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Communication is the enemy of innovation, or can we go back to the German mode?

Abstract: Contemporary network communications is contributing to a lack of time in advanced economies and to the collapse of effective distinctions between work, home, and play. Social legislation has little effect on the realities of the working life of the time poor managerial-professional class. There is some nostalgia for Weberian-style capitalism to correct this. But its emphasis on process and method seems unsuited to knowledge economies that rely on high levels of innovation. That innovation, however, requires time—and time has become the scarcest factor of production in contemporary post-industrial economies, ruthlessly consumed by digital communications.

From now on, I'm going back to the German mode.
Marc Duchesne

I. High-Tech Nostalgia for the German Mode

Marc Duchesne's problem is our problem (*Myth of Multi-Tasking*). Duchesne, who is the Managing Director of the Consulting Group eXperide, writes wistfully on his blog:

> I'm no guru any longer (people called me *the fiber optics guru* back in the 90's-early 2k's – even at HP/Agilent, that says a lot ;-), however it seems that I do currently share the same trouble [of] Presentation Design guru Garr Reynolds. Actually, Garr's words in his recent post could be mine – I was to write something on that: *'I find myself making more little mistakes and being less satisfied with my work overall unless I can take the time everyday to be alone and focus on one thing at a time'* (Duchasne).

We all have this problem – 'all' meaning professionals who are constantly distracted from their main job by the incessantly demanding flow of contemporary communications. The professional-managerial class, though, is hardly the victim of someone else's machinations. In fact this very class – those of

Marc Duchesne's age – touted and pioneered the communications revolution that washed across the globe in the 1990s. But now the chickens have come home to roost – and many of the pioneers of that revolution are regretting (some of) what they have done.
"Is it aging?" Duchesne wonders aloud.

> I don't think so: at 48 in 2 months, my brain is still in better shape than most of the Generation Y (just kidding, Facebook readers ;-). My take is – such is Garr's too – that we are overwhelmed by this Always-Urgent mode we live in […]. Less and less time to achieve more and more fragmented tasks. This is no new discovery, of course. Yet it's quite disturbing (Duchesne).

Indeed so. Duchesne neatly sums up what is worrying a lot of the more thoughtful progenitors of the Communications Age. Those who grew up in the nineteen-sixties and nineteen-seventies will distantly remember a time when the then gurus promised that computers would create 'the leisure society'. How wrong they were. Those who do enjoy leisure now do so often for the worst reason: they are unemployed or under-employed. Leisure that was once a pop word for 'the free play of creativity' is now a kind of ironic term used by those in the Always-Urgent mode. Far from an increase in reflexive leisure or thinking time, we are left – as Duchesne vividly describes – in a distressing state where there is less and less time available to achieve more and more fragmented and incoherent tasks.
It is the fragmentation of tasks that is the most worrisome aspect of this phenomenon. Modern societies habitually speed things up. When this is done competently in the name of efficiency – and social actors learn to use their time and energies more effectively – it is not a bad thing, quite the contrary. But when work becomes fragmented and concentration is spread in multiple directions, the casualty is imaginative thinking and creativity that require long gestation and periods of intense, uninterrupted focus. There are increasingly articulated doubts about the Always-Urgent mode and its counter-productivity – and these are being aired in a very viscerally personal way. Duchesne is typical:

> Yesterday afternoon, back from a meeting in Paris with young entrepreneur Mathieu Husson and his team, I was hit by a strange thought: 'maybe I do too much'. I suddenly realized that I may be currently too much immersed in too many open projects. Then, last night whilst watching French Champion Tsonga fighting hard against Electric Roddick, I took a brief look on Twitter with my iPhone. My wife went sarcastic: 'hey, can't you get off the grid for once?' (Duchesne).

So what is the answer? Duchesne calls it *the German way*:

> I [remember] the days at Agilent Boeblingen, Germany. We were working hard and fast – 3 years looking like 3 months, that's the one thing that comes to our mind when we talk about this period. Yet things were organized, the German way. Process, process, process. At the end of the day, it gives you the VW Golf: attention to the details. When I moved from HP/Agilent headquarters in Paris to Boeblingen, I […] used to work on 30 different projects at a time. Friends […] used to say that I was 'Mister 100-ideas a day'. After 3 years in Germany, I was doing just a handful of things at a time, and I was doing those quite well, according to our customers and the management (Duchesne).

