* is even predicated on this assumption. A typical perspective on speed and business is that of the Madison Consulting Group (2000):

Markets and markets forces are much more dynamic than the old theories of strategic planning suggested. Therefore the length of time necessary to implement strategic solutions is simply too long to support evolving business needs. The need, as the saying goes, is for speed. E-commerce is simply exaggerating this phenomenon.

Wills (1998) even argues that:

Humans have accelerated the pace of evolutionary change everywhere, and at the forefront of that change, we are altering ourselves more rapidly than any other species.

Earlier generations did have markedly different attitudes to tempo. President Jefferson is reportedly quoted as saying to his Secretary of State, concerning an ambassador who disappeared into the recesses of the host country and went ‘native’:

We have not heard from our ambassador in Spain for two years. If we do not hear from him this year, let us write him a letter...

Gleick (2000) identifies contemporary obsessions with speed, such as the existence of close buttons on lift doors. Moore-Ede (1993) outlines the medical consequences of a “24 hours society”. There is a growing volume of critiques of the increased pace of business life, on the grounds of information overload, on the grounds of stress, or on the grounds of error. According to Degrandpre (1999):

We're either in a rush, recovering from the rush, or rushing to rush some more.

We are all frustrated by slow service, especially where there is some imperative for speed. Slow service is one very common form of inappropriate tempo. Slowness as bad is also evident in traffic congestion, and in public services unable - or disinclined - to serve the needs of those who use them. Responses to slowness tend to be responses of irritation or even of extreme rage, as people grapple with their assumptions about their rights (fast, flexible, responses services or access) without paying equal attention to their responsibilities.

It is in response to the need for slowness, that Slow Food was founded by journalist Carlo Petrini in 1986 because he was enraged at the opening of a McDonald's in Rome. Its offshoot, Slow Cities, started in Italy in 1999. The founding manifesto identifies Slow Cities as those in which:

The development of local communities is based, among other things, on their ability to share and acknowledge specific qualities, to create an identity of their own that is visible outside and profoundly felt inside.... a burgeoning new demand exists for alternative solutions which tend to pursue and disseminate excellence, seen not necessarily as an elite phenomenon, but rather as a cultural, hence universal fact of life.

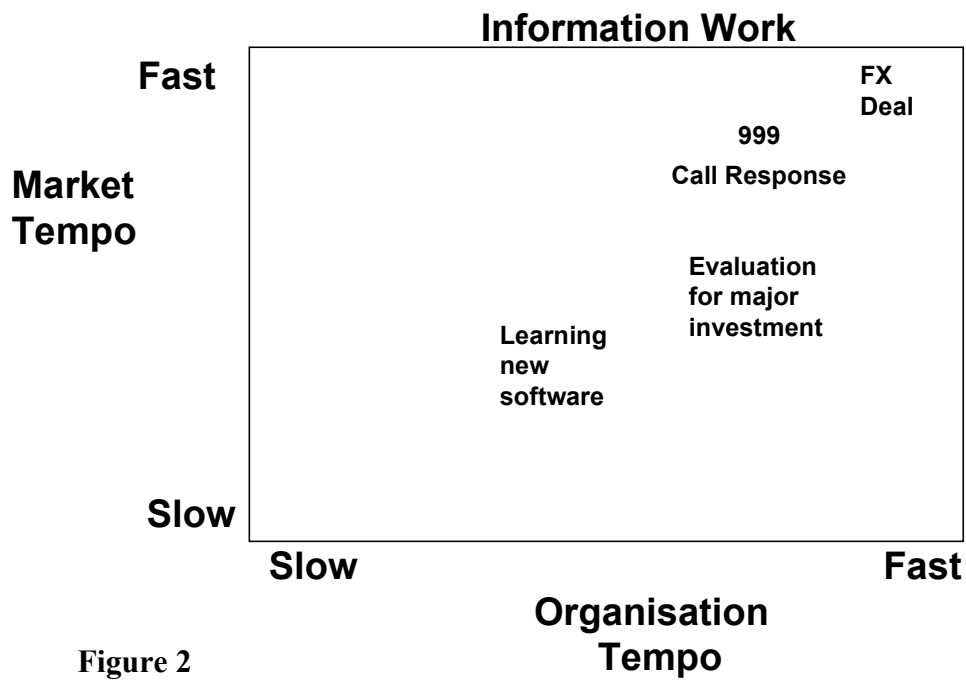
From now on, [slow] cities will conduct common experiences based on a shared code of tangible, verifiable conduct, embracing everything from good eating to the quality of hospitality, services, facilities and the urban fabric itself.

We believe there is considerable scope for being critical about the relevance of speed as an end in itself. The rest of this paper is dedicated to exploring the importance of slowness in life and work. We take slowness to mean a sense of tempo fit for purpose.

