Digital Report 2020

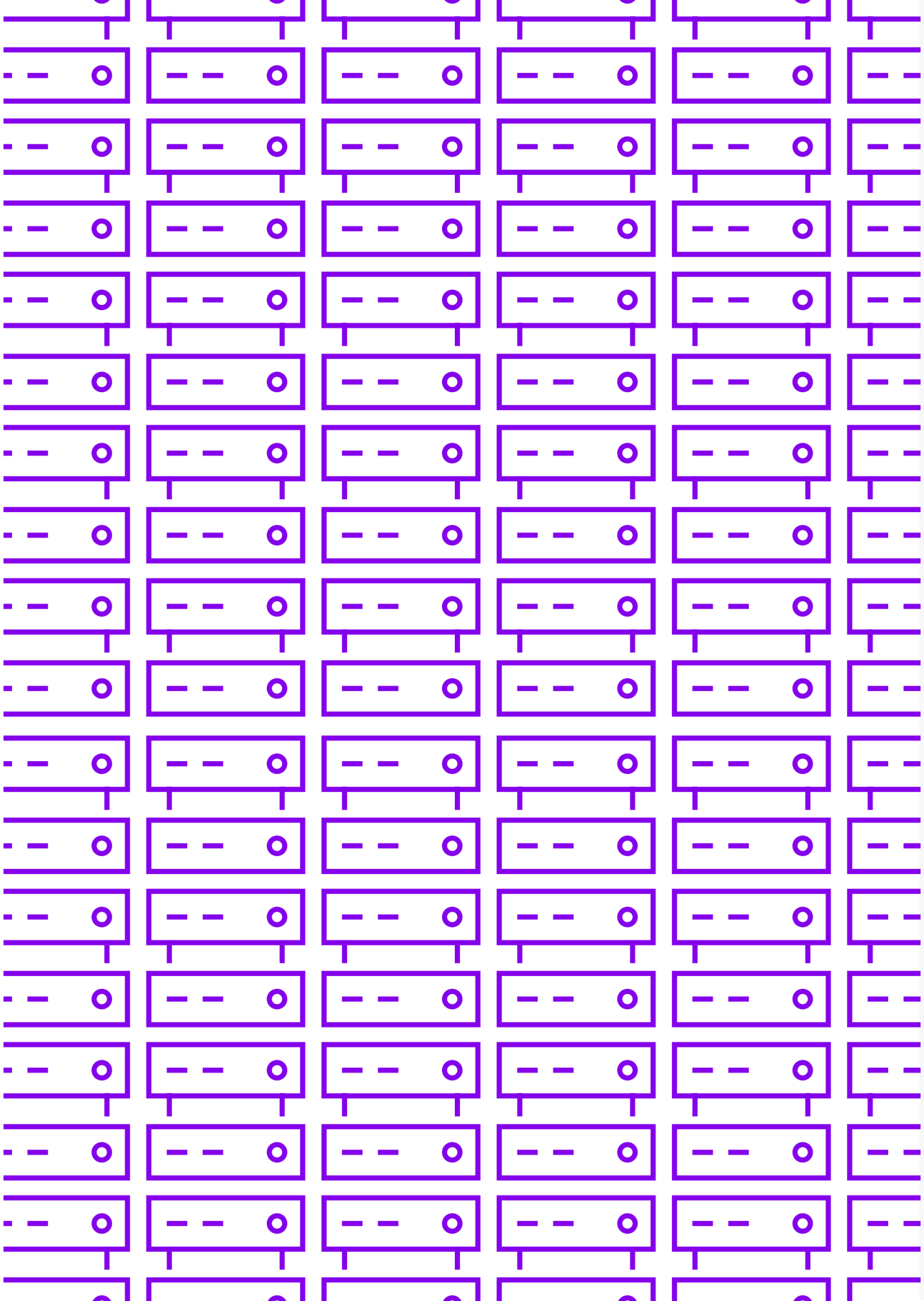
From Storage to Story

Delivering New Value by Unlocking the Power of Data

Create

KIN+CARTA

Index



Data, Data, Data

The reason it is at the forefront of business strategy.

From intelligent and personalized customer experiences and real-time employee decision-making, to predictive and automated business operations, data has become the most important resource for any business.

We already know that where there is data there is opportunity. The question on everyone's mind is how to unleash that opportunity.

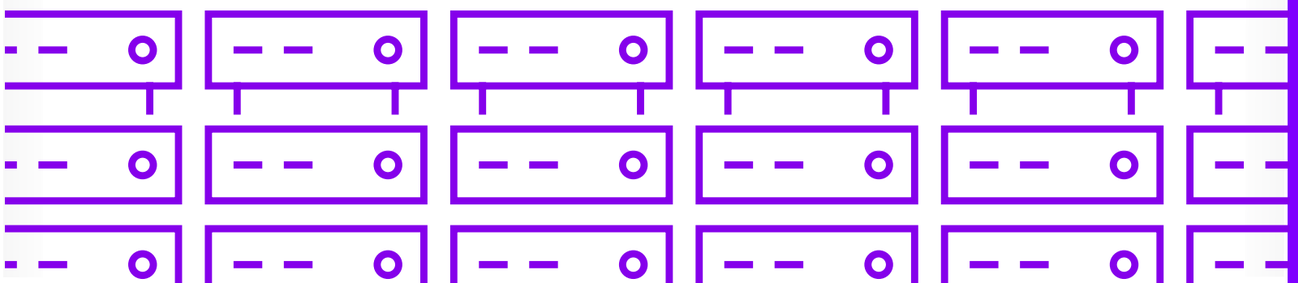
A thorough answer to that question requires many different perspectives. The sheer volumes of data being created and captured mean that from an IT operations perspective, data management is an area that requires constant attention.

The question of whether that data should stay on-premise or be moved to the cloud is more one of timing; in most cases it is inevitable. Cloud vendors can almost always do a better job of modernizing data platforms through better storage, scaling and security of data.

Our focus then turns to organizational and operational obstacles to making this happen. Within an organization, perspectives on these obstacles are often conflicting and inconsistent:

- Our organization does not have the skills to deliver on the promise of data.
- We are drowning in data but getting access to it is still a major barrier.
- We struggle to acquire, transform, and prepare the data we need to start a project. Poor data quality is a showstopper.
- We have too much data.
- We suffer from data bias/data sensitivity/compliance/ incomplete data.
- The entry costs are too high.
- We are unclear on our technology choices.

We recognize many organizations acknowledge data as an asset but don't yet have the strategy, team or competency to know where to begin. Because the promise of previous approaches have under-delivered, the missing element is data strategy. We believe we have the approach that can not only get you started but also allow you to deliver incremental value while eating your data elephant in bite-sized pieces.



