

BUILDING YOUR FUTURE WITH

INTELLIGENT

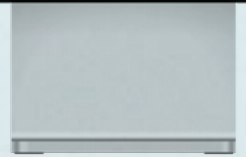
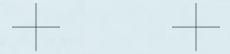
products



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SUMMARY



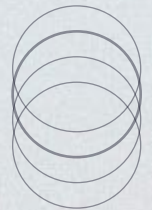
Today's most successful organizations are raising the bar on their digital experiences. Consumers expect seamless, frictionless experiences at every touchpoint, where personalization, efficiency, and relevance are the norm. And as the world becomes more complex, the need for intelligent products becomes clear.

As lofty as that sounds, there's also a fair amount of confusion around what intelligent products actually are.

Think of it this way: standard digital products are limited by rule-based personalization. Each does exactly what it's programmed to do. It's a typical cause-and-effect relationship.

Conversely, an intelligent product has machine learning personalization, using algorithms and predictive analytics to determine and display the most relevant and complete experiences—in real time and in a highly scalable way. They're built upon modern technology, data-powered intelligence, meaningful experiences, and aligned operations.

In this whitepaper we'll be going into detail about what makes a product intelligent, the opportunities as well as challenges in making the leap, and how companies can start to build their digital futures with intelligent products right now.



INTELLIGENT PRODUCTS ARE AN ECOSYSTEM OF INTEGRATED CAPABILITIES WORKING TOGETHER TO CONTINUOUSLY CREATE MORE POWERFUL, MEANINGFUL, AND PERFORMANT PRODUCTS OVER TIME AND AT SCALE.



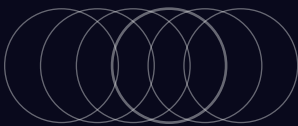


Today's challenges

In today's technology-forward environment, companies of all shapes and sizes face a variety of obstacles in delivering relevant, significant, valuable products. Obstacle both from inside and outside their walls.

From within, they face challenges relating to outdated infrastructure and systems, organizational silos, confusion over data utilization, finding and retaining top talent, and team workflows that hinder the ability to respond to market changes and keep up with the pace of innovation.

External factors are equally as impactful and can negatively impact customer experiences. User needs change and grow—with alarming pace and lack of predictability—adding importance to the need for better segmentation, increased personalization. And with all that change, simply deciding how and where to start can be a paralyzing proposition. So, what's needed?



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INTELLIGENT

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Products that inspire

Today, intelligent products can take insights, make them actionable, then create more powerful, meaningful, and performant products over time. They use Machine Learning to not only improve automatically through experience and data, but also manage and streamline repetitive and complex tasks that can be subject to human error. Intelligent products are the next generation of product innovation.

Even Gartner agrees about their place in the future of technology products, predicting that by 2022, 72% of customer interactions will include emerging technology, like ML applications.

Intelligent products are dynamic products

So, what are intelligent products? First, let's discuss what they're *not*. Generally, products have two highly distinct classifications: static and dynamic.

A typical product is static and often has rule-based personalization. It does exactly what it's programmed to do, typically following a cause-and-effect pattern, like a light switch. Flip it up—cause—and the light turns on—effect.

Alternatively, an intelligent product has ML personalization, technology that uses algorithms and predictive analytics to determine

and display the most relevant and complete experiences—in real time and in a highly scalable way. They're highly dynamic, advanced technology products.

Voice assistance, like Amazon's Alexa, is a great example of an intelligent product. She learns the habits and preferences about a specific user, then makes suggestions to maintain or improve the user's experience. For example, Alexa can track and learn that you turn on your outdoor lights at sunset, leading her to recommend that she automatically turns the lights on each day, in accordance with when the sun sets throughout the year.

Intelligent products gather and monitor their own data, then analyze and transform that information into knowledge that can continuously optimize the product to remain relevant and dynamic, always improving. An intelligent product never reaches sub-0 value requiring it to be phased out for a new product – instead the ongoing changes help give the product a long lifecycle.

