

PRODUCT MANAGEMENT

PRODUCT MARKETING

DATA SCIENCE

# the Pragmatic

SPRING 2019



the  
**ethics**  
issue

HARNESSING THE DEMON

## Artificial Intelligence, Ethics and Product

The Effect of Cognitive  
Bias on Our Decisions  
and Products

The Legal and Ethical  
Guardrails for Sound  
Competitive Intelligence

Ethical  
Practices  
in Pricing

# WELCOME

**M**OST OF US ARE TAUGHT from an early age—by our parents, teachers and even Big Bird—the difference between right and wrong. And there are social and penal pressures in place encouraging us to conform.

But who defines what is right and wrong for your company? Or your product?

How do we decide when or if is it unethical to make a profit or put a competitor out of business?

What even makes a product ethical or not? Could you name five ethical products? Would your colleague's list be the same?

Ethics in business is a big topic with a lot of gray areas and, sometimes, uncomfortable questions. But we owe it to our companies and our audiences to lean into that discomfort and explore both why we do what we do and how we do it. Our own professional reputations depend on it, as do the reputations of our organizations—and ultimately our customers.

Our new editor, Andrea Ozias, has put together a great lineup of articles that covers ethics across the spectrum, from gathering competitive intelligence to realizing the unintended—and ethically questionable—consequences of what we create.

We realize one issue can't cover everything there is to say about ethics. We also realize it's a topic that is critical in today's economy and for society at large. We welcome you to continue the conversation by sharing your thoughts and asking your questions on LinkedIn at [#PragmaticMagazine](#).



Rebecca Kalogeris | Editorial Director  
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Got a topic you'd like to see explored or an article you'd like to contribute? Reach out to Andrea and me at [editor@pragmaticmarketing.com](mailto:editor@pragmaticmarketing.com).

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Since 1993, Pragmatic Institute has conducted product management, product marketing and data science training for 8,000 companies on six continents. Our team of thought leaders produces blogs, webinars, podcasts and publications that product professionals around the world turn to for industry insights.

# the **ethics** issue



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# Q: How do you pivot when you're ready to change industries?



**A** S YOU PROGRESS THROUGH your career, it's natural to want to broaden your scope into a new industry. There are a handful of key steps you'll want to consider when the time is right for you.

First, make sure you've thoroughly researched the industry you're interested in and try to get a handle on information like customers, key products or services, major players in the industry, industry disruptors and whether the industry is in growth or decline mode.

Next, take an inventory of your skillset. That means everything from gathering market data to analyzing the best opportunities and effectively communicating. Regardless of the role you're in, both your hard and soft skills will show potential employers that you're capable of thinking strategically, understanding the business, working well with others and, generally, being successful.



Cindy Cruzado  
Certified Instructor,  
Pragmatic Institute

Also, review your portfolio of projects. What can you share with potential employers about your project successes? And remember those other projects that perhaps weren't as successful? Failures are great opportunities to show that you're capable of learning as well as rolling with the punches.

It's also a good idea to consider whether you need to enhance some of your skills. And while going back to school is great, that takes time and money. But you don't have to make such a big commitment. You can always enhance your current knowledge through online classes, certifications, industry-specific networking events, professional development courses and so on.

Once you have a good handle on your skills, think about how they translate to the other industry. When you showcase your capabilities and how you can leverage them in a new industry to address its pain points, it becomes easier for others to see your potential. Additionally, it's helpful to use the Pragmatic Framework in discussions with potential employers to highlight your competencies. And if the interviewer is a Pragmatic alum, it immediately puts you on the same page. The questions stop being about, "Is this person familiar with our industry?" and start being about, "How can we harness this person's expertise and what they already know into a growth strategy?"

Confidence is key to successfully influencing potential employers to see your ability to contribute and deliver. At the same time, be careful about over-selling yourself. Be realistic about what you're willing to take on in a new role. For example, perhaps switch industries or move from product development to product marketing ... but don't try to take on both changes at the same time.

Finally, it's important to remember that, regardless of industry, companies have plenty of *product* experts. What they need are *market* experts. Take some time to look introspectively and figure out how you can leverage your current expertise to both you and your new industry's advantage. **✍**



Remember that, regardless of industry, companies have plenty of *product* experts. What they need are *market* experts.



Do you have a question for our experts?  
Send us an email at [experts@pragmaticmarketing.com](mailto:experts@pragmaticmarketing.com).



AMAZING

# Atlanta

**THE 10TH LARGEST ECONOMY** in the United States and the 18th largest in the world, Georgia's capital ranks No. 4 in the number of Fortune 500 companies' headquarters within its city limits.

It's also one of the first cities to host Pragmatic Institute's newest course, *The Business of Data Science*. Whether you're attending the course later this year or plan to visit the city for another reason, here are some must-see spots to include on your itinerary.

Interior of Georgia Aquarium, the largest aquarium in the United States.

## Georgia Aquarium

[GeorgiaAquarium.org](http://GeorgiaAquarium.org)

Tens of thousands of animals in more than 10 million gallons of water are at home in this aquarium, a nonprofit scientific institution that entertains and educates. Of note, the facility houses whale sharks, beluga whales, African penguins and bignose unicornfish. Yes, bignose unicornfish.

## Atlanta Botanical Garden

[atlantabg.org](http://atlantabg.org)

Renowned plant collections, beautiful displays and spectacular exhibits make this garden a destination spot for horticulturally minded, nature-inspired and fun-seeking people to come together to feel human again. The garden includes 30 acres of outdoor gardens, an award-winning Children's Garden, a canopy walk and Skyline Garden.

## Martin Luther King Jr. National

[Historical Park](http://HistoricalPark) | [nps.gov/malu](http://nps.gov/malu)

A unit of the National Park Service, the park preserves, protects and interprets the places where one of the most influential Americans of the 20th century was born, lived, worked, worshipped and buried. The park

consists of several buildings, including Martin Luther King Jr.'s boyhood home and the Ebenezer Baptist Church, where King was baptized and both he and his father served as pastors.

## CNN Studio Tours

[tours.cnn.com](http://tours.cnn.com)

The CNN Center is the world headquarters of CNN. Visitors can take advantage of a variety of tours, from an exclusive, behind-the-scenes view of CNN's headquarters access to HLN Morning Express and the opportunity to meet Robin Meade. True news hounds can even take a VIP tour, which includes expanded access into live newsrooms, the HLN control room and state-of-the-art CNN studio.

## Bury the Hatchet

[BuryTheHatchet.com](http://BuryTheHatchet.com)

If darts have gotten a little too humdrum for your tastes, check out Bury the Hatchet. Friends, family and co-workers get together over drinks to throw axes. And while it may seem strange, axe throwing dates to 7th century Vikings who practiced and used axe throwing for survival. Don't worry; professionals are onsite to help you wield your weapon.

## The Fox Theatre

[foxtheatre.org](http://foxtheatre.org)

One of Atlanta's premier venues for live entertainment, this former movie palace is the centerpiece of the Fox Theatre Historic District. In 1928, the Fox was conceived as home for Atlanta's Shriners organization, which looked to ancient temples of the Far East to inspire a mosque-style structure befitting their stature. It still houses the "Mighty Mo," the 3,622-pipe Möller organ, which is the largest Möller theater organ in the world today.

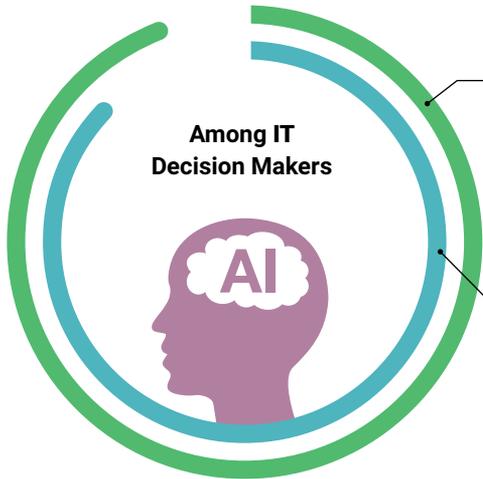


# ETHICAL AI

TECHNOLOGY LEADERS CALL FOR MORE ACCOUNTABILITY



**ETHICAL AND RESPONSIBLE AI DEVELOPMENT** is a top concern for IT decision makers, according to the latest research from SnapLogic, an intelligent integration platform provider. The research studied the views and perspectives of U.S. and UK IT decision makers across industries.



**94%**

believe more attention needs to be paid to corporate responsibility and ethics in AI development

**87%**

believe AI should be regulated

**32%**

said regulation should come from a combination of government and industry

**25%**

said regulation should be the responsibility of an independent industry consortium

**AMONG THOSE WHO OPPOSED REGULATION,** their reasoning was evenly split

Regulation would slow down AI innovation

AI development should be at the discretion of the organizations

## RESPONDENTS SAID FAIR RULES

and protocols can be established to ensure the ethical and responsible development of AI by:



An independent global consortium composed of representatives from government, academia, research institutions and businesses

**16%**



Governments in the countries in which the AI systems are developed

**11%**

**WHO IS ULTIMATELY RESPONSIBLE FOR ENSURING AI SYSTEMS ARE DEVELOPED ETHICALLY AND RESPONSIBLY?**

**53%**

Organizations developing the AI systems

**17%**

Individuals working on AI projects

DID YOU KNOW?

# 90%

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THE FUTURE OF BUSINESS

# ARTIFICIAL INTELLIGENCE, ETHICS AND PRODUCT

BY  
ANDREA  
OZIAS

**S**TEPHEN HAWKING WARNED THAT FULL ARTIFICIAL INTELLIGENCE could spell the end of the human race, and Elon Musk compared AI to summoning a demon. But, after attending a robotics challenge in which most robots couldn't open a door—much less carry out other, similarly simple tasks—MIT professor and pioneering roboticist Rodney Brooks recommended, “If you're worried about The Terminator, just keep the door closed.”

Regardless of whether you're an AI believer or already have your off-the-grid safe house prepped, there's no arguing that technology is developing at a pace that can't be ignored—making it critical that those who develop AI-based products have a strong understanding of the broader implications.

## THE PRODUCT MANAGEMENT/AI COLLABORATION

Military strategist and U.S. Air Force Col. John Boyd developed the OODA loop cycle:

- Observe: actively absorb the situation
- Orient: understand blind spots and biases
- Decide: form a hypothesis for action
- Act: test your hypothesis

This is what product managers do daily, according to Drew Dillon, a freelance product leader who has presented on the topic of “Product Management Ethics in AI.”

“The product manager's job is to observe the problem, orient themselves to the value they can provide, decide what to do and then do it,” he said.

But when AI enters the equation, there is less product-manager intuition involved, Dillon said. In fact, a machine-learning capability might be able to surface problems itself based on data it's been fed, and a human decides what to do from there. A more autonomous system may go beyond simply surfacing problems to acting on its own. Then it's up to a human to fine-tune the output.

“I don't think product managers need to be technical, in the same way that a painter doesn't need to be a chemist,” Dillon said. “But, like a painter, product managers need to understand the nature of the tools they're using and the capabilities of those tools. It's about understanding the inputs and outputs and how we can be effective with them.”

## THE CHALLENGE

While simpler expert systems may make life easier by automating certain tasks, things become stickier when machine learning enters the picture.

For example, across the nation judges and probation and parole officers use risk-assessment tools built on algorithms to assess a criminal defendant's likelihood of becoming a repeat offender. A group of researchers analyzed the commercial risk-assessment tools developed by consulting and research firm Northpointe Inc., which



### Defining AI

ARTIFICIAL INTELLIGENCE is any system that causes a computer to make a well-informed decision based on something it's reacting to. And it's under the AI umbrella where expert systems and machine-learning systems live.

Expert systems are designed to solve problems by processing data and applying logic, all based on a set of if-then rules programmed by a human expert. Traditionally, expert systems have sought to automate tedious and time-consuming tasks.

“If applied well and in the right way, the automation of menial tasks ensures that people find more dignity in their work,” said Drew Dillon, a freelance product leader who has presented on the topic of “Product Management Ethics in AI.” “The benefit is that machines can do this menial work faster and easier.”

While expert systems do only what they're programmed to do, machine-learning systems sit at the other end of the spectrum. In these systems, programmers input data and the machine-learning system uses algorithms that continually learn and adapt as they are fed more data—without requiring a list of if-then rules to follow.



offers software products, training and implementation services to criminal justice systems and policymakers. The researchers conducting the analysis found Northpointe's tools to be biased, with black defendants being twice as likely as white defendants to be misclassified as a higher risk of violent recidivism. And white violent recidivists were 63 percent more likely to have been misclassified as a low risk of violent recidivism compared with black violent recidivists.

In another example from earlier this year, the U.S. Department of Housing and Urban Development (HUD) announced it was charging Facebook with violating the Fair Housing Act by "encouraging, enabling, and causing housing discrimination through the company's advertising platform." HUD alleged that the social media platform unlawfully discriminated based on race, color, national origin, religion, family status, sex and disability by restricting who could view housing-related ads on Facebook's platforms and across the internet. Further, HUD claimed Facebook mines extensive data about its users, then uses those data to determine which of its users view housing-related ads based, in part, on those protected characteristics.

In yet another example, 25 AI researchers issued a statement in April calling on Amazon Web Services (AWS) to stop all sales of its Rekognition facial-recognition technology to law enforcement agencies until legislation and safeguards are in place to protect civil liberties from "the often-biased algorithms used in such systems," wrote GeekWire's Tom Krazit. The researchers' request came after a similar May 2018 request from the American Civil Liberties Union.

Matt Wood, general manager of deep learning and AI for AWS, and Michael Punke, the company's vice president for public policy, argued for Rekognition's benefits and defended the company's technology in response to the researchers' request. But the researchers pushed back, saying that "Caution, concern and rigorous evaluation—sensitive to the intersecting demographics that affect human-centric computer vision for images—are even more pressing when considering products that are used in scenarios that severely impact people's lives, such as law enforcement."

Each of these examples showcases the biases that machine-learning algorithms have developed as systems have continued to learn. But how did these biases occur? What causes an unemotional piece of technology to exhibit unethical tendencies?

"All of these systems are created by humans, and we're inherently flawed," Dillon said. "The data in and of itself is biased because it was collected by a human, and that human had to make choices."

Otis Anderson, a data scientist and colleague of Dillon's, said it succinctly: "All data has an opinion. You can't trust the opinions of data you didn't collect."

Dillon offered the example of time-stamping data. A multinational organization may choose to time-stamp transactions in Pacific Standard Time, and a human may see data that reflects random transactions happening in the middle of the night. In reality, the transactions may have occurred in another time zone during that region's regular business hours. The choice to time-stamp transactions in Pacific Standard Time was made by a human.

