PERSONAL KNOWLEDGE MANAGEMENT: PIMS/IIS/UGIS A RESEARCH IN PROGRESS

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Abstract

This paper introduces personal information management systems PIMS as a mechanism used to support the personal knowledge management of knowledge workers. It identifies PIMS with the previously-identified individual information systems IIS of (Baskerville 2011) and the user generated information systems UGIS of (DesAutels 2011). It suggests that PIMS / IIS / UGIS are only useful insofar as they enable properly informed initial action, action to correct errors, and reflective learning. The authors critically review the literature concerning the relationships between data, information and knowledge.

Key words: Action and Reflection in Personal Knowledge Management

JEL Code: M11, M15

Managing personal information and knowledge: an introduction

For both co-authors, the journeys of our working lives have started in the practice of business, proceeded to teaching and are continuing in doctoral research. The work-in-progress of one co-author has given rise to (Truong et al. 2009). The work in progress of the other co-author has previously been reported upon in (Gregory & Norbis 2008a), (Gregory & Norbis 2008b), (Gregory & Norbis 2009a) and (Gregory & Norbis 2009b).

Initially as practitioners, subsequently as teachers of long standing who both currently teach in a French business school and most recently as academic researchers engaged in doctoral studies in two rather different institutions (British network university and Czech traditional brick-and-mortar university), we consider ourselves to be knowledge workers who analyse, synthesise and teach existing knowledge and who seek to create new. In doing so, we also engage in metacognitive processes (Flavell 1976), that is, we build our personal knowledge concerning our own cognitive processes and learning-relevant properties of knowledge, information or data.

1. Action and reflection

Writing about knowledge worker productivity (Drucker 1999) holds that "The most important contribution management needs to make in the 21st century is similarly to increase the productivity of knowledge work and knowledge workers": similarly, that is, to the massive increases in productivity associated with manual work which have been achieved in the century since (Taylor 1911) identified "scientific management". This present study aims to discover how "better" to manage personal information – both in what William Jones calls KFTF, keeping found things found (Jones 2007b); and how "better" to get things done GTD (Allen 2003).

When we have a purpose to achieve, we need and decide to take action. In order to act reasonably rationally we marshal the data that we need. We apply our knowledge, values and abilities to the data that we have and we decide a course of action which we wish or need to undertake. We catalogue the resources and tools available to us to undertake the action. We identify the process by which we will carry out the action. The action may be individual or it may require the cooperation of others in an ad hoc team brought together to carry out a project including many actions. We then together or alone undertake the actions. As we do so, we update the data we maintain, whether that be in formal organisational information systems (such as student records systems or learning management systems) or in less-formal personal information management systems. What we do may be informed by or evolve in accordance with the changing data.

When we have completed the planned action, we evaluate what we have done and decide to what extent we have achieved our purpose. Frequently we find that corrective or additional action is needed.

This process, which we can summarise as concerning decision making and problem solving, has previously been identified primarily in the organisational context (Simon et al. 1987); (Simon 1996). In our work, we are concerned with the individual knowledge worker and manager.

Sometimes we evaluate what we have attempted and conclude that there is some element of failure: some or all of our purpose has not been achieved. We reflect on that failure; it may be that our purpose was not achievable with the resources available, or it may be that the purpose was in some sense incorrect or inappropriate, or it may be that the knowledge that we applied to the situation was inadequate or defective. We learn from our success, but much more from our failure; see (Ackoff 1987; Ackoff 1999; Ackoff 1997). Russell Ackoff's stance was

initially similar to that of Simon; subsequently he broke from the discipline of operations research which he and Simon had helped to establish (Ackoff 1979). Thereafter Ackoff's stance was that of a systems thinker and practitioner, no longer concerned to identify algorithms but rather to understand heuristics – practical approaches to variably intractable problems – in what he termed systemic "messes" (Ackoff 1997).

Thus it appears that we are reflective actors in a goal-oriented (teleological) system that decides, plans, acts, evaluates and learns. We apply knowledge (both theoretical and practical) to carry out informed and decisive action. Our experience causes us to learn – our knowledge changes. We apply our knowledge to relevant data so as to make informed decisions and to solve problems. See for example (D. A Schön 1983)'s discussion of what he calls the reflective practitioner.

