



DESIGN FOR HUMANS

Inspire New Behaviors

TECHNOLOGY VISION 2017

AMPLIFYYOU

What if technology adapted to people? The new frontier of digital experiences is technology designed specifically for individual human behavior.

Business leaders recognize that as technology shrinks the gap between effective human and machine cooperation, accounting for unique human behavior expands not only the quality of experience, but also the effectiveness of technology solutions. This shift is transforming traditional personalized relationships into something much more valuable: partnerships.

People often act in ways that defy simple expectation. Take computer security: customers and employees understand that cyber threats are serious. The \$3 trillion in damage that hackers, malware, and data breaches cause every year dominates headlines, and people are warned to be wary both at home and in the workplace.¹ Yet despite the risks, a recent study found that people mostly ignore warnings from their computer security software, dismissing the pop-up notifications up to 87% of the time while they are distracted with another task.²

Why do individuals ignore the warnings? Not because they think the technology doesn't work, or that it's unimportant – but because the warnings don't take into account that people are busy trying to read an email, create a data visualization or lead a collaborative virtual meeting. The researchers found that people were much more likely to respond to security warnings if they appeared in between tasks being performed. When technology works with people, they will use it. When it doesn't, they'll abandon or ignore it. Cybersecurity's struggles are just one stark example of an increasingly clear technology insight: functionality alone is not enough. To truly succeed, businesses need to account for human behavior.

Today, most technology operates at a machine level: it can do a great deal with data and facts, but it doesn't understand people. But what if technology could operate at a more human level? How would the relationship to technology change if it could not only interact with customers and employees in a more natural, human way, but understand personal and workplace behaviors and goals, and respond appropriately?

With today's nearly unlimited data stores, this is suddenly a real possibility. As technology is integrated into every action people take, every process they follow, and every object they use, 2.5 quintillion bytes of data are produced every day.³ This data not only provides businesses with vast amounts of information about how customers live and employees work, it's offering an unprecedented opportunity for companies to use more sophisticated analytics to understand how people behave. Companies suddenly have a potential level of insight they've never had before: an insight into how people think, what they want, and how they react. Designed with this in mind, technology can operate on a scale that's simultaneously more grand and more granular – it can operate at a human level.

EXPANDED PARAMETERS OF PERSONALIZATION

The beginnings of this revolution in the human relationship with technology are already apparent, and digital leaders that are focused on customer analytics are rapidly turning insights into profits.

From simple personalization techniques to fully customized experiences, the opportunities are dramatic. Stitch Fix, a startup subscription styling service, differentiates from other retailers by customizing every shipment of clothes to an individual customer's taste; 99.99% of the company's shipped orders are unique.

Going beyond recommendations that only look at basic attributes like size and color, Stitch Fix analyzes a shopper's social media interests, as well as advice from professional stylists more apt at interpreting specific customer requests. By collecting data on how shoppers react to each new style and article of clothing sent, Stitch Fix is able to continuously improve their recommendation engine and find new ways to delight returning customers. This dedication has paid off: the company generated \$250 million in revenue in 2015, with an expected increase to \$375 million for 2016, and nearly 40% of their customers are buying the majority of their clothes from Stitch Fix compared to 30% a year earlier.⁴

Ever-growing customer expectations have pushed businesses toward offering 'living services,' driven by digitized products and more comprehensive personalization.⁵ Consumers have a positive attitude toward

personalized offerings and services. In a recent survey, 58% of consumers reported they would be more likely to make a purchase when a retailer recommends options for them based on their past purchases or preferences.⁶

These changes, however, don't stop with personalization. Companies are using an understanding of behavior to deliver technologies that are more adaptive, responsive, and aligned to the goals and actions taken by customers and employees alike. With more data on the ways people interact with technology, coupled with computing power capable of processing these massive streams of information, businesses are now reshaping everything from the interfaces customers and employees rely on, to the larger engagement journeys they make possible.