But is the German mode really the answer to the pathologies of the Always-Urgent mode? There is no doubt that the Methodical-Process style is *the* classic organizational style – and one that is distinctly at odds with the Always-Urgent mode (Peters 23-50). The Process model is also one that has distinct national connotations and deep roots in cultural and religious history. But it is also not clear that this mode has the traction or the efficacy that it once did.

The 'German mode' is a short-hand term for the Lutheran-Calvinist style of capitalism. Max Weber gave the definitive account of this social and economic form. It was a very successful social form because it was rational. Rational – in this case – meant methodical. The religious culture of Calvinism forged a number of well-known attitudes to time and work. One was turning up for work on time – and 'clocking off' on time. This was an expression of a methodical way of life. Method – the basis of procedure and process – meant harnessing human energies in a structured and planned manner, devising movements 'step-by-step' so as save time and energy, and formulating conscious 'rules and disciplines' to make this possible. Method was the secular equivalent of religious ritual. Lutheranism and Calvinism created a sparse, deliberate, rational form of ritual. This became the foundation of modern organization. As the Process-Methodical mode spread through social life, it delivered tremendous economic benefits – especially in North-Eastern Europe and North America. It made the world, and especially the world of work, more efficient. But as its great apostle Max Weber also noted, the Calvinist form of rational capitalism tended to make the world more soulless as well.

Too much method makes human beings dull. It enervates. The economic consequences of too much process and procedure are not always immediately apparent, especially as procedural kinds of capitalism are vastly superior to any of their patrimonial competitors. But as post-industrial economies

have spread, the negative consequences of methodical forms of organization have become more evident. High-end post-industrial economies became the 'proof of concept' that creative action is the core driver of modern economies – including industrial ones (see Bell; Florida; Landes; Howkins). This was Joseph Schumpeter's central insight (see Schumpeter). Methodical behavior is all well and good, but creative action requires spontaneity in addition to discipline. It requires the kind of 'sudden thought' characteristic of Shakespeare – the leaps of insight that are associated with the free play of the imagination (see Davis). The words 'free', 'play' and 'imagination' sit uneasily with the words 'process', 'method' and 'discipline'. Like all antitheses, we can find productive ways of reconciling the two. At the same time, though, it is clear that 'the German mode' – Weberian-style capitalism – is not a persuasive model for the post-industrial world or for the larger universe of creative economies. This is not an excuse for self-indulgence or remissive and anarchic behavior. Creative action is not that either. Few people work harder or with more focus than creative personalities. But, at the end of the day, inspiration counts as well as perspiration.

Duchesne clearly enjoyed the time he spent in the city of Boeblingen, which is located in the heart of the great creative region of Baden-Württemberg.[1] Yet, as he ruefully notes, for all of that experience the Methodical mode failed to take hold of him. After he left Boeblingen, he fell from grace with the God of Process. *Germany*…:

> That was just 6 years ago. What has changed, since then? Maybe people like Garr and myself and millions of other guys are just too curious and hungry to learn and share. Maybe we're just workoholic. Maybe we're just tech geeks, relying too much on the Internet and the iPhone. Working on our regular job, reading our RSS feeds, blogging, commenting, twitting: we're always 'online', and... disrupted (Duchesne).

Still Duchesne is nostalgic for his time in Germany. He wants to return to Process and Method. "I have no answer so far," he says,

> however I have the solution – at least for myself. From now on, I'm going back to the German mode. Check email and reply from 8:00AM to 9:00AM, then leave the incoming messages for the next day. Read and comment the news from 9 till 10. Then work on the priority #1 project until lunchtime (and keep this one at fixed hour). Take a short rest, off the grid. Go back to

[1] On the role of Baden-Württemberg and other similarly-placed creative economic regions, see Peters [et al.]: 149-184.

> work at 1:30PM, and work on priority #2 project until tea break. Then get back and work on #3 project until everybody leaves the factory – ooops, until the kids come back home (Duchesne).

He even promises that "this post is the very last one I'll write and publish over a week-end!" – but do we think he will honor his promise? Probably not, for it is not clear that culturally the Process-Method mode has traction anymore – or even that it works socially and economically like it once did. This is not to say that the Always-Urgent mode does not have significant failings – it does. Those failings are systematic and chronic. But it is also very possible – at the same time – that the Process-Method mode of organization is also dead in the water, and that the Communications Age is going to have to create its own solutions to its own problems.