Executive Summary

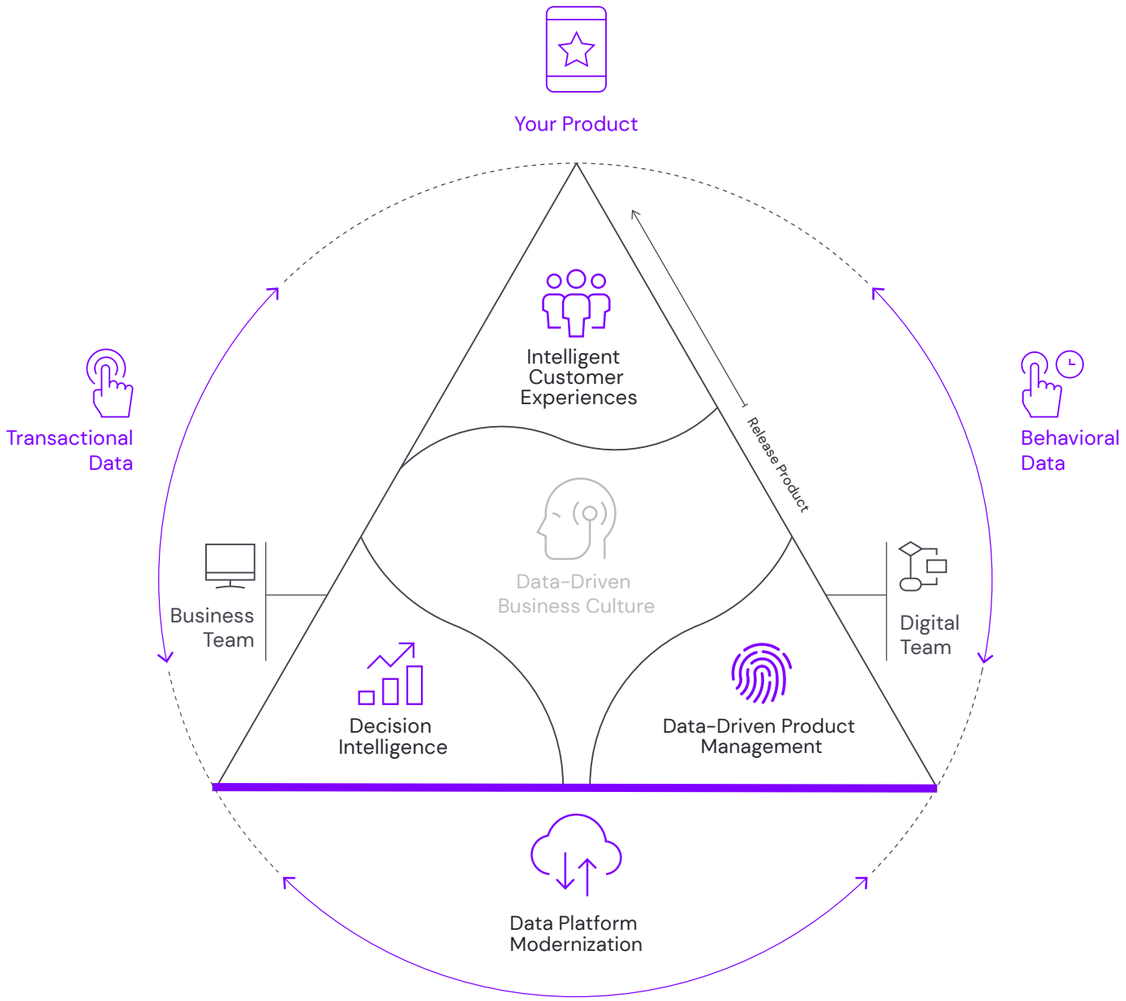
When it comes to data, does your organization operate with a Storage mindset or a Story mindset? Are you collecting data and allowing it to go dark without a clear purpose, or are you actively identifying, capturing and uncovering the stories data can unleash?

We know that optimizing the full value of data and figuring out where to start can be difficult. That is why at Kin + Carta we make data work in four clear ways, and we can help you take yours from Storage to Story, from modernization through to product optimization.

Our approach is focused on creating digital products with data to enhance customer and business outcomes.

The Story Mindset

How data lives and flows in our ecosystem of capabilities



[INSIGHTS]

Data-Driven Business Culture
Unlocking the power of data depends on a deliberate culture designed to support it. Including data literacy, expectations around decision making and access across an organisation -it´s driven from the top down. And it´s no longer an option.

[CAPABILITIES]

Data-Driven Product Management
The process of using data to inform the design of digital experiences and products. Including qualitative behavioral insights, UX testing, usage analysis, customer journey mapping and more.

Intelligent Customer Experiences
Digital experiences are powered by data-driven AI systems -including things like voice assistants and intelligent search. As customers use the product, both the business and the technology itself get smarter.

Behavioral data is used to optimize the experience in real time. And it´s fed back to the business team, to unlock new opportunities and smarter decisions.

Decision Intelligence
This is the process of turning data into insight and seamlessly injecting these insights into the daily workflow of the business. This helps engineers, designers, marketers, sales people, and researchers make better, faster or fewer decisions. Operationally this could help predict things like customer behavior, demand forecasting or churn. Product insights may lead to new design changes, new features, or new products altogether.

Data Platform Modernization
A modernized data platform is the foundation that makes everything faster, smarter, and more easily adaptable. Cloud-native data architecture allows for faster analysis, easier access, real-time accuracy, and seamless scalability.

[CAPABILITY]

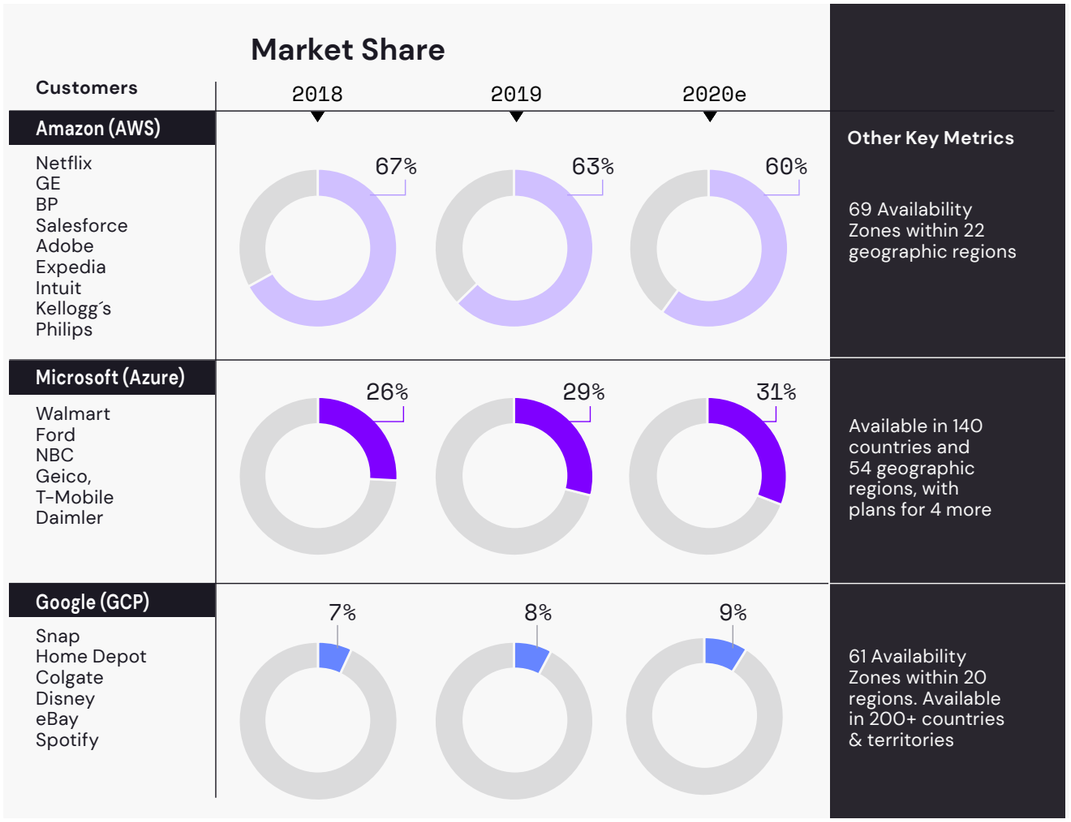
Data Platform Modernization

Creating a foundation of agility, efficiency and value at scale.