Financial company Betterment helps investors reach long-term goals by understanding and reacting to their customers' behavior. Internet-based financial companies all provide tools that customers can use to make investments and trades quickly, but the onus is on the investor to figure out their best use. Betterment has tossed that approach out the window. Working to minimize the 'behavior gap,' or losses that result from human investors

taking short-sighted actions, Betterment's dashboard actually hides a portfolio's daily performance, knowing that the human tendency is to overreact to volatility.

Instead, their site is designed to encourage customers to take fewer actions, minimizing the risks of the behavior gap, and maximizing long-term profits. This approach has created an ongoing journey with Betterment's customers that, like a human financial manager, follows an investor's goals, monitors progress toward those goals, and guides decision-making needed to stay on track.

And this behavioral approach is working. A recent report from Morningstar found that over the past 10 years, behavior gaps cost individuals an average 1.32% of returns per year.⁷ But investors using Betterment have a behavior gap of just 0.31% per year.⁸ For Betterment, these investor savings translate into brand loyalty and advocacy for their financial services. Betterment's \$5 billion in assets under management position the firm as an industry leader among automated investors.⁹

On the surface, this transition from data to human behavior seems like a natural progression. But the implications to a business shifting to this philosophy of design are profound. In designing powerful journeys, companies are inherently redefining their relationship with both customers and employees. By offering technology that helps people reach their goals, businesses are graduating to a larger role in their lives: that of a partner. As a new customer-company partnership is created, the customer's goal becomes the company's goal. Similarly, as existing employee-company partnerships are strengthened, the goals of individual employees become design requirements for enterprise-level technology systems.

Doing this right means making fundamental changes to the way companies do business every day, from architecting their systems, to better understanding behavior, to rethinking their interactions with customers and employees, as well as seeing products and services take on new roles as pieces of a larger customer journey. Those who are up to the challenge have the potential to reimagine their relationship with people, from one that lasts the length of an interaction, to one that persists over a lifetime.

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ADAPTIVE APPROACH TO UNDERSTANDING BEHAVIOR

To help enable the level of AI-powered, back-end analysis that underpins behavior-centered technologies, enterprises must consider every application throughout their systems as a potential window through which they can understand customers, and a testbed to refine business offerings. This approach requires an adaptive framework where applications will not only observe, capture, and use customer-provided data, but also continually adjust. Enabling adjustments provides opportunities to optimize interactions, experiment with different approaches to understand behavior, learn and evolve models that predict how systems react, and capture the changing nature of customers themselves.

Modern, distributed computing frameworks like Apache Spark now allow businesses to run large-scale, adaptive analytics, often up to 100 times faster than conventional big data frameworks like Hadoop MapReduce.¹⁰ The Toyota Customer 360 Insights team uses Apache Spark to uncover salient customer feedback in streams of social media interactions.¹¹ The analytics that Toyota uses go beyond searching for simple classifiers like brake noise, instead experimenting with different semantic analyses that consider related symptoms that people may also be discussing. This method increases the scope of customer behavior that can be analyzed, and helps uncover new and improved ways to address customer needs.

Using this experimental approach toward refining categorizations helps Toyota offer customers the most relevant advice, as well as identify larger trends that may have safety implications for drivers. The benefit?

By adopting a framework to separate critical customer signals from noise, Toyota reduced the time spent analyzing customer feedback from more than six days to just four hours. As greater sensing functionality is added to Toyota's cars, the capacity to adapt and compare customer feedback with real-world observations will only enhance the company's ability to partner with drivers, giving individualized feedback to each driver and car.

In another adaptive approach, Virgin Atlantic focused on a critical workforce behavior for the airline industry, by conducting an experiment to track and attempt to lower the fuel consumption habits of their pilots. The company divided the pilots into experimental groups and delivered



different kinds of feedback on their fuel use to incentivize savings. At the end of the study, Virgin Atlantic had saved \$5.4 million in fuel costs and raised pilot job satisfaction rates by 6.5%.¹² Studying incentives that motivate positive behavior change opens new opportunities for companies to make immediate business gains while strengthening their long-term relationship with employees.