II. The Anxiety to Connect

Marc Duchesne's problem is my problem. I carry a tiny elegant mobile phone in my pocket almost always. Anyone can call me, no matter where I am, anytime of the day or night, from anywhere in the world. My phone number, like my email address, is public. It is on the web. Anyone can look it up in a few seconds. My mobile has a wireless Internet connection. I can download my email wherever I am if I want. My phone also has a multi gigabyte memory card and stock office software applications (Word, XL, etc.). I can send and receive virtually any standard business document at any time, in any place, for any purpose on this tiny platform – and with a little extra technology help I can usually create whatever documents I want more or less anywhere I go. I am connected.

This level of connectivity in society is impressive, especially for anyone who (like me) came of age in the pre-digital age. But, like anything else in life, it is possible to have too much of a good thing. It is possible to be *too* connected. I am not about to suggest that we switch off the lights. Antediluvian measures like shutting down email are not in any sense persuasive. There is a lot of value in being connected. But connection is not an unalloyed good. Connection can be productive and satisfying. Yet it can also be unproductive and dissatisfying.

Connectivity is the life blood of business and professional life. Today customers, audiences, clients, vendors, professionals, and peers all link to us through electronic means. There are many functions that we could not carry out without this electronic mediation. The connectivity that it makes possible also has an emotional resonance. Human beings crave the recognition and reassurance that connection brings. We see this everyday in the workplace. Small things are always going wrong in offices.

Something doesn't work. Someone can't quite do what is expected of them. In these cases, the instinct is to 'make contact'. Questions are addressed to peers or managers. Often this is done for nothing more than reassurance. For even if we are lost, we still want assurance that we are doing the right thing. We may have no idea what the right thing is, for so much about human action is uncertain. This is true even in highly regulated environments like offices and institutional work places. We have all observed that often it is the 'rule followers' (those who have very rigid conceptions of behavior) who end up being the most lost in these situations and the most in need of reassurance that what they are doing is right. But, no matter who it is, no matter whether it is the rule fetishists or the rule flouters, everyone values even the smallest gestures of recognition that come with communicating with others.

Electronic connectivity makes ritual demands for recognition easy to make. Such demands are usually implicit. They are part of the subtext of communication. I write to you not just to inform you of something but in the expectation that you will acknowledge me by writing back to me. I speak in order to be spoken to. Electronic messaging has made such invisible reciprocities easy to enact. This simplicity is a social good. We value the effortlessness of so much of contemporary digital communications – the flick of the wrist and the couple of taps of the finger that has us talking to our friend. Yet even virtues have their vices. For the caller seeking out a friend, the simplicity of network communications is a virtue. For the friend, being called up is welcome – unless, that is, the friend is stressed or busy or moody, or in any other state where communication is not desired.

The line between loving and hating the act of talking to people can be very thin at times. The ease of contemporary communications amplifies what we love about chatting with others. But it also magnifies what we hate about it. Take, for example, the nervous employee who fires off email after email – constantly 'checking' what to do. At a certain point, this communication switches from the productive to the unproductive. In an office, some 'checking' makes functional sense. It also makes emotional sense. We check to avoid mistakes. We also check as a ritual way of introducing ourselves if we are new to a work place. But 'too much' checking is both dysfunctional and emotionally childish. It crosses an invisible line. It exceeds a necessary limit. This is the limit that others place on us communicating with them. Each of us normally want our fellows to communicate with us but we also protect ourselves against too much of this communication.

Too much communication distracts us from time with our own thoughts. This is the time that we use to order and organize our perception of the world. When that organization is disrupted, the otherwise welcome call or email becomes intrusive – and we become irritable. Even if it is our friend calling, our nerves are wracked. In the digital age, as electronic communications have become pervasive, the probability of a communication suddenly switching from the relaxing to the taxing has multiplied.

What has accompanied this is an increase in the amount of unnecessary and unproductive communication, both in a functional and emotional sense.[2] Messaging driven by anxiety is a classic instance of this. Its prevalence in the workplace, though, is not simply an effect of technology. Rather electronic technology amplifies deeper social trends. The underlying reality is that modern organizational life tends toward systemic uncertainty. This perhaps was not what was intended by the pioneers of modern organizations. Business firms for example developed in order to reduce the contingency of markets. Yet they never really escaped market-driven change. Moreover the rules that firms created to replace markets often proved themselves to be an unintended source of uncertainty. Divining the meaning of organizational rules and policies became one of the spectator sports of last century's white collar classes. The dream of the twentieth century was organized life where human action would be planned, and certainty would trump contingency. Little of this proved to be true in practice.