“There are so many things in the data that you can’t understand because the people who programmed the systems don’t work there anymore or you can’t know the rules around how or why data was formatted in a certain way,” Dillon said.

The business implications of taking ethics lightly are significant, regardless of intent. In his paper, “The Ethics of AI: How to Avoid Harmful Bias and Discrimination,” Brandon Purcell, principal analyst serving customer insights professionals for Forrester, noted that customer-insight professionals who lead data science teams that create biased models risk:

- Damaging their organizations’ reputations
- Incurring regulatory fines and legal action
- Seeing a dip in revenue as customers make decisions with their dollars

And ethical and responsible AI development is a top concern for IT decision makers, too, according to recent research from SnapLogic, a commercial software company that provides integration platform as a service tools. Among the U.S. and UK IT professionals surveyed, 94 percent said they believe that more attention needs to be paid to corporate responsibility and ethics in AI development, and another 87 percent said they believe AI development should be regulated. (See “Ethical AI, Technology Leaders Call for More Accountability” on page 4.)

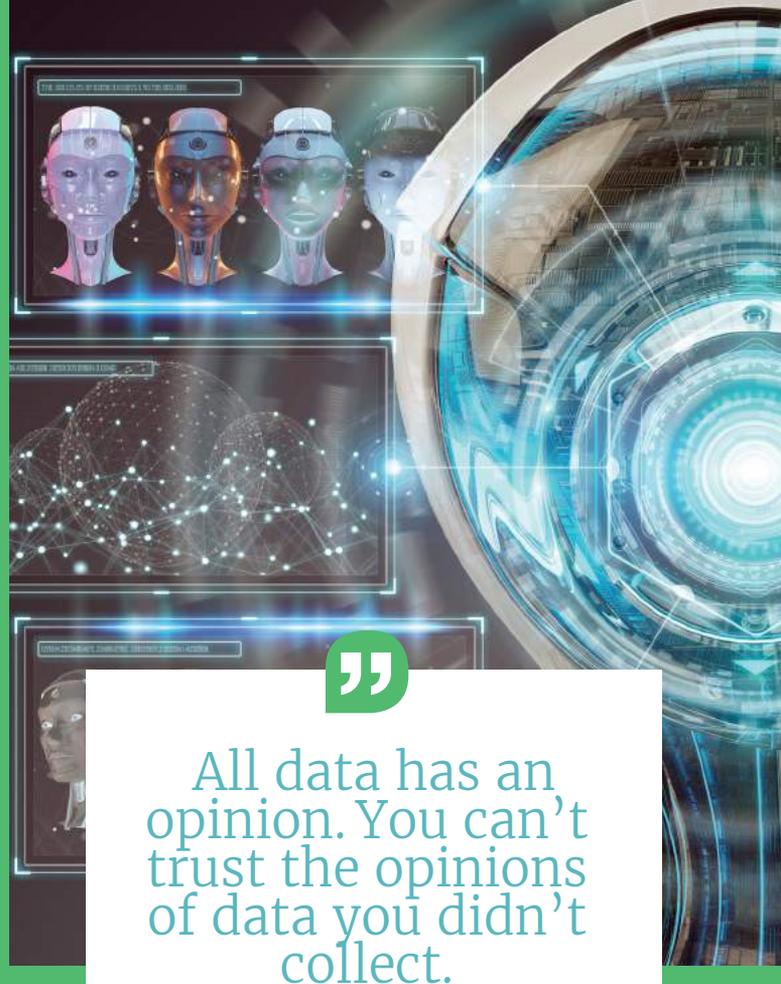
“AI is the future, and it’s already having a significant impact on business and society,” said SnapLogic CEO Gaurav Dhillon in a statement. “However, as with many fast-moving developments of this magnitude, there is the potential for it to be appropriated for immoral, malicious or simply unintended purposes. We should all want AI innovation to flourish, but we must manage the potential risks and do our part to ensure AI advances in a responsible way.”

### ETHICAL AI IN ACTION

Axon, which develops technology and weapons products for law enforcement and civilians, is taking steps to mitigate ethical risks.

“Our company’s foundation is around helping society and doing it ethically,” said Moji Solgi, Axon’s vice president of artificial intelligence and machine learning. “As technology gets more powerful and more capable, the importance of ethics also increases.”

Axon created an AI and Policing Technology Ethics Board in early 2018 to advise the company on the responsible development of AI technologies. The board is composed of external experts from a variety of fields including AI, computer science, privacy, law enforcement, civil liberties and public policy. Its members provide



”  
All data has an opinion. You can’t trust the opinions of data you didn’t collect.

guidance to Axon on the development of its AI products and services—and look closely at the effect of those products and services on communities.

Based on a recommendation from its ethics board, earlier this year Axon announced the implementation of a full-day implicit-bias training for its employees that is similar to training that police receive. Working with a third-party provider, employees—including Solgi’s AI team—will be familiarized with the types of procedures and work law enforcement personnel go through every day. Staff then will be trained on implicit-bias situations and their respective counter-mechanisms.

“Law enforcement officers go through this training so that their subconscious and implicit biases don’t affect their work,” Solgi said. “We thought our employees, researchers and technologists should go through a similar bias training so our subconscious and implicit biases won’t reflect in the way we build these technologies.”

Axon doesn’t have a set list of ethical guidelines that developers refer to when building new products. Rather, the company relies on a set of operating principles that drives the type of transparency it delivers to the ethics board. Beyond that, the company has a set of cultural values with ethics woven into each.

“Making something that is ethical is really something intangible and deep down in the way that people operate and think,” Solgi said. “Converting something like that to



a set of checklists isn't going to be the best approach. It has to be deep in the culture, and then you have to rely on people to be ethical in their work."

Though law enforcement personnel don't have many AI tools in their hands today, as more automated technologies become part of the workflow, the issue of bias will be important, Solgi said. "When these machines or models are trained on data sets that are biased—be it trained on certain demographics or ethnicities—when you deploy this in the real world, given the diversity we have in the real world, it's not going to perform well in certain situations."

### A WAY FORWARD

"I think most people and most organizations are well-intentioned," Solgi said. "At the same time, when we are developing these technologies, you always have a lot of blind spots and that is, again, innocent mistakes. As someone who has a purely technical background, I can tell you that, in our training and in our backgrounds, most of the people who develop—engineers, researchers, technologists—they have not thought too deeply about the ethical aspects of their work. So, what's important for leaders and executives and boards of directors is how to infuse these ethical principles into the day-to-day work so that, once a product is out there, it's gone through different levels of due diligence in terms of ethics."

Dillon asserts that inclusion must be a fundamental rule of any AI system so that if a system starts to pull out a group and treat it in a way that is less positive than the broader user group, it's something to look at as an ethical violation. Feedback loops are critical for this, he said.

"We can't teach the machine about broader racial or gender issues, but we can reason about those things if it provides that data back to us," he said. The problem, he went on to say, is that many machine-learning systems aren't storing data or giving much feedback to analyze—yet.

Solgi offered his thoughts on how organizations should approach the implementation of ethical practices in AI-based products:

- **Create an advisory board:** Assign a group to review the ethical aspects of technology development. "It's important for these boards to be composed of people outside of the company," he said. "Employee boards are also beneficial, but not nearly as when you get a fresh perspective from people who are completely independent."
- **Be mindful:** Starting at the C-suite, it's important for companies to be aware of ethical issues and to look for ways to mitigate. This can include implicit-bias training, courses, book clubs or anything else that will raise awareness about the ethical aspects of technology. "This movement is already big in the tech industry, but we still have a long way to go," Solgi said.
- **Educate the public and consumers:** Many people hear the words "machine learning" and "artificial intelligence" in the news, but that's different from having a basic understanding of how these technologies are developed, what they mean as well as their limits and shortcomings. "The technology industry could do a better job of being proactive in terms of that education so that the citizens who are participating in this open democracy can decide for themselves what product and what technology they should be using."

And, at the end of the day, the No. 1 thing to remember when attempting to harness the AI demon is that implementing systems with the intent to learn about audiences or build better products boils down to the people who are doing the work.

"The only way you combat the conversion of a human into a bunch of numbers is with more humanity," Dillon said. "And that's kind of what we need." **■P**

### About the Author

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# IT'S ALL IN YOUR HE

**I**N A SOCIAL SCIENCE EXPERIMENT, WHEN SURGEONS EXPLAINED to patients that a needed operation had a 90-percent five-year survival rate, 82 percent of patients chose to have the operation. Conversely, when told there was a 10-percent likelihood of death within five years post-surgery, only 54 percent of patients opted for the operation.

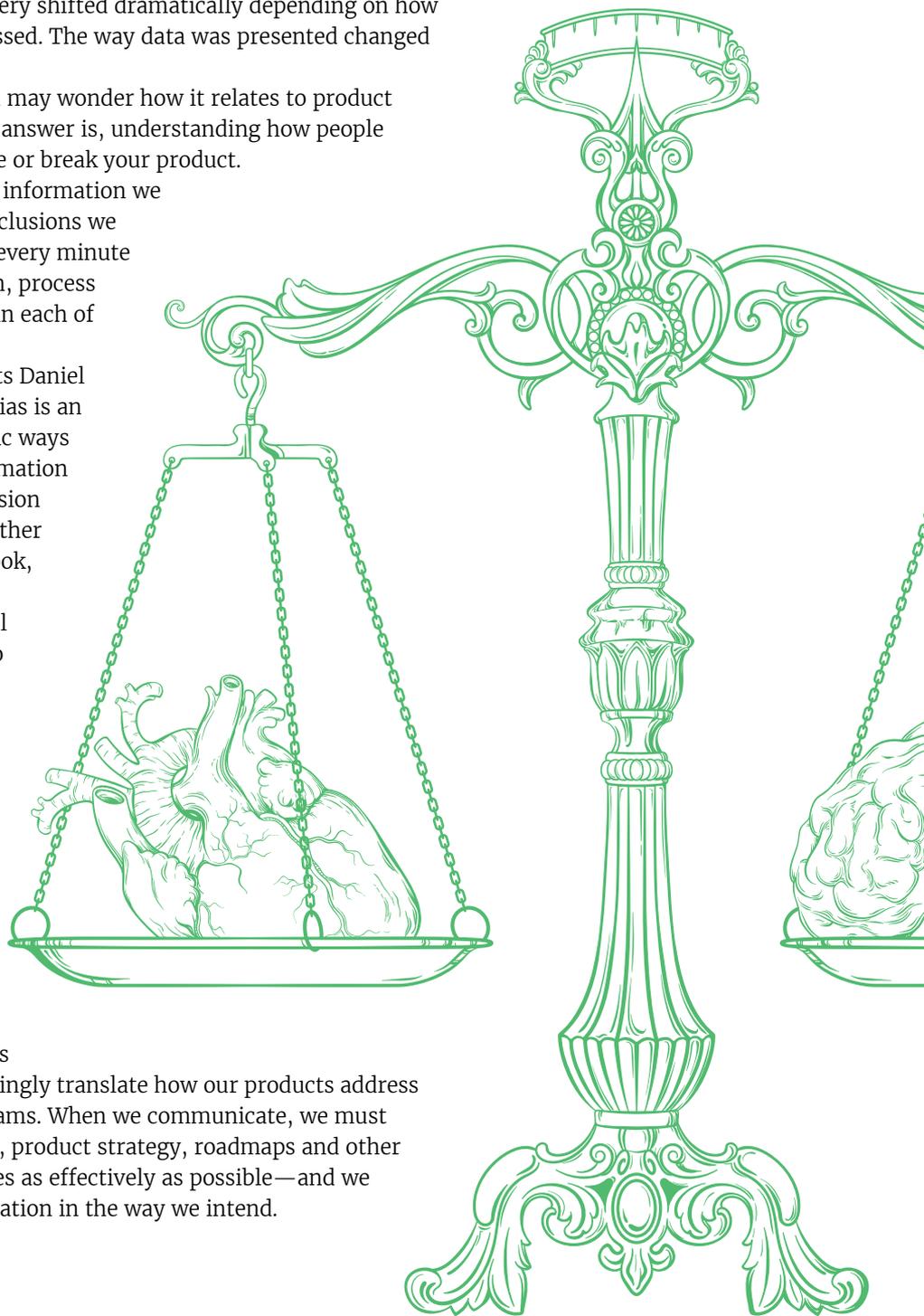
The odds of survival never changed; it was always 90 percent. Yet, the percent of people who chose to go forward with surgery shifted dramatically depending on how risk was explained, interpreted and processed. The way data was presented changed how people reacted.

While it's an interesting anecdote, you may wonder how it relates to product management and product marketing. The answer is, understanding how people process and react to information can make or break your product.

Our subconscious constantly filters all information we gather in some way, and it affects the conclusions we draw—this is true for everyone. Virtually every minute of our waking lives we receive information, process information or give information, and it's in each of these stages when cognitive biases arise.

Originally developed by social scientists Daniel Kahneman and Amos Tversky, cognitive bias is an umbrella term that refers to the systematic ways in which the context and framing of information influences individuals' judgment and decision making. Simply put, cognitive biases—further articulated in Kahneman's best-selling book, *Thinking, Fast and Slow*—are shortcuts to decision making that deviate from rational objectivity. They also have the potential to result in suboptimal decisions. And how people gather and use information in decision making may be related to how they evaluate their options.

In product management, we constantly gather information from a variety of sources. And regardless of whether we like it, our perception is clouded by cognitive biases that act as filters through which we view and interpret the world. Yet, our job is to understand what current and future customers need, communicate those needs throughout the organization, and compellingly translate how our products address those needs to the marketing and sales teams. When we communicate, we must disseminate messages, value propositions, product strategy, roadmaps and other concepts to internal and external audiences as effectively as possible—and we want our audiences to process this information in the way we intend.

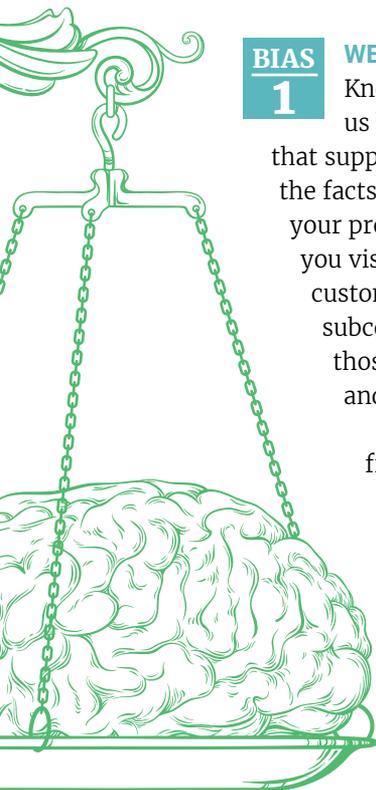


## The Effect of Cognitive Bias on Our Decisions and Our Products

BY NEIL BARON AND  
ROBERT HATCHER

For example, consider the term “power user.” When our minds conclude that someone is a power user, we’re likelier to give more credence to his or her comments. Or, if a user is viewed as “unsophisticated,” his or her feedback may be invalidated to some degree. Bias also manifests itself in unconscious ways, such as the proverbial “happy ears,” which leads to only hearing what we want to hear and disregarding the rest.

