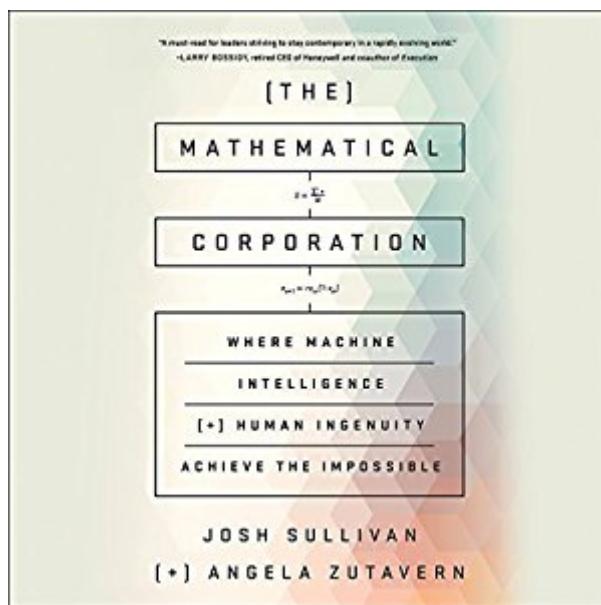


The book was found

The Mathematical Corporation: Where Machine Intelligence And Human Ingenuity Achieve The Impossible



Synopsis

The most powerful weapon in business today is the alliance between the mathematical smarts of machines and the imaginative human intellect of great leaders. Together they make the mathematical corporation, the business model of the future. We are at a once-in-a-decade breaking point similar to the quality revolution of the 1980s and the dawn of the Internet age in the 1990s. Leaders must transform how they run their organizations, or competitors will bring them crashing to earth - often overnight. Mathematical corporations - the organizations that will master the future - will outcompete high-flying rivals by merging the best of human ingenuity with machine intelligence. While smart machines are weapon number one for organizations, leaders are still the drivers of breakthroughs. Only they can ask crucial questions to capitalize on business opportunities newly discovered in oceans of data. This dynamic combination will make possible the fulfillment of missions that once seemed out of reach, even impossible to attain. Josh Sullivan and Angela Zutavern's extraordinary examples include the entrepreneur who upended preventive health care, the oceanographer who transformed fisheries management, and the pharmaceutical company that used algorithm-driven optimization to boost vaccine yields. Together they offer a profoundly optimistic vision for a dazzling new phase in business and a playbook for how smart companies can manage the essential combination of human and machine.

Book Information

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Customer Reviews

Excellent overview of newer approaches corporations, non-profits, and government agencies are taking to using every increasing data sources for the best outcomes in strategic growth and service. Very nice that last 2 chapters covered ethical issues.

Up front, I share a response to this book's subtitle: Whatever is achievable is not impossible; rather, it has not as yet been achieved. However, I wholly agree with Josh Sullivan and Angela Zutavern that "with rare exception -- a superior machine in collaboration with a superior human will outperform a superior machine or a superior human working alone. It is also true that there are certain tasks that a superior machine cannot do or do better than can a superior human...and vice versa. What Sullivan and Zutavern characterize as "the cost-effective answer in their book. Readers will appreciate the provision of mini-case studies of several mathematical corporations that Bloomberg LP, Ford Motor Company, GlaxoSmithKline, InterContinental Hotels Group, Merck, and Tesla as well as the Center for Prevention of Genocide, Federal Aviation Administration, U.S. Army, and U.S. Census Bureau. All have made highly innovative use of analytics, artificial intelligence, and big data (including smart data). Yes, these are all large organizations but the lessons learned from their initiatives can be of substantial value to leaders in almost any other organization, whatever its size and nature may be. Sullivan and Zutavern provide an Afterword that is more forward-thinking than most. They concede, "many problems that seemed intractable are not. Solutions that seemed out of the question are not." I agree. In a world that has become more volatile, more uncertain, more complex, and more ambiguous than at any prior time that I can remember, an observation by Oliver Wendell Holmes more than a century ago seems uniquely relevant: "I would not give a fig for simplicity this side of complexity but I would give my life for simplicity on the other side of complexity. Alan Perlis agrees: "Simplicity does not precede complexity, it follows it." Josh Sullivan and Angela Zutavern review key principles that will guide and inform efforts by increasingly more capable humans and machine, working in collaboration: complexity is a boon, not a burden; the machine works better than the gut; machine models top mental models; solutions don't require logic; create value by giving it away; break through without experience; and perfect launches lose to imperfect ones. Perhaps channeling Albert Einstein, they urge us think about the mathematical corporation as simply as possible but no simpler.

"The Mathematical Corporation..." by Sullivan and Zutavern is an interesting book about the dynamic environment of businesses today. The authors discuss mining data, generalizable solution

sets, multi-disciplinary applications, deep learning and examining unknown complexity. When scientists perform regressions and correlations, much may be gleaned from the analysis. More importantly, outliers are identified for further analysis and refinement of the basic rule structures. In addition, machines identify organic patterns, clusters, classifications and unique sequences. Traditional mathematics, operations research and statistics are useful for minimizing, maximizing, optimizing, graphing, profiling and performing logical comparisons based upon truth table statements. Mass data may be represented in multi-plane linear algebra matrices in order to organize the data optimally for a computer analysis. In artificial intelligence, much can be learned from polling the experts. As the pool of experts is expanded, more refined rule structures are developed based upon the expansion of the knowledge data base. In addition, more refined judgments are arrived at as more observations are made. For instance, engineers derive an MTBF (mean time between failures) based upon significant observations and testing of key component parts. Ultimately, an ideal replacement time period is developed so that expensive component part breakdowns can be avoided. Artificial intelligence is helpful in reducing expensive processes of search. Ideally, an algorithm can arrive at optimal alternatives by using an advanced search engine to identify the best available choices based upon analyzing specific data bases for pre-defined criteria. Machine learning will be critical for interplanetary travel. Once space flights arrive onto another planet, robots will begin to analyze the air, soil, moisture and pictures of the surrounding terra firma. This data will provide vital profiles so that engineers can design machines, building materials, pre-packaged food and spacesuits to accommodate astronauts on future missions. Overall, "The Mathematical Corporation..." by Sullivan and Zutavern is an important strategic management planning tool for thinking outside the proverbial box. There is an extensive section of authoritative research notes at the end of the book.

This is not another book about "big data" but rather a book about the qualities leaders need to forge ahead in our increasingly data driven world. Leaders of the past have focused on success and while success is the goal, future leaders must see failures as part of the grand process to achieve even greater successes. Fear of failure, be gone! The Mathematical Corporation provides myriad examples of how data of all kinds gives us insight to our deep questions. In reading this, I was reminded of "The Machine" from Person of Interest, but the real Machine hasn't been built by one Mr. Finch. It's continually being built by all of us every day. The benefits are exciting to imagine. The leaders who will excel are those who ask great questions, impossible questions, mysterious questions. That resonates with me! Questions, here we come!

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