Some people cope with uncertainty well, others do not. Those who have difficulty living with uncertainty often see communication as a balm for anxiety. They send out 'messages' looking for reassuring responses. That, of course, is human, all-too-human. Everyone understands human frailty. But what is sometimes less understood is the impact that such communication has on others. This is especially true in the case of electronic communications. Electronic communication developed in the first place as machine-to-machine communication, permitting scientists in laboratories to access data on machines thousands of miles away. Today there is a sense in which some communicants fail to clearly distinguish between communicating with another person and posting to a machine. Electronic communication made possible the easy storing and retrieval of a vast amount of data. But the data model translates poorly into human communications. When I email a person, I am not dropping down data onto a machine which someone else might or might not access at their convenience. I am sending a communication in which a response is expected. I am making a claim on another person. That is a claim that is supported by social norms. Communication of this kind comes with an ethical tag attached to it. But it is an ethical tag that often has unethical consequences. For if the communication that is sent is unnecessary (an effect, say, of uncontrolled anxiety), and yet it activates the moral expectations that a message sent will be responded to (a nod to a passerby will be met with a nod in return), then the consequence of this, if it occurs on a large scale, can be quite damaging. Put bluntly, this can amount to the stealing of time.

[2] "Distractions in the office that cause workers to lose concentration cost UK businesses some £139 billion a year, a survey has estimated. A survey, by office equipment manufacturer Brother, found employers lost up to two hours from their working day because of noisy colleagues, mobile phones going off and e-mails arriving" (see Paton).

III. The Economy of Time

In modern life, as the time lines for all human activities shrink, even though we live longer, the scarcest thing that we have is time. In the nineteenth century, classical economists talked confidently of land, labor and capital being the principal factors of production—their successors added 'organization' to this list. Today this picture has radically changed. For one thing, investment capital is much more readily available. This is thanks to the vast wealth created in the last two hundred years, on a scale unprecedented in human history, and the large retail banking systems that followed in the wake of this. The 'green revolution' has had a similar impact on the scarcity of land. Labor also is less scarce than it was two hundred years ago. The nineteenth-century revolution in ocean-going transport and the resulting waves of global immigration allowed wealthy countries to tap previously inaccessible pools of unskilled labor across the face of the earth. Today information and communication technologies are permitting advanced economies to access skilled labor abroad without anyone moving anywhere.

In the wealthiest countries, the factor of production that is most scarce today is time. Two hundred years ago even the richest societies had a large amount of unused time on their hands. This was true even of those Protestant societies that had begun to develop a methodical relationship to time. Even in these cases, people waited patiently for the cold of winter or the heat of summer to pass. Today, we no longer wait patiently. If the document is not on my desk tomorrow, I will loose faith in you. Our sense of trust in our fellows has become interwoven with our expectations of instant response. Partly this is a function of the fact that modern transport communications and modern electronic communications allow us to respond to anything with speed. Yet it is also, perversely, a function of the fact that we have *less* time.

As the pace of time accelerates, the time available to us diminishes. The faster we act, the faster we must act. The result is that we are chronically time deficient, even when we are capital rich and flushed with labor. Thus the time cycle of projects continually shrinks. The medieval European cathedrals were built across centuries. A suburban housing division today is built in a couple of months. We work much more methodically than our medieval forbears did. The Protestant ethic gave us time discipline and a discomfort with wasting time. But other time qualities have emerged more recently. 'Now', 'in an instant', 'nanosecond' time figure prominently in our present time conception – electronic

communication both reflects and amplifies this phenomenon. We find it more difficult to wait. Patience is no longer a virtue.

To fulfill the demands of 'now' time, we have to respond fast. To send an email follow up two weeks later seems like a conspicuous failure. The sender can not be on top of things. We apologize for our tardiness. We crave forgiveness. We were sick. Our friend died. Catastrophe struck us. That is why we could not respond. This pace of things creates anxieties. Employees, managers, clients, and peers – everyone worries if they have enough time to finish a project. This is not just the classic anxiety of the age of the Protestant ethic. The old anxiety was 'am I methodical enough to organize all of the parts of the project to bring it to a successful conclusion?' Discipline and careful planning was the answer to the worry of whether each party to the project could contribute their part 'on time'. Time in general makes human beings uneasy. Time is the repository of contingency, of what might be, which includes what might go wrong. The newer kind of anxiety, though, is less fixated on methodical approaches to master contingency. Increasingly we replace regulatory method with responsive reflex.