3. Information versus knowledge work

It is true that there are many areas where speed of information flow is beneficial almost without question. It is important for emergency service calls to be made fast – the US 911 was preferred to the British 999 because it took significantly less time to dial on a manual rotary dial phone. Two people late for a meeting with each other can usefully draw on mobile phones to keep their colleagues updated as to meeting place.

But more generally we might expect broader discussion of when speed is beneficial, and in particular when it is not. One useful avenue of enquiry is to distinguish between two broad types of work – ‘information’ and ‘knowledge’. ‘Information Work’ relates to the conversion of data into information, and the processing of that information.



‘Knowledge work’ relates to the creation of new knowledge and the sharing of knowledge. Information work is primarily concerned with transactions. Transactions are often, but not necessarily, time dependent or even time critical. Figures 2 and 3 contrast typical contexts in relation to organisational and market tempos.

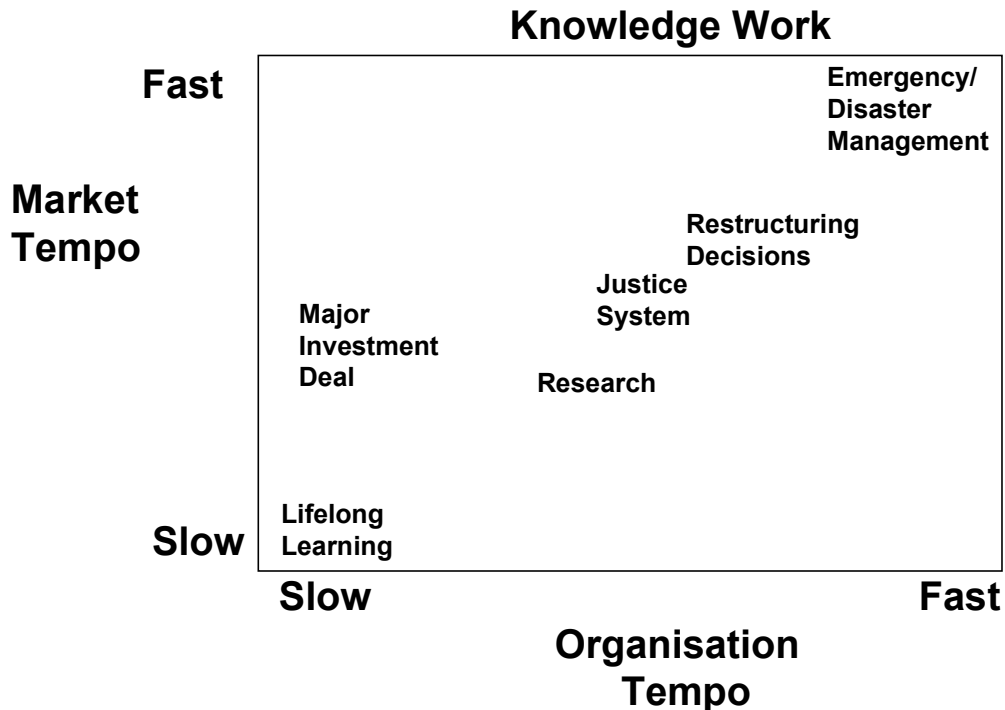


Figure 3

Transactional work is not all necessarily carried out by clerks. Foreign exchange deals and bidding for a great master painting at auction typically require very high level skills. In these two cases, much of the job is knowledge work, but the transactional element is much more akin to information work. And in these two cases, transactions are vitally time dependent.

In foreign exchange dealing, a new event can cause a rapid change in the market. Dealers are constantly vigilant to such events. But what is being communicated via the online news service or by voice is not knowledge. It is information. So the tempo of informational transactions need to be geared to the tempo of the organisation or most typically as here of the marketplace.

In deciding whether to bid for a great master painting, the purchaser or their agent will spend great quantities of time in examining the validity of the preference of the painting. They will undoubtedly accumulate large amounts of data and information in support of this task. But the ultimate judgement as to whether to bid, and if so for how much, is classic knowledge work, in this case taking place in an environment of considerable uncertainty about the object being considered, as well as the behaviours of competing

bidders. Calculating risk needs time: we cannot simply predict how an event or any given information might change people or markets. Curtis Sittenfeld (1999) draws on the views of creativity consultant Joey Reiman.

But how do you change your mind? By slowing down long enough to think

We are clear that most workers actually carry out a blend of information and knowledge work, with very few, if any, carrying out purely information or knowledge work respectively. Most so-called knowledge workers may spend as much if not more time on information work as on knowledge work.

