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AN INNOVATOR'S GUIDE TO PERSONALIZATION

INTRODUCTION

Until recently tech wasn't considered complementary to everything. But now, technology is rapidly changing the relationship between consumers and brands and is driving a massive digital transformation within a myriad of industries, from household appliances to mobility, travel, and many other consumer markets. It's starting to have an effect on everything from the clothes you wear, the bed you sleep on, the music you listen to, and the food you eat, to the cars you drive and the medicine you take. Personalization is everywhere and although it's probably starting to quietly rewrite the meaning of your business, there's hope in knowing we can embrace this change by learning from the leadership happening within consumer experience driven industries—where it's all about putting more power in the hands of the consumer.

Fueled by the ever-present connectivity in our daily lives, from social networks to digital devices, modern brands are now connecting directly with consumers and building mutually beneficial relationships and experiences together that are bringing personalization to the forefront. The result? "Personalized" megatrends are reshaping business as we know it, forcing many to question what it means for their companies and products in this digital era. To stand out in this fiercely competitive market, brands will need to recognize the interplay between the digital and physical layers and develop thoughtful personalized experiences which build brand loyalty with consumers.

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WHAT IS PERSONALIZATION?

Personalization isn't a new idea. Prior to the introduction of modern mass production during the Industrial Revolution, custom-made products (that relied on "craft production" processes) were more the norm. In fact, customizable products are still available in many high-value industries today–think custom homes, tailor-made clothes, and the ability to select your trim and color among other select features on automobiles.

All of these make us feel special and treated as an individual. And although once reserved for the wealthy, new technologies are democratizing the ability for a broader public to enjoy the benefits of products tailored just for them.

There are a range of modalities for creating a personalized consumer experience, and each of these has varying levels of complexity and impact across business processes, resources, and systems; starting with marketing and the buyer journey, and moving all the way through the supply chain and manufacturing.

Each model uses some type of "front-end" to interact with the consumer. However, how the product is made and delivered varies and generally falls within these four categories:

Customization in the factory

In this, the consumer uses a front-end system to select the custom product features they desire (and/or that best meets their individual attributes, needs, or goals), and the product is then made and shipped to them from a factory with the ability to mass customize.

Customization at retail

Customization at the point of retail involves distributed mini-manufacturing sites with a front-end product selection system and a store-based "machine" to create the product.

Customization at home

For immediate gratification and use, some companies are developing microfactories for the home to customize products such as skin care products. This enables daily personalization, as every day the product can differ.

Curating product globally

Providing a custom recommendation of existing products, helping the customer to get the product which is right for them.

WHY SHOULD WE CARE?

