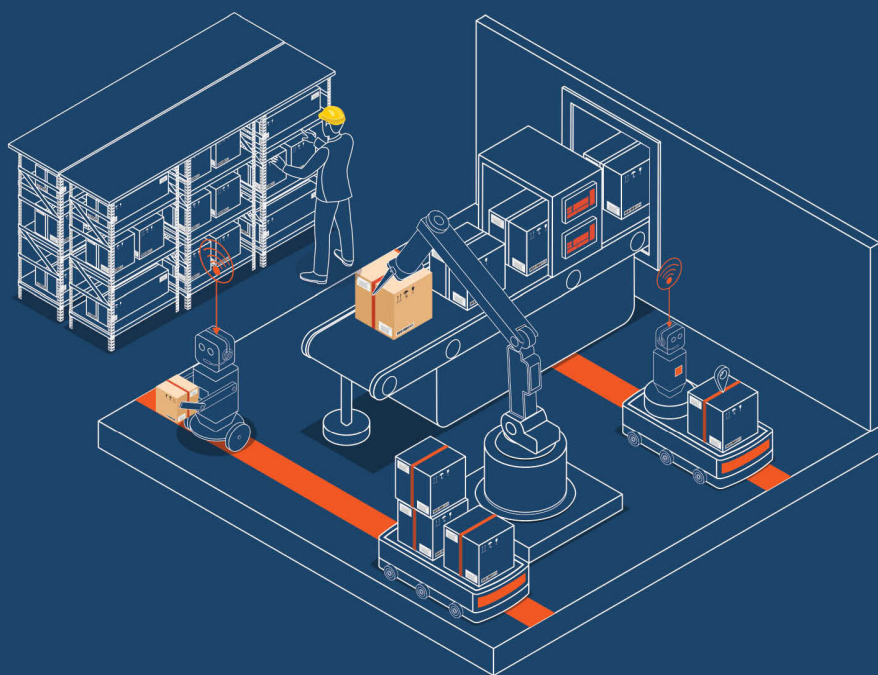


THE PREDICTIVE ENTERPRISE

HOW **SUPERHUMAN SUPPLY CHAINS**
TRANSFORM GLOBAL BUSINESS



EDMUND ZAGORIN

FOREWORD BY JEFFREY IMMELT

CONCLUSION BY LEN DECANDIA

Praise For *The Predictive Enterprise*

Edmund lays out the issues that companies have when looking at AI as primarily an overlay to existing processes and playbooks. The adaptive enterprise correctly examines how to not only use AI, but re-engineer how work is done when people and AI work together to deliver the optimal outcomes. I have directly seen how procurement organizations have used these concepts to deliver outsized savings as well as risk reduction. This is not to say that making these changes is easy, but this book lays out the concepts that modern, high performing organizations will need to embrace to compete in the modern world.

—Micky Keck,
former Director Analyst for Procurement Applications, Gartner

The supply chain has always been a part of the business everyone talks about, but few actually reimagined. Edmund doesn't just talk about it—he shows what happens when AI stops assisting the supply chain and starts running it. From predictive logistics to autonomous negotiations, *The Predictive Enterprise* makes the case that the next competitive edge won't come from optimizing what already exists, but from building supply chains that predict, adapt, and act before a human ever has to. For anyone leading transformation in this space, this is less a forecast and more of a blueprint for transformation—and a genuinely fun read on top of it.

—Adrian Penka,
Vice President, Supply Chain Transformation and Advisory,
Capgemini Invent

Every business establishes processes that help guide the work of employees and set expectations for performance. But what happens when that work is now augmented by AI? And what happens when the work is being done not just by internal employees, but by suppliers augmented with AI, as well? *The Predictive Enterprise* shows how AI deployed at global scale is transforming our ways of working today, not just for internal teams but across the supply chain, and in the process rewriting the expectations and playbooks for global business.

—Russ Fradin,
serial entrepreneur and Co-Founder and CEO of Larridin.com

Executive teams often struggle to identify the area where new technologies can make the biggest differences. In *The Predictive Enterprise*, Edmund de-mystifies the power of AI for back office processes. Traditional processes are built for standardization, but what happens when the steps in a process can be instantly customized? Leaders from the industrial and manufacturing world should take note.

—Paul Wellener,
retired Vice Chair, Deloitte

The energy industry is complex and capital intensive, and due to volatility in commodity prices, managing risks and costs are the key to success. AI-driven predictive procurement, as brilliantly outlined in *The Predictive Enterprise*, is game changing technology that drives costs out of the system, expands margins, creates significant efficiency gains for employees, and drives bottom line financial results and value to the enterprise. Edmund's grasp of the challenges and solutions to this important segment of our business is invaluable.

—Robert Turnham,
Co-Founder and former President, Goodrich Petroleum Corporation

The Predictive Enterprise provides thoughtful insight into the future of work in this new AI-driven digital age we're now entering. Edmund's deep knowledge and perspective paint a clear picture of the power of predictive tools to make better decisions.

