Experimenting thoughtfully with artificial intelligence

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In *The AI-First Company: How to Compete and Win with Artificial Intelligence*, prominent venture capitalist Ash Fontana asserts that we are in the second half of a century-long cycle in the development of artificial intelligence (AI).

Pointing to Google, Apple, Amazon, and other tech giants, Fontana contends that businesses in all industries will be dominated by companies that prioritize and rely upon AI in the next 50 years.

That is, the world will be dominated by "AI-First Companies" – companies that focus on "collecting important data and then using that data to train predictive models that automate core functions" within their, or their customers, businesses.

> Fontana has produced a straight-forward primer to help business professionals to get started on the path to adopting AI, yet one of the book's strengths is its illustration of how difficult it is to implement AI.

In Fontana's vision, AI empowers the predictive models to process the collected data to generate information, information which both provides value to the business and permits the business to generate proprietary insights.

This self-reinforcing process is a "loop," which Fontana asserts is a competitive advantage, akin to a moat but more powerful because it is dynamic, capable of both widening and deepening on its own. Fontana touches on loops in the introduction and devotes a full chapter to the idea late in the book.

The difference between loops and moats is important to Fontana's thesis that AI-first companies will dominate business, but it betrays one of the tensions in the book.

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The book's substantive focus is on sketching the tentative first steps a business should take toward adopting or developing an AI system. Dreams of loops (or moats) produced by adopting AI are so far off as to be fanciful.

Fontana comes by his convictions from an unusually diverse background, ranging from hands-on product development to venture capital investing.

Fontana is currently a managing partner at Zetta Venture Partners, a global investment fund that invests exclusively in business-to-business companies that are built on artificial intelligence. Zetta has invested in AI-fueled super-businesses such as Kaggle, Domino, and Tractable.

Before joining Zetta in 2014, Fontana worked at the startup investing platform AngelList, where his responsibilities included leading the development of online investing, setting up the funds management infrastructure, and leading the investment committee, among his responsibilities.

Before joining AngelList, he co-founded a company that built customer analytics technology for companies, achieving an eight-figure exit in only 18 months.

Despite the attention-grabbing title "The AI-First Company," the book is more a primer on how to start thinking about artificial intelligence than a guide to building an AI-First Company.

Indeed, the strength of the book is Fontana's candid assessment of the difficulty of implementing artificial intelligence systems and modest claims for the benefits of AI.

> In our experience, asking simple questions about your data, such as the 10 identified by Fontana, can fruitfully guide expectations about what AI can achieve — and, more importantly, what it cannot.

Building unrealistic expectations both within companies and with customers is a failing we have seen repeatedly in the AI space. Fontana doesn't offer AI as a panacea but purposefully keeps the reader grounded in reality.

In a particularly illuminating graphic (see figure 1), Fontana depicts "What Works Versus What People Think," to underscore the progress that organizations can make using a single-equation statistical analysis.

available to the company and the type and source of data that may be obtained.