This is the effect of a new kind of institutional power. In most advanced economies in the last two centuries, procedures replaced command structures. Impersonal policy and managerial rules eclipsed patrimonial and loyalty systems. Today a further shift is occurring. Responses to queries are becoming as important a technique for managing contingency, or kidding ourselves that we do control contingency, as older kinds of methodical planning. In contemporary organizations requests for information and demands for reporting escalate remorselessly. Planning is now often interpolated in these reporting processes. Requests for information invariably contain powerful assumptions about how we are to proceed. This kind of 'infarchy' or rule by reporting has been intensified by information technologies. The better the communication technology is, the more scope there is for reporting. Those who most emphatically inhabit the world of infarchy are the contemporary knowledge classes. These are the technical and professional classes that constitute a large and growing proportion of the workforce in the most advanced economies.

The spiraling demands of infarchy help us understand a paradoxical phenomenon observable in the last forty years. The wealth of the major economies has grown substantially. The knowledge classes have done well. And yet the relative working time of these classes has also grown. In the nineteenth century, the affluent were time rich. Even mid-ranked British civil servants had time in their afternoons to write novels if so inclined. Today professional and technical classes are time poor, while the traditional working classes, now a small proportion of the workforce, have become time rich. They are the leisure classes of the twenty-first century.

In a 2006 study for the Federal Reserve Bank of Boston, Mark Aguiar and Erik Hurst report that in the United States since 1965 the working hours of males have declined from 42-52 hours to the current 36-40 hours, a gain in leisure time of 6-11 hours per week (see Aguiar & Hurst). About ten percent of the working population, a segment composed mainly of poorly educated and low income workers, has gained an additional 14 hours per week in leisure time.[3] Highly educated and high income workers on the other hand have experienced much smaller gains in leisure time (23-26). In 1965, less educated males and highly educated males spent the same number of average hours per week in market work and in leisure (52 hours and 104 hours respectively). In the intervening period, however, total market work fell by 14.3 hours per week for less educated men compared with 8.7 hours per week for highly educated men. The divergence between the two groups has been particularly marked since 1993, which signaled the beginning of mass participation in computer-mediated network communications.

Europe has the reputation of being a leisure society in contrast to the harder working Americans. According to OECD figures, Americans spend 1777 hours annually at work, while Germans spend 1362 hours at work and the French 1346 hours (see OECD). French workers have a thirty five hour week with strict limits on overtime. The European Union's Directive on Working Time (1993, amended 2000) established an overall weekly hours' limit of 48 hours (including overtime). Yet in 1999 the regulation weekly working time limit was exceeded in the case of 11% of high-skilled service sector employees in West Germany, 12% of high-skilled service sector employees in France, and 20% of high-skilled service sector employees in Britain (Webster 19). The 2004 Trinity College, Dublin report on *Working and Living in the European Knowledge Society* noted that long working hours were particularly prevalent in certain occupations and sectors – notably professional and managerial work, and in engineering and IT professions. The report observed that this pattern was also affecting public sector professionals such as teachers, doctors and social workers (19). In 2000, 27% of European men and 11% of women worked more than 45 hours. 'Over working' men were most likely to be employed in the private sector, while women working long hours were most likely to be employed in the public sector, especially in education.

Europeans argue that fewer hours at work is a measure of the quality of life. But that is rather moot if leisure is also the province of low-income cohorts – whether these are individuals, classes or countries. As Aristotle already understood, leisure time only means something if you have the means to use it for the kinds of activities that stretch the imaginative and moral faculties of human beings. Otherwise it is just a recipe for boredom and lassitude. Equally, it is not at all evident that the European professional-

[3] For women, the gain is 4-6 hours per week.

managerial class is really taking more 'time off' than their American counterparts when many of them behave like Marc Duchesne – with their devices switched on at home while they are watching television. It is also doubtful if official statistics accurately pick up on such behaviors, or would even want to – as they call into question the European self-image as the free-time paradise. Indeed the very meaning and use of the statistical category of 'time spent at work' is being radically undermined by 'time spent working' and the practice of working at work, at home and at play made possible by pervasive access to networked computing.