—Edwin Bennett,
former Chief Operating Officer, EY

The bigger the business, the more process matters. Traditionally, architects of large enterprises have focused on people, process, and technology as three co-equal branches of the operating model. But what happens when technology—specifically AI—allows the steps in any process to adapt in real time based on its predicted outcome? In *The Predictive Enterprise*, Edmund unpacks the implications of predictive AI for supply chain teams operating at global scale, where process architectures extend beyond one enterprise into tens of thousands of suppliers. The scale of this change is creating new ways of working. Not tomorrow, but today.

—Avanish Sahai,
technology executive, investor, and advisor;
formerly at Oracle, Salesforce, and ServiceNow

“Omne trium perfectum”, the Latin adage meaning *everything that comes in threes is complete*, couldn't be more fitting for the evolution of procurement technology. Having experienced the first two major waves of procurement innovation firsthand, I do not doubt that the third, Artificial Intelligence, is the most transformative yet. *The Predictive Enterprise* is essential reading for procurement professionals at every stage of their careers, as well as C-suite executives looking to unlock procurement's strategic value. It provides a compelling roadmap for how AI is reshaping the function, moving it from a transactional cost center to a driver of competitive advantage.

—John P. “Jack” Miles,
former Chief Procurement Officer at CIBC, AIG, and Cigna;
former Secretary of The Florida Department of Management Services

The world needs more detailed, positive visions of the AI future. It's great to see a contribution to this genre from a domain expert, in one of the most important sectors of the economy.

—Jason Crawford,
Roots of Progress Institute

A must-read for procurement professionals to learn how to leverage predictive procurement to create breakthrough business results; it provides a practical playbook for leaders to:

- Transform sourcing speed and effectiveness—cover 2x addressable spend in 1/2 the time.
- Deliver double digit percentage price savings—smart item by item “defaults” help anchor pricing and process embeds best practices and negotiation/behavior theory (e.g. FOMO).
- Strengthen supply chain resilience, supplier management, and fact-based, transparent relationships.

Learn valuable insights to help you thrive and elevate procurement as a trusted advisor to your company!

—Drew Sheffield,
Principal Consultant, DS Group Advisors LLC. Former Purchasing Director,
Ford Motor Company; Global Purchasing Director, ZF Group;
and Executive Director, Purchasing, TI Automotive

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Epigraph

Show me your cost sheets. It is more interesting to know how well and how cheaply you have done this thing than how much money you have made, because the one is a temporary result, due possibly to special conditions of trade, but the other means a permanency that will go on with the works as long as they last.

—Andrew Carnegie, as quoted by H.W. Brands

Foreword

THE POWER OF AI is becoming more impressive every day.

Five or ten years ago, even tech-focused people like me believed that there were certain aspects of business that would be too specific and niche for AI to handle well. I think that companies like Arkestro have proven this assumption wrong. The main obstacles we face today in ushering in transformation are social rather than technological.

In *The Predictive Enterprise*, Arkestro founder Edmund Zagorin helps us take a hard look at our legacy workflows and helps executives to better understand the opportunity created by AI at an enterprise-scale business. This is an exciting read for anyone thinking seriously about the future of work in large enterprises.

I came of age in the era of “professional management.” Those days are over. I’m not advocating for “unprofessional management,” but this is the era of technology. In this regard, AI might be the most transformative wave thus far. If you are a legacy manager waiting for permission from the CIO, you are lost.

In my time as CEO of GE (2001–2018), we viewed the CEO, CFO, and HR leaders as the three people who were actually running the company. Importantly, the CFO was trained to be copilot of the business. They had to know all the functions of finance, but they also had

to understand manufacturing, sales, and technology. They had to be there to help grow the company, grow the business, and think strategically. While they knew their governance role and fiduciary role, they used these roles as a framework to reposition, grow, and drive competitiveness across the business.

A good CFO hungers for growth, productivity, and change. They don't get stuck on following a process. A good CFO is constantly searching for new tools. When it comes to procurement, it's no longer the case that the CFO just waits for the CIO to hand down digital tools to use. CFOs now need to be active players who are both interested in and knowledgeable about available technology, especially when it comes to AI.

Procurement is a natural place for CEOs and CFOs to search for value. AI will facilitate insight, speed, and decision-making; all essential for effective supply chain management. Leaders must thirst for productivity; they cannot let pride or politics get in the way.

This book explores how large global enterprises have laid the groundwork for this predictive future with measurable returns. It shows how their finance, procurement, and supply chain teams are using the Predictive Enterprise to expand margin and focus more of their best people's time where it matters most. It's not about people versus AI. It's about people using AI outperforming people who aren't using AI.

When a CFO begins at a new company or job, they usually ask themselves, "How can I make an impact quickly?"

Procurement should be the first stop.

Good CFOs tend to find good procurement leaders almost immediately because whereas it may take you five years to redesign a new jet engine to have fewer parts and things like that, you can buy the parts you're already using more efficiently right away. CFOs know how to find good procurement leaders because they can move the needle more quickly and in a profound way. But procurement leaders shouldn't wait for the CFO to knock on their door. They should lead the hunt for new technology. AI transformation will be accelerated by business leaders at all levels finding more productive ways to do their work.