So, how does a product become intelligent? It requires an interconnected, interdependent ecosystem.

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INTELLIGENT
PRODUCTS

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Intelligent Products are built upon modern technology, data-powered intelligence, meaningful experiences, and aligned operations.

I. Technology

Intelligent products are built upon upgraded and up-leveled cloud solutions that help centralize data and infrastructure. They also rely on a complex and multifaceted array of systems, inputs, frameworks, and services that enable and empower machine learning solutions. They connect disparate inputs into a single source of truth—allowing teams to focus on better experiences, not the technology needed to make them happen.



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II. Intelligence

When we're talking about intelligence in products, we're defining it as the ability to gather, understand, and manage information from new or variable situations. It's powered by data, and imbued with learning through automation. What kinds of products are we talking about?

- + DIGITAL VOICE ASSISTANTS
- RECOMMENDATION ENGINES
- SEARCH ENGINES
- CHAT BOTS
- IMAGE AND SPEECH RECOGNITION
- PREDICTIVE MAINTENANCE & ANALYTICS
- PROCESS AUTOMATION
- DECISION SUPPORT

The backbone of all of this is quality, structured, validated data. The more comprehensive (and accurate) the data, the more likely algorithms are going to be able to pick up patterns and maximize performance. And that's only possible if the processes to train and deploy models are automated.

III. Experiences

Here's where the rubber meets the road, as it were. Intelligent products provide differentiated, meaningful experiences to the people who use them. Only truly understanding their relationship with technology, how the products can better address needs, will create valuable solutions.

FOCUS ON PEOPLE

The end users, sure. But there is a whole host of people who need to work together to deliver products that those users find useful and useable. For intelligent products to be successful, addressing the needs of everyone is paramount.

ITERATIVE INSIGHTS

Understanding the insights necessary at each step of the development process allows continuous iteration and constant refinement. It's about taking those real-time insights into how users are engaging with a product and enabling improvements.

SEEABLE SOLUTIONS

Seeing is believing. Or, more accurately, it's solving. Taking the time to develop visual experience design artifacts to really see how a product's features, functions, connections, and capabilities will exist will go a long way toward avoiding costly and time-consuming rework. Full visibility into every step a product takes to completion is absolutely key.

IV. Operations

As customer needs, business goals, and technology requirements change, operational shifts to ensure speed and quality become paramount. It's critical to break down organizational silos to create a cohesive, creative, and nimble delivery team. Traditional operations can then adjust to manage the continuous cycle of real-time insights and iterations that this endeavor entails. The consolidated team will work with stakeholders representing different capabilities at a variety of levels. The boundary-busting team will need:

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DEVOPS CULTURE TO DELIVER
RELEASABLE VELOCITY

QUALITY FOCUS TO ENSURE
RELEVANCE AND PREVENT HARM

MODELS THAT ARE EFFECTIVELY
AND CONSISTENTLY MANAGED

CLEAN DATA TO VALIDATE,
TRAIN AND TEST

AUTOMATED PROCESSES TO
PROVIDE REAL-TIME RELEVANCE

[D]

Investing in processes that allow teams to better work together, with more consistency, and more often, ensures intelligent products remain relevant and up to date.

To summarize: an intelligent product without intelligence is a product. When technology is the missing ingredient, all we have is an idea. Without effective operations it will have quality issues—if it launches at all. When the experience is lacking, people don't use the product, so it has no value.

Each pillar is interconnected, each is essential.

Products powered by cloud

None of this is possible without the increasing speed, security, and efficiency of cloud platforms. For intelligent products to be successful, it's not enough to have a cloud presence. A strategy for cloud modernization will enable your technology, intelligence, experiences, and operations.

We work across all three major cloud providers, not to mention hundreds of other technology partners, to create the bedrock on which we build intelligent products.