The Process-Methodical model of capitalism translated the rituals of religion into secular rituals of work, sociability, and home life. Each of these spheres was clearly demarcated, and time use in one sphere was synchronized with time use in each other sphere (Webster 53). In the contemporary Communications Age, those demarcations are collapsing – and the collapse is being driven by ubiquitous network media. Tele-working – as it used to be quaintly called – has become ubiquitous among certain classes of high-paid educated workers, to the point where the distinction between home and work has evaporated. Ten-thirty to eleven p.m. at night has become a new working time as professionals do a last round of emails before clambering into bed. For this group at least, what is the point of the state establishing work start and finish times? In a curious way, working at home is an assertion of the freedom of the liberal occupations against European-style social regulation. Yet it is also a form of self-imposed grind – the very antithesis of freedom. Doubtless if pressed the high-tech professionals would espouse their deep belief in European-style social regulation and shorter hours for the workforce – and would complain about the American barbarians. But in their actual behavior they do precisely the *opposite* of this. They work all hours. Some of this is work mixed with sociability – an indicator that yet another classic sociological distinction (that between work and socializing) has bitten the dust. The rise of the media of social networking is redrawing the landscape of work in the same way that the rise of 'pajamas media' has short-circuited the relation between home and office. What is emerging is a continuum of social behavior where boundaries between social spheres are increasingly blurred and blurry.

So what about the Americans? While they declined to use regulation to drive down the working hours of the less well-off, the informal self-organizing mechanisms of the American economy has had this effect anyway. Even if Americans do work more hours and holiday less than Europeans, the same logic of time still grips both sides of the Atlantic: in either case, the professional classes are working more and the working classes are working less. America might have fewer of its working class unemployed and may pay them less. Europe might (in relative terms) pay its working classes more and have fewer of their number in work. But, in both cases, time spent working (which is not the same as time spent at

work) is gravitating away from working-class cohorts to the networked professional class. In fact, everything about contemporary working time is riddled with incongruity. Increase in relative working time among the affluent is in part an effect of increased connectivity. I say 'in part' – because the *opposite* is also true. It might seem contradictory to say, but part of the reason for time scarcity in capital rich societies is the need for the creative core of the workforce to *disconnect*. As one blogging professional puts it: "I talk a lot about the importance of getting away from the computer, getting off the grid and finding time alone. This is crucial to keeping the creative spirit alive. Time alone is necessary, and time alone with nature is even better. It's important for fueling and nurturing the creative spirit to take the time to be completely present and appreciate nature's unaffected beauty and simplicity" (Reynolds). The most successful modern economies are caught in an interesting tension between intensive demands to connect and a less visible but no less important logic that drives executive, professional and technical staff into forms of retreat away from the demands generated by the frenetic drive to communicate that characterizes network societies. Both retreat *and* connection consume large amounts of time.

Connectivity takes time. The professional-technical workforce resists this by 'burrowing' strategies designed to protect their time from being consumed by voracious claims on their attention. The drivers of this dynamic are many-fold. On one level, it is a function of the professional-technical workforce being accessible 24/7. This is not merely a technological phenomenon. It is also social psychological in its nature. People have difficulty switching off their mobile phones or shutting down their email. This is a psychological reflex. If someone is trying to communicate with us, we find this hard to ignore, even in a message-saturated world. This reflex is buried deeply. It is the mother's response to the crying infant. We are pre-programmed to respond. In a world that places a high functional value on response times, this programming is reinforced. The anger of the consumer trapped in a queue is visceral. In the distant past, individuals thought nothing of waiting for days. For traditional societies, waiting was the social norm. Only the high-ranked did not expect to wait. In advanced economies, the opposite now applies. To wait is insufferable. To make a person wait is a denial of service. If you want to upset me, make me wait.

Even seconds today count as a long time in rich societies. One new measure of social advancement is the speed of web connectivity. The faster the download, the better it is. This is driven by expectations of response. In the first place, we expect fast response from the machines – the servers – that provide the information that we want. In the second place, perhaps less visible, but even more potent, we expect fast responses from those we communicate with. 'Why didn't you answer my email?' is a sure sign that

one of our peers or clients, an employee or boss, is not happy with us. We have ignored this person. We have denied our communicant recognition.

Yet despite our desire for recognition, we also know that it is rarely forthcoming. We suspect that the smile and handshake of the old-fashioned salesman is a myth. We are skeptical that we can get what we want. So we are likely to be happier these days dealing with machines: shopping online means that we can purchase our new camera without having to deal with a sales clerk. As long as the vendor's server is fast and reliable, human-to-machine interaction is better for many purposes. Machines want programmed responses from us ('click one of the items on the pull-down menu') but if the information design is good, we are at least spared too much mucking around. We trade off personal recognition for machine speed. We don't think that Amazon.com welcoming us by name is really recognition – but at least we don't have to wait to be served. We can move at our own desired pace: *fast*.

