Progress in IS

Nguyen Hoang Thuan

Business Process Crowdsourcing

Concept, Ontology and Decision Support

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Foreword

The idea of using technology to develop collective intelligence has for long been explored by science fiction. A wonderful example is the Lensman series written by the great science fiction pioneer E. E. "doc" Smith between 1934 and 1954 (Smith 1948). Lensman were committed the almost impossible mission to save the universe from being subjugated by the Eddorians. To help them realize that mission, the Arisians gave them a tool: The Lens. Lenses expand the mental skills of their wearers with capabilities such as communicating across species, mind reading, telepathy and augmented thinking. Many movies have also explored this idea. For instance, the Jedi in Star Wars have the Force, which binds them together through a common, persistent conscience and a communication medium. Avatar showed us Eywa, a biosphere that supports a planet-scale network of living entities, which functions as our brain's neural network on a grander scale (Baxter 2012).

More down to earth but not less exciting, the pursuit of collective intelligence has also taken a great place in science and technology. Vannevar Bush, in the influential "As We May Think" essay published in 1945, proposed the Memex, a machine capable to expand the human mind by preserving personal records and communications (Bush 1945). At the time, it was impossible to implement the Memex (which required using miniature cameras and microfilm), but it inspired others like Doug Engelbart and Ted Nelson. Doug Engelbart developed several first-of-a-kind pieces of technology like the first computer mouse, the first working hypertext system and the first collaborative system (Engelbart and English 1968). Ted Nelson's Xanadu was so conceptually advanced that it has not yet materialized (Nelson 1982). Xanadu was supposed to manage an information Web using bidirectional links, which provide more powerful searches than we can do today using Web browsers (Knowlton 2015). Nevertheless, these ideas inspired the development of the Internet, World Wide Web and many other admirable projects like Wikipedia and GitHub, which bring together and promote our collective intelligence (Berners-Lee et al. 2010; Smith and Weiss 1988).

Technological advances in human–computer interaction have also encouraged the pursuit of collective intelligence. Worth mentioning is the idea that technology has value beyond mechanization and automation. The computer not only does

things for us. It can be an amplification of us, as suggested by concepts such as embodied interaction (Dourish 2001), joint cognition (Hollnagel and Woods 2005) and bricolage (Cabitza and Simone 2015).

Our organizations have been evolving to explore and exploit technological innovations. Electricity, fridges and elevators contributed immensely to aggregate people in specialized, complex and interdependent urban structures. Then cars, phones, computers and many other technologies contributed further to intensification, automation, decentralization and collaboration (Stott 1992). Nowadays, organizations are absorbing the impacts of constant interconnectivity, powerful mobile technology and embedded systems. Organizations are becoming more virtual, ubiquitous, agile, information rich and of course more complex (Alberts 2011).

Crowdsourcing emerges as another conceptually simple but disruptive technology capable to change significantly the structure and behaviour of our organizations through collective intelligence. Initially, it may have been regarded as another way to execute one-off projects, to solve simple problems using brute force, or maybe another way to outsource certain functions at low cost. But that is just the beginning of the story. The fully integrated, continuous and dynamic use of crowdsourcing may turn organizations less structural, bounded and predictable. Furthermore, crowdsourcing creates the opportunity to jump-start new activities, to bring in a continuous flow of ideas, expertise and knowledge, and to change strategic directions without much attrition. And all independently of time, space and size, crowdsourcing may confer elasticity, malleability, agility, scale, and resilience.

Right now, we are just seeing the initial steps towards integrating crowdsourcing into organizations. Much research and development are still necessary to fully understand the value and the potential uses and consequences. This book by Nguyen Hoang Thuan is a great step in that direction. It brings together a large body of knowledge on the subject, adding to it an integrated business perspective, which provides a solid foundation for understanding where crowdsourcing is today, how it can move forward within our organizations, and how it contributes to that great idea of collective intelligence. We do not yet have the Lens, and neither Eywa, but maybe one day someone may be able to say that crowdsourcing gave a small push in that direction.

Wellington, New Zealand — Assoc. Prof. Pedro Antunes

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Abbreviations

AMT	Amazon mechanical turk
API	Application programming interface
BPC	Business process crowdsourcing
BPM	Business process management
BPMN	Business process model and notation
BPO	Business process outsourcing
CT	Crowd tagging
CTUT	Can Tho University of Technology
DSS	Decision support system
DTN	Design theory nexus
GUI	Graphical user interface
IM	Industrial management
IP	Intellectual property
IS	Information systems
IT	Information technology
LDC	Logo design contest
R&D	Research and development
SDLC	System development life cycle
VUW	Victoria University of Wellington

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