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INTELLIGENT
PRODUCTS

Intelligent products are good for business. And for people.

Intelligent products are already making a difference in the lives of people, as well as companies. Check out the power and utility of intelligent products from some of our clients.

01

JRCS: SETTING A COURSE FOR AUTONOMOUS NAVIGATION

Shipping navigation can be a stressful, manual, sometimes dangerous undertaking. Even today. Just Right Customer Solution (JRCS), a global marine engineering company, looked to intelligent products to change the way ships navigate the high seas, and in doing so revolutionize an age-old industry.

In partnership with this Japanese company's innovation lab, we are collaborating to deliver advanced digital experiences. With Microsoft Azure Stack Edge deployed on-vessel, the teams used state-of-the-art machine learning to develop camera vision technology that can help identify and classify objects at sea, providing mariners with data-driven decision support, all at a glance. What's more, a map annotation feature allows a crew to access, share, and review geolocated voyage notes.

This is a prime example of creating intelligent products as a means to truly change a company—an industry's—trajectory. And further proof that when daring vision meets intelligent processes, organizational will, and talented teams—extraordinary transformations can happen.

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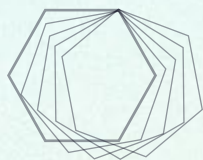
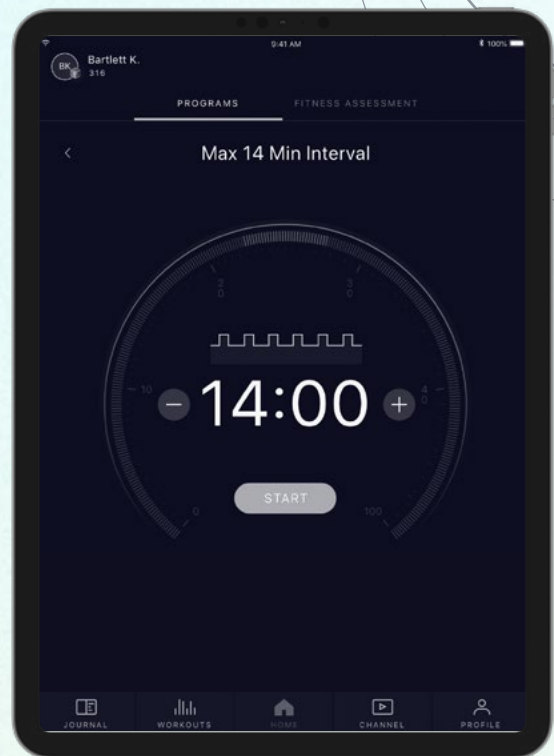
02

NAUTILUS: FLEXING NEW MUSCLE IN PERSONAL FITNESS

A worldwide fitness giant, Nautilus needed to digitally transform to meet customers' fast-changing expectations. It found a workout partner in Slalom Build that helped them build an intelligent product in a cloud-based app and transformational experience unlike any other. We gave customers the personalized workouts of a personal trainer, the motivation of a running buddy, the intelligence of a smart watch, and much, much more.

Using an intelligent, scalable back-end platform built on AWS, Nautilus was able to put its machine data into a user context for the first time ever. To enable the dynamic coaching feature, we built a technical platform that automatically pulls in data through an algorithm to return it in a complex fashion through many different elements—including voice response and workout recommendations.

Activity tracking and dynamic coaching create personalized assessments and workouts that evolve with users—so they can achieve success with every workout. Through operational changes and robust, intelligent user experience, Nautilus has put themselves on the road using intelligent products to vitally transform their business, and stay competitive in an industry built on competition.



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03

HOLOGIC: INTELLIGENT SCREENING TO SAVE LIVES.

Over 600,000 women are diagnosed with cervical cancer worldwide. Intelligent products are helping realize Hologic's stated commitment achieve the goal of eradicating cervical cancer through improved diagnostics and intelligent cytotechnology.