The prevailing norm in the world of speed is that delay is unacceptable. Or if there is a delay, the supervening expectation of those who are delayed is to be told *why* there is a delay. Dissatisfaction escalates rapidly when the following question takes shape in our mind: 'why is the organization not telling me why there is a delay?' But that only begs the question of why delay is such a bug bear to us? One answer is that 'your delay is costing me time'. Time is (now) a scarce factor of production. Those who are short of it, guard it jealously. So much so, it reaches the point where if you are wasting my time, you are thieving it as well. Time has become not only a key economic factor but a moral one as well.

Waste is an economic idea. Theft is a moral and legal concept. In the contemporary economy of time, waste (which is in your self interest to stop) turns into theft (which is you having an impact on someone else). If you waste your capital on buying fancy pleasure boats that is your business. I don't care. Nature will take its course, and you will eventually go out of business. But I do care if you are wasting not just your assets but my time as well. Such behavior on your part implies an interesting paradox that you can waste what belongs to me. How capricious of you!

Yet is this true? Can you really waste what belongs to me? The answer to this question rests to some extent on the ambiguity of the word 'belongs'. Does time 'belong' to me? Is time 'mine' and 'thine'? Can I *own* time? There is not a simple or unequivocal answer to this. Time is part of the human commons. If it can be possessed then it is a kind of common property, which everyone has a stake in. I can be efficient or not with my own time. I can organize and deploy it well or badly. Yet the efficient expenditure of my time also depends on others being efficient with their time. So, yes, it is possible if paradoxical that you can waste what belongs to me.

IV. The Time Economy of Inventive Thinking

In any society that has a lot of time on its hands, this paradox is neither visible nor important. In a knowledge economy, the obverse is true. The economy of time comes to the fore. This is because of the further and deeper paradox of these economies. Knowledge economies prosper because they are 'clever'. This simply means that they are good at inventing efficient processes. These processes save energy, time, and money. The arts and the sciences both contribute to this. But the thinking required to conceive of ideas that translate into the economies and efficiencies, as well as the elegancies and beauties, of successful societies is time intensive. You need to spend a lot of time in order to save even more time.

Time is a scarce factor of production in knowledge economies in part because thinking 'takes' time. It would not be true to say that thinking 'steals' time or that it 'wastes' time, though some people would disagree with this. Indeed a common charge raised against those who do think is that they are wasting everyone else's time. In this view, thinking is a form of idling—which in a way it is. Thinking has its active thunder-bolt like moments. Quickness of wit, after all, is a characteristic of intelligence, but then so is persistence. As it turns out, persistence (which implies a kind of slowness) is even more characteristic of intelligence than is being quick witted.

Any work that solves problems, develops strategies, creates breakthroughs, invents new methods, coins new concepts and the like requires prolonged concentration. Flashes of inspiration do happen, but not before an extended rumination on the issue at hand. Such reflection takes time. It draws on the common social fund of time. Societies and organizations have to 'make' time for it. Making time is a cost. Often this time seems to have no obvious pay off. Thinking therefore appears to be a waste of time.

The time of invention is paradoxical. Inventiveness, be it conceptual or practical, reduces the time that we spend doing something. We figure out ways of doing what we do more artfully, more gracefully, more seamlessly and more economically. But inventive thinking is not quick. The time we spend in reflection is prolonged. It is not at all evident that there are any technological short cuts that can speed up the process of thought. No kind of 'brain storming' or 'concept mapping' software performs operations that resemble anything like the human mind. None of these programs rise above the level of gimmicks.

This is not to deny that there are some viable kinds of artificial intelligence. It is easy to foresee that one day soon electronic filing will be done by robotic intelligent software agents. They will do a better job than I do with my electronic filing. In principle any activity that has a formula-pattern can be

mimicked by intelligent software agents. But it is inventive thinking that discovers and forms those patterns in the first place. It is not clear that software could ever mimic this creative or formative kind of intelligence. At the very least, before this is possible, if it ever is, we would need to know much more about the operations of the human imagination and its intuitive structures.

Gifted CEOs, brilliant generals, legendary statesmen, mercurial inventors—all can make 'leaps' of imagination that, in some cases, are staggering. They make connections—cognitive connections—that are not just unprecedented but many of them are even very unlikely. But what has been recognized over the past century is that there are also some societies that are very good at encouraging imaginative leaps of this kind. These same societies are also responsible for the large part of wealth creation, both historically and recently (Peters, Marginson & Murphy, *Creativity* 149-184). These societies invent new kinds of work, new products, new technologies and new ways of financing business. Underpinning this is the advancement of the arts and the sciences.