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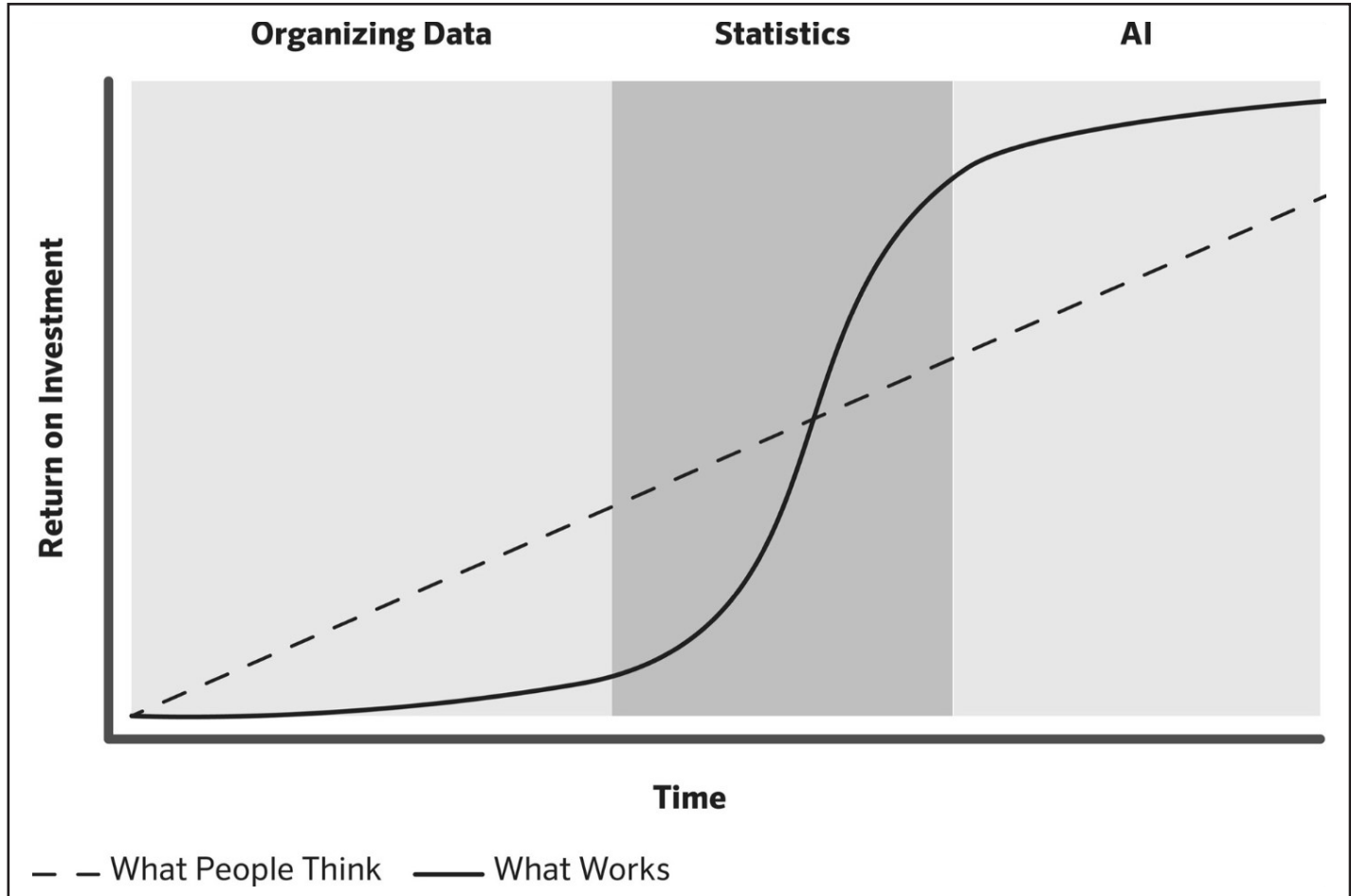
The Pareto Optimal Solution is part of the Lean AI discussion, which for many readers will be the strength of the book. Fontana adapts the Lean Startup framework to artificial intelligence, sketching a method he dubs "Lean AI."

The chapter includes a number of illuminating diagrams to guide people with limited AI backgrounds in thinking about AI.

> Time and again, Fontana illustrates the significant investments needed to implement AI projects and the continued commitment necessary to have them achieve their full predictive power and potential.