Built on Google Cloud, the solution combines advanced imaging technology and cutting-edge machine vision artificial intelligence to help cytologists and pathologists identify abnormal cells. The Machine Learning solution learned to effectively identify disease states of cells within individual slides, achieving an 84% accuracy rate—on par with that of medical professionals.

The ultimate goal is to broaden the AI/ML tools into a true intelligent product that will democratize the availability of the technology to women around the world regardless of race, location, or socioeconomic status. And, most importantly, we're helping healthcare professionals and women everywhere combat cervical cancer.



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OPPORTUNITIES?



INTELLIGENT PRODUCTS HAVE YOU COVERED.

To say the possibilities are endless might be a bit of an overstatement. Though when it comes to intelligent products, not by much. When all the elements converge, there's a whole bevy of benefits to be realized, but in the interest of space (and your time) let's whittle that list down to the big three.

Optimize performance over time and scale

Unlike traditional digital products, intelligent products get better as they age. Their built-in ability to grow with machine learning models, automation, data gathering, and utilization means they continue to optimize and improve. These native features enable the enhancement of product performance and increased reliability and stability—which in turn drives a longer product lifecycle, not to mention greater value throughout. And that's never been possible or cost effective at scale. Until now.

Generate more meaningful customer experiences for greater loyalty

Businesses are boosting their data and analytics capabilities and harnessing intelligence to really

understand their customers better. The key here, however, is that it's done automatically and in real time. That means providing richer, more personalized experiences that continue to grow throughout the engagement, ultimately delivering emotional significance and enhance customers' lives.

Build (and keep) better teams

Just as consumer behavior is evolving, so too is employee behavior. Intelligent products automate tasks so teams can focus on solving business challenges and creating innovation technologies, rather than the daily minutiae of maintenance. It's also a golden opportunity to upskill talent, to grow competencies and career development throughout the workforce. It's a shift in team empowerment that inspires employees and creates a culture of intelligence and modernization. Now, cross functional teams can help solve challenges to get to market faster and drive more revenue.