Wikipedia lists more than a hundred different types of cognitive biases, most of which affect our ability to make rational decisions. But let’s consider just three that certainly affect us as product managers.



### BIAS 1 WE HEAR WHAT WE WANT TO HEAR

Known as confirmation bias, this has us believing and focusing on facts that support our beliefs while ignoring the facts that don’t. Perhaps you believe your product needs a new feature, so you visit with several customers. The customers talk and you listen, but your subconscious gives more weight to those customers who agree with you and dismisses those who don’t.

Additionally, because we frequently search for evidence to support our ideas, we may subconsciously fall into the trap of asking questions that support our theories. For example, you hear a customer say, “That’s interesting,” in response to a potential new feature. Because this is something you’d like to see implemented, you may only consider a positive

interpretation of the word “interesting.”

Confirmation bias also causes us to think we know answers before we’ve even asked the questions—if we even ask them at all! Our subconscious is telling us, “That’s silly! Of course our customer needs this.”

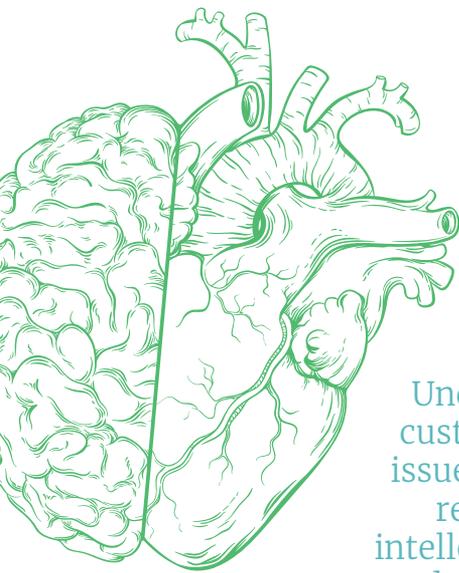
### Tips for Dealing with Confirmation Bias

- Before talking with a prospect or customer, create a list of questions to guide the conversation. Don’t assume that you know the answers to any of these questions. The goal is to engage your prospect or customer in an intelligent conversation. Asking what seems to be an obvious question sometimes can reap big rewards.
- When possible, conduct these interviews with a partner or third party, and then review what you heard immediately after the interview. This allows you to review the conversation with someone else, helps identify any biases and validates the information you gathered. It’s amazing how often people can be in the same conversation and hear radically different things.
- Get your notes on paper as soon as possible. Relying on your memory alone could lead to reintroducing biases into the mix. (The verbatim bias tells us that memories aren’t exact copies; rather, they are representations shaped by our emotions.)
- When collecting responses and drawing conclusions, ask yourself two questions: “Are the conclusions I’m drawing supported by what the interviewees actually said?” and “If I were an unbiased third party, would I draw these same conclusions?” You also may want to involve an unbiased third party in the data analysis.

### BIAS 2 LAZINESS IS HUMAN NATURE

Known as the law of least effort, this bias states that if there are multiple ways to accomplish a task, it’s human nature to choose the one that requires the least effort ... even if it’s the least effective. The effort we seek to minimize can be mental or physical, and it’s true for us and for our consumers.

We spend our working days thinking about our company and our products. We know our company’s history, mission statement and office locations. We know our products’ features inside and out. None of these details take a lot of mental energy for us; it’s all top of mind. Meanwhile, our customers probably don’t care about the company’s history or office locations—they want to know how our products will solve their problems. But, because



## Understanding our customers' business issues and challenges requires a lot of intellectual horsepower and emotional energy.

we know our products so well, at times we can overlook or forget to convey these details. We force customers to do a lot of the mental heavy lifting to figure out our products' features. Make it easy on your customers. Instead of using jargon, use simple language, storytelling and examples to make your point.

Conversely, it's hard work for us to understand our customers' business issues and challenges. This requires a lot of intellectual horsepower and emotional energy, and yet these are relatively easy issues for our customers to express. Their challenges and needs are at the top of their minds, and it's our responsibility to make it easy for our customers to understand how our products and services will help them solve their day-to-day issues, drive their business and achieve their goals.

### *Tips for Dealing with the Law of Least Effort*

- Mental work is tough, but you can use it to your advantage. Incorporate common metaphors to describe your products and services. Use stories to get your point across. Minimize the technical jargon and be aware of the curse of knowledge: The more expert we are, the more difficult it is to communicate with nonexperts.
- Always come back to the business problem your product or products solve. Go beyond taking the easy path (discussing features only) and help customers see how our products will help them address their issues. Show the connection between the product and the problem it's solving.

**BIAS**  
**3**

### **WE DON'T LIKE CHANGE**

A preference for the current state is known as status quo bias, and it is tightly coupled with another major bias, loss aversion, in which we fear losses more than we value gains. The current state is

the reference point, and any deviations from that point are perceived as a loss. Kahneman and Tversky have demonstrated in numerous experiments that fear of a loss is twice as powerful as the satisfaction of a gain.

Remember: A customer may be reluctant to change—even if your product can deliver significant advantages or is a big improvement over the customer's current state. Even if the customer is unhappy with how the current product works, time and energy already have been invested into learning it, and your customer may not be open to learning something new. Your company has its sights set on product success, but customers' status quo bias often explains why your product fails to meet those internal expectations.

### *Tips for Dealing with Status Quo Bias*

- Clearly document the reasons why your customer may want to consider making a change. Are those reasons compelling? How do you know?
- Take time to truly understand why a customer may prefer the status quo, and then document the true costs of implementing your solution. These costs must include standard financial costs—training, implementation time, product costs, service fees, opportunity costs—as well as emotional costs, such as the risk of failure, looking foolish, decision regret and implementation delays. For each of these reasons, develop strategies for mitigating the risk of making the change.
- Because people are willing to pay more to avoid a loss than they are to achieve a gain, it's important to convey to the sales and marketing teams how your products will prevent a loss for your customers.

### **CLEAR YOUR PRECONCEPTIONS**

As much as we think we are rational human beings, we are in fact flawed and biased. Unless we are self-aware and careful, bias will creep into the way we receive, process and give information. While there are hundreds of biases to which we may subconsciously fall victim, confirmation bias, the law of least effort and status quo bias each change the way original communication is received or understood, and therefore, are particularly critical for product professionals. And remember, it's not just our own biases that we need to heed, but the biases of those with whom we are communicating. **■**

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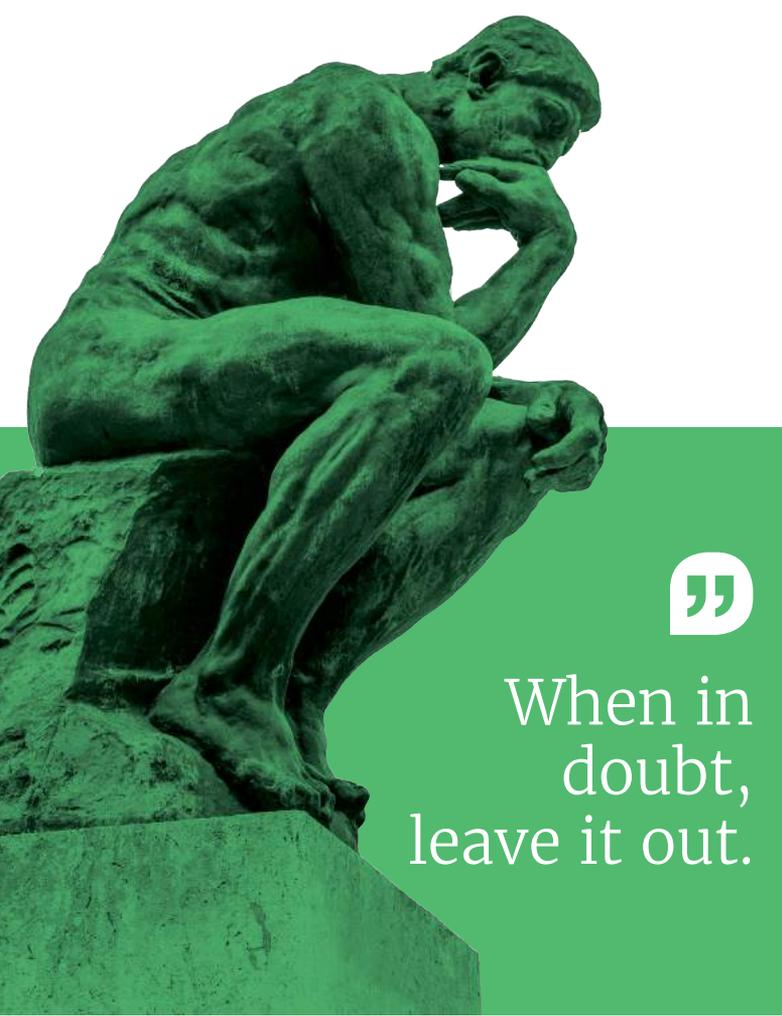
# THE LEGAL AND ETHICAL GUARDRAILS FOR SOUND COMPETITIVE INTELLIGENCE

BY MARC LIMACHER AND  
LARRY FAUCONNET

**D**EFINING PRODUCTS TO BRING TO MARKET, selecting the right markets and determining how to optimally position your products to succeed requires a deep understanding of your customers, partners, markets, competitors and other environmental factors. In short, it requires competitive intelligence (CI).

As a product marketer or manager, you may not think of yourself as a CI practitioner. But CI provides actionable intelligence that powers informed product and marketing plans. And naturally, you seek a competitive advantage by being the first to know or access unique, hard-to-find information.

Everyone wants that competitive advantage. But practicing CI collection and analysis requires awareness of the limitations to acquiring and using information that may live in a gray zone—not fully in the public domain, but not a corporate secret, either. It requires great care to understand what information may be legally collected, and how to collect it ethically.



When in  
doubt,  
leave it out.

Discussing corporate ethics is commonplace. But mentioning *the ethics of CI* can set a darker tone. Perhaps the term “intelligence” is the culprit, suggesting shadowy figures engaging in clandestine and espionage activities. This, of course, is a common misconception about CI.

Following are factors to consider in your CI practices—no cloak and dagger needed. At the core, what you *can* do (legally) and what you *should* do (ethically) are two sides of the same coin. Both the *can* and *should* are guardrails you must consider. Here, we draw on more than 50 years of combined experience as CI practitioners and providers to recommend practical considerations regarding the ethics of CI. As with any recommendations, they should be filtered through your own company’s requirements.

#### WHAT YOU CAN DO

The legal aspects governing CI are established. Not everyone knows about them, but you should: Lack of information can result in unintentional violations that cause significant corporate and/or personal fallout. Learn and follow your company’s requirements regarding laws that affect CI gathering for all countries where you do business.

For example, in the United States, key relevant federal statutes include the Uniform Trade Secrets Act (UTSA) and the Economic Espionage Act of 1996 (EEA). Both address theft or misappropriation of trade secrets, and violations carry high penalties. There are other U.S. statutes to consider, too. For example, antitrust regulations are an issue if two competing entities discuss market division and/or pricing; and fraud, which generally refers to misrepresenting yourself or your purpose to gain information. Countries outside of the

United States have their own—often more restrictive—legal statutes governing these and other factors.

In practice, you may encounter situations in which interpreting statutes like these is open to ambiguity. Along with strictly following your company’s requirements, when in doubt, leave it out. It’s always better to take the high road. And, though it should go without saying, local statutes addressing inappropriate activities, such as breaking and entering, trespassing and theft, also apply to CI gathering.

The practice of engaging third-party CI vendors on your behalf can carry benefits—from freeing your team’s resources for more strategic work to obtaining candid, sponsor-blind information you can’t get directly. Remember, though: Your vendor must follow the same laws as your company. If it’s proven that you pushed a vendor to violate the law, your company remains responsible. Conversely, engaging a vendor that exhibits questionable conduct themselves can hurt your company’s reputation.

It’s important to vet the longevity and history of a CI vendor to ensure they can be trusted to follow your company’s requirements and adhere to high ethical standards themselves. As a start, screen for cease-and-desist orders or other related legal conflicts in their operating history.

**WHAT YOU SHOULD DO**

Next, consider what you *should* do—or shouldn't, even if it's legal. It's easy to bump into the gray zone when you want to understand the competitive landscape and its players beyond publicly available information. This is when you must decide what's acceptable in pursuit of these insights.

Brand protection is a key reason that companies establish corporate ethics. You are, of course, responsible for adhering to your company's ethical guidelines to protect the brand. Likewise, the discipline of CI has its own ethical guidelines established by the organization of Strategic and Competitive Intelligence Professionals (SCIP) to protect the CI brand. The net: Follow both your corporate ethics and CI-specific ethics. The credibility of the guidance you provide to your leadership depends on it.