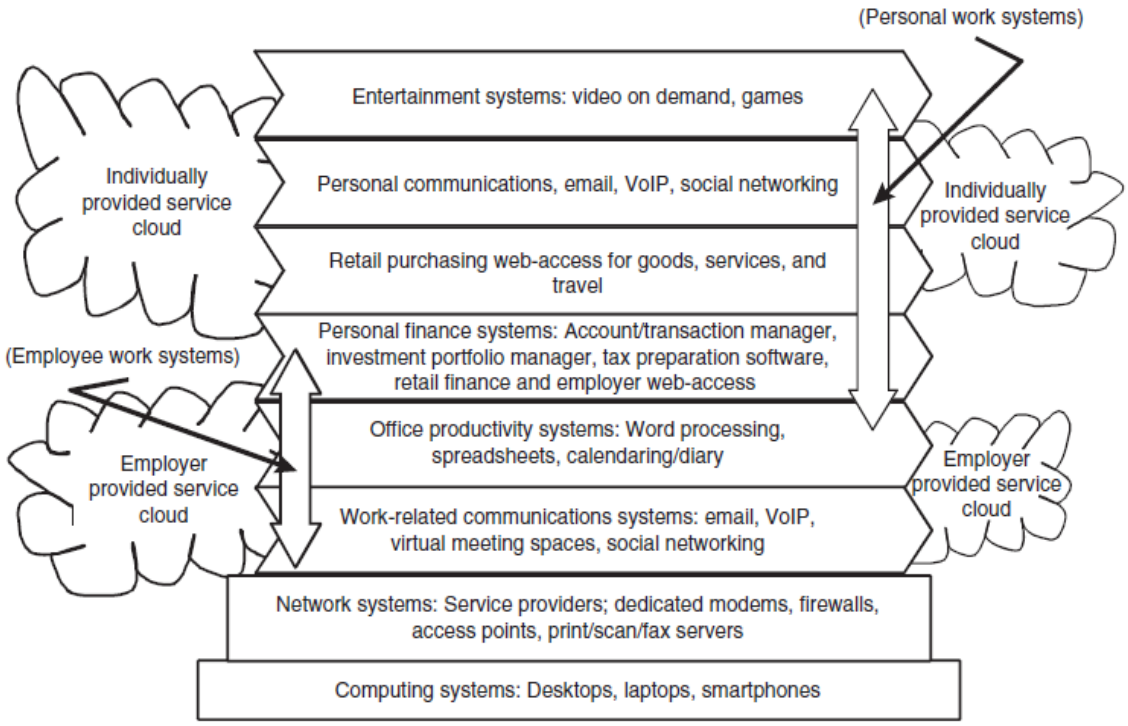
2. Personal information management and individual information systems

Thus, the phenomenon we are strongly motivated to study is this: *how people manage their personal information, particularly using computer-based tools, and how they can learn to do this better, that is, how they can extend their personal knowledge concerning personal information management.*

Some might hold that this is a trivial, "obvious" phenomenon; certainly the area is little researched by academics. Because it is little researched, it is not difficult to identify research gaps.

In the March 2011 edition of the European Journal of Information Systems, the editor in chief Richard Baskerville identifies the phenomenon that he calls individual information systems (Baskerville 2011). He uses a pseudonymous case, that of Jane Doe, whose information system architecture he illustrates thus:

Figure 1: Jane Doe's individual information system architecture



Baskerville suggests:

"Thus far, we have yet to seriously introduce our knowledge about complex IS into these individual versions. How has Doe designed her system above? Why has she made the choices, initiatives, and investments apparent in her individual information system? How does she plan and control this complicated architecture? How can our extant body of knowledge improve Doe's individual information system? What are the important relationships between Doe's system and other IS (e.g., individual or otherwise)?" (Baskerville 2011, p.252-3)

There are many other questions which go unanswered in the existing literature. The research gaps are in fact so large that it is premature to ask certain "obvious" questions. Thus it is, we contend, impossible to know at this stage how many individuals maintain a recognisable individual information system and to what quantifiable extent this makes them more efficient or effective. Why? Because many hundreds of millions of people now have personal computers and smartphones (which are themselves computers used for communication but which store much personal data); but since we do not know exactly what constitutes an individual information system (which we for now take to be a synonym for personal information management system), we are not yet in a position to undertake a meaningful survey of a sample of those people. Instead, we need answers to Baskerville's questions and to others, which must initially be sought by exploratory research aimed at a fuller

understanding of what the phenomenon is. Baskerville's paper is at this stage only published as an opinion article, albeit in one of the most-respected journals in the information systems field. That it can only be an opinion article at this time is explained by Baskerville's conclusion: "Individual IS may well be an extremely large, undiscovered, arena for future IS research." (Baskerville 2011)

2.1. Other names for individual IS: PIM systems PIMS and user-generated information systems UGIS

Baskerville identifies "individual information systems". We suggest that this is the same phenomenon that we have chosen previously to name "personal information management system", abbreviated to "PIM system" or even PIMS. Further, we believe that this is the same phenomenon recently identified as a "user-generated information system" or "UGIS" by (DesAutels 2011).

