

Wired for Thought: How the Brain is Shaping the Future of the Internet

Book Review

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This book addresses a simple question but one that is extremely difficult to answer: Is the Internet like a brain or is it a brain? This difference, as linguists are fond of pointing out, is important since the term 'like' invokes a 'simile' whereas the assertion 'is' invokes a metaphor. The differences between a simile and a metaphor are important because the extension of knowledge depends on our ability to move attributes across categories that are being compared. Here the question is the extent of the similarity between the brain and the Internet and the number of attributes of the brain that can be used to model the cognitive functions of the Internet. How seriously the analogy is taken (simile or metaphor) will determine the epistemological and ontological implications for thinking about the similarities and differences between the 'tenor' and the 'vehicle' of the metaphor (as I.A. Richards, the literary theorist, might put it). Stibel's contention is that it is a metaphor rather than a simile and therefore we must take this analogy as seriously as possible. He therefore starts by explaining the structure and function of the brain and how it relates to theories of evolution. The image that he finds most captivating relates to the graphic representation of a set of neurons that are connected to each other. This is a haunting image that helps us to appreciate what we infer but do not see when we access the Internet – the endless set of connections between computers that constitute its physical structure. If the Internet is, in fact, like a brain then the most important set of insights that scientists have assembled about its neuronal structure ought to be applicable to the myriad connections that constitute the Internet. The future evolution of the Internet therefore depends on our ability to apply breakthrough ideas from the domain of brain science to the structure of the Internet. It is a good idea for Internet-based businesses to track the development of brain science as a discipline and ask constantly what the implications of any given framework in neuroscience may be to the evolving structure and possible functions of the Internet as such.

While the importance of the Internet is widely recognized in the domain of e-commerce, it took a lot of struggle before there was any clarity on what exactly the Internet 'was' and 'is' at this point in time. A number of important theorists have started to address these questions both from the point of view of the management curriculum and from the sciences and science-based businesses. Stibel can therefore be understood as contributing to this process of both thinking-through and working-through the implications of the structure and functions of the Internet. Modeling the Internet on brain science, for instance, will take us in an extremely different direction as opposed to, let us say, defining it as a 'utility' since these vehicles will generate a different set of attributes for any given tenor. Some might argue, and rightly, that it is a bit of both and which vehicle is invoked depends on the context of the invocation and does not necessarily have any bearing on the ontological foundations of the tenor as such. It might perhaps be a good idea to invoke this notion of the context of the application as a way of knowing when to invoke what form of comparison and then go on to structure both the amplitude and range of figurative comparisons. The onus of the argument in this book is to move theories of the Internet away from mere information storage and processing (now that we know such things can be done) to using it as an instrument that can predict events by discerning patterns that are not necessarily obvious to most of us. The trick here is to forge algorithms that can predict the desire of the end-user through a formalized notion of anticipation which can then be translated into actual suggestions that can be accepted or rejected (as is in fact the case in sites such as Amazon.com where based on the book that is bought, the algorithm in place can make suggestions which appeal to a potential browser). The success of such algorithms in being able to predict what the end-user is most likely to buy has made it necessary to understand from wherein emerges the ability to make successful predictions. Is it because of the computational ability to process information as such? Or are there principles of cognitive economy that demand the need to discern patterns as more important than information processing as such thereby generating heuristic paths that can create the impression of reading the end-user's mind. This then is a simple

instance that we are all familiar with even if we use the Internet only on rare occasions; and which, in turn, can be used to generate breakthroughs in the domain of e-commerce, Net modeling, web design, and so on. Prediction engines are not only being used in Amazon.com but elsewhere as well to sell a range of products and services by those involved in selling processed foods where a hypothetical customer's 'taste' is the object of prediction in contention.

To reiterate then: Stibel argues that the ability to quickly discern patterns in loads of information is much more important from a business (especially e-commerce) point of view than information processing as an end in itself. This, though Stibel doesn't mention it, is a variation of the Pareto principle applied in the context of determining how the end-user will navigate and how much he will buy if affordable and relevant suggestions are made quickly. This is something that professional readers and researchers know. If they like a book, they don't have to ask anybody else to make suggestions for similar books. They can just choose a book or an object on Amazon.com and from the suggestions made therein even complete a literature review successfully. So the kind of questions that would be addressed to thesis advisors (i.e. experts in a given area) can be addressed by algorithms that structure the reading or buying lists generated by such sites as Amazon.com. The questions that emerge from such instances of success in deploying algorithms then can be divided into those with cognitive implications for students of the brain sciences, psychology, and theories of information processing. If analogous theories are already available in these domains, insights from such theories can be used to further the pace of the development of the Internet. Hence the significance of the title: 'wired for thought'. Stibel is also interested in theories of memory and how the Internet models forms of memory in terms of whether they are stored in short-term or long-term memory and the cost factors involved in retrieving memories along with a discussion on processing speeds. While we are used to thinking along these lines in terms of how computers are built and function, we also need to understand the relationship between storage capacity and processing speeds in terms of how the Internet is spontaneously structured.

What is the relationship then between these forms of spontaneous structuring and the theoretical impetus that arises from the need to propel its structure through the invocation of formal theories? These then are some of the theoretical challenges that computer scientists, information experts, and cognitive theorists will have to address in the years to come. This book, needless to say, is a theoretical spur to that effort. Stibel is also interested in how the Internet recreates itself through a process that is known as 'creative destruction' in theories of entrepreneurship. What are implicated in this system of constant recreation are the processes whereby memes (the cultural equivalent of human genes) are passed on as forms of cultural memory in the Internet. Any important change then in the structure of the algorithms that structure the function of a search engine can have huge consequences for the value of a company. Stibel discusses how when Google changed an important algorithm, it inadvertently affected the market valuation of Answers.com which not only lost much of its traffic but a great deal of its stock value as well. This happened because Google began to restructure its algorithms using different parameters such as 'relevance, longevity, depth of content, and other subjective measures that truly determine relevance'. Stibel concludes that Answers.com did not understand that the Internet could be understood as an analogue of brain function, and that therefore it could not anticipate sufficiently that its value was linked intrinsically to the functioning of complex algorithms (not unlike those known as genetic algorithms), 'and that more-complex algorithms would sweep away nutrient-poor Web sites, just as the brain has over the course of evolution'. As this example clearly explains, the implications of brain science are not only for geeks, but have real-world consequences and implications for the functioning of the economy as a whole. As the share of e-commerce, and subsequently, m-commerce platforms increase substantially in terms of the proportional representation of the GDP, more and more sectors of the international economy must be responsive to these startling developments in brain science rather than bury their heads in the sand like the instances included in this insightful book. Valuation then is not what we thought it to be; it is no more specific or reducible to the internal dynamics of organizations and firms, but must be thought through again albeit in the unpredictable contexts of network dynamics, stakeholder dynamics, and the evolution of Internet-based algorithms.