One of the most important things that a leader does is what I call *instrumentation*. What are the operating processes—or instruments—that can improve your key metrics? This may sound easy, but it requires

sustained focus. Instrumentation turns out to be a profound secret to success. Finance is, of course, the lever-puller for many important instruments at a business. The CFO must be effective at taking ideas, products, and technologies and figuring out how those interact with the income statement, the balance sheet, and with cash.

Lastly, I think a lot of CFOs have been through digital transformation already. If you think about the state of the world from the standpoint of a digital System of Record, CFOs have had a generation now to work with General Ledgers, ERPs, and even Procure-to-Pay systems. In that way, CFOs can be a digital partner to procurement, whereas historically supply chain has almost always been behind the curve from the standpoint of digital tools.



The word productivity gets thrown around by everyone these days.

The CFO must break that word into numbers for their own purposes. And there is also the cost of something taking too long versus the benefits of getting to a decision earlier. This could mean getting a product to market earlier, getting a production site stood up earlier, being able to recognize revenue earlier. That's why being specific about the value of productivity is key.

What does a word like *productivity* actually mean for your business? Once again, it's about understanding the instrumentation across your own portfolio of activities.

For instance, I would always ask our CEOs at GE, "What percentage of our BOM (Bill of Materials) for this product is dual-sourced or greater?" If that percentage goes up—i.e., we have multiple good sources to choose from for parts—then I would expect that the instrumentation will allow us to keep and even expand margin as we ramp up production to higher volumes to meet demand. You need to understand this like night follows day.

Don't just throw around the words. Give them the weight of your understanding. Track them with numbers. And make sure that the right people have ownership over the right numbers.

Once everyone agrees on what these shared terms really mean, I also think repetition is the secret to progress. I like to use similar

presentation formats again and again so that the only thing changing is the numbers and the dates. The only thing that changes is the progress itself. Whether it's a daily meeting, a weekly meeting, a monthly meeting, or a quarterly meeting, repetition often goes hand in hand with progress.

If I had two meetings or business reviews in consecutive months and the metrics changed—I don't mean the numbers, but the actual types of metrics—I knew something was wrong. I would always look for that because it would either mean we were not making progress or that we didn't fully understand the instrumentation.

In the industrial world I would guesstimate that the majority of all the dollars invested in technology have been on Systems of Record. This means ERP systems, order management systems, CRM, and tech products like that. These Systems of Record usually tend to be large, costly, and slow. These technologies might improve compliance, and they may help the finance person close the books in a week instead of three weeks, but very few of them actually deliver a significant return to the business.

While it's true that all technology tools should build on what's been done before, leaders should aim to ensure a return on investment, so that putting in technology directly connects to the one or two numbers that actually drive the business. This is one reason why I am excited about the AI that's described in the Predictive Enterprise.

AI in procurement today can materially impact the top-line or bottom-line revenue of a company in a matter of weeks or months. And these solutions can be driven by the CEO and CFO, not just CIO-driven. Because when it's measured correctly, the value of AI is so easy to understand that it's almost a no-brainer. We are still in the beginning of this new mentality around what technology means for business leaders.

If you're a CEO or CFO of a big company, small company, industrial company, financial services, it doesn't matter—you've already been in the digital age for a generation.

Now you're in the AI age.

If you're sitting around waiting for the perfect solution to arrive, you're really not participating in the opportunity. You're just sitting there. That's not what boards expect from executive leadership anymore. Those days are over.

Additionally, instead of investing in the newest tech marketed to you by Salesforce or SAP, keep a few developers hanging around who actually understand your business, your needs, and the technology landscape and can advise and facilitate the adoption of new technology. The results will be obvious in days or weeks, not years.



Finally, let's consider the importance of supply chain leaders in the era of tariffs.

It surprises me how many companies are still running the old playbook when it comes to operations. Twenty-five years ago, if you were deciding whether to manufacture a refrigerator in Mexico or the United States, Mexico was a no-brainer because the labor cost 10 times less. However, most of that production can be moved back to the United States or Europe now because a lot of the wage arbitrage has been eaten up in productivity, in automation, and things like that. It's wild to see how many things are made in other places under the legacy justification of low-cost labor simply because companies don't take advantage of new technology.

Cost is always important and quality is always important, but where we make something becomes as important to marketing as it is for manufacturing. Being able to make things where you sell them is now quite material in terms of how people look at you. It brings credibility that is important and meaningful. People want to spend money with people they like, companies they trust, and that also extends to suppliers.

AI may be required in order to make this sort of pivot easier and more successful.

Make no mistake. AI will change the decision-making around where physical products get manufactured and assembled. It's not just the current tariffs and shifts in global trade. It's the fact that with AI we are dramatically changing the cost profile of making just about anything, which means we may soon be able to make most of our products just about anywhere, too.

There is a cultural aspect to the role of supply chain leaders in the AI era. You must know the technology, demand investment, and sign

up for outcomes. These decisions shouldn't be spoon fed to you by the CIO like a child. Salespeople are often delightfully effective with technology, and that's probably why a lot of digital transformation starts with sales and the customer experience or the customer relationship and works backward. That's because it's easy to tie value and return on investment back to an attributable increase in top-line revenue.