All of this in turn places great demands on the social imagination. The core of knowledge economies is built around an ability to mobilize imaginative capabilities and to make unprecedented cognitive connections. These capacities are not just individual. How far thought goes, how deeply, how richly, how adventurously it extends depends on the society. Mostly it does not extend far. But in some cases it extends very far indeed. Cognitive connectivity, the imaginative capacity to put together things that no one has hitherto thought of combining, stands in sharp contrast to that other kind of connectivity—the connectivity of the network society. One demands responsiveness, the other cuts responsiveness short.

Thinking is a solitary activity. No one ever white boarded a great concept. We communicate the results of thinking, but thinking shuns the public spot light. It does this for a very important reason. It needs to be insulated from distraction. Most communication is a form of distraction. The responses called forth from others detract from inventive thinking. To think creatively we have to be free from emails, phone calls, text messages, and the like. We need to be incommunicado.[4]

[4] Steve Lohr in the *New York Times* in 2007 reported on recent research on cognitive distraction:
"The human brain, with its hundred billion neurons and hundreds of trillions of synaptic connections, is a cognitive powerhouse in many ways. 'But a core limitation is an inability to concentrate on two things at once,' said René Marois, a neuroscientist and director of the Human Information Processing Laboratory at Vanderbilt University. Mr. Marois and three other Vanderbilt researchers reported in an article last December in the journal Neuron that they used magnetic resonance imaging to pinpoint the bottleneck in the brain and to measure how much efficiency is lost when trying to handle two tasks at once. Study participants were given two tasks and were asked to respond to sounds and images. The first was to press the correct key on a computer keyboard after hearing one of eight sounds. The other task was to speak the correct vowel after seeing one of eight images. The researchers said that they did not see a delay if the participants were given the tasks one at a time. But the researchers found that response to the second task was delayed by up to a second when the study participants were given the two tasks at about the same time... In a recent study, a group of Microsoft workers took, on average, 15 minutes to return to serious mental tasks, like writing reports or computer code, after responding to incoming e-mail or

The American artist Bob Dylan once gave a very good explanation as to why this is so. He observed that he was mortified to even think that he was a celebrity. "I'm not one, and I never want to be one. I lead a very insular existence. It's different onstage, because those people look at me as a performer. By being a celebrity, you loose your anonymity. It short-circuits your creative powers when people come up and interrupt your train of thought. They consider you completely approachable. And you can't be rude to people, so basically you shut yourself down. I know I do. I shut myself down when people want to come up and want to shake my hand or want to talk. That's just dead time" (Gunderson, *Younger* 289).

Freedom from the white noise of communication was once called contemplation. That sounds a very old-fashioned word but it is an important one in a world of pervasive chatter. A 2004 University of California Irvine study calculated that information workers today are interrupted or interrupt themselves on average every eleven minutes. This is either because of an incoming email, phone call or tap on the shoulder or because of halting a task to do the same to others (González & Mark, "Multitasking"). A study by the information-technology research firm Basex calculated that interruptions now average of 2.1 hours of every working day, or 28 per cent of an average person's working time (Spira & Feintuch, *Not Paying Attention*).

If you are continually distracted in this manner, or if you open your office door to anyone, anytime, then you will ensure that whatever creative powers you have will be short-circuited. If you are completely approachable, even if you believe that such openness makes you a 'good guy' around the office, then whatever time you think you have for inventive thinking is dead time. Creativity requires that we shut ourselves down. We have to draw the shutters firmly closed. Not forever—we are not hermits. But for a sustained time that is a lot longer than eleven minutes. This is because inventive thinking is a prolonged activity of the mind. It relies on the capacity to temporarily disconnect ourselves from the world. And in this lies the irony of our present condition.

Knowledge economies and their infarchies have made connectivity pervasive. Network computing was the great inventive moment of the information society. But, in order to be creative, the inventive core of this society has to disconnect itself from its own network connections. It has to do this in order to have time to think. Connection brings benefits but so does disconnection. Steering a successful knowledge economy means being able to connect and disconnect simultaneously. That is difficult to do.

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instant messages. They strayed off to reply to other messages or browse news, sports or entertainment Web sites. 'I was surprised by how easily people were distracted and how long it took them to get back to the task,' said Eric Horvitz, a Microsoft research scientist and co-author, with Shamsi Iqbal of the University of Illinois, of a paper on the study that will be presented next month. 'If it's this bad at Microsoft,' Mr. Horvitz added, 'it has to be bad at other companies, too'."

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