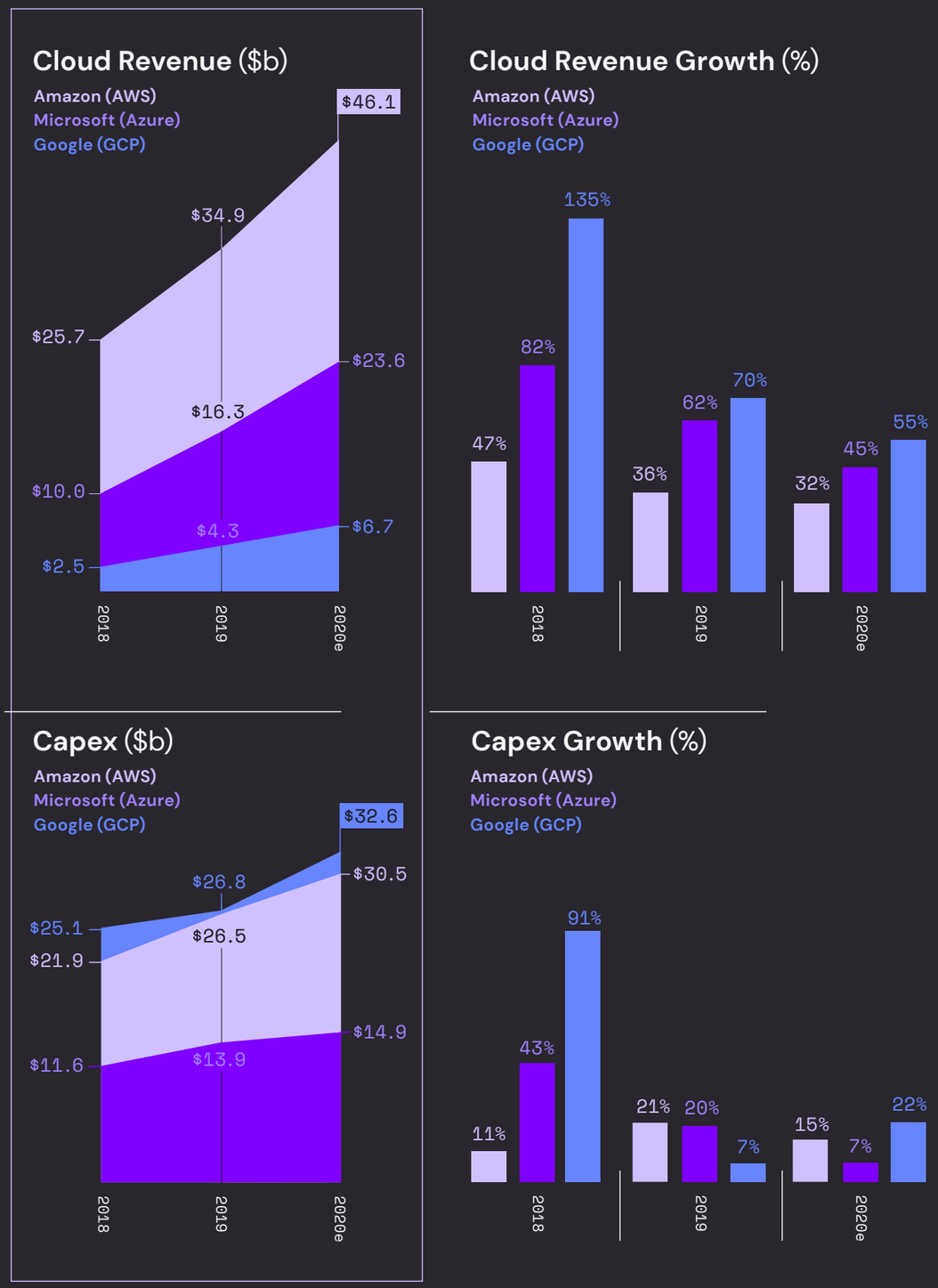
On the surface, many modern data platforms resemble their legacy counterparts. SQL has been around for over forty years, and SQL databases are still the most popular overall. [1]

However, a comparison between a typical on-premise database workload and its modernized cloud-native replacement reveal a data platform landscape that has changed beyond all recognition. On-premise deployments can't compete with the pace of innovation, security, or operational scale of the hyperscale giants[2].

Data modernization and cloud adoption are happening. While these can clearly be independent initiatives, there are benefits in aligning the two. Cloud vendors are well positioned to support and deliver value to those who adopt this strategy. There are currently three leading vendors in the cloud platform market: Amazon (Amazon Web Services), Microsoft (Azure) and Google (Google Cloud Platform).



Graphic adapted from ZD Net: Top cloud providers in 2020: AWS, Microsoft Azure, and Google Cloud, hybrid, SaaS players, 2020

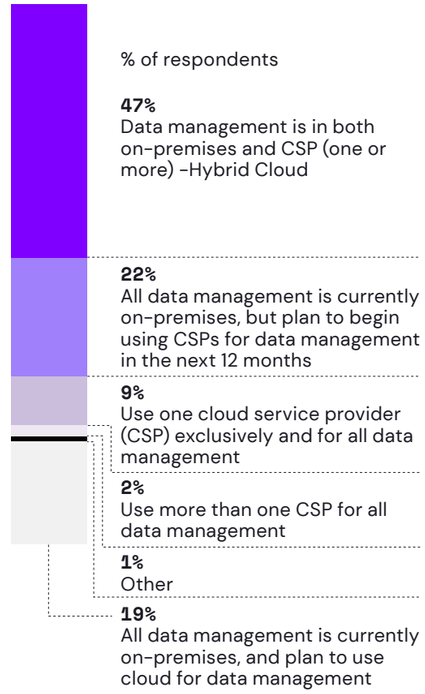


Graphic adapted from ZD Net: Top cloud providers in 2020: AWS, Microsoft Azure, and Google Cloud, hybrid, SaaS players, 2020

A recent Garner survey[3] suggests that the database management system market is moving aggressively toward cloud services. More than 80 percent of respondents indicated that they were either already using or planning to incorporate a cloud services provider (CSP) for data management. In another recent survey (Gartner's Data Management Strategy 2019 survey), Gartner also found out that 80 percent of respondents who were cloud users were using more than one CSP.

Of course, many considerations and decisions are required during this transition, but ultimately there is no doubt that most data workloads which can be modernized to the cloud, i.e. not subject to regulatory or legal restrictions, will be.

Cloud Services and Data Management



Graphic adaptated from ZD Net: Top cloud providers in 2020: AWS, Microsoft Azure and Google Cloud, hybrid, SaaS players, 2020

The key differential value of cloud infrastructure, in comparison to legacy systems, is that it allows organizations to be agile and thus quickly respond to change in a dynamic and competitive marketplace.

Why is this happening?

Modernization efforts are being driven by a number of forces including customer demands for a better experience, decision-making, operational efficiency, new revenue models, and even industry disruptors. So why is data modernization pushing enterprises to look to the cloud to help with this effort?

Cost Savings

Is it driven by cost savings over on-premise data centers? Not really; many businesses are realizing that simply moving workloads to the cloud without optimizing them can cost more.

Operational Agility

The key differential value of cloud infrastructure, in comparison to legacy systems, is that it allows organizations to be agile and thus quickly respond to change in a dynamic and competitive marketplace. Our work with Gordon Food Services stands as an example of this. After building a new ordering application based on cloud storage, the leading food distribution company was able to establish iterative feedback loops with customers and thus increase customer satisfaction and scale up and down to match demand when experiencing seasonal fluctuations. [4]

Availability of Cloud Services

Cloud providers can unlock value in your data in two ways:

1. Scalability: the ability to elastically scale and hence work with the kinds of very large data sets that are typically associated with customer interactions and behaviors
2. The immediate availability and applicability of analytics, cognitive AI, machine learning and other application programming interface (API) services

This agility allows an enterprise to remain competitive and adapt quickly to market changes and customer demands while building quality products.

Benefits of the cloud for business and IT

- Full range of flexible services to support a platform approach: decoupled resources, managed services, elasticity, self-service, storage options, compute options, security and disaster recovery.
- A better developer experience with the support for tooling and automation for DevOps and continuous integration/continuous delivery. In conjunction with Agile development methodology, it is possible to deploy continuously while minimizing impact to existing functionality.
- For more advanced technologies such as AI or machine learning, it is possible to massively parallelize and compute quicker in the cloud than on-premises.
- Services which can handle a wide range of data including structured, semi-structured, and unstructured data from different sources like application logs, web applications, mobile devices, social media, sensors and IoT data.

From Storage to Story

Whilst modernizing data to the cloud is already underway, it would be easy to consider the lift, shift, and optimize to be a success in its own right. Forbes and IDC highlight dark data as an increasing trend: According to them, 90 percent of the unstructured data are never analyzed[5].

One of the biggest challenges in moving along the Storage to Story continuum is how to get started. Common thinking today asserts that the key foundational step is for data to be stored, owned and managed by a central team in a data lake. The industry is littered with such initiatives, and though there are undoubtedly some successes, this approach does not align well with the agility modern cloud data platforms offer. It is equally constrained by a central team model. The idea that APIs should be owned by a central team as a model for managing enterprise applications makes no sense in 2020. Our approach to data should be the same.

At Kin + Carta, we naturally look for approaches which create both differentiation and speed. We orient our capabilities around product-based thinking, which also applies to the data platforms which power those products. We believe that although in the past decade domain-driven design has revolutionized the way we approach application modernization, data platform modernization has yet to benefit from an equivalent pattern. However, would you be surprised to hear that this pattern already exists, aligns perfectly with existing domain-driven approaches, and can be implemented today?

It is called a Data Mesh, and it provides the distributed data architecture and team models required to liberate data at scale and support analytics, machine learning, and data-powered digital products.