But we nonetheless believe that it is perfectly valid to and indeed increasingly important to analyse critically the nature of knowledge, and here we specifically examine the temporal dimensions of knowledge work. Our starting hypothesis is that knowledge work generally requires the passage of time, and that the application of tools and artefacts to 'speed up' knowledge work may therefore actually be harmful to the quality of that work. Indeed in a world where fastness is endemic, we may well need explicitly to design processes which deliberately delay (procrastinate) knowledge work in order to allow the passage of time for reflection and to ensure completeness of information. Jeremy Rifkin recently praised the virtue of writing books long hand because

..you have to compose a thought slowly. Efficiency is always at the expense of sustainability.

Seeley Brown and Duguid (2000) in their book 'The Social Life of Information' see knowledge as needing time:

..one reason knowledge may be so hard to give and receive is that knowledge seems to require more by way of assimilation. Knowledge is something we digest rather than merely hold. It entails the knower's understanding and some degree of commitment.

People rarely accept or reject knowledge in an instant; what happens in most cases is what Bruno Latour calls a 'process of translation' (Latour, 1991) - knowledge evolving through interaction with people and objects over time, meaning being continually negotiated. Brand (1999) in 'The Clock of the Long Now' argues for the importance of knowledge absorbed:

I know field biologists who can look at a hillside and 'see' the advance of scrub growth over railing meadow; look at a wide valley and see the river lashing like a snake within its floodplain, the meander loops progressing downstream and flicking off oxbow slues to either side; look at a terminal moraine like Cape Cod and see the glacial ice advance and then withdraw over the landscape to a one-hundred-thousand-year beat. That kind of ability is made of knowledge absorbed until it becomes perception.

In *Systems of Survival*, Jane Jacobs (1993) identifies two and only two cultures which operate in human groups: guardian cultures and commercial cultures. The values of each around speed and slowness are almost exactly, and (says Jacobs) irreconcilably opposed:

GUARDIAN CULTURE (slow)

- ◆ Stable, defensive, conservative
- ◆ Resistant to change,
- ◆ Governed by ritual, pattern and habit
- ◆ Conserve and protect
- ◆ Respect the past and protect the future

- ◆ Take a long term view
- ◆ Risk averse

COMMERCIAL CULTURE (fast)

- ◆ Opportunistic, pioneering
- ◆ Entrepreneurial
- ◆ Regard rules and provisional
- ◆ Exploit and develop
- ◆ Strong loyalties to local tribe rather than institution
- ◆ Transient, temporary time frame
- ◆ Tolerant of risk – failure as necessary to learn

In ‘The Evolution of Cooperation’ Axelrod (1984) argues to the need for time in which to build knowledge, understanding and trust. He also identifies the importance of lengthening the shadow of the future over the present, in such a way that present actions and decisions take increasing account of their future implications.

Many companies are trying to ‘optimise’ procedures and processes that are time consuming. But local optimisations, for example, that ignore global performance issues can be meaningless. And first-order effects (total time spent in collecting data, speed of access to the internet, for example), may not be the long-term effects.

Because of the undesigned but dominant metaphor of fastness, we also have to consider how both organisations and individuals explicitly develop skills in slowing down to effect knowledge work processes. Some authors (Lewis, 1999) use the term procrastination in a generally unflattering way, but our own use is not intended to carry such overtones. We simply use it to describe deliberate delay. One of the authors was describing this paper, during its gestation period, to a friend. The friend’s response was both to be delighted by the thesis, and to point out the great benefits of procrastination in his own experience. Recently, he had been putting off dealing with a large tax demand. This inescapable endstop created a kind of urgent space which he filled with all kinds of other suddenly important tasks (the well known ‘tennis-shoe-whitening syndrome’). As a consequence, he wrote some exceptionally good pieces which had been on the backburner for months, and reorganised his archive, finding some old work which had great current value. Eventually, when he could no longer duck the dread tax bill, he sat down with all the papers and a heavy heart only to find that it was not so hard after all. In this case, and often, procrastination is painful but leads to greater productivity.

In an excellent study of the tempo of modern business life (Ettighofer and Blanc, 1998), the case is made for an ecology of time in business and particularly in managers to avoid the Chronos Syndrome (“time eating its children”).