Finally, segmenting customers and running A/B analytics has become the digital standard to determine what kinds of technology experiences yield desired results, whether it's maximized sales or minimized abandoned shopping carts. But now, businesses can go beyond these traditional methods, and begin adapting based on human behavior as it occurs throughout a customer journey.

Web analytics tool FullStory helps companies understand the entirety of granular human behavior occurring across a website, in recorded visualizations of mouse movements and observed website interactions.¹³ This insight into behavior drives improvement efforts to make site features more accessible; it also provides valuable information for future customer support by pinpointing the exact causes of customer frustration. Combined with traditional segmentation experiments, tools like FullStory help businesses obtain an empathetic and human-level understanding of customer interactions as they occur over time. This additional layer of behavior can transform the way companies react to experimental findings, allowing them to focus on refining designs that optimize business outcomes by considering and addressing human outcomes.

TRANS PARENCY IS KEY

In addition to shifting toward an experimental approach, companies must commit to transparency as they begin to respond to human behavior. Accenture research from 2016 found that 75% of people are generally comfortable with companies collecting personal data if the company is transparent about how they're using it, and lets customers control how data is used.¹⁴ But the danger of misusing data cannot be overlooked. One study found that if a company was misusing personal data, 45% of customers would cease interacting with that business entirely.¹⁵ People must trust that when data on their behavior is used to build a path through a company's products and services, it will ultimately help them reach their own goals.

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REDEFINED RELATIONSHIPS

By responding to human behavior, companies will inherently find themselves redefining their relationship with both customers and employees. In other words, businesses are shifting from provider to partner.

By creating partnerships with the people using their products, services, or technologies, enterprises have a new opportunity to create long-term loyalty – with lasting value in both the marketplace and the workplace.

The more companies understand why customers are buying their products, or employees are using workplace tools in a certain way, the more these things can be molded to help people on a journey to achieve their personal goals. Businesses will walk alongside and support individuals throughout their journeys, delivering an experience that adapts and conforms over time.

Companies recognize the importance of these new relationships: 80% of the executives we surveyed agree that organizations need to understand not only where people are today, but also where they want to be – and shape technology to act as their guide to realize desired outcomes.

Becoming a partner demands fundamental shifts in the ways leaders think about their business. As companies move to develop new journeys for customers and employees, they'll slowly take on a fundamental role in people's lives. Businesses that do this well will also recognize that they're undergoing a journey to transform themselves, to allow for long-term growth.



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PEOPLE'S GOALS ARE YOURS

In becoming a partner, businesses succeed when their people succeed, which means that it's no longer the primary goal to drive people toward a product or service, or quickly increase employee productivity. The new goal is to help define a path that people can follow to reach their goals.

A company's new product is the partnership, along with accompanying guidance. In return for helping move customers forward, a business will have direct insight into the ways people seek out value through their products and services. On the consumer side, Google Calendar offers a goals feature, designed to help people find time for activities like practicing a new language or going to the gym. Individuals can tell Calendar what they want to do and how often, and the app analyzes their schedules to find suitable places for that activity, even learning better times to block off the more a person uses the feature. As people continue to use Google Calendar for their scheduling, both it and the larger ecosystem of Google products and services will generate data that the company can leverage elsewhere.

In the workforce, partnership is about addressing employees' goals. One such goal could be discovering business insights without having to use complicated technical solutions. Businesses can respond by aligning technology tools to make task completion more natural.

Tableau Software has developed a tool that lets people perform exploratory analysis on data visualizations, drilling down into areas of interest by asking questions in plain English.¹⁶ Tableau's focus is on integrating the tool, Eviza, with existing visualizations, so that people can have a conversation with a visual representation of data. From a graph showing the locations of earthquakes in the US, an employee could ask, "Where are the large earthquakes?", and Eviza will return a new version of the graph to provide the answer. This natural language processing eliminates a major source of employee frustration by delivering technology that helps them do their jobs better.