Even within these guidelines, navigating ethics takes care—especially when collecting competitor information that, while you don't believe it to be a corporate secret, isn't shared openly. Pricing, salesforce compensation, development and marketing timelines, bundling strategies and so on may not be corporate secrets. But each is more

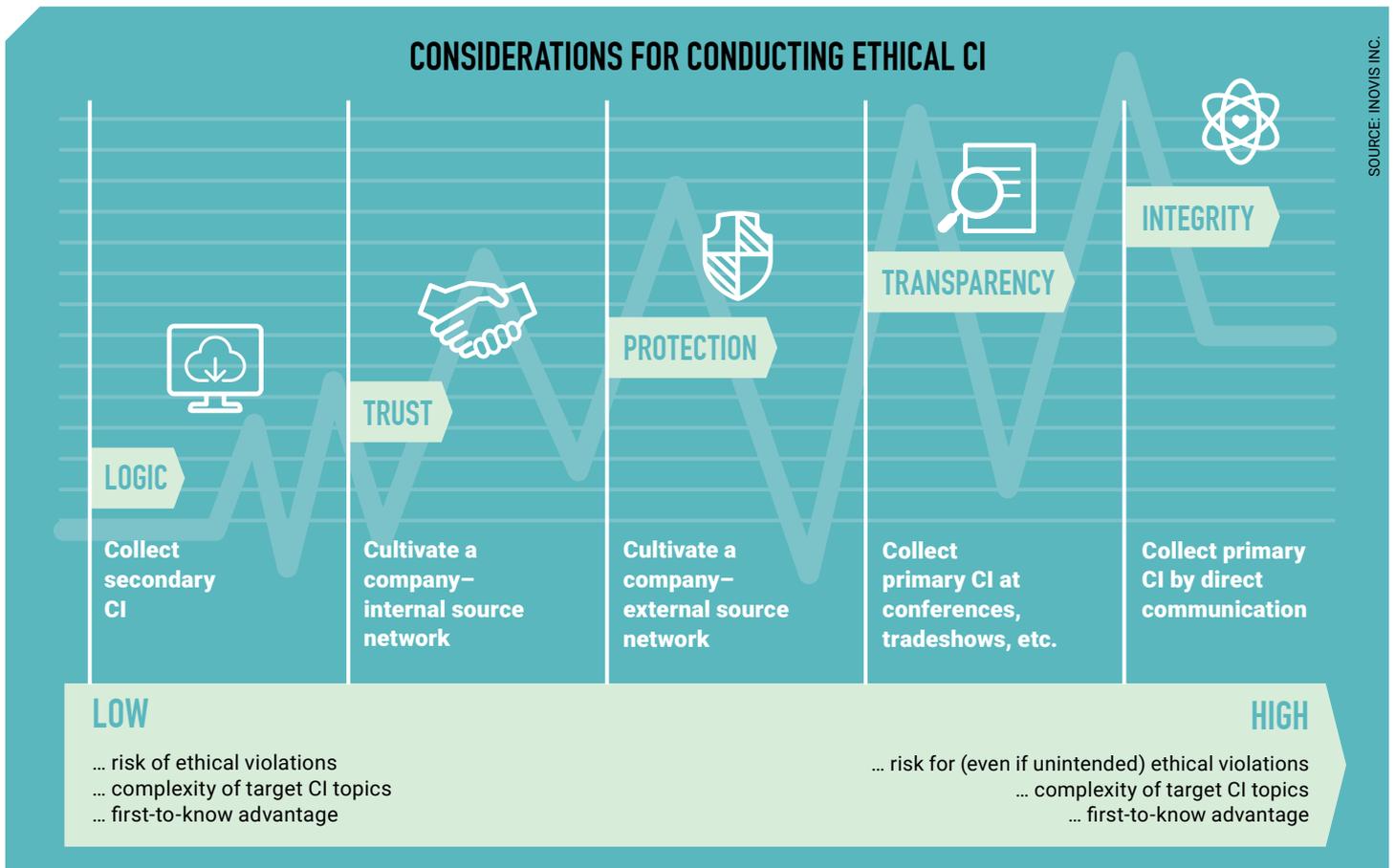
protected than other information that's available in public documents.

For example, a B2B contract may not be a corporate secret, but the issuer may not want it shared with competitors. You may want the pricing information in it, but CI ethics dictate that you don't misrepresent yourself or your purpose to get it. And, specific to pricing, if your company is in a dominant position, asking vendors for pricing information and acting on it may be viewed as anticompetitive.

Additionally, as with the legal aspects of CI, it's important to consider ethics from the perspective of the culture in any country where you will collect CI. Some countries set a higher ethical bar in collecting CI than others, requiring additional care—and potentially different methods, such as face-to-face interviews vs. phone-based ones—in your inquiries. This must be factored into your timelines and expectations.

**MAKE THE GUARDRAILS WORK FOR YOU**

Putting the can and the should together, there are day-to-day ways to apply these principles.



## Collect Secondary CI

Getting CI from publicly available sources, the public domain or open source, is the simplest CI work. It carries little to no risk of CI ethics violations. Of course, you or any competitor can easily do this—so the first-to-know advantage is minimal. Ethical considerations still apply: For instance, when you request gated content that

requires registration, ensure that you don't misrepresent yourself, and allow the provider to decide whether to give it to you. If the provider chooses to not give you the information, you may want to consider engaging a third-party provider to request it themselves and summarize it for you.

### Cultivate Internal Company Sources

Collecting CI from internal company sources, such as field or

support employees, also is generally low-risk. However, the employees who contribute insights should follow all legal and ethical guidelines. For instance, employees hired from a competitor must honor any nondisclosure agreement signed with the previous employer and should not be pressured to disclose information that would violate that.

### Cultivate an External Informant Network

With external sources, using a give-and-take approach (both seeking information from external sources when needed and sharing information with them to keep an active dialog and maintain their willingness to help you) can be used to gather intelligence, as opposed to acquiring intelligence in a purely opportunistic way. This carries slightly higher risk, requiring adherence to all ethical and legal guidelines in any information that you share.

### Tradeshaw and Event Intelligence

Events are rich environments for collecting information on competitors. They also provide more opportunity for CI ethics violations. Often, new product iterations are unveiled and key announcements are made. These are excellent opportunities to query competitors about their latest

products, what's in the pipeline or what new corporate announcements mean for the business. It's OK to approach booth representatives to ask. It's not OK to pretend to be someone else, like a customer, when you do it.

Misrepresentation now can lead to problems later. Leave it to the representatives to share what they're comfortable with. And using a third-party vendor who's not tagged with your company badge can be helpful at times. Your vendor must not misrepresent herself, but she doesn't need to disclose you as a client.

### Primary Intelligence Collection by Direct Communication

In the world of CI, the term primary intelligence refers to information that comes directly from an original source, such as phone interviews, emails or face-to-face interactions. This work yields the highest first-to-know competitive advantage—and requires the greatest care in adhering to CI ethics.

Ethics dictate that you don't misrepresent your identity or intent when collecting this information. It can cast a shadow on your corporate brand, the brand of the CI discipline and the integrity of the insights you've gathered. Expressing honest interest in the topic usually is enough to get more information.

As a sound CI practice, conduct your analyses based on information triangulated from multiple sources, including open source, subscription, syndicated and primary, to create meaningful insights about the competitive landscape. Lying, misrepresentation and theft simply aren't required—and they are unacceptable.

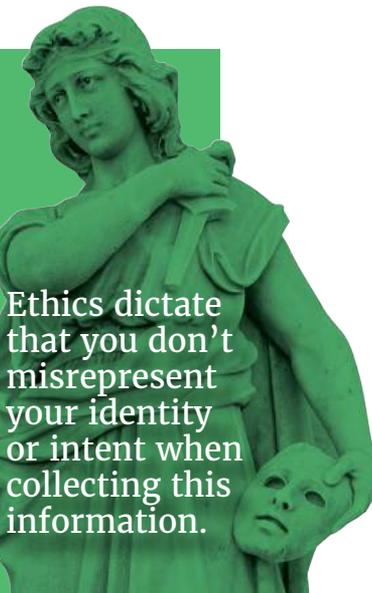
### COMPLEX BUT SIMPLE: DO THE RIGHT THING

CI ethics sounds rightfully complex. Staying within the guardrails to ethically practice CI requires care, but there is a common principle that runs beneath the complexity: If it feels wrong, it probably is. Remember the headlines approach: "If you don't want your mother to see it in the news, you probably shouldn't do it." Don't lie, cheat or steal to gain information on your competition. Follow applicable laws and ethics guidelines when you seek information that isn't publicly accessible, and you'll be ready to reap the benefits of ethically obtained CI. **IP**

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Ethics dictate that you don't misrepresent your identity or intent when collecting this information.



IDENTIFYING

# ETHICAL PRACTICES IN PRICING

BY MARK STIVING

**P**RICING AND ETHICS ARE TWO WORDS rarely heard together. Ethics is about being fair. Pricing is about capturing as much value from your buyer as possible. What could possibly be ethical about pricing?

In defense of the pricing profession, most pricing is extremely ethical and most pricers act ethically. In any transaction, both parties enter into it willingly, and both are better off after the transaction. That seems ethical to me.

For example, say a company makes a product that costs \$100 to build. It will only sell its product at a price that is more than \$100. A buyer has a problem that the product solves, and that problem costs her \$500. She will only buy at a price below \$500. At any price between \$100 and \$500, both parties are better off if the transaction occurs.

Seems fair and ethical. But there are many pricing tactics and strategies that seem unethical. Figure 1 on the next page plots those tactics on a chart, showing how common they are and how ethical they seem.

## SEGMENTATION

Price segmentation is a common practice. Do you think the person sitting beside you in an airplane paid the same price you did? That's price segmentation. Do you use coupons? That's price segmentation.

But some people view the act of charging different prices to different consumers for the same product as unethical. From a pricing perspective, price segmentation aims to get people who have a higher willingness to pay, to pay more. And a lot of good can come from price segmentation. For example, U.S. markets pay more for certain prescription medications that are sold at a lesser price in developing countries. While it seems unfair on its

face, in some cases, without the U.S. market paying the price it does, certain drugs might not be available at all.

At the same time, price segmentation by race or gender is much more ethically questionable. For example, a big-box retailer carried baby dolls that came in two different races. The white baby doll was more expensive than the black baby doll. And, while it likely happened because of pricing automation software (rather than a person deciding prices), it reflects poorly to segment prices based on race.

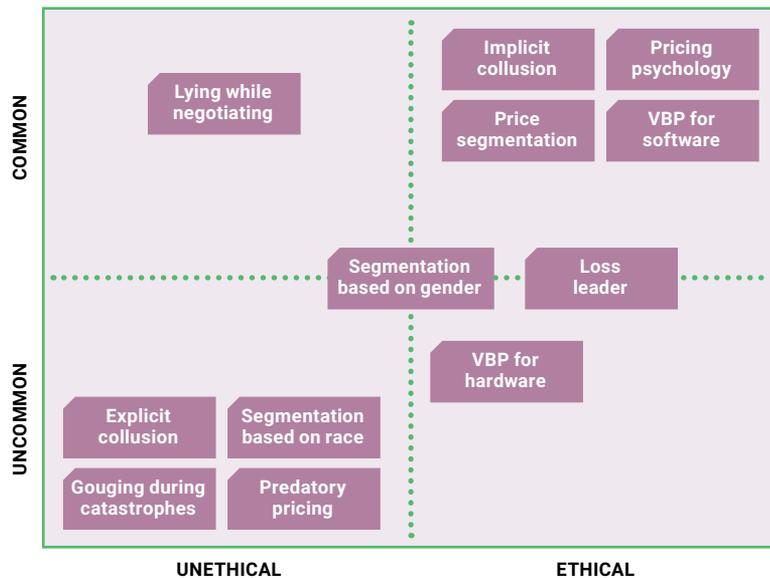
Yet, price segmentation by gender is a different story. Articles have run in the mainstream press arguing against higher prices for women's products like deodorant or shampoo. However, young men pay more for auto insurance. People tend to believe, "If I have to pay more, it's unfair." Price differences based on gender fall in the middle on the ethics scale. Although arguments can be made for and against such practices, it's likely better to avoid this form of segmentation if possible.

## PSYCHOLOGY

Pricing psychology takes advantage of people's biased decision making. If a company can trick you into bad decisions, is that ethical? For example, evidence shows that people view prices that end in 99 as a good deal. If companies price products that aren't a "good deal" and end them in 99 cents, are they misleading buyers? Companies use these tactics because they work, not to intentionally trick buyers. In fact, most companies don't know why they work. Even though they work, the impact these tactics have on buyers' decisions is relatively small compared to the rational thought process of how much buyers value the product.

Figure 1

## What's Ethical?



predator raised prices to monopolistic levels, then new competitors would enter the market. As consumers, we should welcome predatory pricing because it provides much lower prices for a time, and the threat of much higher prices rarely (if ever) materializes.

### GOUGING

Probably the most hated pricing behavior among consumers, gouging happens when a seller spikes the prices of goods, services or commodities to a level higher than is considered reasonable or fair and is considered exploitative. For example, after a natural disaster, bottled water is precious. Everyone wants it and would pay almost anything to get it. Convenience stores could raise the price of its inventory to ridiculously high levels and people would pay it. That said, consumers would be angry and likely hold a grudge.

### COLLUSION

If competitors talk and conspire to keep their prices high, this is known as collusion—and it's both unethical and illegal. All companies involved are gaining at the expense of buyers. Called explicit collusion, people go to jail for this activity.

However, there also is implicit collusion, which is common and ethical. In this case, it is possible one company could lower its prices and, in the short term, likely gain market share. However, the competition is also likely to adjust its prices to regain any lost market share. Then, both firms make less money. Because both companies know how this will play out, neither lowers their prices. It's almost as though they called each other to discuss it, but they didn't. Both firms are independently doing what's best for themselves. This seems ethical—as long as the rules of free-market competition aren't broken.

### LYING DURING NEGOTIATIONS

You've likely heard the joke, "How do you know when a salesperson is lying? His lips are moving." To be fair, there are a lot of ethical salespeople. There also are those who lie during negotiations. The most common unethical behavior, salespeople often justify lying by correctly stating that the purchasing agents with whom they negotiate also lie. A more ethical approach would be to sell the value of the offering and not give in on price.

### PREDATORY PRICING

Predatory pricing occurs when a company uses its dominant position in the market to price its product below cost with the intent to drive competitors out of business. Once competitors are gone, the predator is free to raise prices.

The funny thing about predatory pricing is, it doesn't work. If everything worked exactly as described and a

Another example is medical gouging, which is challenging to identify. What if the next drug a pharmaceutical company develops can save a thousand lives and costs \$1 million to develop? That's \$1,000 per life in cost. Now add a little profit plus a big multiplier for the research and development not only for this new drug, but also for any projects that didn't result in a valuable drug. If the drug company charges \$2,000, that's a big number for consumers. But, without a big number, that drug—or many other drugs—would never be developed. After a drug is developed, it's easy to say, "It only costs \$10 per pill to make. They're gouging their customers."

Conversely, consider the examples of EpiPen and Daraprim. The price of an EpiPen went from \$100 for a two-pack to more than \$600. And the price of Daraprim was raised from \$15 to \$750. These price increases don't seem ethical because the pharmaceutical companies had already established a market price that they believed would cover their costs. In these cases, the companies are gouging because they can, and because they have monopolistic positions. While the economist in us may say this feels like a weak argument for calling this behavior unethical, the human being in us says the label feels right.