However, it's time for that focus to shift.

We all know that costs are an important driver of business outcomes, not just top-line revenue. Historically, supply chain and procurement have been the receiver rather than the driver of new technology. Thankfully, this is also changing, and fast.

Today, transformation needs to be driven from the back office, and especially by the CFO, who has nothing to gain and everything to lose by waiting. Competitors can eat your lunch if you're not careful. This new approach around the Predictive Enterprise is a big part of what's making it happen. And it's already happening in large enterprises today on a global scale.

It's my belief that AI and the Predictive Enterprise are going to fundamentally shift the way leaders think about transformation in large enterprises, and especially with regards to the role of procurement and supply chain.

—Jeffrey R. Immelt, 2025

Introduction

The Power of Process in the Predictive Enterprise

LIKE MANY OF my colleagues, I began working in procurement largely by accident. When my job at a university required that I take procurement training, I was baffled by how boring and administrative the process felt to approve a simple expense. And getting a new contract with a supplier signed off? That required an extraordinary amount of time and effort. Having grown up with the iPhone, I knew that digital technology could be simple and labor-saving, even delightful. Why had procurement and supply chain at large organizations been left behind?

My academic background in social network analysis gave me the frameworks for mapping patterns in spend data. But I soon discovered a passion for executing supplier negotiations, often with multiple suppliers simultaneously. It was this passion that led me to become a procurement consultant specializing in strategic sourcing, with a focus on negotiating and awarding contracts using game theory.

For years I supported procurement teams through thousands of supplier negotiations. Together, we awarded contracts for everything

from office supplies to water treatment chemicals, from professional services to software, from capital project construction to cafeteria serve ware. It was from this experience doing thousands of supplier negotiations that I saw firsthand the power of game theory and behavioral science, and especially the Fear of Missing Out (FOMO). I also experienced the leverage that comes from knowing the outcome of a negotiation before it begins. The procurement teams that I partnered with as a consultant could often predict which supplier would win the contract, as well as what a winning offer might realistically look like.

That's quite interesting, I thought.

If people with sufficient experience can predict the outcome of a supplier negotiation before it begins, then perhaps an AI model can do it, too.

This idea of predicting the outcome of a process before it begins and then reverse-engineering the required steps to improve or accelerate it is the core idea of the Predictive Enterprise.

In this short introduction, I will define the pillars of the Predictive Enterprise using both a clear framework and real-world examples. I'll also share my "aha" moment about why this approach specifically matters for procurement and supply chain teams. World-class procurement organizations often want to increase the number of data-driven decisions, influence more of their organizations' spend, shorten cycle times for every process, reduce the hours of human labor associated with completing each process, delight and dazzle their internal business stakeholders, and improve visibility and accountability across their supply base. The challenge is that none of this is possible without data. Most of the data that procurement teams need to make decisions must come from suppliers, and a lot of that data is created manually using webforms, surveys, and Excel spreadsheets attached to emails. Teams who are driving change in procurement using AI must reckon with the fact that their historical data is often messy, incomplete, siloed, or inaccessible. Because of my personal experience supporting procurement and supply chain teams at large enterprises, I have focused on AI transformations using the Predictive Enterprise that have been successful in spite of these obstacles and limitations.

This book is written for a general business audience of executives and employees who want to use AI to deliver measurable results on a global scale. At a time when "AI" has become a buzzword, I have

made every effort to be specific, detail-oriented, and obsessively practical with examples so that anyone, regardless of technical background, can evaluate and act on the opportunity created by AI in the Predictive Enterprise.

The “Aha” Moment for the Predictive Enterprise

It was a hot summer night in San Francisco, and my friend Ben was having a party. Ben had risen through the ranks to become the youngest engineering manager at a startup called SurveyMonkey that was still a few years away from going public. We were celebrating Ben’s birthday, and a few of his co-workers had shown up.

At the time, I was working on a few supplier negotiations in which my client wanted to qualify new suppliers. My team was doing this process by asking suppliers to answer survey questions. In fact, we were using surveys that we had created in spreadsheets using Excel and Google Sheets. That night I remember complaining to Ben about the fact that suppliers took forever to fill out our surveys, and they often gave us answers that were unhelpful or wrong. In several cases, these answers were obvious mistakes. One memorably lewd error was simply a typo.

Ben had just begun leading the enterprise mobile product at SurveyMonkey. He told me about a design concept they’d found helpful called “smart defaults.” It turns out, Ben shared, that when you pre-fill the answer to a question with a preferred, qualified answer, you can increase the rate that a group of people complete a survey. And, the results of the survey are more usable.

Above my head, a lightbulb flicked on. What if pre-filling the answers to questions could increase the number of suppliers that qualified to participate in a contract bidding opportunity? What if that could widen the pool of qualified suppliers, increase competition, and drive savings?

This conversation with Ben would lead me on a journey to found an AI startup called Arkestro to scale a new approach to supplier negotiations called predictive procurement. In traditional procurement, suppliers make offers to buyers using quotes or proposals. In predictive procurement, the procurement team makes offers to suppliers using AI

to generate suggested offers, by drafting and presenting the suppliers' salespeople with pre-filled quotes or proposals.

