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The mathematical corporation: Where machine intelligence and human ingenuity achieve the impossible

Martin Waxman★

McMaster University, Hamilton (Ontario)

A R T I C L E I N F O	**A B S T R A C T**
Article Type: Book Review *Article History:* Received: 2018-11-26 Revised: *2019-01-28* Accepted: 2019-02-10 *Keywords:* Book review AI Machine learning Data science	Communications and public relations are becoming increasingly complex and machine-driven. Authors Sullivan and Zutavern explore the long-term implications of this complexity in *The Mathematical Corporation*, a book about how communications professionals must negotiate the power of new technology with the possibility of humans becoming redundant. This book review argues that *The Mathematical Corporation* is ultimately hopeful, as it suggests that communications professionals can use new technology in forward-thinking ways without causing social and economic turmoil.

Kurt Vonnegut's (1952) first novel, *Player Piano*, is set in a darkly humorous dystopian future where "Machines were doing America's work far better than Americans had done it" (p. 56). Reading *The Mathematical Corporation* some 65 years later, it appears as if the bleak future predicted by Vonnegut may be closer than we think.

Before you jump to conclusions, I'm not saying *The Mathematical Corporation* itself is bleak. Far from it. It paints the picture of an optimistic future where organizations and their leaders can embrace a new kind of collaboration with big data, artificial intelligence (AI), and machines. The book is a primer for a fresh way of thinking about business strategy, and, in that regard, it reminds me of the early days of digital and the ahead-of-their-time ideas expressed in books like *Naked Conversations* (Scoble & Israel, 2006) and *Here Comes Everybody* (Shirky, 2008). Much as in those books, *The Mathematical Corporation* lays the groundwork for a new vision, one that's being talked about a lot but is still in its infancy. It

★*Corresponding author (Martin Waxman)*
Email: martinwaxman@gmail.com

advises organizations to be open to the possibilities of "future power" and encourages leaders to ask "impossible questions" that inform "impossible strategies" (p. 16) and ultimately gain the ability to reimagine their business from an "impossible" point of view. And while it doesn't call out communicators by name, the examples and insights are relevant.

At the time of writing, the authors of the book, Josh Sullivan and Angela Zutavern, worked for Booz Allen Hamilton, a global strategy consulting firm. Sullivan created and leads the firm's data science team. Zutavern is a strategist who teaches clients how to use machine learning in leadership, transformation, and innovation. They are good writers and storytellers, they provide plenty of real-life examples, and they convey their ideas—and a forward-looking roadmap—in a clear and easy to read way.

Sullivan and Zutavern discuss the importance of businesses moving from a quest for simplicity to embracing the complexity that comes when you use large data sets and AI to uncover insights that would never before have been seen. That involves a shift from the self-confidence of knowing all the answers to the uncertainty of formulating big questions and relying on data for the results. It encourages leaders to place their trust in machines to perform certain cognitive tasks (i.e., comprehending, seeing patterns, crunching numbers, remembering, and organizing) better than humans.

That doesn't mean *The Mathematical Corporation* will be devoid of people outside the C-suite. The authors believe we can excel at creativity, framing problem-solving, reasoning, and coming up with big ideas from the data. "A computer cannot flood the conference room with wild, aspirational, zany, and visionary ideas", they write (p. 64). "The human imagination is the source of eureka moments and dreams" (p. 64). And computers do not (yet) have the capacity to ask how or why. Sullivan and Zutavern stress the importance of communication "at a high level, more focused on tasks like persuasion, negotiation, active listening, and expression of vision in eloquent and passionate words" (p. 53). This approach seems to mirror elements of Grunig's (2013) Excellence Theory, including environment scanning, scenario building, and relationship cultivation, and could offer communicators an opportunity to begin establishing their place in a world of data and AI.

The authors challenge companies to move beyond a traditional data collection mindset and start using data for discovery and predictions. Because "curiosity is the X factor in the data science equation" (Sullivan & Zutervan, 2017, p. 172), organizations will need to establish a culture where lessons from failure are celebrated as much as victory. Throughout the book, they offer examples of organizations that are using machine learning to accomplish their

goals, including the US Census Bureau's attempt to cut billions of dollars from their budget by using geographical data to help enumerators optimize their routes, and how InterContinental Hotels Group uses data to understand customers and customize the types of content they present to them. They also discuss how GlaxoSmithKline opened its proprietary clinical trial data to researchers, leading the way for other pharma companies to do the same.

However, just because data are analysed by a machine doesn't always mean the results are right or without bias. Sullivan and Zutavern urge leaders to pay attention and continue to question assumptions. They spend a chapter talking about the importance of ethics, how quickly perceptions can become reality, and whether or not companies that don't safeguard data can "survive the court of public opinion" (p. 194). They advocate for data transparency, which they say leads to trust. This belief echoes Bowen and Gallicano's (2013) assertion that in ethics, "trust is the most pervasive factor, akin to the 'backbone' of a relationship" (p. 195). Here again we can see a role for PR professionals who are able to integrate ethical communications with an understanding of big data and machine learning to cultivate relationships and build trust.

If there's one thing the book is lacking, it's a chapter on the political, social, and economic repercussions of job loss. How people will work and make a living seems like it will become the "impossible" question for government, academics, think tanks, the general public, and mathematical corporations alike. While the authors do touch on the knowledge and income gap and encourage businesses to "avoid social turmoil" (p. 249), I was hoping they would present the beginnings of "impossible" strategies for how education systems could be re-engineered to support the dramatic changes the future is about to bring. Perhaps this is an opportunity for communicators to adopt a proactive leadership mindset and redesign communications and public relations programs with the future in mind. This includes more emphasis on understanding AI, data science, and data-driven decision making; establishing ethical boundaries; and learning how to become the human connection in a conversation between people and machines.

But doing that will require a "U-turn" away from what we know, as well as the courage to both create and question "big, bold, counterintuitive ideas" (p. 251) that will help guide organizations toward "impossible strategies" that explode current paradigms and propel them to new heights.

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