People want it

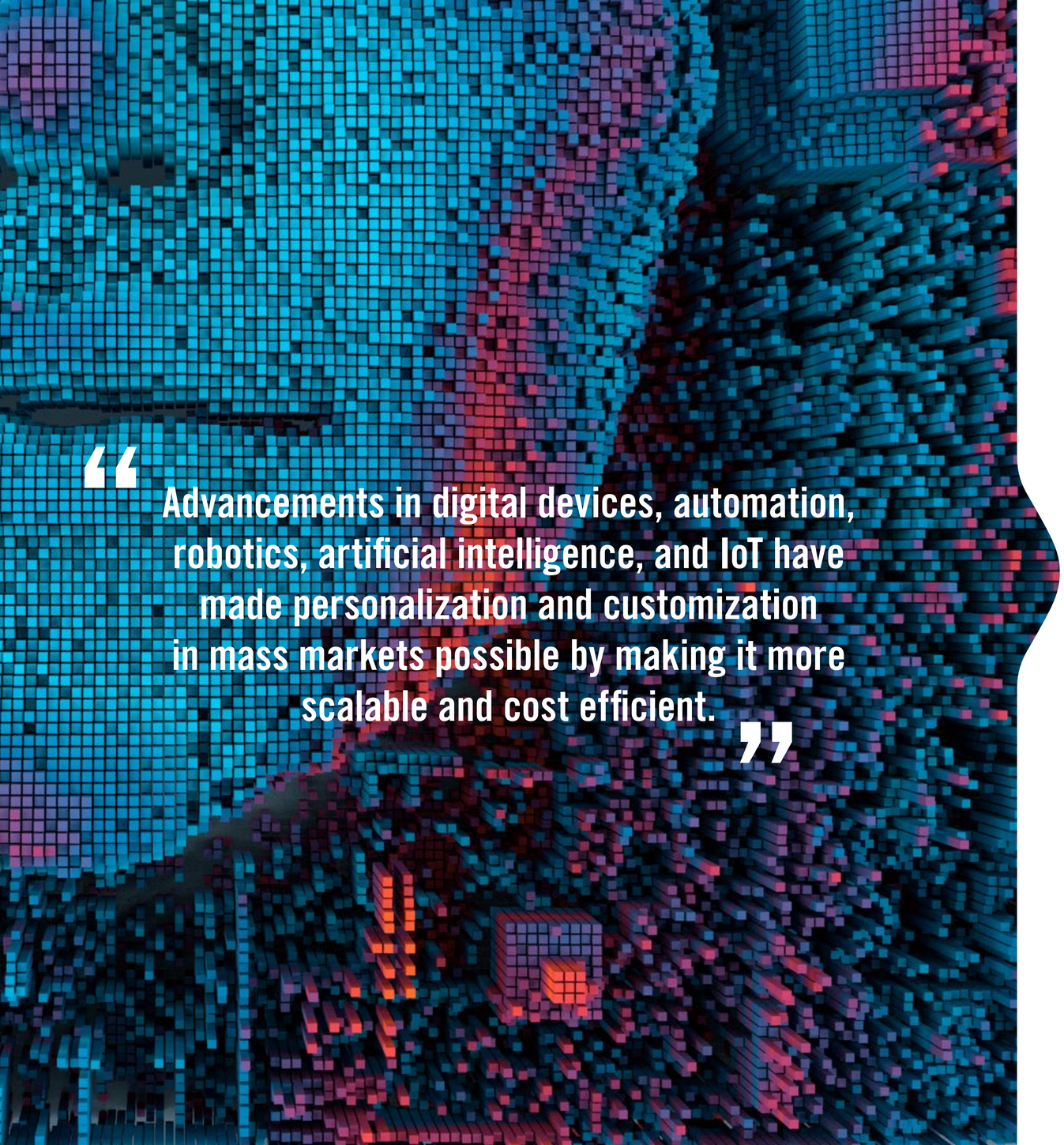
Not only are they willing to pay a premium, but they're willing to wait longer to get them. This preference for personalization is represented across young to older demographics alike, and in different product and service categories, from clothing and beauty products to lodging, entertainment, and health and wellness. Interestingly, the desire increases in the more expensive, intimate and lifestyle driven consumer categories (like travel, fashion,beauty, home, etc.), suggesting a growing influence between perceived value, self-expression and personalization.

You gain customer trust and engagement

Products and experiences can be hyper-customized (bespoke) to each individual's attributes, personal preferences (individual style, mood and tastes), and unique biological response (skin/hair type, microbiome, genetic signature, etc.). Not only can your consumer find the right product or have a hand in designing it themselves, but their individual response to the product can be tracked over time and fed back into AI and social platforms to recommend new products or changes that can be dynamically refined as they move through products.

It creates an easier buying experience

AI can use the consumer's digital footprint and personal data (online shopping, browser history, product questionnaire, etc.) to generate insights that simplify the buyer experience and curate or customize the product for the individual. Instead of having to choose between a myriad of products that don't exactly work, smarter systems intelligently work in the background to curate the best product in a process that is far simpler than searching through hundreds of products, reading reviews, watching YouTube reviews, and hoping your money has been well spent.



WHY ARE WE ONLY SEEING THIS EXCITEMENT NOW?