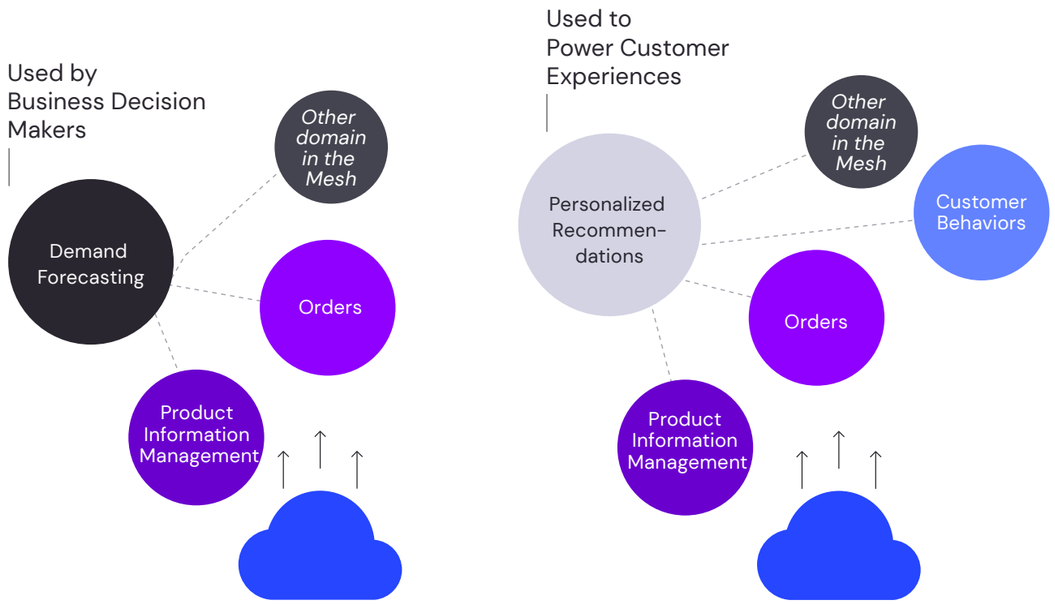
The key principle is that data and the owning teams should be organized in a way that aligns with the business domains which support the digital experience or analytics use-cases. Data teams are no longer central and purely IT-focused; instead they are defined around those who know most about the domain to acquire, transform, document, catalogue and ultimately provide this domain data back to the business to power these new digital products and analytics use-cases. There is no longer a central data lake to serve analytics use cases. Business decision makers all get direct read-only access to data from each domain to use as needed, as the source of the truth. Though the domains have distributed ownership, the data platform technology does not; it exists on a common cloud or hybrid cloud infrastructure.

We know that elements of this approach have been happening for some time, but this itself has not been recognized as a pattern in its own right until recently. By fully embracing this approach you can incrementally create your data mesh.

How to get started seems an obvious question. As part of your modernization effort you may also be considering a new analytics use case, modern workplace, or customer-facing digital product. This can be your forcing function to get going with a data mesh. By bringing together business domain expertise, data architecture, infrastructure, applications and the organization's core principles, you can make a success of this first product, iterate continuously, and align your approach to support the target end state.

Modernizing your data platform is a huge first step, but the journey from Storage to Story and a modern data architecture to compete with the digital natives is right in front of you.

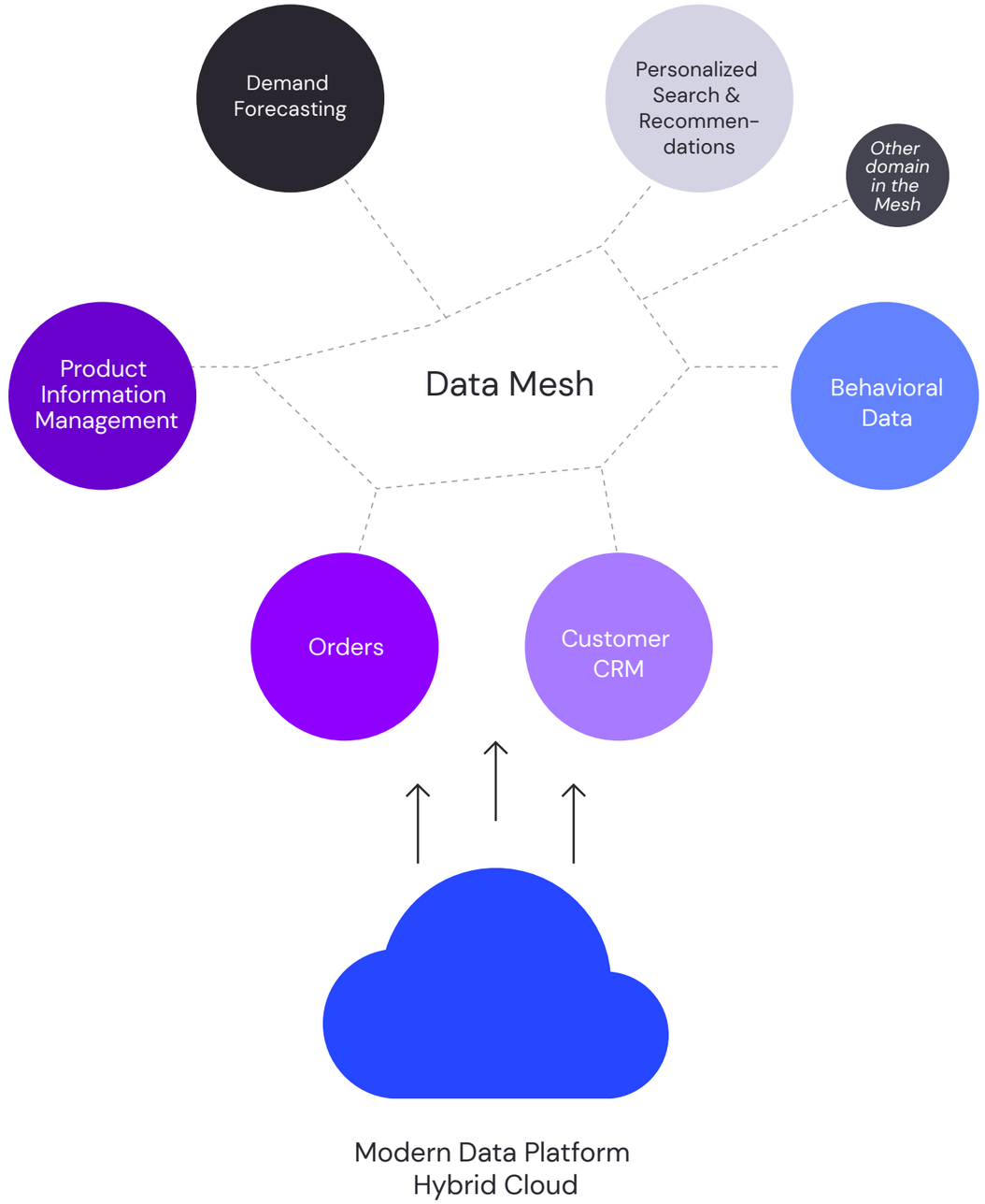
Data Mesh



1.
Products and Orders exist as separate domains in the business and also in the data mesh. The data within each, for example Demand Forecast, is available to domains to use read-only. This new domain serves applications used by business decision makers but is also available to other new domains via the data mesh.

2.
By combining data from existing domains of Products, Orders and Customer Behavioral Data, a new Personalised Recommendations domain is created. This new data can then supply multiple digital products and channels, or be used by other domains.

3.
Domains interrelate and come together to form a Data Mesh, allowing data to be liberated at scale.



[CAPABILITY]

Data-Driven Product Management

Putting data at the heart of every design choice.

Designing a world-beating digital product to solve a customer problem requires a deep understanding of that problem. When the solution itself requires data to power the experience, how do you design for a problem you don't fully understand and a solution you can't completely envision? Here we will unpack how data is a necessary part of the design process in a world where the technology leaders continually show us how it is done with increasingly impressive digital products.