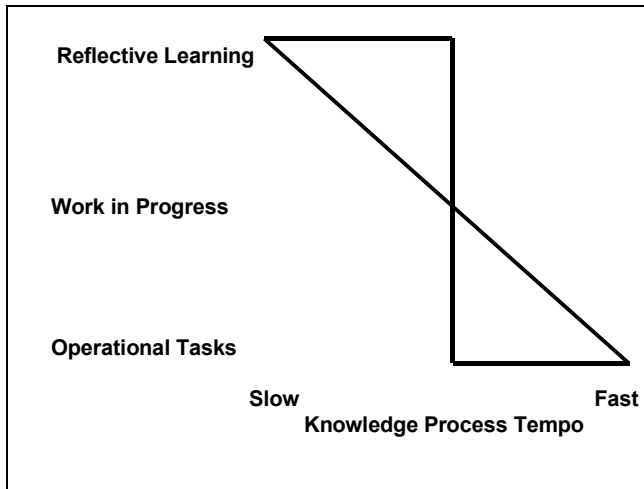


Figure 4

In Figure 4 we draw together some thoughts on the range of tempos across different types of knowledge process. Some operational tasks have a knowledge component that even if not conducted in real-time, certainly takes place rapidly. An example is the response to a fire. At the other extreme, lifelong learning is perhaps one of the most prolonged knowledge processes that we could expect. Much work in progress, knowledge work in leading up to and preparing for decisions, requires some degree of delay to collect information, carry out discussions and develop ideas, but is neither very rapid nor particularly slow. We believe that the dangers of the overemphasis on the fast company for knowledge work, make it imperative to develop some type of benchmarking of knowledge processes along the kind of quasi-hourglass distribution demonstrated in Figure 4.

Implicit in the design of processes, spaces and objects which frame our working lives, there may often be a witting, or unwitting, design of speeding up or slowing down of information exchange, or knowledge prompts. Latour (1991) describes the embedding of instructions into objects to prompt behavioural change (for example the hotel key with the heavy metal weight to remind you not to take it out with you). Global organisations have started to experiment with ‘third spaces’, cafes and canteens where the social exchange of information, knowledge and insight is recognised as work which is as valid as time dedicated to explicit processing of company business.

Often, however, the rituals of engagement (welcomes, questions, listening, farewells) which punctuate everyday life, are missing in the workplace (Ward and Sbarcea 2001), or more specifically in work. The demands of office life in the 20th and 21st centuries have led to a kind of permanent urgency which means that episodes, experiences and narratives which are worth paying attention to are lost in the elision of one activity into another, in the collision of deadlines and demands which characterises Fast Company.

4. The Fire and Rescue Services

We can now examine our specific example of fire and rescue services. These operate in two broad dimensions:

- operations, dealing with the actual emergencies themselves
- non-operations, including planning, training etc

In respect to operations, there is necessarily an emphasis on ensuring good information is provided quickly both for front line and for command personnel. The most modern fire services will provide within the cabs of fire engines sophisticated online information systems. In one example we reviewed, fire engines are equipped with Global Positioning Satellite (GPS) equipment, and also with in-cab geographical information system (GIS) facilities. Wireless networks in the fire station upload and download information automatically when they are static in the station, and in particular when they return from an emergency. So when an engine is called to a fire, the officer in the cab has immediate access not simply to an online map, but also to multiple layers of information about the locality, services and individual buildings. The exact location of all fire engines is displayed automatically via the GPS facility. Specific information about the scene of the fire can be accessed via the GIS.

Yet one of the practical problems in this is that the quality of information stored in the databases supporting the GIS are in practice of extremely variable quality, or indeed important information may not have been collected in advance at all. The information collection for the GIS is a slow, if not tortuous process, based both on research and data collection by the fire service itself, as well as information collected from external bodies such as water companies and local authorities. In the worst situation, the fire service may only know the geographical address of the incident to which they are headed. On arrival at the scene, the organisational culture of the fire service means that there is an inbuilt instinct in the fire fighter to react, to “do something at once”. But acting too quickly can be dangerous. So the fire service has had to develop operational procedures which temper this instinctive reaction, which introduce some element of slowing down even in the face of a raging fire. There is a need to collect sufficient information via on the spot intelligence, before making a decision on action. There are two basic approaches to dealing with a fire:

- (a) Offensive – tackling the blaze head on, with a view to putting it out
- (b) Defensive – containing the blaze, protecting areas adjacent to the fire, but allowing it to burn out the building directly affected

A combination may be necessary, typically where a life is at risk in one part of the building, requiring an offensive approach, but with a defensive approach taken towards the rest of the fire.

The most typical information and knowledge problems arising from operational firefighting can be seen in fires in industrial estate buildings, where anonymous modern units could house anything from a call centres to the processing of dangerous chemicals.

The fire service carries out continual surveys of commercial buildings, which are entered into the GIS database, but even a survey done a few weeks earlier can become quickly out of date. One graphic example related to an industrial unit which caught fire on a Friday. Offensive firefighting was used successfully, and it was found the unit was full of foam rubber – a very dangerous substance. On the following day, the Saturday, another fire was reported at the unit. Now that the fire service was aware of the contents of the unit, it was decided to use defensive techniques, and allow the unit to burn down.

After this has happened, investigators discovered that after the Friday fire, the owners had removed virtually all the foam from the factory. All that was left were a few scraps of foam, and it was these that had caught alight, giving all the appearance of the full factory fire, but of minimal danger. In this case, the incorrect belief that the fire service had fully up to date information about the building actually led to an over-confident decision, when normal scepticism about the information quality, and some slowing down of decision making, would have been more appropriate. So the provision of online graphical information must not lead to over-rapid decision making, based on information which is only of highly variable quality. There is an explicit need to build in time to take stock and collect direct intelligence, and not to follow the firefighter's instinct to act fast. There is an explicit need to procrastinate.