Consider that in traditional procurement, quotes are typically created by salespeople who often give a first offer that anchors the negotiation with a higher price. Salespeople do this to give themselves room to get negotiated down. In predictive procurement, quotes are created by procurement teams using AI, who anchor the negotiation with a competitive price that's closer to the supplier's best and final offer.

It's a simple process change enabled by AI that almost entirely eliminates the work associated with manual quote creation by salespeople and post-hoc quote analysis by procurement teams. It's also a powerful example of the Predictive Enterprise.

That conversation with Ben took place in 2016, when AI was still very nascent. In the decade since, I have had the unique opportunity to see what predictive procurement looks like on the scale of global business across different verticals of enterprise manufacturing, including chemical, automotive, pharma, oil and gas, food and beverage, construction, and logistics. Procurement and supply chain teams often find that this predictive approach cuts the calendar time by more than half per offer-to-agreement process. Predictive procurement also allows teams to increase the number of suppliers involved in a competitive negotiation without increasing the work associated with comparing additional offers. And time and time again, customers have found that predictive procurement can get them better cost savings results.

The reason for this dramatic impact is simple. It's exactly what Ben explained to me on that hot night in San Francisco. Most people hate making decisions. Most people hate typing text into form fields and spreadsheets. Most people hate trying to figure out what offer to make because most people hate losing. When you give most people a recommended next step that's already been vetted and checked by an AI model, you make it easy to say yes. You make it easy to get to a best and final offer faster.

In predictive procurement, the "smart default" of a suggested offer is more aligned with the interests of the buyer, rather than the seller. Predictive procurement illustrates a practical example of the Predictive Enterprise approach using AI, where AI is actually changing the steps

and sequence of a process, rather than simply automating work in an existing workflow.

This example highlights an important aspect of the Predictive Enterprise: aligning the design and workflow of a process with the desired outcome, and then dynamically updating the user's experience of the process based on context.

The broader take-away for enterprise AI is clear. As Deloitte Tech Trends 2026 notes: "Gartner predicts that 40% of agentic projects will fail by 2027—not because the technology doesn't work, but because organizations are automating broken processes instead of redesigning operations. . . . Redesign, don't automate. That's the pattern separating success from failure."¹

Defining the Predictive Enterprise

Throughout this book, I'll refer to the Predictive Enterprise as a specific term of art. This term refers to a set of process changes in large enterprises that rest on the following three pillars:

Faster-Than-Human Decision-Making

The first pillar of the Predictive Enterprise involves decisions regarding the best next step in a process using AI that predicts the potential benefits and impact of the next step, rather than adhering to a single static and pre-defined workflow.

For example, when you receive a quote in traditional procurement, you might feel the need to get multiple additional quotes from other suppliers. However, if your predictive AI gives you a benchmark that tells you the quote you have is the best offer you are likely to get, then collecting additional quotes is not the best next step in the process. Collecting additional quotes that are less competitive and less desirable than the quote you already have is likely to add labor hours (clock time) and decision steps (calendar time) to the process without adding value. Therefore, the Predictive Enterprise enables Faster-Than-Human Decision-Making that results in a different best next step in the process of approving a quote from a supplier. The key here is that the AI is not automating pre-defined

steps in an existing process. The AI is selecting the most desirable next step based on a prediction that compares the costs and benefits of taking this particular step versus all available alternatives.

Humanless Loops

The second pillar of the Predictive Enterprise removes human involvement from repetitive tasks to free up time for more high-impact and relationship-oriented work. Humanless loops can include porting data from one system to another, performing data validation, and generating transactional communication, such as invitations or updates.

For example, to measure cost savings in traditional procurement typically involves establishing a cost baseline using historical prices paid for the same item or service during an annual reporting period. When procurement teams execute a supplier negotiation, the price in the new offer is subtracted from the price in the cost baseline to calculate the value of identified cost savings. The performance of procurement teams is often measured by CFOs using cost savings as one significant metric, meaning that getting this cost baselining process right could impact people's job performance reviews, year-end bonuses, and so on. Creating a cost baseline often involves pulling data from Purchase Order records to determine the last price paid for an item or services during an annual reporting period. This task can now be done via Humanless Loops using AI instead of manually pulling down data, writing a query, or setting up a data integration. The key aspect of Humanless Loops is that it involves defining a desired outcome, and then letting AI figure out the activities needed to deliver the desired outcome at scale. Humanless Loops, in fact, can make the process of setting cost baselines in procurement for a set of items or services both dramatically scalable, and even continuous. This means that in the Predictive Enterprise, establishing the cost baseline for a single item and establishing the cost baseline for 100,000 items using the data analysis process steps described above should take nearly the same amount of clock time and calendar time, as well as the same amount of human effort: very close to zero.

Outcome-Based Process Re-Engineering

The third pillar of the Predictive Enterprise involves determining the most likely best case outcome of a process given the context, and then reverse engineering the required steps and sequence in order to deliver it.