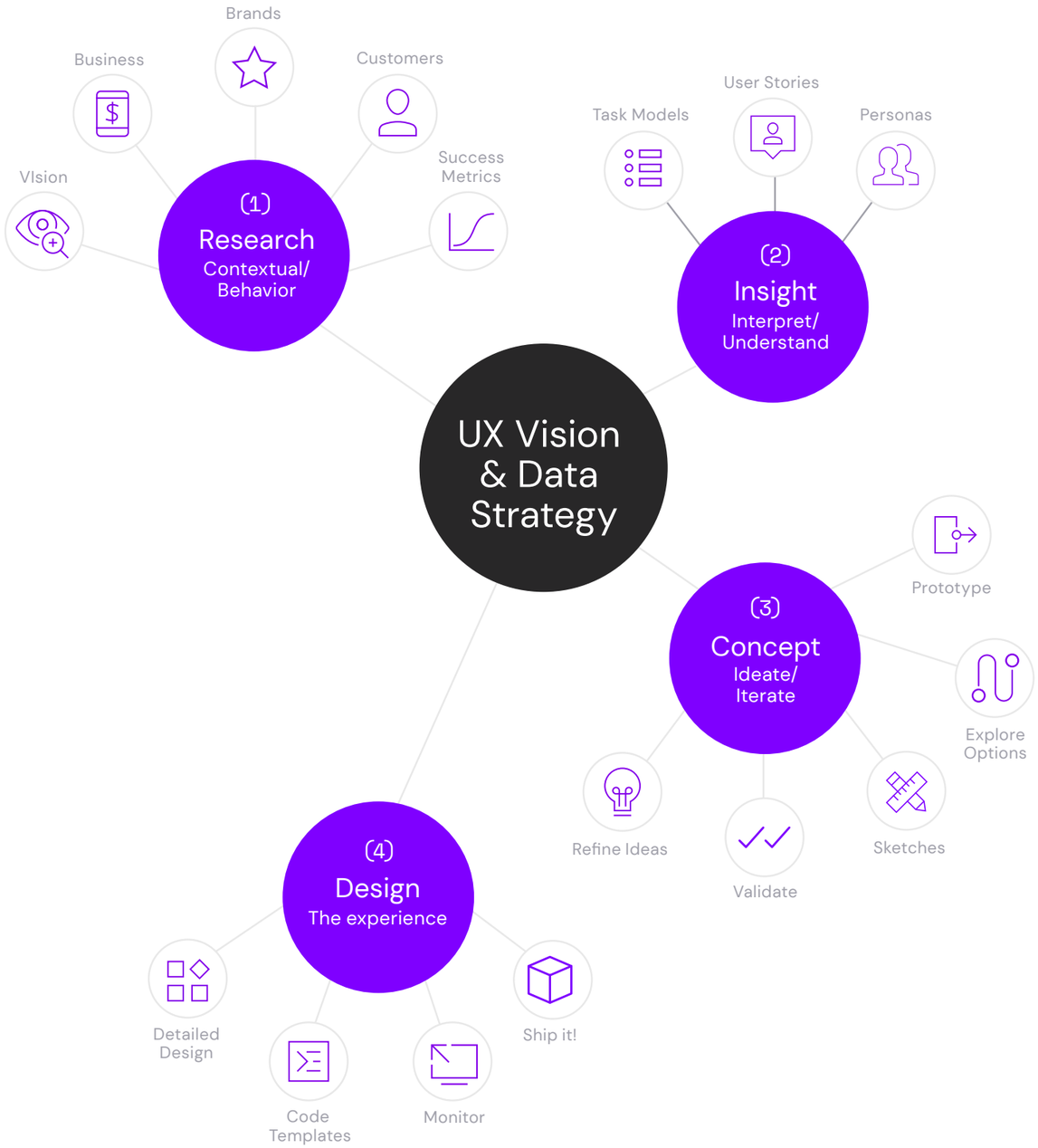
Understanding the problem to solve

Modern design thinking encourages an objective view informed by data and research. This is all sensible. Success in designing customer-facing products should naturally be dependent on a clear understanding, which includes user behavior. With all this talk of data to inform the design process, as well as the subsequent optimization of that design through techniques such as A/B testing, it would be easy to not put quite so much focus on another equally important and related issue: designing for data in the experience, either explicitly (where users engage with data) or implicitly (where it powers a more subtle but intelligent feature).

All of a sudden there is a great dependency on understanding not only how to interpret data to inform design but also how to embrace the art of the possible with data in the many ways it could form part of the solution.

"Most people make the mistake of thinking design is what it looks like. People think it's this veneer — that the designers are handed this box and told, 'Make it look good!' That's not what we think design is. It's not just what it looks like and feels like. Design is how it works."

Steve Jobs



Graphic adapted from Adobe, The Importance of Data in Design, 2017

Embracing AI

Almost every digital product today has the potential to embrace AI and data in some way. Not taking this problem seriously is a huge missed opportunity to differentiate. This is a problem that the tech elite has already recognized.

As Forrester researchers have recently commented in their report "Predictions 2020: Artificial Intelligence. It's Time To Turn The Artificial Into Reality (Checks)":

"The tech elite will ramp up AI plus design skills, while others will fumble. Today, companies like Adobe and Google pair human-centered design and AI development capabilities. Next year, these tech elites will ramp up their efforts to find people with knowledge in both fields — as design skills like problem finding, user research, visualization, and pre-development prototyping prove invaluable. But non-tech companies will turn to designers focused on look and feel and limit their involvement to 'design the box around the AI.'[6]"

Though AI has certainly shone a spotlight on the value of data, it has been possible to observe for many years those data-powered digital products, which seem to put form over function. Steve Jobs is famously quoted as follows:

"Most people make the mistake of thinking design is what it looks like. People think it's this veneer — that the designers are handed this box and told, 'Make it look good!' That's not what we think design is. It's not just what it looks like and feels like. Design is how it works."

Designing with data

Data has raised the bar in defining what consumers expect "work" to mean. The tech elite churns out endless intelligent digital products today that increasingly do so much of the heavy lifting for us in terms of user recommendations and personalized suggestions like Gmail finishing your sentences.

Our approach to data and product design addresses this challenge, giving non-tech companies the ability to create digital products which follow similar traits with data to those we admire from the tech giants.

- Data empowers better insight and decision-making. This includes health data from your watch, dynamic pricing, and demand on commerce sites
- It allows us to make the best decision, not just complete the task (e.g. booking a flight).

Tackling this challenge requires a cross-functional approach to design, addressing each of the following areas specifically:

1. Client requirements and outcome(s) (user experience research, user experience design and human-centered design)
2. Understanding the art of the possible with data (data strategy, data science)
3. Mapping technology and data (engineering and data architecture)

Involving a cross-functional team in (1) will help align everyone to the complexities of the problem. Much is already written about (1), but certainly less has been done to address (2) or (3) as part of the design process. Indeed, the first challenge here is in fact simple awareness of the issue. Design and data/AI cannot exist in silos.

The key to making traction with (2) and (3) is to see data as the starter for everything. What data do you have today? What can you collect? What can you generate now (behavior from user interactions, machine data)? What could you generate in the future? How could all of this be unlocked in the design process to create better digital products for your customers? We focus on data:

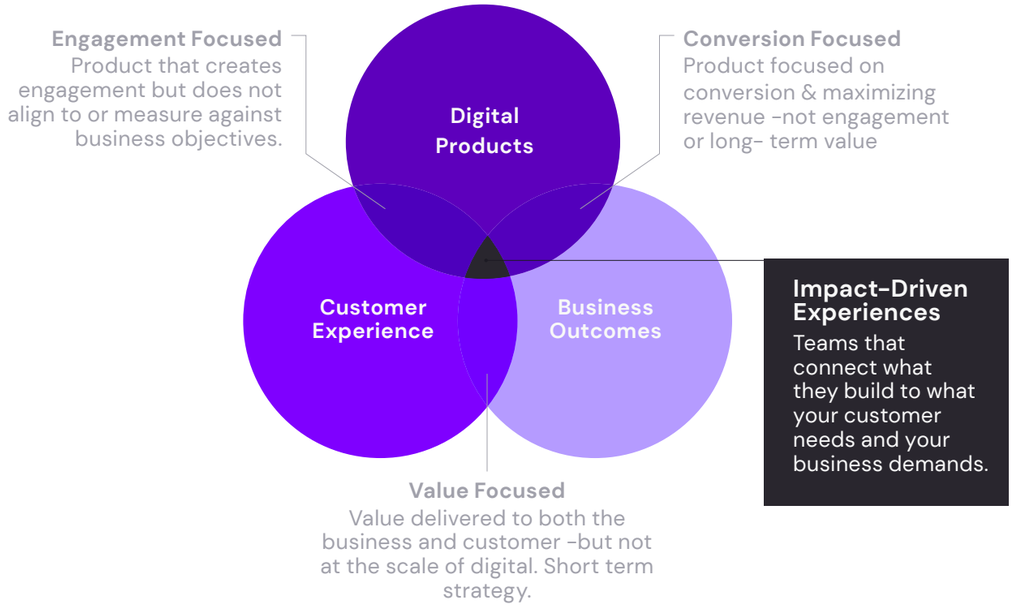
- Directly through the data used to power your experience via features, such as product catalogues and search
- Through intelligent features, powered by machine learning that help customers achieve their tasks. For example, via recommendations using data created through the interactions your customers have with your product (behavioral data)
- Indirectly through optimizations made to your product features based on data harvested from experience optimization experiments such as A/B testing

The combination of data and design thinking has created some of the most admired digital products out there today. We already have them on our smartphones and use them every day, and they set our expectations for every other digital product we use. Non-tech organizations in any industry can leverage similar principles on their own digital transformation journey.