PARTNERSHIP IS A LONG-TERM COMMITMENT

Besides changing the focus of relationships, the cadence of those relationships must shift as well. It may give pause to companies used to monetizing every interaction, but long-term partnerships come with large opportunities. Customers who feel emotionally connected to businesses buy more products, use more services, provide vocal support, and pay more attention to company communications and advice. Research has found that emotionally connected customers deliver 52% more value over and above that from customers who are highly satisfied, but not emotionally connected.¹⁷ Yet a consumer study found that only 25% of traditional retail customers felt their individual needs were being catered toward.¹⁸ The gap between potential and captured value is tremendous, and companies have a chance to close it.

Just as customers have long-term goals that businesses can help meet, more journey-centered technology can also help employees reach larger career and life aspirations. L'Oréal has committed to providing their employees with ongoing opportunities for education. In order to extend learning opportunities, L'Oréal is using Coursera for Business to increase the breadth of training material and certification programs available to employees.¹⁹ The partnerships Coursera has developed with top universities around the world give L'Oréal employees access to high-quality training from recognizable institutions, which people can use to progress their careers.²⁰

Using technology that guides employees toward their goals, adapted to areas of strength and weakness to maximize useful learning, presents greater opportunities for increased job satisfaction. This translates into value through reduced turnover, since replacing an employee can cost a business more than 20% of that individual's salary.²¹

It's also worth noting that customer and employee journeys sometimes intersect. Take Hulu, a video on-demand provider that noticed returning customers' satisfaction ratings were lower than expectations. By studying both customer and employee feedback, the company discovered that customers were reacting poorly to aggressive sales tactics. In response, Hulu adjusted their sales bonus structure for employees to emphasize customer retention over sales. Based on a Hulu subscriber base of 12 million customers, an improvement of even 1% in retention via this behavior-focused approach could generate another \$11 million in annual revenue.²²

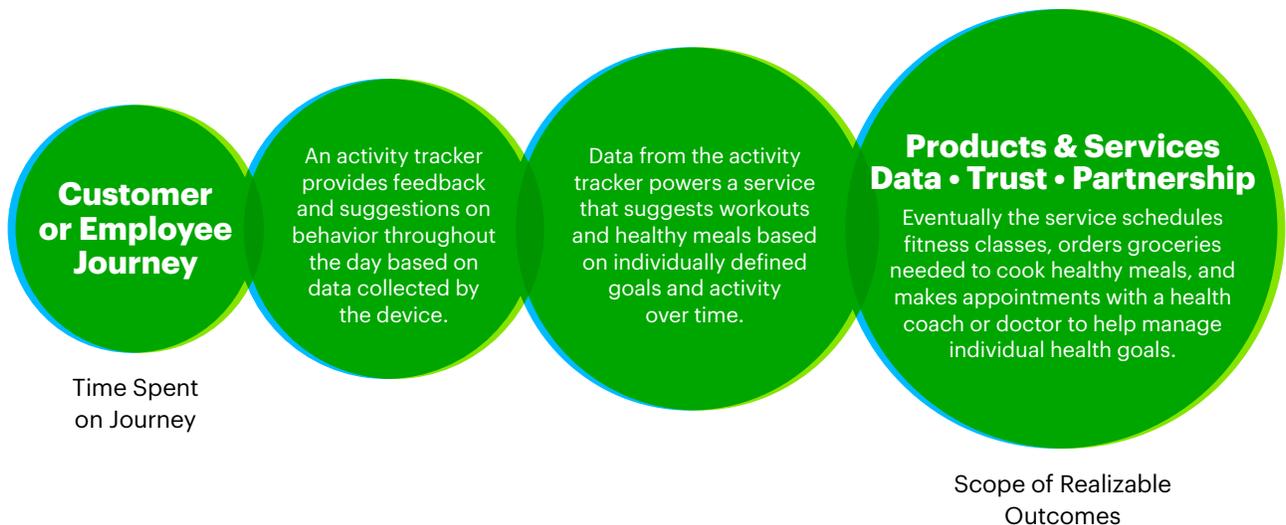
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WHAT'S POSSIBLE AS PARTNERSHIPS

GROW

As customers trust a business more, they'll provide more data and use more products and services. With this trust, companies can turn more extensive data into an even stronger partnership and deliver on larger, more challenging goals.



