

Knowledge Disorders and Their Management

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The advent of the digital explosion should lead to the formulation of new goals in artificial intelligence and in particular knowledge management. In more traditional AI settings, the problem space and the operators are well defined. In the real world, the concept of good enough solutions is prevalent and requires a contextual analysis as well as a risk taking perspective in everyday activities. Managing knowledge bases is not only a matter of tasks and activities but also one of organization, culture and even broader scale contingencies.

To address the boundary between knowledge and data, we use a cognitive approach by contrast with an operational definition. In the latter case, clustering algorithms or other types of analytic method may yield a richer picture of a set of data. Ultimately though, the "cluster" is another, more abstract piece of data, a type of compressed or distilled view, more useful but yet to be integrated into a broader cultural frame. Consider on the other hand that to reach a minimal "theory of mind", one must not only build such abstractions but also make use of "higher order knowledge". First-order knowledge is purely factual while the second-order deals with beliefs about others' first-order knowledge and so on. Such knowledge would constitute an important component of the "culture" of the entity considered, individual, group or societies. Another and related dimension to consider is the integration of the contextual information of events.

We use some results to discuss this approach, as well as other data on the influence of informal dissemination on the functioning of specific individuals or communities. The multiple orders approach leads to the notion of "knowledge disorders", defined for the purpose of this argument as the results of breakdowns in the cognitive chain of understanding and interpretation. What if, for example, an artificial system is limited to dealing with first-order knowledge - found in traditional databases? Is it so by design, in which case the expectations must match the design goals, or is it actually suffering from a breakdown in cognitive abilities which will have a negative impact on the individual and/or the organization? Do corporate memories make sense at the first order only? How to approach second-order knowledge? What does n-th order knowledge look like? What level of context should be retained in artificial systems?

Knowledge orders (and their disorders) are related to the issues of imagination and creativity, which are often overlooked even in traditional management theories. Knowledge management (avoiding the disorders) is critical to the more general management science and practice, particularly in the emerging context of virtual corporations. Managing knowledge disorders will take most likely not one but multiple technologies with different purposes and of a new generation. Their concurrent use by means of a causal integration and participation into new information infrastructures should help overcome obvious functional deficits and create new ways of managing knowledge assets.