Philip DesAutels (2011) suggests as a formal definition: "A user-generated information system is defined as a set of component services, integrated by the user into a novel configuration such that the resulting information service is (1) qualitatively different from its components and (2) offers unique value to the user over and above the value of its inputs" (DesAutels 2011). This definition is itself based on a definition of information system cited from (Berton et al. 2010), who make the distinction: "An information technology transmits, processes, or stores information; while in contrast, an information system is an integrated and cooperating set of software-directed information technologies supporting human goals". (Berton et al. 2010) quoted by (DesAutels 2011). That definition is inadequate in not distinguishing the emergent systemic property of an information system, that is, that a system is more than the sum of its components – which DesAutels is careful to identify elsewhere in his article concerning UGIS. But DesAutels is correct to identify and describe a user-generated information system as a set of components that can include services; elsewhere in his article he makes the useful observation that the fundamental building block of what he calls UGIS is the *service*, technology or human based. DesAutels suggests that users create UGIS: "On the fly, with little forethought, using easily assembled components. Tinkering and adaptation—hallmarks of the bricoleur – is the norm." (DesAutels 2011)

The reference to the bricoleur is a conscious reuse of the language of Claude Lévi-Strauss, who identified in an anthropological context the bricoleur (roughly translated, the do-it-

yourselfer) as someone who engages in bricolage (DIY or tinkering). For an application of this language to the strategic planning of information systems, see (Ciborra & Jelassi 1994), where Claudio Ciborra and Tawfik Jelassi identified "serendipitous bricolage" as a common or even normative way of building *strategic* organisational information systems. Here Philip DesAutels is suggesting that the same phenomenon is at work in the construction of *individual* information systems; we characterise that approach as "happy-chance mucking-about" until a useful result is achieved. Thus what Baskerville as an IS expert can quickly characterise and model architecturally as Jane Doe's structured information system (Figure 1) is almost certainly more an ad hoc assemblage than the architected product of conscious analysis and design.

2.2. Personal knowledge management PKM and personal information management PIM

There is a personal information management PIM literature, and a personal knowledge management PKM literature. The PIM literature is mainly influenced by cognitive science and human computer interface considerations. There are no contributions from recognised IS researchers in either the PIM or PKM literatures. Thus there is almost no discussion of PIM *systems* in the PIM literature, and as Baskerville suggests, IS research has been almost entirely blind to the phenomenon of what he calls individual information systems.

We view personal knowledge management as a process undertaken by knowledgeable and learning individuals as they design and use personal information management systems which are built using information and communications technology (ICT). Thus *personal knowledge management PKM is a process which may involve PIM personal information management.*

As (Regan 2007) says in her review of knowledge management, it is surprising to what extent there is a failure to agree on the meaning of the terms surrounding knowledge and its use, both in common parlance, and more particularly in the academic literature -- and this fully a quarter of a century after the subject of knowledge management was first identified.

In part, this lack of a generally-accepted vocabulary is common to many areas of interdisciplinary research. Knowledge, both its management (KM) and its representation (KR), are linked to a number of different disciplines pursued by people with very different orientations.

2.3. Personal knowledge management specificities

This paper focuses on personal knowledge management, rather than organisational. There is a large academic literature on organisational knowledge management. Conversely, the literature on personal knowledge management is sparse and mostly recent; a flavour is given by (Barth 2004), (Frand & Hixon 1999) and (Apshvalka & Wendorff 2005). The latter draw together definitions of knowledge from the organisational knowledge management literature, notably from (Davenport & Prusak 1998) and (Wilson 2002); thus knowledge is at least "a combination of facts, experiences and perceptions that are being used to make a decision or to select an action by which a situation is changed into a more valuable situation.… knowledge … is in the mind and only in the mind". Apshvalka & Wendorff agree with Wilson that:

"Whenever we wish to express what we know, we can only do so by uttering messages of one kind or another – oral, written, graphic, gestural or even through 'body language'… knowledge exists within people, part and parcel of human complexity and unpredictability... Because of these human aspects, knowledge is embedded in an individual's personal, subjective mental space and is strongly related to an individual's psychological features, volition, motivation and emotional intelligence, where emotional intelligence is sometimes even more important than traditional intelligence.… *It is everybody's personal decision, will and responsibility to manage his/her knowledge.*" (Apshvalka & Wendorff 2005)