TREND 4

By considering and responding to human behavior, businesses have an unprecedented opportunity to transform their relationships with people.

Building on the insights available from vast amounts of data, leaders will create rich, responsive journeys that guide customers and employees toward achieving their goals, and walk with them to get there. As they make these journeys together, companies will see their relationships with people flourish into that of a true partnership.

Taking customers on the best possible journeys is something no business will be able to do alone.

While these shifts toward responding to behavior are made possible by advances in technology, they won't amount to anything without an understanding of the social and behavioral sciences behind how people work. Companies will need to collaborate with experts from this space to move forward. And when it comes to delivering those rich journeys, businesses will have to look to the next generation of ecosystems – not only

to build their customer base, but also to partner with organizations that can enhance goal-oriented journeys over time. From health-focused food shops collaborating with fitness apps to improve customer nutrition, to enterprise training tools expanding on-the-job training, to university-backed courses, opportunities for collaboration are both abundant and necessary when customer journeys extend beyond a single company's reach.

With the power of partnerships, your company will find new opportunities to innovate, and new pathways into digital markets and industries. Just as your company will help customers and employees grow, these new relationships will help your business grow in return. This is the human-by-design approach that will deliver lasting value in the digital economy: technology that adapts to people, and puts their goals first.

100-DAY PLAN



1 Identify the technology channels that customers or employees move through while interacting with your products/services. Annotate the human behaviors that contribute to positive and negative outcomes during these interactions.

2 Enumerate the journeys your customers and employees take with your company, products, and/or services. Indicate the points on these journeys where engagement with your company begins and ends.

3 Catalog the data you already collect, could collect (but presently do not), and cannot currently collect that offers insight into customer behaviors and decision-making.

4 Using the customer behavior insights that you currently possess, plan a pilot to offer a behavior-personalized experience with an existing product or service.

5 To support conducting behavior-based A/B research with customers, draft a code of data ethics for such experiments. Leverage any existing ethical codes from your industry and Accenture's Universal Principles of Data Ethics.

6 Establish a strategic vision for making your technology products and services more goal-oriented.

365-DAY PLAN

- 1** From your technology channel research, identify at least three business cases for minimizing behaviors that inhibit positive outcomes in existing and upcoming products.
- 2** Using the journeys previously enumerated, work with strategy and product teams to uncover opportunities for improving the quality of outcomes that customers and employees receive with your company's guidance.
- 3** Still using the enumerated journeys, identify key organizations that engage with your customers or employees before and after your company's role on each journey. Using Accenture's *Ethics of Data Sharing* as a guide, establish data sharing agreements with these organizations to further enrich your business's understanding of behavior across a journey.
- 4** Finalize your code of ethics and begin performing behavioral studies to understand and improve the ways your technology elicits, or fails to elicit, specific human behaviors.
- 5** Challenge product teams to use behavioral insights to help individuals realize unique goals.

TREND 4 PREDICTIONS

1

Within five years, a set of Global 2000 companies will begin **hiring employees** based not only on self-reported experience, but also on behaviors exhibited during previous roles and how individuals handled themselves in certain situations.

2

In five years or less, governments will **collaborate with businesses to drive sustainability** shifts in societal behavior. Energy efficiency, CO² reductions, and landfill diversion will be the first targets.

3

By 2022, multinational organizations will introduce **employee-facing technologies** that are able to identify when a worker is frustrated and then alter the tone and style of feedback or guidance automatically delivered to the worker.

4

Within five years, a Global 2000 company will **lose significant market share** due to a behavior-manipulation scandal.

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