Moving now behind-the-scenes at a major incident, we observed what seemed to be surprisingly bureaucratic process for registering all staff involved at the incident. This involved a wallboard scheduler with tally tags to record by pen those involved. Each then had to be issued with a plastic badge.

This meticulous recording of who is at the scene, and tracking those leaving and joining is an example of an informational process designed to slow processes down, but specifically to reduce the risks of loss of life. For a group who have the potential to both save and lose human lives, it is understandable why there needs to be explicit decision making structures.

It is also clear why there needs to be some element of reflection to reduce risk. There is an elaborate hierarchy of post-incident debriefing in the fire service. After an incident is over, there is first of all an immediate team debriefing, probably on return to the fire station informally "over a cup of tea". There are two broad types of issue raised.

- * Local issues e.g. of training, or equipment or of failure to follow procedures.
- * Areas of wider significance, and which must be formally notified upwards e.g. where the procedures themselves may seem to be inappropriate.

For major incidents there needs to be a much more formal method of debriefing. The traditional method was to get all the key people involved into one room. But this "always seemed to turn into a scrum". A scrum is a very poor environment for debriefing.

So a different approach was devised. The key is the use of experienced, trained interviewers. They now meet up with all the key people individually. From the data

collected, the interviewer draws up a formal written briefing document. This is then used as a formal input to a face to face briefing with the key people.

The context of this briefing cannot be totally blame free, not least so long as there is the possibility of negligence. But apart from that, the process is “error tolerant” in the interests of uncovering the underlying learnings from the exercise. We were particularly struck by the emphasis put onto the use of skilled interviewers in face to face environments, a time consuming process. Although it would be feasible to collect debriefing information by electronic means such as email or online surveys, a commonly held view was that “a skilled interviewer is able to prise out the underlying issues, and can even take cues from body language. Electronic data collection would simply encourage a quick response. Experts can also spot trends arising from separate interviews”. It is feasible to deploy electronically supported approaches within the risk assessment process, such as the use of Case Based Reasoning in the Recognition Primed decision making model, but the aim of the electronic approach is not particularly to speed up decision-making, rather to support the synthesis of large bodies of research evidence.

As part of an earlier study (Selim and Holtham, 2000) we examined the potential for the speeding up of key financial processes, specifically budget decision making and the end of financial year audit. In the latter case, advanced use of technology has created the possibility of closing a company accounts within a mere matter of minutes of the year end. When we interviewed experienced audit principals, there was little dissent from the existing or imminent technological scenario outlined. But there was tremendous resistance to the idea of the “one hour audit”. The most common objection was the need to “reflect” on the figures over a minimum period of time, measured in weeks not days.

In another study (Holtham and Tiwari, 1996) we applied group decision support technologies to the budget making process in a not for profit organisation. These involved groups of decision makers using networked PC’s in a face to face meeting, with software that enables anonymous brainstorming and prioritisation. In a single day it proved possible to concatenate a whole series of decisions that would normally take place over many weeks. Following the meeting the technology was itself used to evaluate the advantages and disadvantages of the speeded-up approach, and there was also oral review of the approach. One of the points that received widespread support was that the one day should have been spread over two half days, separated by a week or so, to enable a period during which participants could give a more considered view on the implications of the decisions and priorities that had evolved from the first compressed half day. There was a great reluctance simply to make this important process more “time efficient” as this did not allow for the full ramifications of the provisional decisions to be explored.

We believe that these examples reviewed in the areas of fire and financial decision making tend to support the clear distinction between the tempo of information work and knowledge work. The closing of final accounts, the mathematics of detailed budgeting and the fast deployment of fire engines to a fire, are all information processes that are readily amenable to speeding up. The insight into the accounts needed for audit, the debate on budget priorities and the debriefing after a fire incident are all knowledge

processes that are simply not amenable to speeding up as an end in itself. Indeed speeding up of knowledge work can actually be harmful to the minimum times needed for analysis and synthesis of information into knowledge, and the further time needed for discussion and further synthesis stages.

It is not sufficient to share knowledge at a certain stage, the information has to be continuously updated in the course of action. In order for the shared knowledge to be updated and homogeneous, firefighters and investigators need an appropriate understanding of the situation as well as fast, real-time acquisition of information. Immediate access to online information, the fast delivery of text or media from one place to another, leaves little or no room for informed selection or learning. As John Thackara said in a lecture at Hogeschool van Amsterdam (HvA):

.. any service that restricts itself to the delivery of pre-packaged content, ignores the social and collaborative nature of learning, and cultural qualities of time and place that add depth and texture to the process...