The literature on personal knowledge management seems to be closer to that on organisational knowledge management than to PIM. See also (Frand & Hixon 1999), (Grundspenkis 2007), (Snowden & D. J. Pauleen 2008), (D. Pauleen 2009), (Pollard 2008), (Sauermann 2005), (Schwarz 2006), (Smedley 2009), (Snowden & D. J. Pauleen 2008)

Kirby Wright takes an interesting perspective. Convinced of the value of organisational knowledge management, he nevertheless contends that that knowledge is situated in individuals. Thus he makes a very clear link between organisational and personal knowledge management in (Wright 2005) and (Wright 2007). Similar synergistic thinking informs (Zhang 2009). Concerning the relationship of PKM to personal information management: we observe that a slightly different group of researchers from the PIM community labels itself PKM. PKM is generally positioned as a subset of knowledge management. Research done by Völkel & Haller 2009 is perhaps the first successful attempt to relate personal information management to personal knowledge management in the literature and should be in our view pursued.

Conclusion

We observe that the literature on personal information management takes an uncritical view of what data, information and knowledge are. Further, there is no systematic consideration of the contexts within which personal information is used and managed. That is, the existing literature is vague on the differences between individual actions, repeated activities and fully-defined processes. Some writers on organisational knowledge management, notably Max Boisot – as in (Boisot & Canals 2004) – do understand this issue, but the PIM community remains imprecise in its use of vocabulary. William Jones (Jones 2009) has at least begun to consider these issues, but his discussion there is classical and under-informed. There is very little on teaching, learning and mentoring to improve PIM. There is nothing as yet on explicitly reflective approaches to improving PIM / PKM. The PIM literature makes almost no mention of systems and apparently knows nothing of the systems approach and of systems thinking.

We have introduced personal information management systems PIMS as a mechanism used to support the personal knowledge management of knowledge workers and identified PIMS with the previously-identified individual information systems IIS of (Baskerville 2011) and the user generated information systems UGIS of (DesAutels 2011). We have suggested that PIMS / IIS / UGIS are only useful insofar as they enable properly informed initial action, action to correct errors, and reflective learning.

Thus we suggest to further enlarge the scope of future study to individual learning, e.g. to the insights of Argyris and Schön (Argyris & Schön 1978). We also suggest that action research enabled by peer and dialogic mentoring (McAuley et al. 1999), themselves nourished by reflection and reflexivity, should be studied as a basis for further research into PIM systems, effective personal knowledge management and deep learning by those who collaborate in that research.

References

Ackoff, R.L., 1999. On learning and the systems that facilitate it. *Reflections: The SoL Journal*, 1(1), p.14–24.
Ackoff, R.L., 1997. Systems, messes and interactive planning. *The Societal Engagement of Social Science*, 3, p.417–438.
Ackoff, R.L., 1987. *The art of problem solving: accompanied by Ackoff's fables*, Wiley.
Barth, S., 2004. Self-organization: taking a personal approach to KM. *Knowledge Management Tools and Techniques: Practitioners and Experts Evaluate KM Solutions, Butterworth-Heinemann, Boston, MA*.

Berton, P., DesAutels, P. & Butaney, G.T., 2010. Created creates creator. Dans 14th World Multi-Conference on Systemics, Cybernetics, and Informatics: WMSCI 2010, Orlando, FL. Orlando, FL.

Boisot, M. & Canals, A., 2004. Data, information and knowledge: have we got it right? *Journal of Evolutionary Economics*, 14(1), p.43-67.

Ciborra, C. & Jelassi, T., 1994. *Strategic information systems: a European perspective*,

Davenport, T.H. & Prusak, L., 1998. *Working knowledge: How organizations manage what they know*, Harvard Business School Pr.

DesAutels, P., 2011. UGIS: Understanding the nature of user-generated information systems. *Business Horizons*.

Drucker, P.F., 1999. Knowledge-worker productivity: The biggest challenge. *The knowledge management yearbook 2000–2001*.

Flavell, J.H., 1976. Metacognitive aspects of problem solving. *The nature of intelligence*, 12, p.231–235.

Frand, J. & Hixon, C., 1999. Personal Knowledge Management: Who, What, Why, When, Where, How? *Working paper, UCLA Anderson School of Management*. Available at: http://www.anderson.ucla.edu/faculty/jason.frand/researcher/speeches/PKM.htm [Consulté mai 27, 2010].

Gregory, M. & Descubes, Irena, 2011. Structured reflection in teaching and research. Dans UKAIS 2011. Oxford, England.

Gregory, M. & Norbis, M., 2009a. Auditing Personal Information Management. Dans UKAIS 2009. St. Anne's College, Oxford.