For example, in traditional procurement it is common to refresh pricebooks with suppliers for existing catalogs of parts and materials. In contract manufacturing, procurement and sourcing teams will often set up a manual price refresh cycle with key suppliers that could run annually or quarterly. For large manufacturers, this price refresh cycle is done using a standard operating procedure in order to consolidate the process of receiving and updating ad hoc price changes from thousands of suppliers into a single, centralized workflow. This price refresh is done to create a common understanding on price between buyer and seller and therefore is not generally seen through the lens of negotiation.

However, if the most likely best case outcome of this process is to minimize the number of supplier price increases, then giving every supplier the opportunity to change every price during every price refresh cycle does not align with that desired outcome. By using AI to predict which suppliers are most likely to raise prices given the context of changing market conditions, and then re-sequencing the price refresh schedule to extend existing agreements earlier, procurement teams can deliver an outcome that avoids significant cost increases across thousands of parts and materials.

To be clear, this is what many procurement and sourcing teams already do. Running a price refresh cycle for a subset of suppliers has material cost advantages compared to running a one-size-fits-all process for all suppliers. The key is limiting or widening the scope of a given price refresh cycle so that it targets only the suppliers and spend categories where refreshing prices aligns with desired outcomes.

The Predictive Process Stack

The reason that the Predictive Enterprise approach is particularly exciting for large, global enterprises is that the bigger the organization, the more common it is to use a defined process or standard operating

procedure to facilitate group decisions and workflows. Just like a set of technologies is sometimes called a “technology stack,” I like to think of a set of processes that underlie organizational behavior as a “process stack.” A process is simply a list of ordered steps that tells users what to do to achieve a desired outcome. A good process stack lists out both inputs and steps in a defined sequence that accounts for dependencies and context. A good process stack is widely adopted, broadly accessible, and extremely repeatable. A good process stack has a lot of advantages for large enterprises, including:

- Creating clarity and predictability for how decisions get made and how work gets done
- Enabling everyone involved to have confidence and place trust in the outcome of the process
- Defining roles and goals of participants in the process, thereby creating accountability

Unfortunately, over time the process stack of larger organizations may experience bloat, which tends to multiply the administrative burden of the process across more people. You may have heard the phrase “too many cooks in the kitchen.” Steps are added to a process with the intention of increasing participation, transparency, and accountability for different stakeholders, but without necessarily adding value. This can lead to frustration and circumvention by the very individuals who the process was created to include and support.

The result is that over time, processes tend to get longer and more labor-intensive. The number of long meetings begin to multiply. In certain cases, the process gets so long and convoluted that the architecture of the process itself makes delivering a desired outcome all but impossible. A process that takes an unpredictable or extremely long amount of cycle time will give stakeholders a powerful reason to circumvent or avoid running the process altogether. As we’ll discuss in the following chapters, process bloat and circumvention is the exact opposite of what procurement and supply chain leaders want to see. It also creates financial value leakage, and at scale, process circumvention can even erode operating margin and competitive advantage.

Moving from a Traditional to a Predictive Process Stack

To understand the difference between a traditional process stack and a predictive process stack, consider the difference between an analog paper map and a predictive map like Waze or Google Maps. Analog paper maps are a lot like traditional processes at large enterprises today.

For thousands of years, analog paper maps worked great. Having an analog paper map is certainly better than having no map at all. But analog paper maps do not know where you are right now. They do not know where you are going or where you want to go. They don't know the traffic patterns or the weather conditions that may exist along all the different possible routes. And they cannot compare all the different routes to show you the fastest way to get from where you are now to arrive at your destination.

Now let's think about a predictive map, like Waze or Google Maps. The map knows where you are because of the geo-locator on your phone. When you move, the map can see you move. When you select a destination, the map scale zooms in to frame your local area based on the distance that you're traveling and the route you might take. The map isolates and highlights both the route and the destination. The map compares all the possible routes to your destination and shows you the fastest way to get there. The map modifies and updates that route based on real-time context like traffic patterns and weather conditions. Predictive maps powered by AI have changed the way many of us move through the physical world, from driving to walking to taking public transit. Could a predictive process stack similarly change the way that teams at large enterprises move through the world of group decision-making and process workflows?

Let's think for a moment about what that would mean. What if your process knew where you were and where you wanted to go? What if your process changed based on the target outcome? What if the steps in your process updated based on real-time context like market conditions, supplier relationships, and a dynamic ranking of potential alternatives?

How to Use the Predictive Enterprise to Advance Your Career and Win Your Market

This book is filled with stories and real-world examples you can take with you into meetings at your own company, whether you are an executive or an employee. You can share them to spark discussion and inspire projects that will help you build your own understanding of AI, design your own use cases, move your business forward, and advance your career. This book is written to allow you to approach the topic of AI in procurement and supply chain with hard facts and proven strategies rather than untempered exuberance or negativity.

My grandfather used to say that he would rather be lucky than right. He also defined luck as the moment where opportunity meets the prepared mind. I think that's a good way to reckon with the evolving landscape created by AI today. Rather than trying to be exactly right about what AI can or cannot do, it's probably more helpful to figure out which AI bets are the likeliest to pay off for your career and for your business. This book is written in that spirit, to help guide your areas of focus, to help you select proven use cases linked to measurable value, and to help increase your win rate on bets involving AI across your procurement and supply chain functions.