Optimizing with empathy

Even postlaunch, the customer experience design process is far from finished. In fact, in many ways it's only begun, as a continuous data-driven optimization process is critical to creating long-term value for you and your customers.

Identifying your most engaged users through behavioral data will help you gain a more well-rounded understanding of how your power users engage in unique ways with your brand and product. The primary purpose of data analytics should be to build emotional connections and customer empathy. This customer empathy empowers deeper customer obsession. By democratizing data within your organization, you are empowering every level of your organization to deliver a more customer-centric experience, inside and outside of your digital product. It's a strategy we call digital product intelligence. One of the leading product intelligence companies, Amplitude, says this best: "Lives not page views[7]."



Graphic adapted from Amplitude, 2020

At its core, digital product intelligence seeks to capture, measure, and analyze customer engagement data to drive insights and paint the full picture of your customers. This 360-degree view of your customers will allow you to continually optimize their digital experiences to meet their unique desires, needs and preferences. Through engagement data, you can also more easily identify the characteristics of your power users and more quickly drive new users to exhibit these same behaviors.

One of the biggest challenges for any organization is to create an environment where people feel as though they can influence and make change happen. That's where digital product intelligence principles offer inherent advantages. The quickest path to success in adopting this methodology is creating clear and measurable wins within your individual product team. As product teams adopt product intelligence principles, the rest of the organization will take notice inherently because this team is operating more efficiently and delivering on outcomes more rapidly.

Without a holistic approach, it can be easy to steer your product in a direction that does not align with business objectives or does not focus on generating long-term value for your customer. Without that long-term value, you will see greater attrition and will struggle to retain users. By focusing on generating this long-term customer value through digital experiences, you will be able to scale more efficiently than traditional analog product and service offerings.

Balancing short-term wins with long-term value

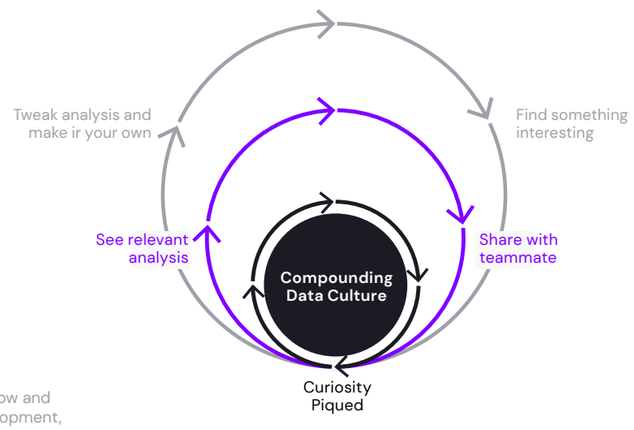
But the quickest path to success does not mean the quickest path to organizational buy-in. Just because you can demonstrate success on a single product team does not mean you will achieve organizational success. As other product teams come on board to this process, concerted efforts need to be put in place to democratize data across your organization and optimize experiences at scale, leveraging data from sources from every customer touch point to create truly differentiated and personalized user experiences.

As you make a shift in strategy, keep in mind that great customer experiences are based on the entire relationship you have with your customer, not just that initial moment or relationship. If you only focus on the initial relationship, the long-term relationship will suffer.

One method of decreasing time to insight is to measure and optimize for leading indicators over lagging indicators. A lagging indicator is an "after the fact" measurement that is relatively easy to measure but hard to improve or influence through rapid iteration. One example of a lagging indicator would be total annual revenue.

Instead we optimize for leading indicators of customer value. Leading indicators are much easier to influence through quick product iterations but are often harder to measure. Measuring and optimizing for leading indicators allows your business to more quickly adjust and optimize to hit your long-term targets like annual revenue goals. An example of a leading indicator would be the number of people who share a piece of content per week. Optimizing for content will help create a product with more frequent usage where your customers are seeing sufficient value to share that content with the individuals in their network, which will in turn influence the longer-term total annual revenue goal. By practicing customer experience-driven development and having a customer focus on how you optimize your product, you're positioning your teams to deliver on your long-term business outcomes.

Network Effect of Sharing Insights



Graphic adapted from Amplitude, Creating Flow and Value in Product Development, 2020

The Segment Platform

Collect

Easily collect data from every customer touch point

Unify

Centralize, store and manage your data in one place

Act

Activate your data in tools needed to drive revenue

Graphic adapted from Segment, 2020

In the experiences that we build, we often leverage customer data platforms like your product teams have more autonomy in which tools they would like to use in their analysis and re-engagement workflow. By having one centralized complete picture of your customer, you can more intelligently personalize their experience both in product experiences and marketing engagement.

At this point, you might be asking yourself: "How do I get started on this magical journey to customer obsession through digital product intelligence?" You're asking yourself the right question.

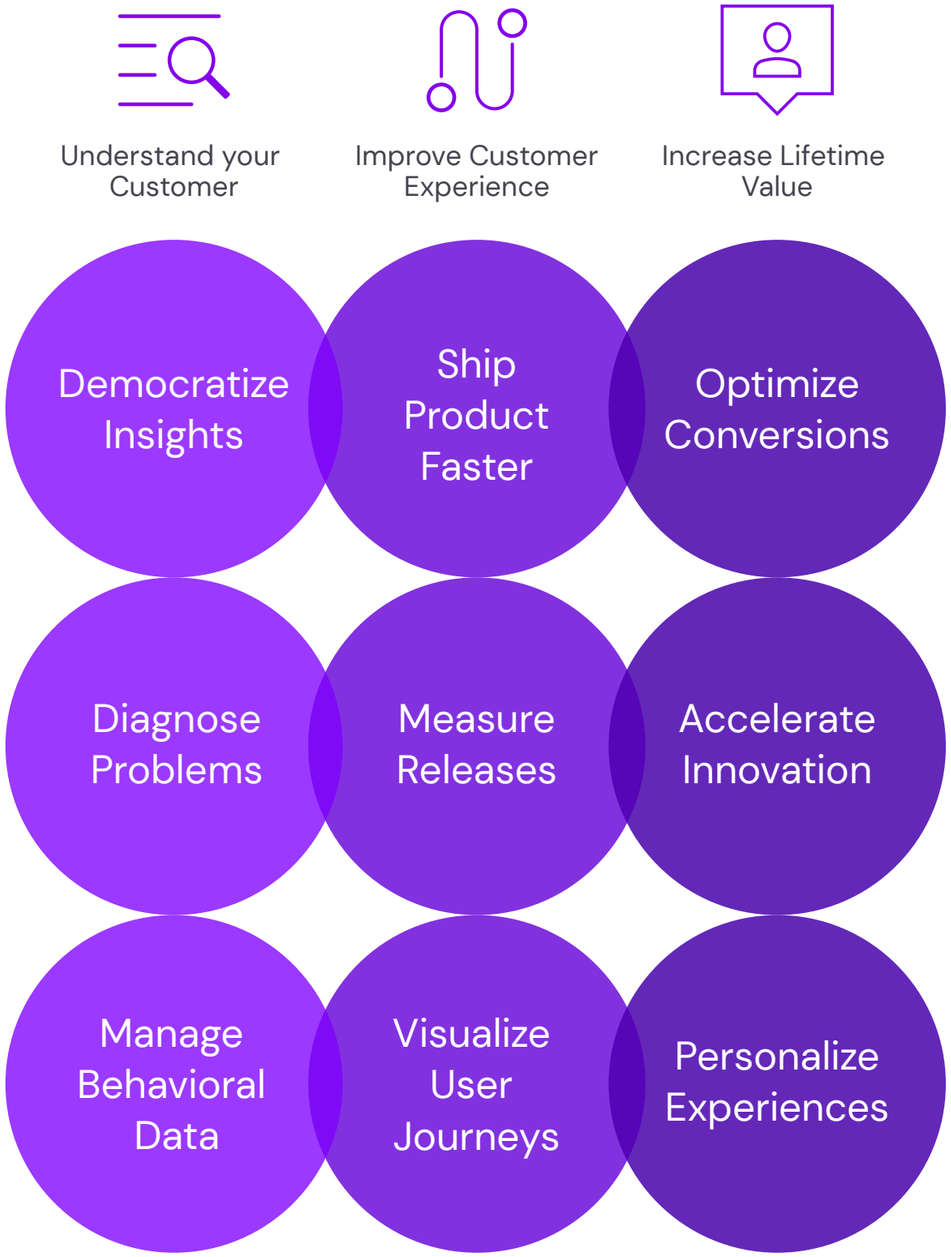
Step 1: Establish your North Star metric and core KPIs.Your North Star metric should be a measurable leading indicator of success that the entire business can rally around.