Direct engagement with the customer

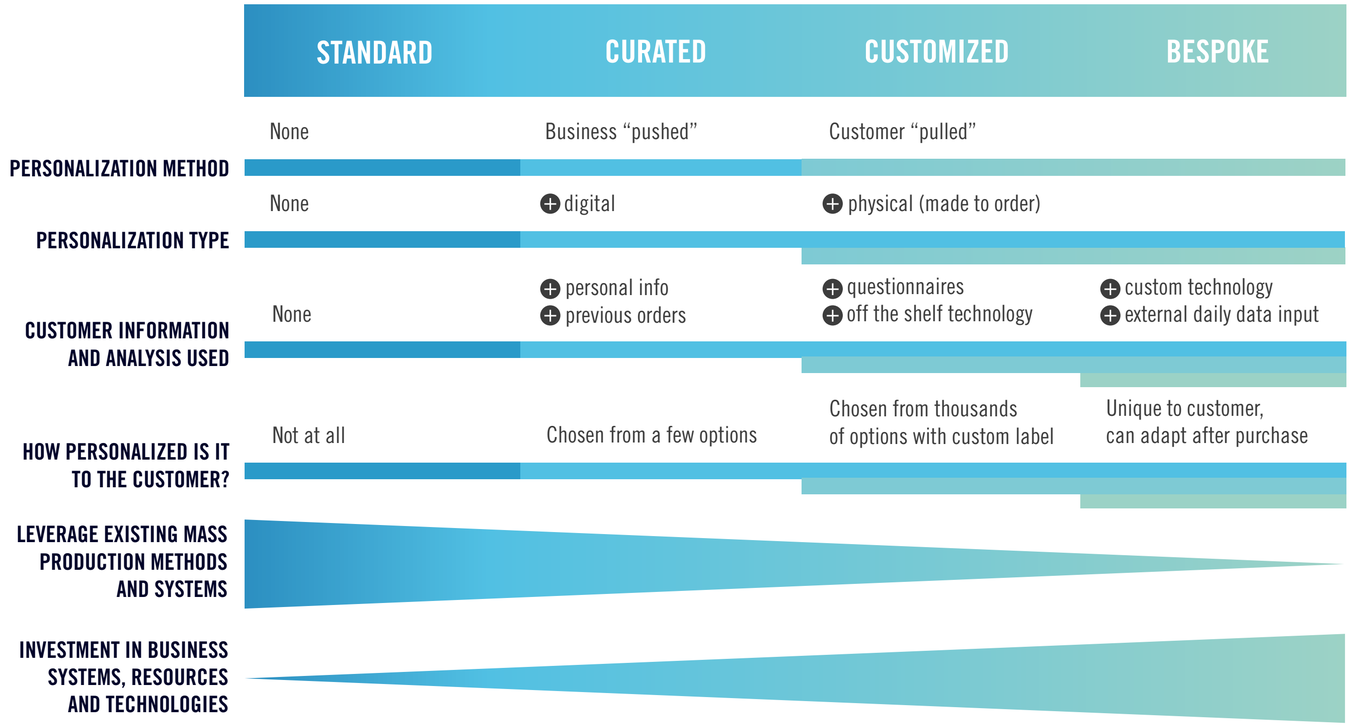
Radically new to many industries, and driving a massive digital transformation, modern digital experiences and devices are changing the buying process between consumers and brands. These new technologies are allowing companies to bypass traditional retailer channels and engage directly with consumers in novel ways. Today’s forward-thinking brands have a direct relationship with consumers, allowing them to engage in a dialogue and gather a tremendous amount of information about their customers to better understand them.

Advanced production and distribution possibilities

When coupled with advanced production and distribution possibilities, consumer data and insights from this two-way conversation are allowing companies to better tailor products and services on-demand to accommodate specific individuals, or groups or segments of individuals; and are empowering consumers to better dictate what they want, where they want it, and when they want it. With the advent of low-cost sensors and miniaturized connected devices, companies will not only have your demographic information and buying habits, but also know intimate details about your habits, preferences, and health giving them the ability to further refine products and services designed just for you, and/or designed by you just for you.