### A WIN-WIN

When you consider the millions or billions of transactions that happen every day, the majority reflect ethical pricing. The art of pricing goes beyond ethics; it's magical. It allows sellers and buyers to find that common point where both parties are better off than before the transaction. Yes, there are some bad apples out there, but we shouldn't assume the whole bushel is tainted. **IP**

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**20** A Simple IoT Framework for Product Managers

**SELL MORE STUFF**

**28** Overcoming the Four Hurdles to Product Launch Success

**32** The Do's and Don'ts of Starting (and Running) a Win/Loss Program

**LEAD STRATEGICALLY**

**36** The Unintended Consequences of Products that Work Too Well

**IMPLEMENTATION**

**38** Going with More Than Your Gut

**41** Put this issue's ideas into action

# A SIMPLE IoT Framework FOR PRODUCT MANAGERS

BY DANIEL ELIZALDE

IN THIS ARTICLE, I PRESENT AN **IOT FRAMEWORK** TO HELP PRODUCT MANAGERS TACKLE THE COMPLEXITY OF IOT PRODUCTS. THIS FRAMEWORK PROVIDES AN EASY-TO-FOLLOW STRUCTURE TO UNCOVER REQUIREMENTS AT EACH LAYER OF THE IOT STACK, INCLUDING BUSINESS DECISIONS, TECHNICAL DECISIONS AND MORE.

**P**RODUCT MANAGEMENT FOR AN Internet of Things (IoT) product can be very daunting and confusing, even for the most seasoned product managers. That's because IoT products are more complex than your average product, since you need to consider the complexity of five layers of technology: device hardware, device software, communications, cloud platform and cloud applications.

Not only do you need to make critical business and technical decisions at each of these five layers, but you also need to make sure this myriad of decisions is consistent with your overall strategy and consistent

across the five layers. This exponentially increases the difficulty of managing an IoT product.

To help product managers tackle this complexity, I developed an IoT Decision Framework, which provides a structured approach to creating a robust IoT product strategy. What I mean by that is, this strategy is all about making decisions. The IoT Decision Framework helps you understand the areas where you need to make decisions and ensures consistency across all of your strategic decisions.

My IoT framework will help you uncover pitfalls early on, before you have invested time and money in the wrong direction with your product.



I've seen it firsthand when seasoned product managers from top Silicon Valley companies attend my IoT strategy courses, either online or at Stanford University, as well as with my consulting clients.

Throughout my courses, participants drastically alter their product strategies as they work through the IoT Decision Framework. It helps them uncover questions they otherwise would not have considered—questions that could make or break their products.

To get started with the IoT Decision Framework, let's take a look at the five layers of the IoT technology stack.

### The 5 Layers of the IoT Technology Stack

The greatest challenge of managing an IoT solution is that there are five layers in the IoT technology stack, and decisions need to be made at each layer.

In a previous article, "Internet of Things: A Primer for Product Managers," I describe these five layers in detail. For reference, the five layers are device hardware, device software, communications, cloud platform and cloud applications.

To put things in perspective, a SaaS application only includes two layers: cloud platform and cloud applications. Those two layers alone are usually

enough to keep any product manager on their toes. So you can imagine how adding three extra layers becomes exponentially more complex because you have to make decisions at each of these layers and make sure your decisions are consistent across all five layers.

As an IoT product manager, it can be very daunting to know where to start or how to organize your thoughts. One of the hardest parts is knowing which questions you should be asking.

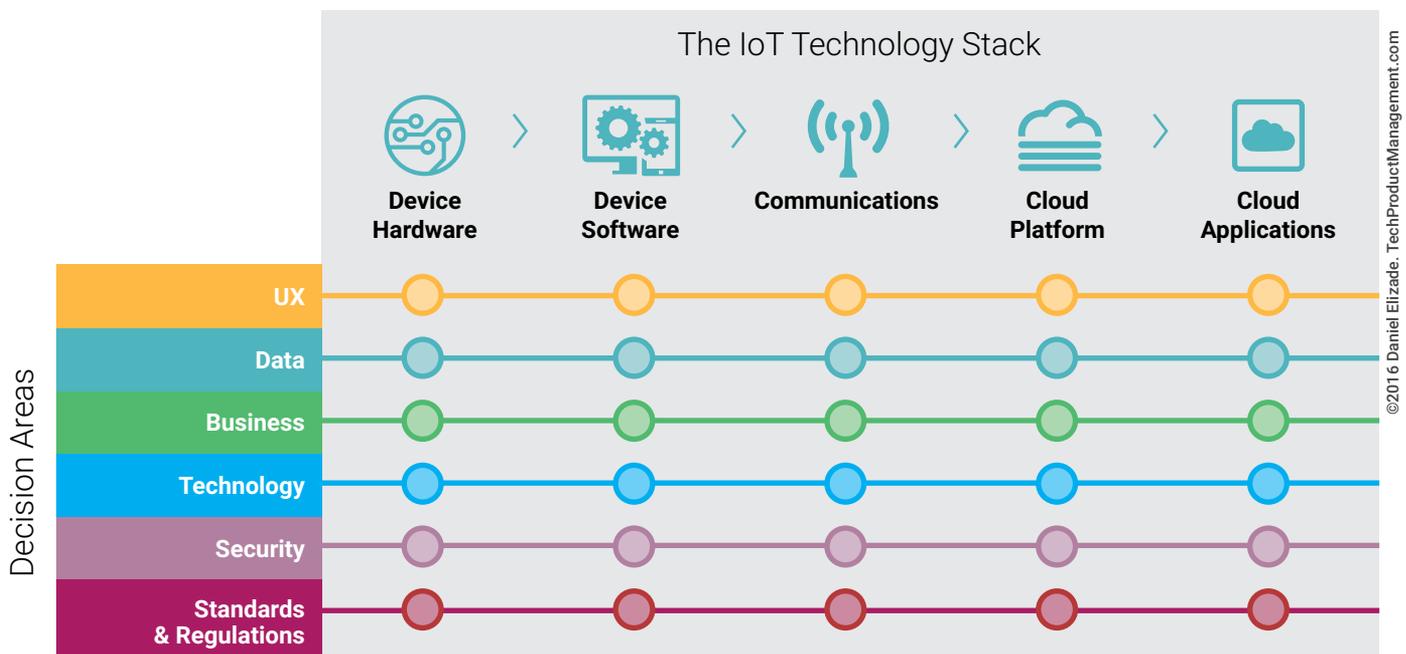
### The Solution: An IoT Framework for Product Managers

The IoT Decision Framework provides you with a **structured approach to uncover the questions you need to ask** and navigate across the various departments to make the best decisions for your product.

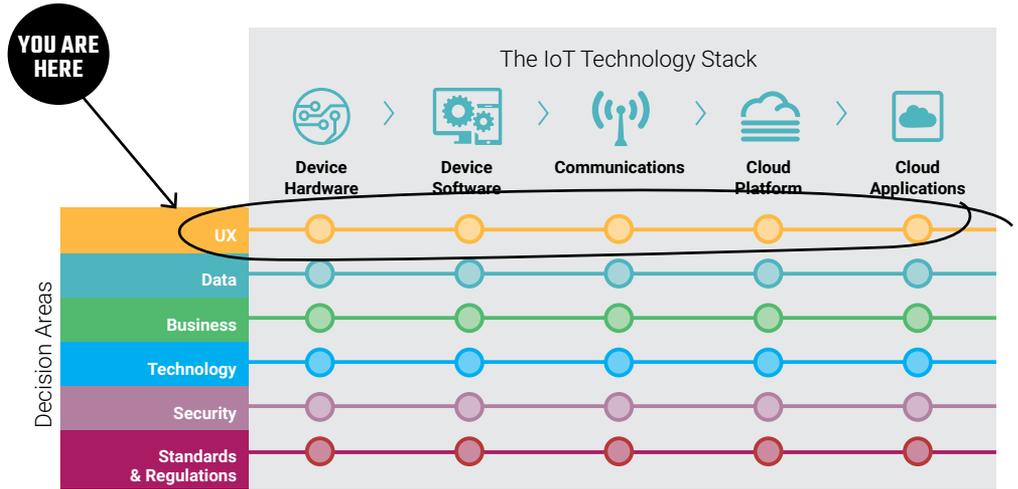
Think of it as a map to help you discover all the necessary considerations as you build your IoT business plan, roadmap, backlog, etc.

The IoT Decision Framework focuses on six key decision areas you need to consider for any IoT product. These areas are user experience (UX), data, business, technology, security, and standards and regulations.

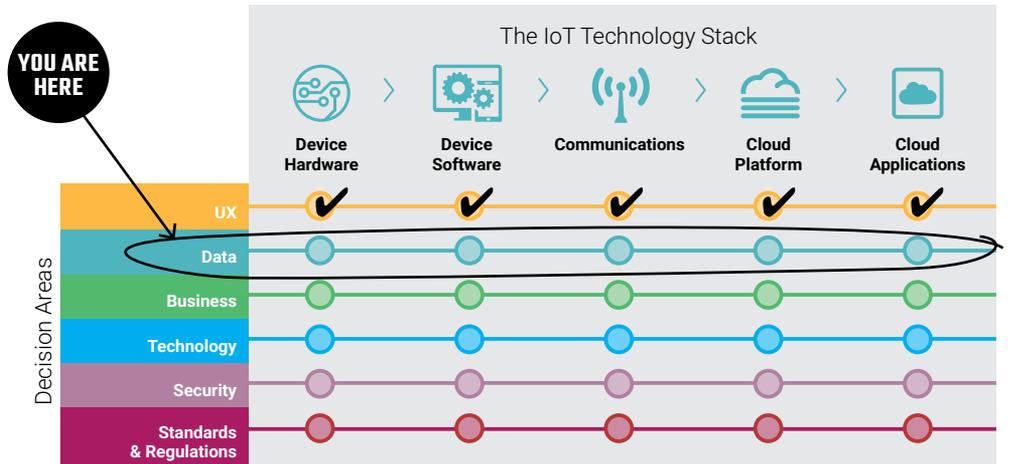
## The IoT Decision Framework



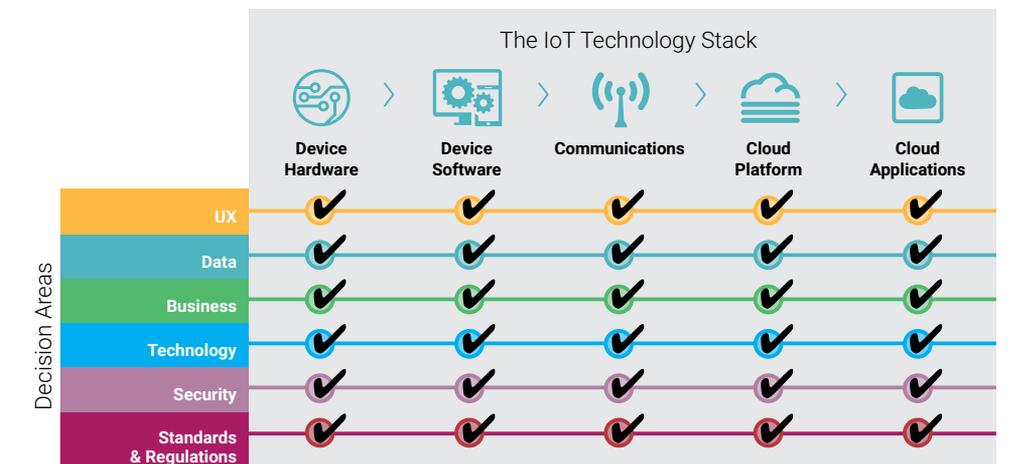
Each of these decision areas must be evaluated at each layer of the IoT technology stack. You'll start with UX and work with your teams to discover what makes for a great user experience at the device hardware layer, then at the device software layer, then at the device hardware layer, and so on.



Then you can move to the data decision area and explore data considerations for your device hardware, data considerations for your device software, and so on.



Once you are done with the data decision area of the IoT framework, you can move to the business decision area. You get the idea. Continue through the framework left to right and top to bottom until you cover all areas.



I know this sounds like a lot of work, and it is. But believe me, you'll be glad you spent the time thinking about the implications of all decision areas throughout the IoT stack before you start building anything. That's how you'll create a consistent product strategy and learn about all the gaps that need further refining.

Each bubble in the IoT Decision Framework is an

opportunity to use product management tools to make decisions and discover gaps—tools like market research, design research, customer development, prioritization, Lean, NPI, etc. This framework is not a replacement for any of those. On the contrary, it provides you with a map and a structure for your discovery process.

## The Decision Areas of the IoT Decision Framework

It is very important to go through the IoT framework in order. Each of the decision areas is organized so that the information you collect in one area informs the subsequent area. I recommend you start with the UX decision area because your goal is to understand your user's needs first and then move to the other decision areas.

Let's take a closer look at each decision area of the IoT framework.

### 1 User Experience (UX) Decision Area

In this area, you need to understand who your user is, what their needs are and what would make for a great experience at each layer of the stack. Don't worry about the technical details at this point. Just think about what this person wants, not how you will deliver it.

Plus, you'll want to consider the needs of secondary users, like your internal fleet operations team, developer partners, sales team, installers and more.

### 2 Data Decision Area

The goal of the data decision area is to help you define your overall data strategy. In a nutshell, you need to decide how data should flow through the stack to fulfill the user's needs.

For example, what type of data does your device need to produce? How much data should be transmitted to the cloud and how often? Do you need to perform analytics at the edge, in the cloud or both?

### 3 Business Decision Area

The goal of the business decision area is to help you determine whether your product idea has financial potential. In other words, will you be able to make money?

Based on the user and data decisions you made in the previous decision areas, you can now begin to make business decisions that will feed into your business plan and financial projections.

For example, you'll need to decide your overall business model and which layers of the IoT technology stack you will monetize, as well as understand the costs of providing your service at each layer of the stack. You'll also make critical business decisions such as whether to build or buy each layer of the stack and whether to open APIs.

### 4 Technology Decision Area

Based on the decisions you made in all previous areas, it is time to work with your technology teams to decide what technology is needed at each layer to deliver the final solution. The key here is not to choose the technology yourself, but to provide your engineering team the information and requirements they need to choose the best technical solutions.

Together with engineering, you'll identify which sensors, device hardware and software are needed. You'll design a communications topology and decide on communications protocols.

You'll work with your team to choose a cloud platform

based on data needs and performance requirements. And you'll decide on the form factors of your cloud applications that best fit your user's needs.

### 5 Security Decision Area

Once you've worked with your teams to select the implementation technology, it is time to decide how to secure each layer of the stack.

The goal of the security decision area is to help you think about how each layer could be compromised and how to respond when your devices are hacked. You'll also need to decide whether you'll implement security testing in-house or with a vendor, and how to protect your product from being hacked from inside your own company (by employees or unwanted guests).

### 6 Standards & Regulations Decision Area

During the last stage of my IoT framework, you'll identify the standards and regulations that will affect your product at each layer of the stack, based on your type of product, customer and industry.

For example, does your industry have a standard data format or communications protocol that will enable your product to talk to other devices? Do your customers require you to meet certain device safety or cloud security requirements? What laws must your product comply with at each layer?



Iterate several times throughout the IoT Decision Framework to make sure you find a balance across all the areas.