For example, in a single page, the Lean-AI Decision Tree (see figure 2) helps readers assess the type of data that is
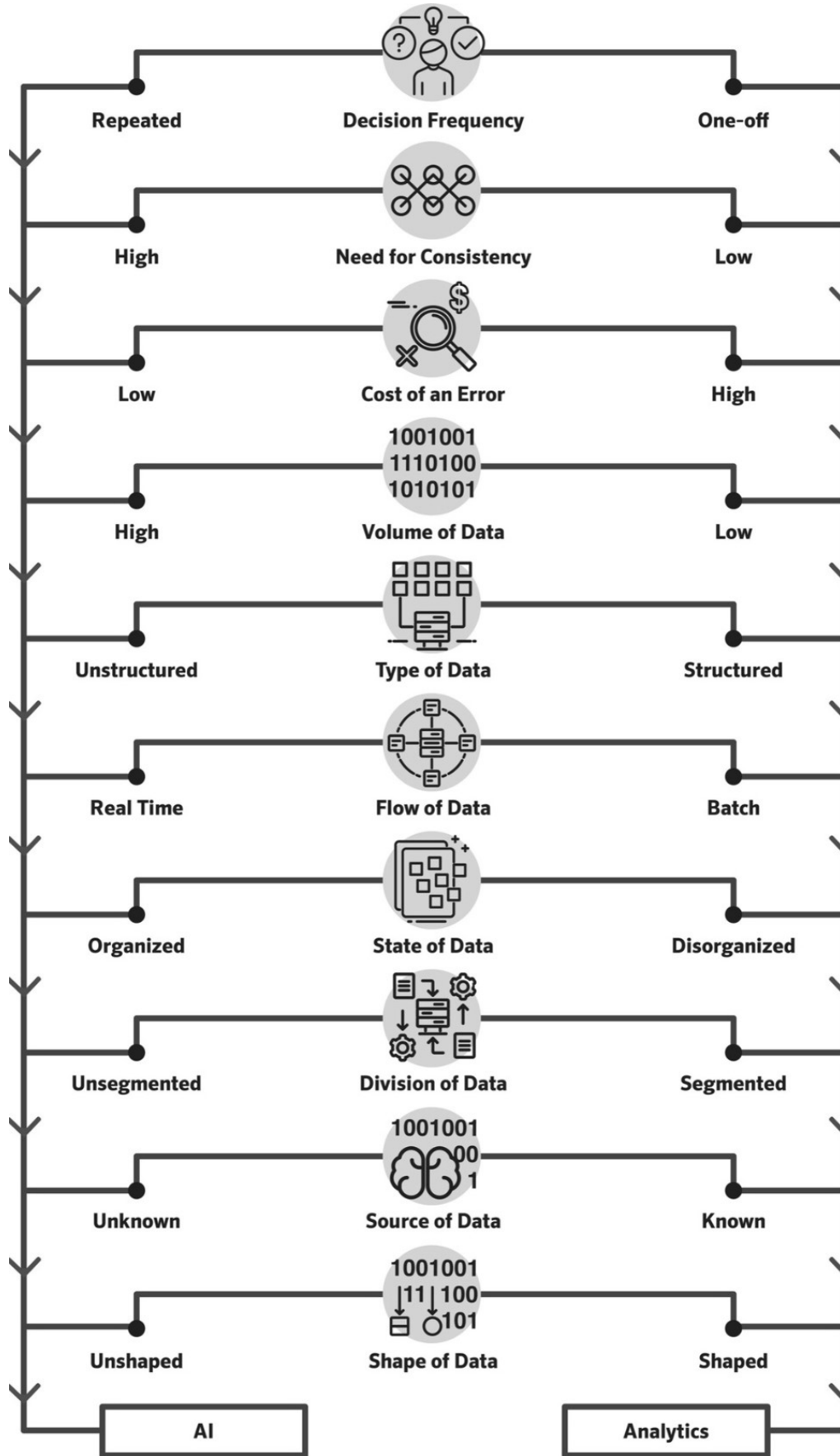
guide expectations about what AI can achieve — and, more importantly, what it cannot.

For businesses with limited experience in implementing data analysis projects, Fontana describes in detail the various different roles that are necessary to implement an AI project and his assessment of the relative cost, whether the role can be readily outsourced, and the sequence of hiring for each role.

Once again, Fontana has provided an informative table summarizing the information.

The approach is formulistic — particularly so since there will be inevitably be overlap in skill sets for the role — but it underscores Fontana's message that successfully implementing an AI project requires a company-wide commitment.

The point bears emphasis. Provoked by the fear of missing an opportunity or falling behind competitors, business leaders can be tempted to "do something" or to "just get started." An

Repeated	**Decision Frequency**	One-off
High	**Need for Consistency**	Low
Low	**Cost of an Error**	High
High	**Volume of Data**	Low
Unstructured	**Type of Data**	Structured
Real Time	**Flow of Data**	Batch
Organized	**State of Data**	Disorganized
Unsegmented	**Division of Data**	Segmented
Unknown	**Source of Data**	Known
Unshaped	**Shape of Data**	Shaped
AI		**Analytics**

underlying theme of the book is how much "up-front human effort" is required to succeed.

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The book addresses the importance of data sources.

It rightly notes that companies should scrutinize data to ensure that privacy laws aren't violated and that similar problems aren't inadvertently caused; however, given the introductory nature of the book, it would have been more helpful to more fully develop the sorts of legal and regulatory problems that can arise from AI systems.

Fontana flicks at the issue in the Lean-AI Decision Tree (figure 2), but given potential costs from missteps that already have been observed, a more extended treatment would have been welcome.

Overall, the AI-First Company is a valuable introduction to data science for a company leader who senses that she or he needs to prepare for the changes that AI will bring to the company's industry.

Fontana draws from his broad professional background to argue persuasively that AI will transform how businesses in diverse industries will operate.

And more importantly, he details the challenges that businesses must be prepared to address and the resources they must expend to reap benefits from pursuing the goal of becoming an AI-First Company.

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