THE APPROACH TO PERSONALIZATION IS A SPECTRUM

This is the case when considering the technological approach. Achieving it can be done incrementally, allowing companies to experiment with personalization to learn more about their customer reactions and market demand, and to do so without damaging the brand.



THE THREE APPROACHES

Curated

Personalized curation is about finding and recommending the right product for the customer from available mass-produced products. Implementation can live in the digital space and run in the background requiring no input from the customer. For a slightly more sophisticated recommendation, basic curation systems can leverage additional technological approaches and inputs to enhance performance such as photos, social networks, or questionnaires generated by phone or computer cameras. Due to the performance limitation of these with not only the quality of image but also the environment in which it is taken, dedicated devices and higher quality sensors are sometimes necessary if a higher level of fidelity is required beyond what is possible with software driven AI solutions alone.

Examples in the market which show the range of fidelity for personalized curation:

Amazon's real-time e-commerce recommendation engine enables features like: "Customers also shopped for", "Frequently bought together" and "Recently viewed".

Fabfitfun hand-selects mass-produced products to match individuals' tastes, budgets and lifestyles.

Neutrogena Skin360 and SkinScanner, developed in partnership with FitSkin, allows personalized skin analysis with a phone and simple device accessory. The app offers advice on product recommendations.

Nike Fit scans your feet to create a digital measurement based on key physical datum points to help customers find the perfect fit with their shoes.

Home Depot online and mobile app experience allows customers to look up, plan projects in advance and navigate to specific products in the physical store. Features like "frequently bought together" and "related products" make sure the DIY'er doesn't miss complementary products and that they can find more easily.

"From purely digital approaches through to hyper-customized physical offerings, companies need to decide where they want to sit. Given the cost and operational implications, the likely strategy is to fall somewhere in the middle with considerations of the brand, product line, category and geography."

Customizable

Customizable products can be mass-produced, but the customer selects from limited options or features to customize the product to their individual preferences. Implementation can leverage proven mass manufacturing and distribution methods that benefit from economies of scale, while concurrently offering the ability to personalize the product to the customer with additional complexity to manage made-to-order features. This requires input from the customer to select the features—a process that can be enhanced through real-time diagnostics and AI systems that not only understand the customer and anticipate their preferences and selection, but can also help them track improvements and adjust formulations, features, and experiences over time.

Inside Weather is an online furniture company allowing customers to choose from a set of options to customize your furniture for your unique style.

Levi's Trucker Jacket with Google Jacquard changes the way a consumer experiences their apps and services on the go, letting users define gestures and how they interact with their clothing. Google Jacquard goes beyond jackets, including shoes, backpacks, and furniture.

Nike Adapt shoes adjust to the shape of your foot using a self-lacing system inside the shoes that's customized for a perfect fit and can be tuned to adjust the snugness of the fit based on how you are using the shoe.

ReST personalized beds adjust in real-time to each sleeper with your preferred level of control.

Codage is a premium skincare company with stores where you get a one to one consultation with a formulist and they then develop a custom formulation in store and customize the label for each customer.

Google Nest Thermostat learns your personal behavior and sets preferences to meet your lifestyle and daily routine. Beyond thermostats, Google home is integrating a suite of devices that work seamlessly together to deliver personalized smart home experiences across devices and platforms.

Bespoke products

With bespoke personalization the customer is brought into the design process from the beginning to help co-create one-of-a-kind products with the business. It is an interactive two-way conversation that requires input from the customer in the customization process to determine features, specifications, ingredients, and more. Personalized services such as online consultations and interactive questionnaires help the customer and business arrive at the best product together. Real-time AI and smart diagnostic technologies also help enhance this approach. Function of Beauty, Nu Skin and Prose are examples of beauty and personal care companies developing custom formulated products for hair and skin care around this model. Other interesting examples in the market are:

L'Oreal's Perso is an at home device which dispenses a custom formulation each day, analyzing the environment, performing skin analysis with a smartphone camera and entering personal concerns and future aspirations.