### Iterate, Iterate, Iterate

There are a lot of decisions that you will need to make during the life of your product. You can't expect to get them all right in the first pass. Therefore, it's important for you to iterate several times throughout the IoT decision framework to make sure you find a balance across all the areas.

The choices you make in each decision area and IoT technology stack layer will impact all of the other decision areas and stack layers. You'll need to iterate several times across the framework before you reach a solution that is consistent with all the areas and has considered all the gaps.

For example, let's say that in the data decision area, you decide that ideally, your product would provide real-time data to your user. In the business area, you outline the costs of providing device hardware, device software and a cloud platform that can handle real-time data. And that's when you



realize providing this service will cost more than what your customer is willing to pay.

So you go back and decide that receiving data once per minute will be sufficient to meet your user's needs. Then you work through the UX, business and technology decision areas once again to make all your decisions consistent with the new once-per-minute approach.

An IoT product is more of a system than a stand-alone product. Everything is interconnected. By using this framework, you can make sure the decisions you make across all layers are consistent.

### Questions to Ask at Each Decision Area

You may have noticed that in this article, I'm only including the IoT framework, and I'm not including a list of questions that you should answer in each decision area. That's because the exact questions will depend entirely on your industry, application and goals for the particular release you are working on.

For example, the questions you'll need to answer for a brand new product or MVP will be very different from the questions you'll need to answer for a mature product or even for a "version 2" product.

My IoT framework is intended as a tool to help you organize your thoughts and come up with the questions you need to answer as you develop your product strategy.

### How to Get the Most Out of the IoT Decision Framework

#### When to Use this IoT Framework

You should use this IoT framework after you have done the preliminary product work, including defining your target audience, detailing your value proposition, analyzing competitors and estimating the revenue opportunity.

Once you have a solid idea of how an IoT product can add value to both your company and your customers, then you can use this IoT framework to guide you through the decisions you will need to make at each layer of the IoT technology stack to support your overall goals.

This article is republished with permission from Daniel Elizalde, an independent IoT product coach.



An IoT product is more of a system than a stand-alone product. Everything is interconnected.

You can also use the IoT Decision Framework when you are:

- Creating your business plan
- Defining your MVP
- Building and managing your roadmap
- Defining new features
- Considering a product-line extension
- Evaluating potential partnerships
- Analyzing the risks of changing any area of the technology stack

#### Work as a Team

Product managers are accountable for having a strong and consistent product strategy. But that doesn't mean you should make your decisions in isolation. This IoT framework gives you an opportunity to collaborate with various departments to develop a common understanding of what the product will be.

Start by identifying who needs to be involved in creating your product strategy. Lead strategy workshops to make sure everyone is aligned; host working sessions with various departments (UX, engineering, finance, etc.) to gather information, generate questions for the framework, and discuss options; and get feedback from stakeholders and executives.

The result will be a stronger, more consistent strategy and a deeper level of support from your peers and executives.

#### The Bottom Line

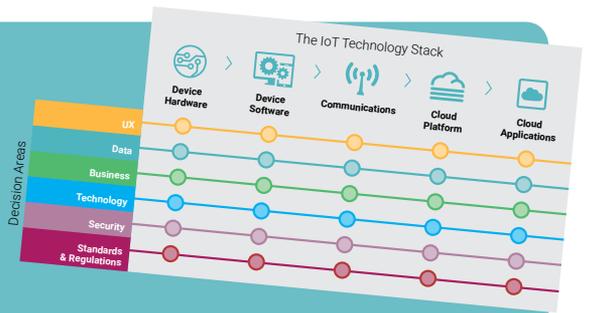
IoT products are more complex than most other technology products. Using the IoT Decision Framework can help you organize your thoughts, identify opportunities and pitfalls, achieve consensus and release the right solution faster. **IP**

#### About the Author

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# IoT Decision Framework

## FREQUENTLY ASKED QUESTIONS



### Is this IoT framework designed for consumer or industrial IoT products?



This framework can be used with both. It is true that consumer and industrial products have different outcomes, different processes and different ecosystems. Although the process for creating those products is different, the process of creating the IoT product strategy is the same.

I know this because more than 1,200 professionals have completed my IoT product management courses and have taken this knowledge back to their companies in all industries, verticals and types of products.

### Can I use the IoT Decision Framework for IoT product development?



The IoT Decision Framework is designed to help you with product strategy, not with product development.

However, the strategy informs your development process, so you need to understand the information the framework provides you before you jump into any development.

If you complete each component of the IoT Decision Framework, your team will have a much better sense of direction for your product; your product development process will be much more efficient, and you will deliver products to market faster and with less wasted development effort.

### How long does it take to complete all areas of the IoT Decision Framework?



If you already have all the information, it can take as little as an hour to go over the framework. For

example, if you know who your target audience is, have identified all of your users and created all their personas, then going through the UX decision area will be a breeze.

The same is true for all the other decision areas. If you don't have the information, then it will take you longer to complete the framework because you have to complete some research. That is one of the biggest benefits of using a framework: the IoT Decision Framework can help you understand where you need to conduct research.

In a way, it will provide you with a roadmap for your product team regarding what research activities you need to define, where you need buy-in from internal stakeholders, the areas you need to discuss with engineering, how to approach security and how to engage your policy team.

It's not about how long it takes you to go through the framework itself. It's about understanding all of the questions you need to ask and how to create a product strategy that can lead to successful market fit.

### Why does the framework start with UX? Shouldn't we start with the IoT technology instead?



No. The IoT Decision Framework intentionally starts with the UX decision area because, from a

product management perspective, understanding your users is the most important activity you can do. If you don't understand your users and you can't articulate their pain points, then it will be very hard to create a data strategy, a business model or a technology strategy.

Many companies start with a technology-first approach, meaning they develop some piece of technology and then attempt to find a problem their product solves. But that approach is backward.

We need to start with understanding our users, and from there, we can figure out how the user's needs flow throughout the rest of the framework, including data strategy, business

models and build vs. buy strategy. Only then can we start working on a technical solution. Remember: Product management is about being customer-focused, not technology focused.

### Are there any templates I can use to go through the framework?



Yes. I've included several templates you can use with your team in my IoT Product Manager Certificate Program. The program

includes my IoT Decision Workbook, which is a companion to the IoT Decision Framework.

Another great tool is my IoT Strategy Template, which you can download for free.

The IoT Strategy Template is a PowerPoint template you can use to summarize the findings in the IoT Decision Workbook, so you can communicate with other stakeholders in your company and articulate the product strategy.

These are the same templates I use with my consulting clients and in my IoT PM classes at Stanford University.

### How can I use the IoT Decision Framework to create my IoT roadmap?



Once you go through the framework you will have all the necessary information to create a product roadmap.

I recommend reading my article on how to create an IoT product roadmap. That article is based on the IoT Decision Framework and will give you the steps necessary to go from strategy to an actual roadmap.

The IoT Decision Framework.  
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OVERCOMING THE FOUR HURDLES TO

# PRODUCT LAUNCH SUCCESS

BY ETIENNE FISET AND STÉPHANIE LABRECQUE,  
WITH ROD GRIFFITH

**T**HE MAKE-OR-BREAK WINDOW OF OPPORTUNITY for product launch success is narrowing and becoming more challenging each year. This is at least partly attributable to the massive growth in digital media outlets and the constantly shrinking attention span of today's over-stimulated customers.

It's no surprise, then, that out of the thousands of new products launched every year, 95 percent will fail, according to Harvard Business School professor Clayton Christensen, as reported by *Inc.* magazine. And while poor concepts and badly designed products may account for some of these failures, often the failure is fueled by weak product launches that lack the ability to resonate with target audiences and establish a strong differentiation.

Using reverse engineering, Inspira Strategies, with insights from MarketReach, developed a four-step process to help companies overcome critical product launch hurdles. To uncover this process, we:

- Identified and extracted the core reasons clients don't buy a new product (i.e., why a product launch typically fails)
- Arranged those reasons into their typical order of occurrence
- Looked for solutions for each element

The resulting process focuses on four hurdles that B2B companies must sequentially leap to achieve product launch success.





Stop talking about your product. Instead, start talking about the problem your product solves.



### Hurdle No. 1: No Interest

Lack of interest is the first, most important reason customers don't buy a new product and simply ignore the offer. They learn about the new product online, receive emails about it or see it at a tradeshow, but they simply don't seem to notice it—at least, not enough to make it a priority to examine further.

This is unsurprising. People are busy, have reduced attention spans and are bombarded daily with ads and messages. So, how do you cut through the clutter and catch their attention? The answer is simple, if counterintuitive: Stop talking about your product. Instead, start talking about the problem your product solves.

To accomplish this, you must thoroughly examine the question, "Why do our customers need our product?" Customers care about solving their problems; moreover, the more intense the problem, the more motivated they are to solve it. Urgent problems are likely keeping them up at night. If you have a solution that addresses the critical issues that keep customers awake, you're going to more readily gain their attention.

Consider the case of VMware, a cloud computing infrastructure company founded in 1998 that, in 2019, hit \$7 billion in revenue. The company started with a product-specific approach. In its early days, the core message was "run two operating systems on the same computer." As a result, many of their clients were physics and chemistry professors—the few professionals who understood the advantage. The running joke was, "VMware isn't for everybody; you have to be very smart."

The clear challenge was how to grow revenue when many computer operators didn't truly understand the value of running two operating systems on the same computer. The company's answer was to stop talking so much about the product and its features and start talking about the problems it could solve.

VMware realized that corporate IT professionals had a big problem that the company could solve. At the time, servers were extremely expensive, difficult to maintain and vastly underused (users needed one server for each operating system). VMware began educating corporate IT professionals on how its virtualization product could allow companies to use fewer servers or power down underused hardware by shifting work to other machines. The approach was called the "one server to rule them all."

Gradually, VMware stopped talking about multi-OS in computers and elevated its message to educate corporate IT professionals on how they could save significant dollars on operational costs. Their key insight: Most IT people looking to reduce their operations costs were not aware that VMware's virtualization could help them, *they had to be told*.

The company achieved growth by building a bridge between its virtualization solution and IT professionals who had an operational-cost problem. VMware stopped talking as much about its products and features and instead addressed the problems customers face.



#### Questions to Consider

- Why do our clients need our product?
- Is it possible that many clients won't know why they need our product?
- Are we talking about product details to someone with an operations, sales or cost problem?



Create your own category with messages that express why you are first.

### Hurdle No. 2: No Difference

After successfully capturing your customers' attention by focusing on their key problems, the next hurdle you face is the "no difference" hurdle. This is when customers notice your offer and understand the problem you solve ... but also know of other, similar companies that claim to solve the same problem. Bombarded with sales information by competing companies, the customer eventually becomes indifferent to these offers and simply ignores them all. Or, they may choose to focus solely on price to drive purchases, bringing profit margins down further.

How can you avoid this and stay ahead of the competition? Even better, how can you make the competition irrelevant? The answer here is, rather than focusing on why you are *better*, create your own category with messages that express why you are *first*. You can achieve this by developing a unique value proposition, which works because customers focus less on what is better and more on what is new. This concept is best illustrated with an example from the consumer marketplace, although it applies equally to B2B technology companies.

In 1965, the car manufacturer Volvo was in trouble. It was small, struggling and competing against major players like GM, Ford, BMW, Mercedes, Toyota and Honda. At that time, these auto giants were expanding internationally to increase sales volume and decrease costs. Volvo knew it couldn't compete in the general "car manufacturer" category, so it created a new category: the "safe car manufacturer."

Volvo began promoting safety as the primary differentiator of its cars, effectively segmenting the market and making itself the No. 1 car in the "safe car" segment. In the mid-1960s, this was revolutionary. No other car manufacturer

had attempted to focus on safety, nor had they focused on educating customers about the importance of safety. Volvo revealed the safety problems with existing cars and expressed the critical need to address safety. Then the automaker showed how its cars were best suited to provide safety and peace of mind.

Witnessing the success Volvo was having with its strategy, competitors tried to get into the safe-car market segment ... but with little time to respond, the competition's primary message became, "We have safe cars, too!" It was too little, too late. Volvo was already No. 1 and owned the market segment. The other car companies' efforts only served to reinforce the Swedish automaker's position as the market leader. Fifty years later, Volvo is still thriving and is the No. 1 choice when it comes to safe cars.

### Hurdle No. 3: Lack of Trust

With the ability to capture customer attention and make the competition less relevant, you're at the halfway point to product launch success. The third hurdle to jump: lack of trust. Customers may understand the problem you solve and why you're unique, but they don't act because they simply don't believe in the offer. This hurdle is probably the most important. Anyone can make a promise, but no one purchases without trusting the product. Moreover, in this age of fake news and skepticism, it takes a lot of work to successfully earn the customer's trust.

To build trust and establish credibility, B2B companies must teach. They must provide valuable information and confidently educate uninformed prospects. Show prospects that you understand their problem better than anyone and educate them about the ways your company can solve their urgent problems. Also, highlight why your company can be a resource when future problems arise. This is particularly effective because teaching forms a bond with the audience; it builds trust and establishes your credibility. VMware is a great illustration of this point, too.

When the company discovered the server opportunity, their CEO at the time, Diane Greene, didn't start with demonstrations. Rather, she educated corporate IT professionals about their server problems. She helped bring



#### Questions to Consider

- Forget better; where are we first?
- What is our unique value proposition?
- What is the problem only we can solve?

to light an issue that IT professionals didn't realize they had. Greene went on a quest to educate the market. She spoke on stage, published content and delivered seminars—and not about VMware products, but about customers' server problems. She focused her efforts toward making corporate IT professionals realize that servers were expensive, challenging to maintain and vastly underused. By educating the market, she earned the trust of her customers.



#### Questions to Consider

- How can we educate the market about the unique problem we can solve?
- How can we change the way clients think?
- What does our market erroneously believe to be true?

#### Hurdle No. 4: Inaction

The last major hurdle to product-launch success is inaction. After all the efforts you've put forward, the last thing you want is for customers to remain passive. But how do you get clients to act and take the first steps toward you?

At this point, the education strategy addressed in Hurdle No. 3 becomes doubly useful. Along with helping build trust and establishing credibility, it also provides a user-friendly offer. By educating customers about their problem before promoting the product, you've made it easier for customers to take that first step. Learning something requires much less commitment by the customer—typically just a name and email address rather than a meeting or full-blown demonstration (both of which can be intimidating and uncomfortable). This strategy allows people to move at their own pace and progress gradually on their journey as they evolve from prospects into customers.

Successful software companies understand that prospective customers who visit their website may not be ready for product pitches or demonstrations. These visitors may be in the earlier stages of their buying journey, so companies offer free educational materials, videos, success stories and other resources focused on the key problems its products solve. To access these



#### Questions to Consider

- Do we have a user-friendly first step for clients to take?
- Are clients forced to talk to a salesperson or book a demonstration to engage with us?
- Do we offer access to information that helps clients solve their problem?

resources, visitors provide their name and email address.