5. Models for applying slowness in knowledge work

We recently worked with a client to examine the present and future relevance of knowledge management to the systems, processes and activities of the organisation. It became clear early on that risk management was at the heart of operations. We considered the characteristics of knowledge and risk, and their impact:

CHARACTERISTIC	KNOWLEDGE IMPACT
Events from the distant past may impact on the short and long term future. Equally present decisions may have far reaching impact for generations into the future.	Knowledge must be long lasting, available from the distant past and long into the future. Present decisions and actions must be made with a deep sense of the past and a long view of the future.
There cannot be well established rule books/standards as event combinations will be unique and unpredictable.	Judgements are needed, the culture must foster individual decision making on a case by case basis. Codified and uncoded knowledge needs constant rebalancing.
Front line operators have worked closely and interdependently in teams over long time periods.	Collective tacit knowledge has grown because of trust and familiarity of working together, where it might previously have been made explicit more systemically in order to avoid misunderstanding.
Front line is negotiated by individual on behalf of the whole enterprise	The collective memory and judgement of the organisation depends highly professional operators on the front line, supported by central information, knowledge and intelligence, in a cultural framework which fosters individual decision making, but not individualism.
No single individual can carry the whole picture	Diverse teams of experts need constantly to develop and share their own perceptions.
Must be within legal framework with an increasing need for audit trails, transparency	Defence of actions must be in depth, implying that working practices which have shifted from explicit to implicit over time need to be reworked, without losing what currently works well.

Figure 5.

The depth, breadth and length of retention of the knowledge implies that deliberation, slowness and reflection all have a key role to play in developing corporate capacity for effective judgement and action.

Methodologies which view knowledge management as risk management attach great importance to slowness, as we have discussed in relation to the fire services and their debriefing approaches. Colardelle and Wybo (2000) have developed a structured and slow method for dealing with lessons learned from public transport incidents or near-misses. This has two important characteristics:

1. It places great importance on the many perceptions of the episodes which might lead to a near miss. The method identifies these as ‘particles of experience’ and interviews with different participants will identify their points of view about what

these particles are, which are then elaborated and negotiated into one agreed sequence.

2. It introduces two parallel scenarios – what happened, and where are the turning points, which might in a future incident generate an action which improved the effectiveness of responses.

The method gives permission to perceive the incident from your own viewpoint, and to introduce your opinions into a collective future process. This means that history and awareness is injected into future process with much practical application of tacit individual experience than is normally afforded by reviews, or lessons learnt processes.

Brand (1999) develops the idea of a Responsibility Record, which might improve the quality of decisions that have long term consequences. These would be public records of amassed materials, observations and views ('harnessing the powers of contention') relating to major policy decisions which might affect the future course of history:

The Responsibility Record fosters slow, direct-feedback loops in policy. This is a new and perhaps crucial service, because up to now civilisation's feedback loops have been either direct but quick (win the election) or slow but indirect (suffer a gradually degraded environment). The urgent always had a louder, clearer voice than the background rumble of the important. The Responsibility Record doesn't try to change the voices; all it does is retune our hearing.

This notion of preserving the integrity of the voices, from all sources, and retuning our ability to hear them is at the heart of the more successful lessons learned work which we have undertaken or researched.

6. Art and artefacts

Lave and Wenger (1991) consider the difference between learning and instruction as a

shift away from a theory of situated activity in which learning is reified as one kind of activity and towards a theory of social practice in which learning is viewed as an aspect of all activity.....agent, activity and the world mutually constitute each other.

We have come to believe that slowness is the key property of any model which fosters knowledge transfer, and there are two aspects of slowness which are almost universally overlooked in the practices and processes of modern organisations:

1. Learning and knowledge transfer is 'situated' – it emerges from the properties and conditions which convert experience into something explicit and lasting. These conditions operate simultaneously at the levels of individual (skills, intuition and attitude) the group (tools, processes, rules of engagement) and organisational (culture,

permissions, systems). They need to somehow be captured in and around the artefacts.

2. Custodial activities (librarianship, collections and records management, archives) are essential in both finding and sustaining the archive of experience which will inform future activity, and the ordering of the artefacts in which they are contained. Custodianship cannot be passive.

In other research, we have looked in some detail at the role of art and artefacts as agents for collaboration (Holtham and Ward 2000). We propose that ‘art’ acts as an agent for collaboration, and the artefact as a tool for slowing down and the formation of communities of practice – a kind of proactive development of the theory underpinning Wenger’s work on communities of practice. These are founded in shared understanding, trust and rituals of mutual support. The artefact itself then acts as a kind of mnemonic of the experience, in particular of its tacit dimensions. Artefacts have the power to unlock the personal and return a sense of time and reality (Kwint, Breward, Aynsley 1999):

Suddenly reminded of some fragment of knowledge ...[people] can become instant narrators and possessors of the objects, sometimes buttonholing strangers in order to communicate the complex and difficult truths of an event’s multiple impact.