Scribit sells a wall art printer which started on Kickstarter. The customer can select from a huge range of designs or create their own design and then have it printed onto their walls at home.

Nomige takes your initial analysis one step further by taking a sample of your DNA and using this to create skin care products tailored to you.

Byte develops unique-to-you invisible braces for their customers individual needs & smile goals. With remote monitoring their customers are able to achieve the smile they've always wanted without leaving home.

eSalon's compact Polly Chrome machine at their kiosk can make a custom hair color in less than one minute. They also have a factory to allow for online orders, having a personal colorist who will craft your chosen color and analyze your hair from a photo to ensure the color is suited for your needs.

WHAT ARE THE CHALLENGES TO PERSONALIZATION?

Customer interest isn't clear

A recent Deloitte study reported that on average, 36% of consumers had a preference for personalized products and services. Age was a factor in the level of interests in personalization, as were consumer categories, with travel, home, apparel and electrical products and services showing the highest consumer interest—as high as 60% in some cases. One can look at this data in two ways: in the case of consumer goods, roughly 30-40% of consumers are interested in personalization, which as a news headline might seem like an impressive trend.

To the contrary, this also means 60-70% of consumers didn't express personalization as important in their buying decision, and consumer interest was based only on what they had experienced, not on what might be possible. As companies rush to embrace personalization there should be considerations in strategy to make sure this 60-70% and their current customer base isn't alienated in the process. And at the same time, ensuring innovation isn't held back by lack of consumer understanding of how future products & services could make their lives better. Consumer experience is continually progressing and companies' approaches to it should as well.

Reinventing a company is no small task

Exploring personalization is not an all or nothing strategy, but rather an exploration of fundamental consumer desires and aspirations and how to address them in a more personalized way. Achieving these goals can be done incrementally, allowing companies to experiment with personalization to learn more about their customer reactions and market demand, and doing so without damaging the brand.

Brands who start exploring a multilayer strategy now; one that spans from pure digital experiences to more logistically and technically complex investments around customer-led physical products, will develop a framework for personalization strategy. The roadmaps they develop can help guide other brands on the journey of delivering better solutions for an ever-changing consumer expectation.

Large cost and operational implications

Personalization on many levels requires rethinking how large companies do business. And even with modern technology, there are still large cost and operational implications when moving from high-volume mass production of uniform standard products to the more agile business operations and supply chains necessary for made-to-order physical products.

Adapting to more agile approaches and systems

It means changing core processes from design through delivery, and building a connected supply chain that can deliver at scale. This is why new startups have an advantage over established brands, and is why many of the most innovative technologies are being developed by aggressive startups building their business and operations model from scratch. A key reason why acquisition or strategic partnerships is such a popular and necessary path for global brands.

Inclusivity and algorithm biases

Personalization comes in all shapes, sizes, and colors. In an increasingly global and diverse world, making sure people don't get left out will be key to building customer loyalty across markets and geographies. And in product development, inclusivity starts at design. For example, to ensure face recognition algorithms recognize faces no matter race, gender or age, product development and machine learning experts need to start with that intention in mind.

In machine learning and AI you get what you measure ("garbage in garbage out" is the old adage) and algorithm biases can be a result of training and validation datasets that don't fully represent the target population and use case. For instance, algorithms trained on inadequate datasets can have more issues with overfitting—meaning, they achieve high accuracy on a limited training/validation data subset (and look like they work) but fail to generalize on the broader population and intended use. (In this example, the model is being asked to extrapolate outside the training dataset. When predicting beyond what it knows, the accuracy degrades and results can be unintended.) There are many examples of this happening with facial recognition models which work on light skin but are unable to recognize faces of people with dark skin—because the model wasn't properly trained and tested on a sufficient data set, including representative amounts of dark and light skin data. To mitigate overfitting issues, multiple training & validation strategies can be used, such as cross-validation and balancing model complexity and simplicity (number of features) to performance. We can also train with more data and more diverse data. As a result, success starts by building an inclusive data acquisition plan from the beginning by linking the target market and use case(s) to model development. This will ensure the dataset and training program is fully inclusive and representative of the entire target population and the intended use.