This strategy allows these software companies to establish ongoing communications with early-stage buyers (and influencers), and nurture relationships by supporting them with relevant information and insights along their evolving buyer's journey.

#### The Path to a Successful Launch

Whether it's a lack of resources or product launch expertise, or perhaps a concern for credibility and reputation, the last thing product professionals need is another hurdle in their race toward product launch success. Four simple—yet crucial—principles can support your company's efforts to successfully bring products to market as well as improve your chances of being in the 5 percent of products that succeed.

B2B marketers looking to perform a more in-depth self-diagnosis of their product launch readiness can access a free online Product Launch Scorecard at [inspirastrategies.com](http://inspirastrategies.com) scorecard. This scorecard provides a readiness score to help B2B companies make good use of their financial resources and spend time working on the right things for their product launch: multiplying product launch results without increasing expenses. **SP**

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# THE **DO'S** AND **DONT'S** OF STARTING (AND RUNNING) A Win/Loss Program

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BY ZACH GOLDEN



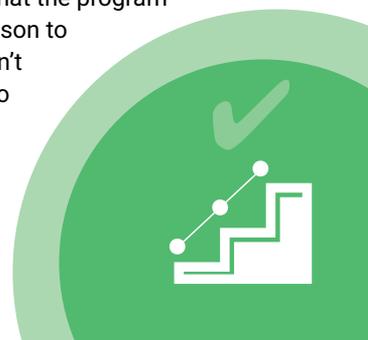
**T**HE CONCEPT OF WIN/LOSS HAS BECOME more well known and appreciated in the past few years. In a business culture enveloped in data and analytics, win/loss research stands as a formidable partner to executives looking to better their organizations. Today, with increased adoption, the question is no longer, “Why do we need to do win/loss?” Instead, the question has become, “How do we do win/loss well?”

When conducted well, win/loss delivers long-term results and actionable next steps. However, setting your company up for success must start on day one. Unfortunately, many companies miss the mark. Every organization is different, but there are some common guidelines that should be considered from the onset to maximize the value of your win/loss program.

## ✓ **DO** Assign Clear, Realistic Goals for the Initial Program

Set yourself up for success by keeping the goals for your first win/loss program simple and clear. Instead of trying to accomplish everything at once, consider the following initial objectives:

- **Achieve operational efficiencies.** Focus on operationalizing the program before paying attention to how your business metrics are improving. Have goals like “create an efficient, repeatable process for identifying deals to conduct a debrief” that includes things like extracting deal information from your CRM and verifying with the account team that the target contact is the correct respondent. If you’re partnering with a third party who will conduct the interviews, make it a goal to “establish a coordinated process with the partner organization so they know when they can begin reaching out.” Once you complete interviews and have transcripts, be sure to have a central repository where key stakeholders can access the completed interviews. Working out the bugs upfront will help your program in the long run as sample sizes increase.
- **Institutionalize the research.** Getting buy-in throughout the organization won’t happen overnight. Share program goals up front to establish realistic expectations. Be sure to note that short-term goals are to figure out how to run a program (see above operational goals), while long-term goals include using the aggregate data for strategic planning. Also, be sure to communicate to your organization that the program is meant to be a learning and coaching tool, and there’s no reason to be opposed to the feedback. Make it clear that the program isn’t meant to point out people’s mistakes. Be thoughtful about who accesses the initial interviews and encourage those people to read the transcripts with open minds. As more interviews are completed, people will become more accustomed to the research and begin to want more.





### ✗ DON'T Expect Immediate Results

Expecting win/loss research to immediately deliver transformational insights is a simple way to put unnecessary pressure on the program. The early stages of a win/loss program are about gaining operational efficiencies and trusting that the value of the research will be revealed as time goes on and more feedback is captured. A significant part of win/loss value comes from seeing how results change and improve over time.

### ✓ DO Begin with a Right-Sized Program, then Expand

Focus your initial program on a specific product, region or other market segment. Make sure you're capturing as much feedback as possible about that specific niche before expanding the research. Starting small should also map back to your initial goals. Keeping the size of the program narrow at first allows you to focus on improving processes and efficiencies.

### ✗ DON'T Boil the Ocean

You likely will face pressure, both internal and external, to build a program that captures feedback across any and all swaths of your company. You will have dreams of seeing how scores for your product demonstration vary across regions, or what prospects who evaluated you against a certain competitor thought of your product's ease of use. All those capabilities will come, but it will require a large, robust program. If you don't first get a right-sized program to run successfully, you will never be able to build a large-enough data set to unlock those insights.

### ✓ DO Find the Right Person to Run the Program

By definition, win/loss focuses on constructive feedback that helps individuals and organizations improve. For a win/loss program to succeed, the face of the program needs to be someone passionate about feedback and improvement. Appoint a person with a growth mindset who constantly asks what they could have done better or seeks reactions to their

work—even if it's unpleasant. This person's passion and attitude will help the program be perceived as a vehicle for improvement, as opposed to a witch-hunt designed to highlight people's mistakes.

### ✗ DON'T Create a Single Point of Failure

Relying on one person to manage a win/loss program leaves an organization with a single point of failure. Even if he or she is a strong champion and has a growth mindset, priorities can shift and the program may be compromised. You don't want your champion to be a lone wolf. Ensure he or she has people to rely on to support tasks, such as extracting deals from your CRM or coordinating internally with executive stakeholders.

### ✓ DO Identify Cross-Departmental Stakeholders

Part of the tremendous value of win/loss is its relevance to many different areas throughout an organization. Sales, product, marketing, pricing, research, competitive intelligence, strategy and finance all can be considered key stakeholders for a program. Ensure these areas have access to transcripts and aim for cross-departmental representation when it's time to present the program's findings. This also helps put everyone on the same page. Certain individuals may be more aware of what's going on related to specific deals (e.g., the head of sales), but not everyone is privy to that information. Bringing together all departments for a read-out of what prospects think of your company is an extremely valuable exercise, as it allows for open discussion and sharing of different perspectives.

### ✗ DON'T Ignore Sales

A successful win/loss program can't happen without sales involved. It may work in the short term but is not sustainable. If the program is launched by a department other than sales, make it clear to the sales team that the program is designed to help sharpen their saw and raise their game, not rub their noses in constructive feedback. Otherwise, sales can make it difficult to run a program by blocking deals that should be considered as part of the debrief.

### ✓ DO Leverage Technology

Win/loss programs have a lot of moving parts: interviews that have been completed, deals that are

## REAL-WORLD EXAMPLE

"A CLIENT RECENTLY met with us to discuss the different types of deals they would like feedback on: consultant-led deals, direct-sold deals, situations across different product types. The net was cast too wide! Instead, we decided to focus the initial program on direct-sold situations for one product line. That allowed us to deliver the most impactful and robust analysis possible. From there, we expanded the scope to include situations from other product lines and mixed in consultant feedback as well."

—Michelle Martin,  
Analyst at Anova  
Consulting Group

in the field, contacts who politely ask to do the interview another time, contacts who not-so-politely tell you they never want to be called again. There is a range of tools to help with this process.

In addition to managing the program, there also are demands for real-time analytics. Today's business climate demands instant access to information, and having strong technology is essential for providing those data points. When starting a win/loss program, think of the role of technology as easing the program management and providing real-time analytical pulse checks. That said, be careful to not overestimate the role software will play in making the program a success.

### **X DON'T Overlook the Human Touch**

For all the benefits technology brings to our professional lives, when it comes to win/loss there is still something to be said for human involvement. Consider the process of extracting deals from your CRM to pursue for interviews. This truly is a garbage-in, garbage-out exercise. The companies that automate the entire process spend most of their time pursuing contacts or completing interviews on deals for which there isn't truly meaningful feedback to be gathered. A better approach is to:

- Automate the report
- Filter out deals that don't meet certain criteria (e.g., revenue size, did not reach a late stage in the sales cycle)
- Have someone familiar with the remaining deals quickly vet the information to ensure the contact listed can provide meaningful feedback and that the contact information is accurate

Automating the entire process may save time on the front end, but ultimately it leaves you with data and results from which meaningful value can't be extracted.

### **✓ DO Deliver Data Back into Your Organization**

When it's time to review win/loss data, you may find yourself or others saying that the findings validate what you already knew. If you've been using a third party to run your win/loss program, this is a good thing! Win/loss conducted through a third party captures completely unbiased feedback. It's data your organization can trust without worrying about internal agendas or respondents' candor. Having independent validation leads to confident, clearer decision making.

If you're conducting win/loss without partnering with a third-party consulting firm, allow the data to speak for itself. Educating stakeholders about the process (i.e., that feedback and data are coming directly from prospects and clients) reinforces the validity of themes pondered or debated before the win/loss program. At this stage, the data and analytics tell the story. Encourage your stakeholders to listen to it.

### **X DON'T Rely on an Online Dashboard to Tell the Whole Story**

Just as you shouldn't rely solely on technology to run the operations of your program, you also shouldn't think that an online dashboard can replace the value of custom reporting. Having someone with an analytical mind and knowledge of your business read through the interviews and pull trends and insights into an executive report provides more value than any automated report or dashboard. When it's time to present those findings, make sure your broad group of stakeholders is present and allow time for discussion of their different perspectives. That data-fueled cross-departmental conversation is when the true value of win/loss is unlocked.

### **Know Your Program Is a Success**

As with any business exercise, the spotlight will be on the value the win/loss program returns. Yes, it should help business metrics improve, but don't restrict the definition of success only to whether your win rates improve.

By following the guidelines outlined here for building a successful win/loss program, your organization will become better at sharing information internally. And as more information is shared, you will see clearer and more confident decision making. Eventually, you will find that win/loss is part of your company's DNA as business leaders will crave seeing how aggregate results are trending and individual salespeople or product marketers will ask for transcripts of situations in which they were involved.

When you have built a program that facilitates a culture of learning and improvement at your organization, you will know that your program is a success. From there, the sky's the limit. **SP**



#### **TECH TIP**

If you're working with a third party to run the program, they will provide a program management tool. If you're running the win/loss internally, build a record-keeping system either through spreadsheets or a website to track program administration.



#### **About the Author**

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"We are a global group. We all speak different native languages and different business languages. The Pragmatic Framework has been one of the most powerful tools in uniting us. It's added a layer of rigor and evidence on top of our smart people having really great ideas."



**Rob Shea**  
Sr. Director, Portfolio Management

"Pragmatic training has allowed us to align much more quickly and not waste a lot of time in meetings where nothing gets accomplished. Because we're aligned, because we're talking the same language, we're able to work more effectively and increase our ramp time so that we're able to meet the objectives of the business faster."



**Brina Kaiser**  
Product Marketing Manager, Infusionsoft

"Pragmatic brought to us a framework, an approach and a set of best practices that are truly world class. We took the training and then made it part of our DNA, as it was applicable day one. Pragmatic Institute really has become the de facto industry standard for world class product management training."



**Jonah Paransky**  
Executive Vice President

"I think the most unique thing about Pragmatic Institute is that it understands the different disciplines and areas of marketing and how they should work together to achieve the type of goals we want to achieve. It's integrated and orchestrated so that you do bring the best products to market and do listen to your customers."



**Ellen Derrico**  
Senior Director of Product Marketing  
RES Software

"We executed on our three-year corporate plan in 12 months. Without Pragmatic there's no way that happens."



**Frank Tait**  
Vice President of Product, Frontline Technologies



**Don't listen to us.**

# Listen to our customers.



[pragmaticinstitute.com/customers](http://pragmaticinstitute.com/customers)

THE UNINTENDED CONSEQUENCES OF

# Products that Work Too Well

BY MIKE BELSITO

**R**ECOMMENDATION ENGINES ARE POWERFUL. At their core, they are driven by artificial intelligence (AI) and designed specifically to provide a more personalized experience for the end user. The implication is that a more personalized experience will lead to a better experience—one in which users get more value out of the product.

But what happens when a recommendation engine works too well? What if an ultra-personalized experience is actually a bad thing? As product professionals, do we have an ethical responsibility to ensure that we not only design our products well, but also protect our end users?

Guillaume Chaslot, a software engineer and researcher at Université Paris-Est., believes we should, and he draws his belief from his own personal experience.

From 2010 to 2013, Chaslot worked at Google and was tasked to improve YouTube's recommendation engine, called Up Next. He and his peers worked tirelessly on the algorithm, which was designed to maximize a user's time on YouTube. After all, the more time spent on YouTube, the more advertisements viewers see. And, like most other ad-supported business models, the more time users spend engaging with the product, the more revenue that is generated.

Since his three-year stint at Google, Chaslot has become openly critical of Up Next. "Having worked on YouTube's recommendation algorithm, I started investigating and came to the conclusion that the powerful algorithm I helped build plays an active role in the propagation of false information," he wrote in "How



Recommendation engines are perhaps the biggest threat to societal cohesion.



YouTube's AI Boosts Alternative Facts," published in 2017 on Medium.

In the piece, Chaslot pointed out how the algorithm has caused conspiracy theories, "alternatives facts" and fake news to circulate around the internet. All it takes is for a user to search one topic that is similar to other video topics and YouTube begins encouraging—even automatically playing—more videos just like it.

But if the user is interested in this type of content, is that a bad thing? YouTube's recommendation engine caught the attention of journalists from *The Guardian* and *Buzzfeed*,

among others. In a *Buzzfeed* article, "We Followed YouTube's Recommendation Algorithm Down the Rabbit Hole," staffers conducted their own experiments to see whether their queries would result in recommendations to view questionable content.

In one instance, a search of the term "U.S. House of Representatives" led to a PBS NewsHour video clip. But when the staffer clicked through eight "Up Next" recommendations, it led to a video featuring an Arizona rancher recalling an incident in which he called the U.S. Border Patrol on an alleged illegal immigrant. That video originally was posted to YouTube by a group that was identified in 2016 as a hate group by the Southern Poverty Law Center.

"Today, recommendation engines are perhaps the biggest threat to societal cohesion on the internet—and, as a result, one of the biggest threats to societal cohesion in the offline world, too," wrote Renee DiResta for *Wired* magazine. "The recommendation engines we engage with are broken in ways that have grave consequences: amplified conspiracy theories, gamified news, nonsense infiltrating mainstream discourse, misinformed voters. Recommendation engines have become The Great Polarizer."

Should a company like Google have a responsibility for Up Next to protect its users from videos that contain content that may be spreading misinformation or is potentially harmful? Apparently, the technology giant believes it should.