Frances Yates (1966) describes the Greek art of developing extended, or artificial memory, by creating an imagined space (a house divided into rooms, in which there were objects) through which the narrator took a journey. This mental world provided prompts for orators and storytellers at a time where there were no easy means of recording long records.

Another advantage of possessing only limited means of storage and recording is evident in poems such as the Odyssey. Here, the epithets developed to describe Odysseus, for example, or the recurring descriptions of sacrifice and celebration had to fit the constraints of the meter and expectations of Greek poetry (Fagles and Knox 1996):

This system, obviously the product of invention, refinement and elimination of superfluties over generations, could only be the work of oral bards...Such passages give the oral singer time to concentrate on what is coming next.

The discipline imposed by the artistic process, and its constraints also provides the opportunity to generate shared language and understanding. In an interview in knowledge@wharton John Barr, an investment banker who is also a poet says:

Poems are ... about risk because they embrace the unknown and the uncertain. That is why they have excitement and vitality. Poems are long journeys in risk. People don’t write poems because they have figured it all out; they write poems in order to figure it out. A good poem contains and preserves, like an insect in ancient amber, that moment—of figuring something out—forever.

Josef Beuys saw art as ‘social sculpture’ that would expand human creativity, its application and the definition of art. ‘Social sculpture’ was for Beuys a kind of conscious act to shape the environment and bring it from chaos into some kind of form. He also saw social sculpture as cross discipline and about co-operation and interaction. He often used the slogan Art + Creativity Capital and saw art and creativity as the new currency with which society would be transformed, as the only revolutionary force.

My objects are to be seen as stimulants for the transformation of the idea of sculpture, or of art in general.

They shall provoke thoughts about what sculpture can be and how the concept of sculpting can be extended to the invisible materials used by everyone:

Thinking Forms – how we mould our thoughts

Spoken Forms – how we shape our thoughts into words

Social Sculpture – how we mould and shape the world in which we live.

Sculpture is an evolutionary process; everyone is an artist.

*That is why the nature of my sculpture is not fixed and finished. Processes continue in most of them: chemical reactions, fermentations, colour changes, decay, drying up. Everything is in a **state of change.***

(Beuys, quoted in Tisdall 1980)

Over a twenty year span from 1965, Beuys produced some 625 editioned works, called ‘multiples’ which were made from objects, relics, his actions, documentation of events and other materials such as felt and fat. The multiples varied enormously, except in the consistency of the artistic process.

Multiples were also described by Beuys as ‘vehicles of information’, used to disseminate ideas. People who owned multiples have some kind of connection with the idea, and so extended the life and reach of the concept. They were also ‘stand-ins’ portraying the idea in the absence of the artist, and sparking debate. So the multiple had two important qualities (Beuys 1970):

It's a matter of two intersecting things. Naturally, I search for a suitable quality in an object, which permits multiplication.... But actually, it's more important to speak of distribution, of reaching a larger number of people.

The role of objects in intensifying or extending the time spent in reflection, or in creation of rituals to deepen understanding has a direct impact on tempo, and multiples serves as a metaphor for ways to create scaleable communication, while maintaining the integrity of message. Another dimension of artefacts comes from archaeological digs, where the process of unearthing and ordering objects is an explicit process, which can become the product.

In 1999, Mark Dion undertook a dig on the banks of the river Thames by the Tate in a project which had three parts and an appendix – the collection, cleaning and identification, then classification and presentation of found objects in a cabinet of

curiosities ('Wunderkammer'). The appendix was a series of events and lectures during the summer of 1999. The result was a series of contexts, each reflecting the river differently. In his essay about Mark Dion's digs (Dion, 'Archaeology' 2000), Robert Williams writes:

Consequently, the project should be viewed as a practice where the process encompassing the whole range of activities, becomes the artefact. The process is, itself, analogous to a stratification, it has many different levels to encounter, to explore and to study in each context. The experience of which in its final stage, is as much an archaeological excavation as the methodology and language of the project itself.

Archaeology includes essays on three digs by Mark Dion. They describe the story of the process, classification diagrams, sketches, and pictures, which, in the Tate Thames dig, include pictures of the whole team. These, along with the classified artefacts, also formed part of the exhibit on display at the Tate. The exhibit itself was also designed to be interactive, inviting viewers to browse and to excavate contents. Without labelling or interpretative text (except for details of dig locations) the viewer was invited to read and interpret the organisation of the objects in their own way.

The learning involved here – about archaeology, the Thames, the process of work itself and the language used – is more than learning-by-interacting. It is a combined act of discovery and analysis, of understanding and meaning, and of experimenting as well as the development of routines (Sørensen 2000):

In order to make an artefact work, it has to be placed, spatially, temporally, and mentally.