Step 2: Evaluate how you are going to collect the data necessary to measure your KPIs.
This is often a mix among product engagement data, CRM data, and qualitative data collected through direct customer interaction.

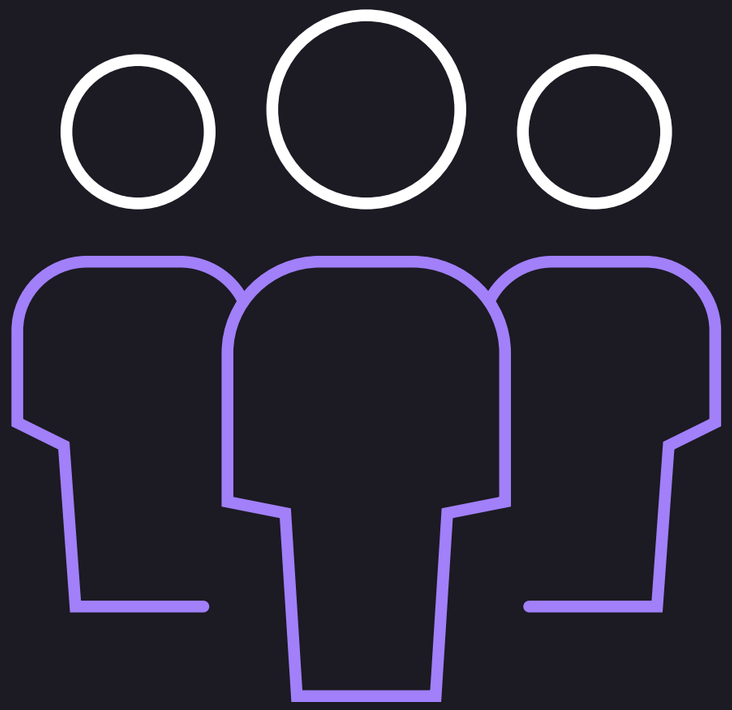
Step 3: Track user engagement on your product.
Ensure that any user action that relates to your North Star or KPIs is tracked in a clear and concise manner. Forget about any events that don't align with your goals.

Step 4: Launch your product and create hypotheses on how to optimize engagement.
Far too often, at product launch there is already a laundry list of items that are critical to get into the next release. Take a breath. Take a step back. Use the tools at your disposal to monitor engagement. What behaviors are your power users exhibiting? Where is the biggest "leak" in your acquisition or conversion funnel? Where can you place your "bets" in your next product release to fix that leaky funnel or increase the chances that newly acquired users are able to see the same value that your power users do?

Ultimately, there are no shortcuts to creating emotional connections with customers. Rather than trying to change that, consider what is technically possible, understand the cost-benefit trade-offs, and then assemble the necessary resources to achieve customer experience success.



Graphic adapted from Amplitude, 2020

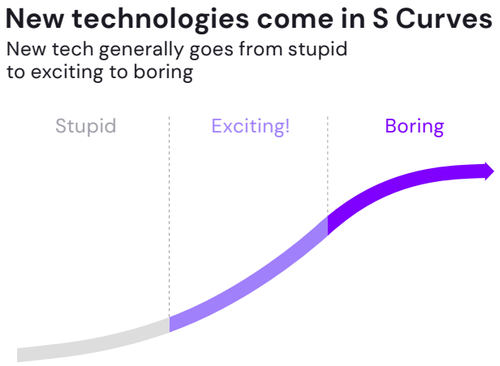


[CAPABILITY]

Intelligent Customer Experiences

Using data to eliminate customer friction.

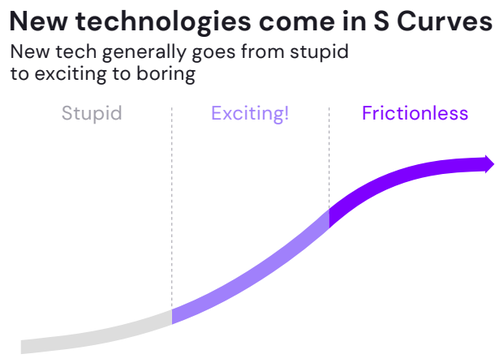
Throughout the past fifty years, new technologies have entered our lives and captured our attention with a predictable trajectory. As Benedict Evans illustrated in his "Tech in 2020" report[8] each new generational technology's adoption follows an S-curve passing from stupid, to exciting, and ultimately to boring (right side graphic).



As the smartphone nears saturation and is leveling off in the boring zone, Evans wonders "What is the next S-curve?" Though he ultimately lands on regulation and policy adjacent to tech, rather than on a new technology itself, the question of "What's next?" provides us with a starting point to explore how intelligence and data can help renew excitement in seemingly familiar experiences and create entirely new opportunities for customers.

Rethinking "the Boring Zone"

The plateau of this cycle can be, and often is, boring for users. Games go in and out of favor. Shopping apps get installed and uninstalled. Many of these experiences become bland and don't improve. As consumers, we've had most of our favorite apps installed on our smartphones for years and others a decade or more. Facebook's iPhone app was released to the App Store in 2008[9], Spotify's app was released in in 2009[10] and Uber's app was released in in 2011.[11] Most users, however, wouldn't classify any of these three apps as boring. For many, they've become essential in their daily lives for communicating with friends, enjoying music, and getting to wherever they need to be. What differentiates these experiences is that they have leveraged data to build world-class experiences and continue to find innovative ways to use data so that they are now seamlessly integrated into our lives. These intelligent experiences have become frictionless.



Today, data is being captured at accelerating rates. The IDC estimates that by 2025, the average internet-connected person will have more than 4,900 digital data engagements per day[12]. That means that, on average, we will be giving over information every eighteen seconds in the form of clicks, searches, purchases, friend requests, voice interactions and ways that haven't even been invented yet. While that amount of data may sound paralyzing, it also presents a new land of opportunity for customer experience.

Turning data into frictionless experiences

For companies with the right perspective and the right framework in place, this data can be massively useful in building frictionless products, as it is with the examples provided above. We don't need to look at the top of the app store charts to see this in practice though. Take TGI Friday's, for example. In 2018, TGIF began leveraging customer order patterns in the app to surface up suggestive notifications and put the right order in front of customers in their times of need[13]. For moms who take their kids home from soccer practice every Tuesday night at 7:30, family dinner is now surfaced to them automatically and is one click away. With 65 percent of notifications converted into orders, it's clear that by leveraging this data TGI Friday's has created a seamless, simple and smart experience for customers.

Frictionless natural language

In terms of the original question, "What is the next S-curve?" many believe natural language is a potential frontrunner and with good reason. It's projected that fifty percent of all searches will be via voice by the end of 2020[14]. Even with this increase in adoption (the excitement zone), how can consumers have the best possible experience via natural language experiences? The key, once more, is data.

No one has fully cracked a data-based frictionless voice or chat experience yet, but many companies are innovating in the space. Domino's virtual assistant, Dom, is an omni-channel ordering agent that helps the company drive sixty-five percent of all order traffic [15] through its digital channels. Domino's certainly isn't alone in the quick service restaurant industry, with Starbucks, Chipotle, Dunkin, and others announcing or releasing voice-based experiences.