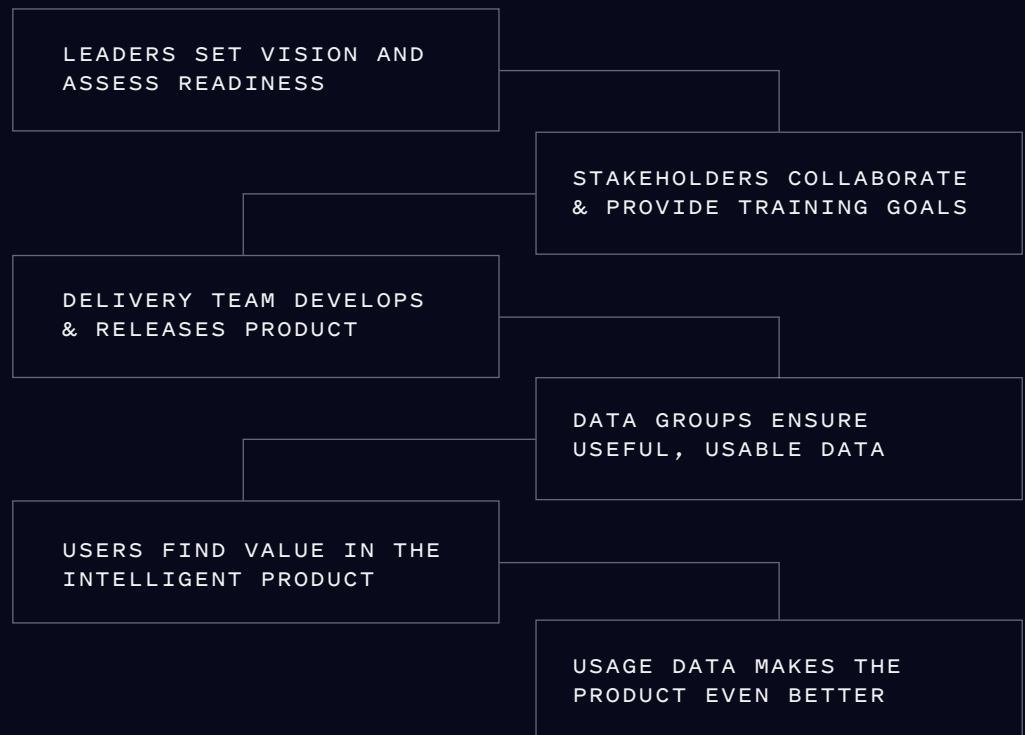


Achieving value with intelligent products

Seems obvious to even say, but simply using ML for the sake of using ML doesn't create value. True value—both organizationally and in the market—requires the toppling of organizational silos, ensuring systems, processes and data are unified and complementary. It asks product teams to define goals, requirements, and learning protocols in a holistic way that enables continued improvement and iteration. It necessitates a focus on each person along the path to value—and an understanding their unique needs.

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THE TYPICAL PATH TO VALUE ENTAILS:



To realize value, users must find the product valuable, and it needs to remain valuable as it scales. When that happens, users are smiling, delighted that their needs were anticipated. Each interaction improves the system.

charting your

COURSE



Fortunately, the journey to building intelligent products, while daunting, is actually quite achievable for anyone ready to make the leap.

Not comfortable with shooting for the moon right away? No problem, start building some intelligent features to an existing product and begin wrangling the data and analytics side. Then take another step, uplevel another feature. Then another, and another. Before you know it, that big visionary, world-changing product is well on its way to real. Here, we're outlining the three most common stages, but understand this is not a regimented, prescribed order. Wherever you are, well, that's a great place to start.

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Focus on Features

Many companies test the waters by adding intelligent capabilities to a small part of their product. Perhaps it's greater user personalization, or automating a process to enable and increase real-time engagement. Often, updating existing product features to be more customized starts with a recognition that there's much to do to wrangle the data, while mobilizing operations to support the effort.

Truth is, if even part of the experience is smarter, that's a big win.

Primed for processes

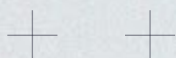
Adding intelligence and automation beyond just product features with intelligent processes is also a great step to take. It simply requires confidence in the data powering the process, the levers driving automation, and an understanding of the people involved.

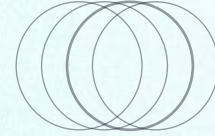
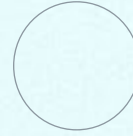
For instance, machine learning can automate workflows to perform data collection, reduce the steps involved, and free employees to do more innovative work.

Understand the Full Ecosystem

The full culmination of technology, intelligence, experiences, and operations working as one across a suite of products is where the full value of intelligent products is realized. They're now scalable, performant, and secure with the real time responsive and personalized experiences that can only come from an organization purpose-built for such an endeavor.

At this point, a business's focus is on intelligence enablement and innovation across their organization to a living ecosystem that connects and empowers experiences throughout properties and platforms.





AS ALWAYS, PREPARATION IS KEY

On the road to embracing the movement from features to processes to ecosystem development, there are plenty of places for reflection. If your company is looking to really, truly build intelligence, here are a few considerations to keep in mind, and some questions to help guide your decisions. Just some things to think about as you stride confidently into the future.

First, the building blocks

Do you have the specific pieces in place to make intelligent products work—and work for you? We've identified them as Technology, Intelligence, Experiences, and Operations. Many companies are working with an outdated tech stack, for example, or a workforce not quite on the cutting edge of their skill levels. This is a great opportunity to understand and take stock of where you are on this technology journey—and what steps need to be taken to get started.



QUESTIONS TO ASK YOURSELF:

IS MY EXISTING TECHNOLOGY
READY FOR THIS UNDERTAKING?

WHAT ABOUT THE ORGANIZATION?