KEY FACTORS IMPACTING PERSONALIZATION

Consumer experience and efficacy

Brands who create remarkable experiences and address real customer pain points will win. Important here is the combination of delivering effective results with consumer loyalty in a way that is true to the brand promise. Personalization is about better user experience and taking away things that are not relevant, giving consumers more control in the process.

Partner, partner, partner

Tech giants are a growing influence across a number of consumer and health related industries, not only from a technology development capacity but also in acquiring innovative brands and building their own brand in new markets. Key to successfully driving innovation and personalization will be to either (1) develop your own digital transformation strategy and therefore own more of the consumer journey, or (2) partner with the technology innovators to bring something to market that is unique in both the physical and digital means. In either scenario, essential to success will likely be the partnerships developed with technology innovation consultancies and tech brands who have experience developing business-transformative hardware and software solutions.

Regulation matters

As innovation in this space continues, it's likely that regulation will impact how products & services are personalized. For example, in the personal care industry, when mixing on-demand one-off formulations, how will the individual ingredients and compliance of the final formulation be regulated? The reality is, navigating the regulatory factors will be a roadblock to pushing the innovation boundary in a number of sectors and will have a huge impact on what companies can do for on-demand personalization and customization.

Assembly where you can, build where you have to

The rapid pace of technology progression means that not everything should be built from scratch. Figuring out where original innovation needs to happen, and where you can leverage existing building blocks is important to any product development strategy. A big part of that is understanding the technology enablers and development risks and challenges for your roadmap. For example, a brand might not need to develop a new piece of hardware, but other times custom hardware will be necessary to achieve the unique customer experience, business and operating needs, and/or accuracy requirements. Understanding the balance of hardware and software and the tradeoffs between the underlying technical building blocks and systems will be key to developing a successful technology roadmap.

Transparency in how data is used

Customers want better products and services, and the collection of personal data (and sometimes sensitive information) is required to deliver on a brand promiseo do just that. Research by Deloitte showed that 20% of people are willing to let businesses collect and use personal information in exchange for businesses offering them personalized products and services. And that trend is likely to increase. However, if customers feel that their personal data is not secure and being used to their benefit, or to the benefit of society, then their loyalty will diminish. Building trust requires transparency in how personal data is being used and protected.

FINAL THOUGHTS

Digital technologies and experiences are massively transforming the consumer market. Companies are transitioning from selling products to selling a more holistic experience, and with constant pressure to innovate and stay ahead of the competition, the development of revolutionary personalized products and services will transform the industry. Coupled with trends in social media influence, new technology advancements and digital native consumers, this transformation is driving a heightened focus on personalization and made-to-order products. This trend is already in place with significant startup and acquisition activity. However, like any new market disruption, the jury is still out on which model will have the staying power to remain viable over a longer period of time. This transition could take five to 10 years to mature as new generations of consumers with different world views and experiences enter the market.

While we can't predict where personalization will ultimately land, we can infer that every major company is looking at personalization and what it means for their business and market position, and how investments in technology can attract new customers, provide more delightful and meaningful experiences, and create products that deliver better results.

As a result, personalization is not a one-size-fits-all for many larger brands and companies. The approach that each company embraces within this personalization approach will depend on their unique business. It will be a bespoke approach, tailored to each company's individual goals, market opportunity, capabilities and resources. Building strong partnerships across the ecosystem from concept through development and go-to-market will be key to delivering innovation at speed and scale.

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