Codification and the domestication of tacit knowledge

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ABSTRACT

Our point of departure is the work of anthropologist J. Goody on the role of writing in the production and accumulation of knowledge (see Goody, 1977, 1986, 1987, 1996). Goody provides a rich and well-illustrated framework for reconsidering the role of knowledge codification: why it is important; what functions can be only carried out by codification and why emphasising too much the impact of knowledge codification on the marginal costs of storage and transmission can be misleading.

«Basically, knowledge codification has two functions.»
The first is the function of storage and 'transfer' that permits signalling over time and space and provides humans with marking, mnemonic and recording capabilities. As Goody writes: "when codifying is common, the problem of memory ceases to dominate intellectual life." In the same vein, the codification of a certain kind of knowledge (know how) generates new opportunities for knowledge reproduction. For example, a recipe is a "learning programme" that "can partially fill up the empty space created by the absence of the grandmother". However, this first function can be carried out in other ways and «aural societies» have developed powerful cognitive mechanisms to create and support individual and collective memory (see Dagognet, 1995, Severi, 1994). Indeed, new ICTs that enable the recording of voices and images, provide a means of 'facsimile' reproduction in which the codification involves a very low level of translation between bits and tones or pixels and little or no 'higher level' codification of the structure or meaning of the recording.

It is the second function of codification, the translation of holistic aural or pictorial expressions into symbolic content, stripping away their individually expressive character that imbues codification with a unique role in the knowledge economy. In particular, the second type of codification shifts language from the aural to the visual domain and depersonalises it, making it possible to arrange and examine knowledge in different ways. A vast array of symbolic representations is encompassed by this second function of codification including the creation of lists, tables, formulae, blueprints, and virtual models are progressively more complex instances of symbolic codification. Even a "simple" list could not be created without some kind of codification. Tables and formulae, which are the basis for mathematical constructions, become meaningful when they may be visualised and manipulated in a space; all actions that codification makes possible. Codification provides a spatial device to screen and classify information, opening new opportunities for the modelling or representation of knowledge, a condition for rapid knowledge production and accumulation.

«This set of arguments is important for the debate on the respective importance of tacit and codified knowledge. »
Firstly, it provides a framework to identify quite precisely what is «codified» *knowledge*. For example, why the recording of an instructional movie should not be considered as codified knowledge in the same sense as a computer aided instruction software that embeds visual information in ways that can be manipulated by the user. The second function of codification is the key to establishing a differentiated meaning for the codification process. A 'first degree' codification involves the 'facsimile' reproduction of

aural and visual images. A 'second degree' codification harnesses the power of the symbolic representation of languages including mathematical modelling to provide interactive and generative potentialities.

Secondly, there is a growing debate on the relationships between codified knowledge and tacit knowledge and on the role of codification in the dynamic of knowledge reproduction or exchange. In this context, it would be a mistake to emphasise too much the "storage and transfer aspect" as the main "competitive advantage" of codified knowledge over the maintenance of knowledge in tacit forms such as organisational routines. The next generation of ICTs will enable efficient storage and long-distance transfer of a greater variety of knowledge (including knowledge that has previously been regarded as 'inherently' tacit). This will serve to reduce the differences between marginal costs of storing/transferring codified and tacit knowledge respectively. But the main reason why it is a mistake to over-emphasise the use of codification as a storage and transfer device is that such an argument does not do justice to the central role of knowledge codification. This role is the creation of new cognitive devices to produce knowledge; what we characterise as the knowledge 'representation' problem. Thus, claiming that "the intelligent use of ICTs is as an infrastructure supporting the formation and use of tacit knowledge" (Lundvall, 1999) is only part of the story. The symmetric claim is that methods of solving knowledge representation problems may dramatically reduce or eliminate the economic resources needed for the accumulation of tacit knowledge. The contest between these two structures of applying the technological capabilities of ICTs has profound implications for the evolution of organisational memory, routines and structure.

References:

F.Dagognet, "La communication: métaphore ou métascience?", in *Vers la société de l'information*, R.Delmas and F. Massit-Folléa (eds.), Rennes (France): Edition Apogée, 1995

J. Goody, *The domestication of the savage mind*, CUP, 1977

J. Goody, *The logic of writing and the organisation of society*, CUP, 1986

J. Goody, *The interface between the written and the oral*, CUP, 1987

J. Goody, *The east in the west*, CUP, 1996

B.A.Lundvall, *Information technology in the learning economy – challenges for development strategies*, draft, 1999

C.Severi, "Paroles durables, écritures perdues: réflexions sur la pictographie cuna", in *Transcrire les mythologies*, M.Detienne (ed.), Paris: Albin Michel, 1994