ARE MY PEOPLE ENGAGED AND
APPROPRIATELY SKILLED?

Second, become pros at processes

Next, let's talk everyone's favorite subject: process. Improvement here is absolutely critical to be successful with intelligent products. Ensuring there is broad agreement—from across leadership and beyond—that this is the right road can make or break the effort. Organizational walls will need to be toppled; business silos will need to be dissolved. Companies that have traditionally operated in a sequential, waterfall fashion will need to embrace an Agile development methodology. One that brings all the parts together to plan, innovate, iterate, evolve, etc. concurrently. It's an undertaking. Worth it, but there is some effort involved.



QUESTIONS:

IS MY ORGANIZATION READY TO
MAKE THE NECESSARY INVESTMENT
IN CHANGE?

WHAT ARE THE BARRIERS AND
SILOS THAT WILL NEED TO COME
DOWN?

Third, data, data, data

It might be the word du jour these days, but there's no discounting the impact of data. Thing is, every company is collecting clouds full of it, but is it reliable? Is it consistent? And, equally as important, who has access? What is the governance policy around this trove of information? We've found that it's more than simply gathering data to make choices, rather it's leveraging the full strength of that data to continuously drive iteration and evolution. Perspective can be gained from a core development sense to help you be more targeted, more efficient, more, well, intelligent in the places you push and pull.



QUESTIONS:

HOW IS MY DATA INFLUENCING AND IMPROVING USER EXPERIENCE?

WHAT CAN BE LEARNED ABOUT WHAT'S WORKING AND WHAT'S NOT?

IS MY DATA CONSISTENT? AND CONSISTENTLY ACCURATE?

Fourth, there's power in the people

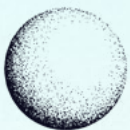
Every leader worth their salt understands that none of the planning, strategizing, org shuffling in the world matters if their people aren't on board. And oftentimes that means upskilling and up-leveling abilities—either through additional training or strategic hiring. Consideration needs to be given to how to evolve a workforce to create and support intelligent products. There are options aplenty, but staying put isn't one of them.



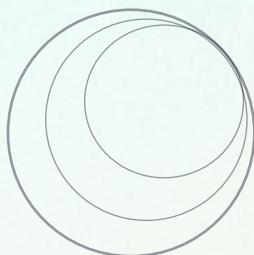
QUESTIONS:

SHOULD I SPIN UP A SMALL PILOT GROUP THAT BECOMES THE EXPERTS IN THE ORGANIZATION, THEN TRAINS AND EVANGELIZES?

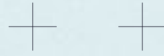
OR PERHAPS BRING IN OUTSIDE ENTITY TO HELP FACILITATE OUR TRANSFORMATION?



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READY TO BUILD



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INTELLIGENT

products? we can help.

The future is intelligent. And building intelligent products that reach beyond feature improvements through every stage of maturity will require alignment across the business—one that will help guide downstream operational changes.

Slalom Build has the experience and expertise to help your business at any stage. We work closely with companies to help identify capability gaps, then share the tools and processes to upskill existing talent. We're on the entire journey, working together throughout the engagement, to create the products, services, skillsets and organizational change that will help you into the future. It's not easy bringing internal organizations together to align on transformative innovation. We know. We do it every single day.

Reach out when you're ready to take the next step. We'd love to help!

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about

SLALOM BUILD

Slalom Build is a highly scalable, high-velocity *Build as a Service* firm. We work with clients in a flexible, collaborative, and repeatable methodology to create custom technology solutions for their most impactful initiatives and to accelerate their digital transformation journey.

Nearly 2000 Builders strong, distributed across eleven dynamic cities, our innovation hubs attract the type of people who contribute to thriving teams. By placing Builders in close proximity to clients—as well as their cultural and technology cohorts—we can assure the quality, versatility, and speed that product delivery demands, along with the elasticity and scale to tailor to individual client needs.



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