In January, just after *Buzzfeed* released its piece, YouTube published changes intended to improve its recommendations. "We'll begin reducing recommendations of borderline content and content that could misinform users in harmful ways—such as videos promoting a phony miracle cure for a serious illness, claiming the Earth is flat or making blatantly false claims about historic events like 9/11," YouTube staff wrote.

So, if Google is taking this stand, should this give us even more pause as we consider what's right for our own products?

This is a decision that product professionals—and their companies—must make on their own. The case of Google and YouTube is unique; after all, such a popular and widespread product brings more intense scrutiny by the media and public.

We may not face the same kind of scrutiny with our products, and we may not have journalists openly experimenting with and testing our algorithms to explore the potential effect on users. Still, it's worth considering how our products are designed and asking some important questions:

- Are all features, as designed today, improving users' lives?
- Is it possible for any features to detract from users' quality of life?
- Do the metrics being tracked take "quality of user's life" into account in any way?
- Is the company willing to change a product to promote a user's well-being, even if it may affect the overall business model?

The case of YouTube and Up Next illustrates how it is possible for software products to work perfectly as designed, yet still lead to unintended consequences. It's often said that, in serving as a product manager, having customer empathy is a necessary trait—perhaps even the most important trait. If we truly believe that, we should at least consider the role we play in the consequences of our products. 

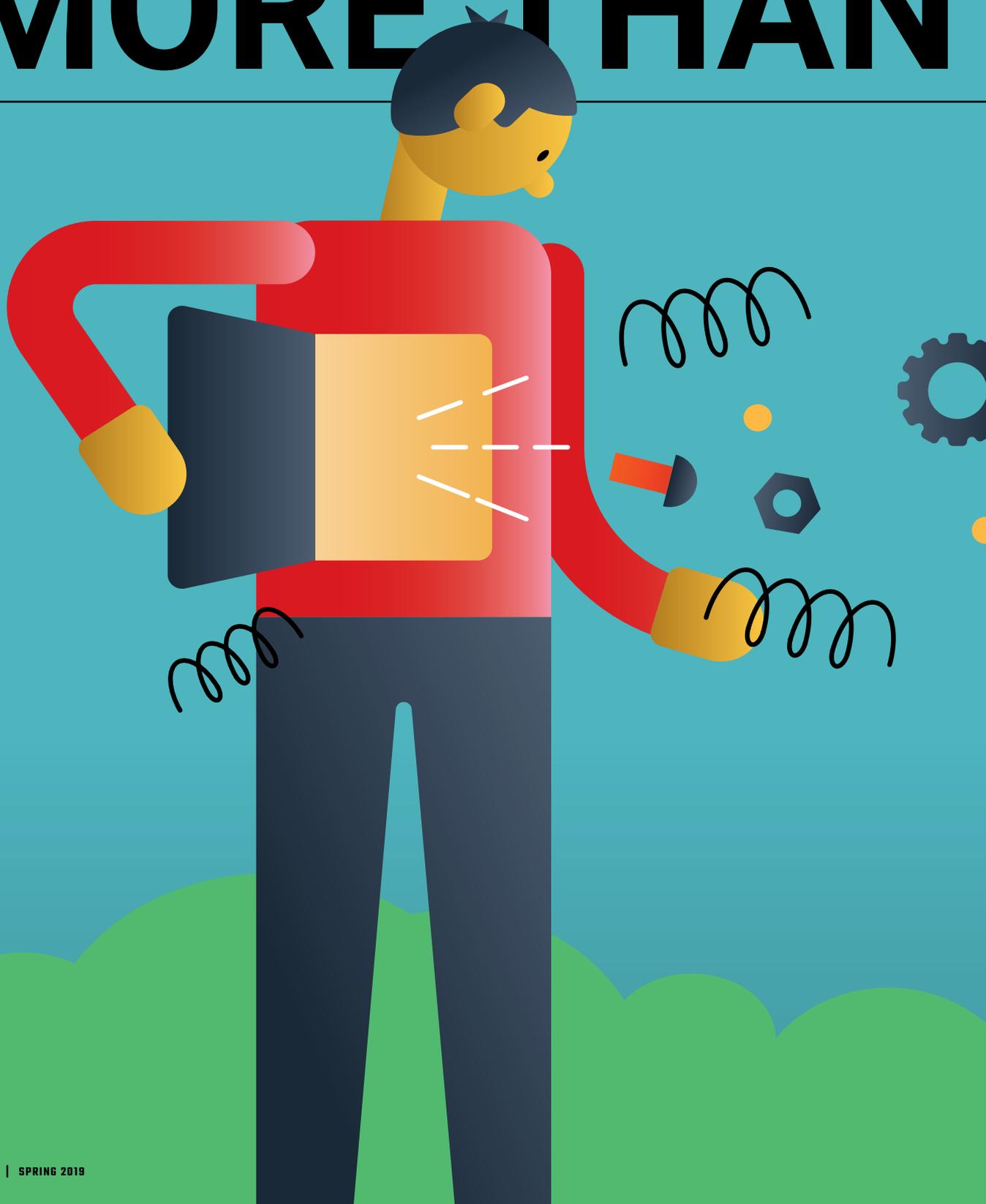
### About the Author

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# GOING WITH MORE THAN

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# YOUR GUT

## How a Software Startup Trained Its Leaders and Coached Its Customers to Success

**T**RUST YOUR INTUITION. That's what we've all been told about making big decisions. But your instincts only take you so far in business. What do you do when growth requires more?

Ballistiq Digital Inc. initially opted to train with Pragmatic Institute (formerly known as Pragmatic Marketing) to help its founders speak the same language and focus more on strategic decision making. Today, the company continues training its leadership and uses Pragmatic to train employees as well.

### 1 Address Product (and Services) Challenges

When Ballistiq's founders began training with Pragmatic Institute a few years ago, they came in as a professional services firm creating online communities, marketplaces and e-learning platforms for medium to large enterprise clients. In addition, the founders had recently realized their dream of developing their own product, an industry hub for games, film, media and entertainment artists (ArtStation.com) with more than 800,000 members.

The company's leaders initially took product management training courses with Pragmatic Institute to help increase their strategic focus and enable them to get on the same page when it came to making decisions about product development and company growth.

While it may not have been their initial driver, the courses helped the company address one of its greatest service-side customer challenges: Clients acting on their intuition versus concrete data.

"That's the biggest thing I come across when I'm talking with clients who come to us to build something for them," said Kevin Strike, Ballistiq's co-founder and COO. "They may not have thought properly about the market: 'Are people willing to pay? Who is my target persona? Is my product actually going to do well? Is there a need for it?' They're thinking that they know these things intuitively."

### 2 Train More Teams

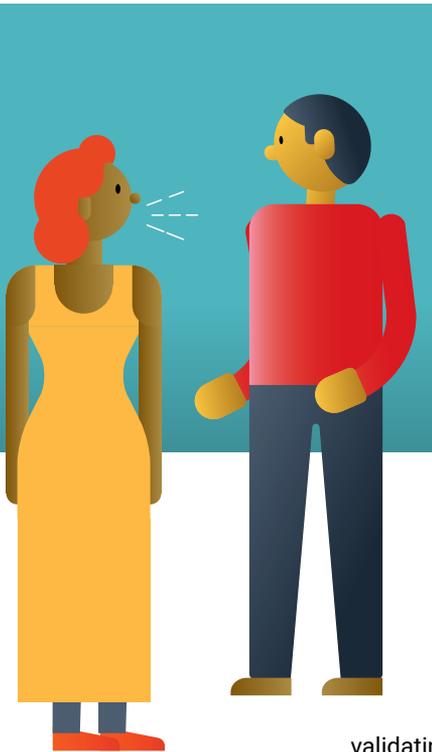
Since its founding, Ballistiq has grown into two divisions: professional services and product. "On ArtStation.com we have the opportunity to conceive, test and sell a variety of products, including an online marketplace, subscriptions (SaaS), training courses, job boards and recruiting tools, and books," Strike said.

And because of the value the company's leaders found in Pragmatic Institute training, the decision was made to include more employees. In the past few years, the company has sent its entire product management and marketing teams to Pragmatic courses: Foundations, Focus, Build, Market, Launch and Price. In the future, the company plans to send the user experience (UX) and design teams, too.

"We see the overlap between product managers and user experience designers," Strike said. "So it's essential that our UX and design teams are trained in the fundamentals of product management. This will help our professional services clients considerably as we partner with them to build web experiences and platforms that transform their businesses."



Simply listening to clients is such a powerful tool.



**3 Get a Strategic Head Start**

Pragmatic training has been beneficial for Ballistiq on multiple fronts. First, it allowed the company to meet its initial goal of improving strategic focus.

“We love it because, for us, it’s the best training for product managers that exists, and it helps us to all be speaking the same language,” Strike said. “We have the same playbook, and so we have efficient conversations.”

And while he noted that they initially felt like they were “the smallest company in the room” during their training, it has actually helped differentiate the company as it’s grown by having that foundation of knowledge from the outset.

“I think that, even though we’re a small company, we have a distinct advantage over our similar-sized competitors—and maybe even larger companies—because learning key product management principles and concepts early on saves considerable time and money,” he said. “This leads to successful product development for us and our clients.”

**4 Make More Strategic Decisions**

The company continues to find ways to put its Pragmatic Institute knowledge to work through exercises such as creating user personas for both the product and services sides of the business and conducting product validations and pricing analysis. The company also has folded the training into existing processes and procedures,

validating steps it was taking even before formalized training started. In 2017, time was spent visiting potential customers, presenting hypotheses and potential mockups to address a market problem, and getting feedback. At the conclusion of those sessions, time was taken to evaluate the market and create revenue projections.

“In the end, we came to the conclusion that, no, we don’t think this is a viable product, so

we’re not going to build it,” Strike said. “We end up making product decisions with confidence and shelving ideas before we’ve invested too much time and money.”

**5 Grow Smarter**

Team members also have used training insights to solve existing business problems. For example, after implementing a software change, a decline in use and revenue from subscriptions was observed. So, a select group of members was surveyed and a decision was made to roll back the product change based on feedback.

“Now we’re back to our normal growth, the same level of growth that we were at before the change,” Strike said.

In early 2019, customers “willing to pay” were researched using the van Westendorp Price Sensitivity Meter taught in the Pragmatic Institute Price course. “After surveying over 2,500 people, we were able to gain tremendous insight into the range of acceptable pricing,” Strike said. “We made immediate changes, and we’re now much more confident.”

The professional services side of the business has been able to apply Pragmatic Institute principles to help clients focus on market facts and more effectively uncover those urgent, pervasive problems that people are willing to pay to have solved. The team also tries not to miss out on opportunities to connect with customers out of the office.

“The NIHITO (Nothing Important Happens In The Office) phrase is something that has become ingrained in our company lingo and culture as well,” Strike said. “Whenever we travel, we’re always thinking about visiting customers and getting feedback. Simply listening to clients is such a powerful tool.”

From getting on the same page to changing the way it approaches the business and strategic decisions, Pragmatic training has been fundamental—even helping to ensure the company’s growth trajectory can continue. 

**About Ballistiq (ballistiq.com)**

Founded in 2011 with headquarters in Montreal, Ballistiq designs and builds web experiences and platforms that transform businesses and are enjoyed by millions of users worldwide.



# A PRAGMATIC APPROACH

Put this issue's ideas into action.

## Bake Ethics into Your Products

Infuse ethical principles into data-based work so products go through different levels of ethical due diligence.

Moji Solgi

PAGE 8

## Understand Drivers of Behavior

Learn how customers process and react to information to increase your chances of product success.

Neil Baron and Robert Hatcher

PAGE 10

## Watch Out for Ethical Gray Zones

Be aware of the limits associated with gathering and using competitive intelligence.

Marc Limacher and Larry Fauconnet

PAGE 14

## Be Aware of Motives Behind Pricing Practices

Ethical pricing practices find the common point between sellers and buyers and ensure both are better off than before the transaction.

Mark Stiving

PAGE 18

## Do Your Legwork

A solid IoT decision framework will uncover pitfalls and raise questions that can make or break your product.

Daniel Elizalde

PAGE 20

## Identify Your Customers' Issues

Stop talking about your product and, instead, focus on the problem your product solves.

Etienne Fiset and Stéphanie Labrecque

PAGE 29

## Set the Right Win/Loss Expectations

Don't expect win/loss research to immediately deliver earth-shattering results.

Zach Golden

PAGE 33

## Know the Motives Behind Your Products

The quality of our users' lives is just one important question to consider when designing products.

Mike Belsito

PAGE 37



# READY YOUR BUSINESS FOR THE FUTURE.

Pragmatic Institute offers comprehensive learning for product leaders, business heads and data scientists. From product management, marketing skills and pricing to data science, machine learning and beyond, we are the partner you need to elevate your product, your business and your career.

## UPCOMING COURSES

\* Price course will be taught at event

### Foundations, Focus, Build and Price\*

May 27-30	Vancouver, BC	Jun 24-26	Toronto, ON
Jun 4-7	Berlin, Germany	Jun 25-28*	San Diego, CA
Jun 10-13	Bangalore, India	Jul 1-4	Tel Aviv, Israel
Jun 12-14	Atlanta, GA	Jul 9-12*	Indianapolis, IN
Jun 18-21*	Dallas, TX	Jul 10-12	Miami, FL
Jun 19-21	Minneapolis, MN	Jul 15-18*	Orange County, CA
Jun 24-26	Boston (Downtown), MA	Jul 17-19	Austin, TX
Jun 24-27	London, England, UK	Jul 17-19	Seattle, WA
Jun 24-27*	San Francisco, CA		

### Foundations, Market, Launch and Price\*

May 27-30*	Toronto, ON
Jun 4-7*	Salt Lake City, UT
Jun 11-14*	Austin, TX
Jun 17-20*	Chicago, IL
Jul 10-12	Raleigh (Durham), NC
Jul 15-17	Dallas, TX
Jul 24-26	Boston (Downtown), MA
Jul 29-31	San Diego, CA
Aug 13-15	Atlanta, GA

### The Business of Data Science

Jun 11-12	New York, NY
Jun 17-18	Atlanta, GA
Jul 16-17	San Francisco, CA
Jul 30-31	Austin, TX

More events listed at  
[pragmaticinstitute.com/buy](https://pragmaticinstitute.com/buy)



#### FOUNDATIONS

Implement a proven, practical blueprint for being market driven.



#### FOCUS

Use market data to identify and present the right product strategies.



#### BUILD

Align product and development teams to build remarkable products.



#### MARKET

Focus your team on the marketing strategies that deliver results.



#### LAUNCH

Elevate your team's product and marketing launches.



#### PRICE

Set the right price for each product in each market.



#### THE BUSINESS OF DATA SCIENCE

Harness the power of data to impact business decisions and accelerate growth.



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