Gregory, M. & Norbis, M., 2009b. Evaluating Situational Applications Builders. Dans CITSA 2009: The 6th International Conference on Cybernetics and Information Technologies, Systems and Applications. Orlando, FA.

Gregory, M. & Norbis, M., 2008a. The business of personal knowledge. Dans 8th International Conference on Knowledge, Culture and Change in Organisations. Cambridge University, United Kingdom.

Gregory, M. & Norbis, M., 2008b. Towards a Systematic Evaluation of Personal and Small Group Information and Knowledge Management. Dans 5th International Conference on Cybernetics and Information Technologies, Systems and Applications: CITSA 2008. Orlando, FA.

Grundspenkis, J., 2007. Agent based approach for organization and personal knowledge modelling: knowledge management perspective. *Journal of Intelligent Manufacturing*, 18(4), p.451–457.

Jones, W.P., 2007a. How people keep and organize personal information. Dans *In : Jones, W.P. & Teevan, J., 2007. Personal information management., University of Washington Press.* p. 35-56.

Jones, W.P., 2007b. *Keeping found things found: The study and practice of personal information management*, Morgan Kaufmann Pub.

Jones, W.P., 2009. No Knowledge but through Information. *Keeping Found Things Found*. Available at: http://keepingfoundthingsfound.com/blog/ [Consulté juin 30, 2010].

Jones, W.P. & Teevan, J., 2007. *Personal information management.*, University of Washington Press.

McAuley, J. et al., 1999. Developing the interface between centre and periphery as an agent for organisational learning: issues of strategy and local knowledge. Dans *Third International Conference on Organizational Learning, Lancaster, UK [Online]. Available: http://www. lums. lancs. ac. uk*.

North, K. & G\üldenberg, S., 2008. Produktive Wissensarbeit (er). *Antworten auf die Management-Herausforderungen des*, 21.

Pauleen, D., 2009. Personal knowledge management: putting the « person » back into the knowledge equation. *Online Information Review*, 33(2), p.221–224.
Pollard, D., 2008. *PKM: A bottom-up approach to knowledge management. In Knowledge Management in Practice: Connections and Context, ed. T.K. Srikantaiah and M.E.D. Koenig*, Information Today.
Regan, E.A., 2007. Knowledge Management: Evolving Concept and Practice. *International Journal of Knowledge, Culture and Change Management*.
Sauermann, L., 2005. The semantic desktop-a basis for personal knowledge management. Dans *Proceedings of the I-KNOW*. p. 294–301.
Simon, H.A., 1996. *The sciences of the artificial*, The MIT Press.
Simon, H.A. et al., 1987. Decision making and problem solving. *Interfaces*, 17(5), p.11–31.
Smedley, J., 2009. Modelling personal knowledge management. *OR Insight*, 22(4), p.221–233.
Snowden, D. & Pauleen, D.J., 2008. *Knowledge management and the individual: it's nothing personal—an interview with Dave Snowden by David J. Pauleen*, Available at: http://pauleen.massey.ac.nz [Consulté mai 27, 2010].
Taylor, F.W., 1911. *The principles of scientific management*, Adamant Media Corporation.
Tierney, W.G. & Lincoln, Y.S., 1997. *Representation and the text: Re-framing the narrative voice*, State University of New York Press.
Truong, Y., McColl, R. & Descubes, I., 2009. Testing US Advertising Belief and Attitude Measures in France. *Journal of Euromarketing*, 18(1), p.35–46.
Völkel, M. & Abecker, A., 2008. Cost-benefit analysis for the design of personal knowledge management systems. Dans *Proceedings of 10th International Conference on Enterprise Information Systems (ICEIS 2008)*. p. 95–105.
Völkel, M. & Haller, H., 2009. Conceptual data structures for personal knowledge management. *Online Information Review*, 33(2), p.298-315.
Wilson, T.D., 2002. The nonsense of knowledge management. *Information Research*, 8(1), p.8–1.
Wright, K., 2005. Personal knowledge management: supporting individual knowledge worker performance. *Knowledge Management Research and Practice*, 3(3), p.156–165.
Wright, K., 2007. *Rethinking Knowledge Work: Supporting Work and Learning through Personal Knowledge Management*, KRW Knowledge Resources. Available at: http://www.knowledgeresources.ca/Knowledge_Resources/PKM_Model.html [Consulté mai 27, 2010].
Zhang, Z., 2009. Personalising organisational knowledge and organisationalising personal knowledge. *Online Information Review*, 33(2), p.237–256.

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