The relationship between physical, virtual and psychological spaces which foster learning, and the emergence of art as a key agent for slowing things down and creating effective, and mnemonic, knowledge transfer in organisations seem to us to be fertile areas for further research. The notion, proposed by Dion, that the processes become the object, is a principle with far-reaching corporate application.

It seems to us that there is need to consider art and artefacts in work as having five important contributions to make:

1. Individually authored works such as poems can distill the essence of an experience with acute attention to the quality of language, and so provide a more memorable record than that to be found in most organisational documents.
2. The process of collaborating to make an artefact can both create a new, negotiated understanding, and a new community whose joint working creates social capital which is of future individual and organisational value (Ward and Holtham 2000).
3. The authoring of artistic objects can productively politicise the workplace and create recognition, respect and influence which results in a different organisational shape and power than that afforded by traditional hierarchies.

4. Experiences which might otherwise be ephemeral, and pass unnoticed, but which contain important insights, can be given their place in the official records of the company. (Ward and Holtham 1999, Ward and Sbarcea 2001)
5. The slowing down provided by the artistic process, and the surprise of finding these forms inside organisations both serve to interrupt people in a way which might cause them to think, and then to behave differently.

It is, in our view, extraordinarily rare that organisations put their art collections or sponsorship of artists or poets in residence to work in this way. However, we can point to two illustrations of organisations which have developed some understanding of this potential.

One French car manufacturer recruited an oral historian to create archives of the experiences of those who have worked for years in the design and production of windscreen wipers. This often uncovered the rationale for specific design features which had become lost, and even where the previously relevant rationale has long ceased to be important. There were also 'ideas ahead of their time' discarded because uneconomic or unreliable, which have now become viable. The project has been so successful that the historian is now moving on to create an oral history for car doors.

One British public sector entity has a museum as part of its library and knowledge management group, and has shown great imagination in commissioning oral histories from retired employees. These have been commissioned by the museum, but will be used by the library in the headquarters buildings to attract visitors, who might then form new relationships with each other and with the history of the organisation. The standards which are being developed for the oral histories are also being considered as possibly appropriate for developing internal storytelling approaches as part of the knowledge management programme.

One final observation on artefacts, understanding and meaning comes from email conversation with David Pearl from Lively Arts, an enterprise which deliberately seeks to introduce music, theatre and the arts into organisations as a way to effect their change programmes. David writes:

Take out an object and ask people

What is this?

Note the response time and the singularity of response.

Then ask

What does it mean?

Note the response time and the diversity of response (in my experience there will be several seconds of silence while the brain seeks to penetrate beyond the surface to consider this 'stupid' question.)

... consider the outside and inside of things as two entirely complementary parts of the data you need to form a rounded response. ...and that the outside is hugely over privileged in this outey world of ours.

7. Conclusions

There have been at least centuries of preoccupation with speed. It was as much a preoccupation in the Victorian era (Hart Davis 2001), as it is today. We are not seeking to turn back the clock. We accept the prediction of Benjamin and Yates (1991):

The increasing bandwidth of such networks coupled with richer communication media will enable new compressions of time and space

For most information work, such compression is of positive benefit. But as we have shown in the firefighting operations example, even in the face of a dire emergency there may be an especial need to procrastinate.

We see a number of common situations where the need for hurried tempo has to be questioned.

1. Fast responses may be made on the basis of data which appear to be complete, but which actually need the passage of time to see whether it is complete. Information provided fast may need a period of time, possibly an extensive period of time to enable absorption of, processing of, and reflection on, that information, e.g. as seen in the fire engine debriefing
2. The ability to respond fast may cause respondents to make fast replies when slightly longer reflection is needed (some reference to email ease of hitting button – e.g. like that lawyer who was humiliated, must be a good reference somewhere)
3. Time and space are essential tools to allow collaboration to unfold
4. Reincorporation of experiences into a core asset or artefact needs time and new ways of collecting, refining maintaining and sharing.

We are not hostile to speed out of any particular philosophical beliefs, or out of concerns with physical health, or out of reverence for a rustic way of life. The history of technology is of largely irreversible invention of tools which help us overcome our own physical limitations although they will not help us to overcome deficiencies in our thinking or do the learning process for us. Faster distribution of 'knowledge' via electronic media still leaves the learning process to the individual and this is often better served by other forms of communication and collaborations as described above.

We cannot see this striving as being stoppable. Our focus is specific. The focus is 'what are the most appropriate tempos for different types of work?' We believe that explicit consideration needs to be given to these appropriate tempos. It is not satisfactory to assume that 'faster' inevitably means better. Indeed it is not too difficult to identify where 'faster' actually means worse, or riskier. We are then concerned with the implications of appropriate tempos, both fast, slow or otherwise, for key areas of business processes.

Recognition of a spectrum of appropriate tempos has particular significance for the spaces, objects, activities and notation systems and rituals which we use for work.

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