One of the perils of writing a book like this is that the news about AI changes every week. New models are released, new investments are announced, and new companies unveil new product offerings at dizzying speed. Humans have been inventing new technologies for thousands of years, but no technology in world history has ever evolved as quickly or been adopted by more people as quickly as AI. Therefore, being right about specific AI timelines, inflection points, and capabilities is not a reasonable expectation to have for this book. But that doesn't mean you can't create dramatic value using AI in your business as it exists today.

In other words, I wrote this book to help you be lucky, rather than to help you be right.

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Why AI Is Transforming Procurement and Supply Chain at Large Enterprises

“We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.”

—Amara’s Law, from the futurist Roy Amara

ALL ACROSS THE world, AI is arriving in our supply chains.

As I write these words, AI is feeding data into our dashboards, updating our demand forecasts, emailing our suppliers, checking our pricing, reviewing our contracts, and answering our questions about tariffs.

Like the day that AI first appeared in Google Search, as a blurb of bulleted text, AI’s arrival in our supply chains has been humble, and even a bit basic—less like a dramatic wave crashing over us and more like the gradual beginnings of a new season.

Executive leadership teams at large enterprises are now in the early days of this new season, which promises a vast AI paradigm shift in how supply chains work and how supplier deals get done. This book will help you understand what this AI paradigm shift in our supply

chains means for your organization, your career, and your relationship with your customers, your suppliers, and your team.

The numbers are quite compelling. Gartner estimates that in large enterprise supply chains: “. . . 95% of data-driven decisions are expected to be at least partially automated.” Gartner also expects that by 2030, at least half of all existing supply chain management solutions will contain “. . . intelligent agents to autonomously execute decisions in the ecosystem.” Capgemini’s 2025 annual study on enterprise AI adoption that surveys over 1,000 director-level or above executives at enterprises with annual revenues greater than \$1 billion called AI . . . “one of the fastest-emerging technology adoption curves in recent times.”

Over half of Capgemini’s respondents (58%) called AI “a paradigm shift for their organization’s productivity,” with 76% believing that AI will “. . . handle one or more complete business processes . . .” in supply chain and procurement within the next 3–5 years. The report summarizes the state of enterprise adoption: “AI is in transition. The technology is moving from isolated pilots to sweeping, mainstream adoption at an unprecedented pace.” Like the arrival of spring after a long winter, AI is popping up like dandelions in clumps across our economy.

Soon we may find that the AI spring is upon us, and the dandelions are everywhere.

Digital transformation in the supply chain is unique because it involves multiple organizations making changes in how they do business, rather than a single organization trying to change only the behavior of its own employees. Unlike previous waves of digital transformation that gave a lot more users access to a lot more systems, AI is actually removing the need for human users to take part in specific tasks, processes, and decisions. This is at the heart of the AI paradigm shift: removing human action as a dependency for process completion.

But that doesn’t necessarily imply that the aggregate demand for human labor in our supply chains will decrease. In fact, it’s quite possible for the exact opposite to happen.

Economist James Bessen was interviewed about the role of automation in taking or displacing jobs on the podcast *EconTalk*, and remarked: “So, what happened with textiles? During the nineteenth

century, if you look at the tasks of weavers, 98% of the work was automated; yet the number of weavers continued to grow. The reason was the greater degree of automation meant that the price of cotton cloth went down, and people started using more cloth. This is sometimes called Jevons Paradox, which states that when consuming a resource becomes more efficient, demand for that resource increases. In other words, what if the demand for AI-enabled human labor is actually much higher than the demand for human labor without AI is today?”

The effects of induced demand for labor resulting from labor-saving technology also appear to have impacted the number of bank tellers in the decade following the introduction of Automated Teller Machines (ATMs). As Bessen explains: “. . . the average bank branch in an urban area required about 21 tellers. That was cut because of the ATM machine to about 13 tellers. But that meant it was cheaper to operate a branch. Well, banks wanted . . . to increase the number of branch offices. And when it became cheaper to do so, demand for branch offices increased. And as a result, demand for bank tellers increased. And it increased enough to offset the labor-saving losses of jobs that would have otherwise occurred. So, again, it was one of these more dynamic things where the labor-saving technology actually created more jobs.”

It is also important to understand that automation generally has a different function in job roles where the core responsibilities include managing a human-to-human relationship, like a relationship with a customer or a supplier. In this book, I am going to share several cases where AI removes the need for a human to take part in a task, process, or decision, but that does not mean that human involvement won't add critical value to performing the job, or delivering an outcome. It also doesn't mean that a hybrid approach where human workers and AI are collaborating won't dramatically outperform AI deployed without human collaboration, supervision, or oversight. As famed AI luminary and investor Andrew Ng puts it: “For many jobs, AI will only automate or augment 20–30% of tasks. So, there's a huge productivity boost, but people are still required for the remaining 70% of the role.”

The truth is that automation is only one aspect of the AI paradigm shift in our supply chains.

To understand the true opportunity that AI creates, we need to look at an example of two technology businesses in the area of fast food: the automat and the drive-thru.

What We Can Learn about AI from Automats Versus Drive-thrus

Think about how the business performance of automats—essentially restaurant-scale vending machines—compared to drive-thru fast-food franchises like McDonald's over the past 100 years.

McDonald's is famous for using technology, operations research, and process engineering to systematically optimize the steps involved in food preparation to the point that each customer's meal can be prepared made-to-order in mere minutes.

Customer after customer pulls their vehicle up to the kiosk, places their order, and then gets served a piping hot meal in a paper bag via a drive-thru window.

Now let's contrast that customer experience with automats.

The first automat opened in 1902 on Chestnut Street in Philadelphia, the brainchild of Joseph Horn and Frank Hardart. Horn and Hardart envisioned a fully automated self-service restaurant with a 400+ item menu, welcoming diners with a satisfying cup of coffee dispensed from a coin-operated spigot. No hosts, no waitstaff, no servers. Put in a coin, open a door, take out your meal. Fill up your cup and take a sip.

At its peak, Horn and Hardart had 171 locations that served more than 750,000 daily customers. But the automat wasn't designed for the world of American car ownership, suburban commutes, and interstate highways. As a result, automats struggled to compete with the drive-thru craze and the rapid rise of the fast-food hamburger beginning in the 1950s.

While the automat was far more automated than drive-thrus, the automation prevented customers from customizing their orders. For postwar American diners, getting a burger cooked and served right off the griddle was the key to a satisfying fast food experience.

Customers voted with their wallets for drive-thrus over automats, despite the latter being much faster, and much more automated. Why? Because customers vastly preferred the fast food product that was enabled by the drive-thru experience. For most of the second half of the twentieth century, the automat was on the decline. The last Horn and Hardart automat closed in 1991.

Today, McDonald's serves more than 63 million daily customers at more than 44,000 locations worldwide.

The experience of going to a McDonald's is extremely optimized, and increasingly self-service, but at its core is the human service experience: cashiers, cooks, managers, and franchisees.

This contrast illustrates a key nuance of the current AI paradigm shift in our supply chains. Just because AI makes it theoretically possible to fully automate the ways that most people take part in our supply chains does not in any way mean that it is advisable or beneficial to do so.



People establish and maintain interpersonal relationships through trust and communicate contexts and nuances that are increasingly important in a world defined by volatility and complexity.

Person-to-person trust is especially relevant in a world awash with misinformation, social deception, phishing, and advertising. People also bind commitments and create accountability by being embedded in a web of complex social roles and responsibilities in ways that AI is not.

Consider that despite all the digital automation at our fingertips, most large organizations' preferred way to bind an agreement is still for a specific individual employed by the organization to place an incomprehensible scribble, representing their first and last name, on a document. Whether that document is paper or electronic often no longer matters. That scribble of a person's signature carries greater force and meaning than a million AI-generated emails.

What Person-to-Person Accountability Means as a Constraint for AI in Supply Chains

After interviewing hundreds of executives working in large enterprises while researching this book, I can say that no one I spoke with truly believes that AI is going to put us all out of a job. That is at least in part because global supply chains and supplier dealmaking depend upon supplier performance, which in turn depends upon agreements between individual people deciding to trust each other. Agreements are driven by trust and relationships, and trust and relationships require being embedded in social roles and responsibilities in ways that are uniquely human.

However, the flip side is that nearly every executive I spoke with for this book also believes that AI will dramatically change our ways of working, our value propositions, our organizational designs, and the talent profile that procurement, supply chain, and operations teams hire for over the next one to five years. And many of the executives interviewed are both proud and enthusiastic to be leading that dramatic organizational change within their enterprises.

The fact is, at many large enterprises, AI is not replacing people so much as making up for an acute shortage of skilled workers available to participate in a business decision or execute steps in a traditional process stack. And because of this fact, the alternative to using AI often

isn't hiring more people, since skilled workers with relevant domain experience are often unavailable to hire. The alternative to implementing AI is either overworking the existing team during peak times to the point of chronic burnout or experiencing painful delays and expensive operational failures.

Due to the path dependency of many of our supply chains on the single-threaded workflows of traditional process stacks, any delay in any single step can have the net effect of slowing down the end-to-end process. Delays create more delays. For this reason, there is a range of decisions at large enterprises that are getting slower and slower due to compounding labor shortages. At the same time, most global markets and customers are moving faster and faster. In other words, the default trend of a traditional process stack without AI is tilted toward less predictable, less repeatable outcomes with higher administrative burdens.

This is not what anyone wants.

In fact, while this trend toward leaner teams, greater complexity, and slower cycles is continuing, customers' expectations are trending toward greater and greater speed.

The center cannot hold.

The so-called Amazon Effect, where customers across industries often assume that product can be delivered next day or within two days because they can access these types of delivery speeds via Amazon, illustrates this quandary. There is never enough time to keep operational tempos moving faster and faster. That reality is only compounded by the administrative burden created by manual data form-fill System of Record technology or Excel spreadsheets attached to long email chains.

It is against this relentless backdrop that all conversations about AI in procurement and supply chain are now taking place: the truly unforgiving need for speed.