At Kin + Carta, we've worked tirelessly with our clients and our partners to explore ways to leverage data and build revolutionary experiences. With Google, specifically, we've partnered to help companies create new communication channels with customers on top of Dialogflow. We've reinvented the customer experience for call centers and have changed mental models on how to order your favorite food. To some, these efforts may seem original, but as we've shown in our work with Google, when experiences begin to use customer data, we can remove the friction of tapping a mobile app, calling a human, or waiting in a drive-thru line. We are now confident that with the right customer experience expertise, the right tools, and the right data, retail and many other industries have begun reshaping how customers communicate with brands.

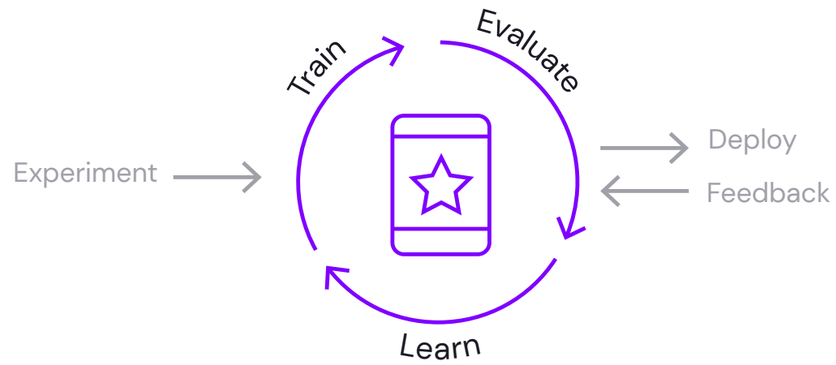
Frictionless search

Despite our familiarity with search, little has changed in decades, and many efforts still fall far short of customer expectations. Search is another massive opportunity to use data and improve an existing technology that may seem standard and boring to many. Customers expect to be able to engage today in natural language and also ask questions, not just see results that match the search terms. Providing the same search results to all customers, regardless of what interactions we've had with a given experience, fails to take advantage of rich data. This leaves the burden on the user to sift through results and find exactly what they were looking for, even if they've found it in the past, introducing unnecessary friction.

Take Instacart, for example. Instacart users, on average, will make twenty searches per basket before they check out.[16] To make the most out of each search, Instacart leverages data from its broad user base and data specific to the user doing their shopping. By getting the results right, Instacart is making the more intuitive cart addition channel (search) more frictionless for its customers and feeding data back into its own engine to continuously improve results.

Continuous learning

Data-driven customer experiences will continue to remove friction and reignite products and channels across the globe. These experiences, however, must continue to evolve and grow as customer needs and expectations change. At Kin + Carta, we emphasize continuous learning, a combination of our agile delivery approach and modern data and engineering practices to build frictionless customer experiences and continuously improve them based on data from real users. Building an intelligent experience that uses data is great but building an intelligent experience that continues to become more and more frictionless is revolutionary.



[CAPABILITY]

Decision Intelligence

Transforming your operational decision making.

All data-driven organizations need robust business intelligence tools to help them transition from running business on intuition to running it with intelligence. The challenge for many organizations is knowing where to start. With data streaming in from a seemingly endless array of systems and applications, using data to improve business outcomes is a skill that is notoriously difficult to master. We know because our clients tell us on a regular basis.

A useful tool to help navigate the space and start to pull apart the core differences between all of this is to focus on a single problem then ask three questions:

1. What is the timing of the data which will be used to inform the problem? Past, present or both? E.g. prior months' sales (past) or streaming sales data from point of sales terminals (present, real-time)?

2. What is the timing of the scenarios you are looking to gain from insights informed by the data? Past (descriptive, diagnostic), present (real-time) or future (predictive)?

3. On top of these though, and more importantly, what problems are you actually looking to solve, and what actual decisions will you need to make?

Pushing the technology envelope

The rise of data analytics and business intelligence has created the illusion that you are now able to understand and visualize every aspect of your business and this will somehow allow you to operate in a better way. The reality is far different. First-generation data warehouses and business intelligence tools were typically about analyzing historical data (data in rows and columns) and understanding what happened in the past (descriptive, diagnostic analytics).

Second-generation systems, typically known as data lakes, are about creating a single large data ecosystem that effectively extends the capabilities of first-generation systems by allowing all kinds of data (such as documents) to be available in one place. Data lakes have typically been overpromised, but for many organizations, have under-delivered.

Increasingly essential in today's fast-moving business environment is the ability to see over the horizon and around corners to understand the impact of today's decisions on all desired outcomes. This is where next-generation business intelligence tools come into play using faster (real-time) and more modern cloud data platforms to solve problems based around a specific domain or problem.

It's a technology we refer to as decision intelligence. Unlike self-service business intelligence, Decision Intelligence is focused on injecting the right information into the problem at the right time, or more accurately, at "critical moments of truth."

"It's through our decisions—our actions—that we affect the world around us."

Cassie Kozyrkov, Google chief decision scientist. [17]

Better decisions for better outcomes

Predictive Behavior

The next evolution of personalization is anticipation. New technologies and methodologies are enabling just that -the ability to predict, anticipate, and ultimately take action on anything from customer churn risks to up-sell opportunities. Today, not being one step ahead is the same as being two steps behind.

Real-time Insights

Real-time monitoring, real-time sales and marketing data dashboards, and real-time alerts help clients stay one step ahead. We're actively implementing cloud observability, custom visualizations, and digital twin processes to help our clients make the right decisions quickly.

Intelligent Automation

Expedite customer journeys and accelerate back-office processes using intelligent process automation. Software robots, time series anomaly detection, and automatic deployment are tools for alleviating redundant tasks to drive businesses forward.

At Kin + Carta, our approach to Decision Intelligence is about determining how you are going to use data and accompanying technology to make better decisions—or, more precisely, better defining the problems you are actually looking to solve. Nothing happens unless we actually make a decision. By connecting design thinking with modern data platforms, we create digital products that help turn information into better, faster, and fewer decisions at any scale.

This breaks down into better decisions based on predictive analytics, faster decisions by providing insights in real time and fewer decisions by handing some of the decision-making over to software using AI. Insights-driven firms effectively, and at scale, translate data into insights; encourage continuous experimentation and learning; leverage data to differentiate their products, services, and experiences; and ensure every insight is easily actionable.

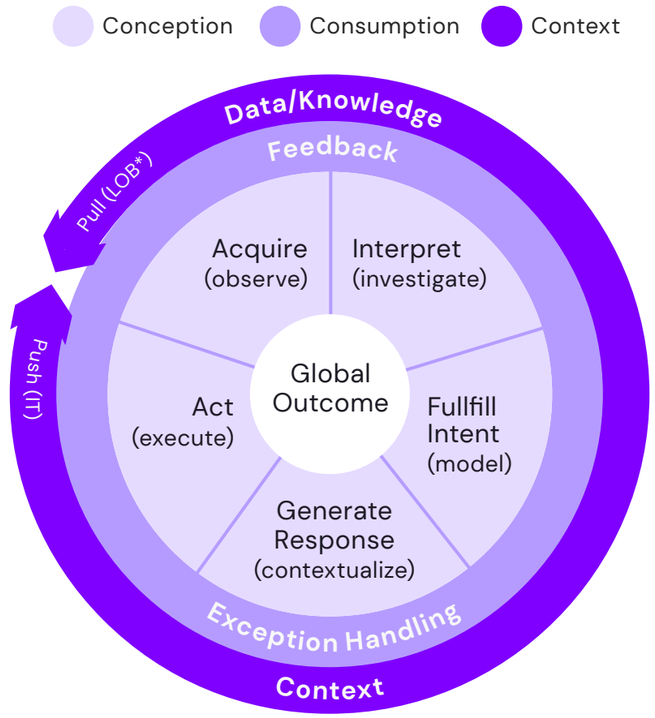
Decision intelligence is not the same as off-the-shelf self-service business intelligence. Our approach typically involves the creation of a new digital product which serves the specific problem and requires only the data from the business domains involved, not the creation of a monolithic data lake.

But let's be clear, even by sharpening our focus with a more informed approach, there is still no magic solution to generate better insights. A robust process must be put in place to ensure the right data can be translated into meaningful context to solve problems, optimize decisions and achieve required outcomes. This is as much a people and process issue as it is a technology one. Uncertainty and unanticipated ad hoc elements are common in complex systems and result in nondeterministic behaviors; that is, behaviors that are unpredictable by nature.

Many questions still need to be asked:

- Who is involved and what information will they need?
- What format does it take, and how can this be seamlessly injected into their daily workflow? What data is required?
- What level of maturity needs to be achieved in order to get that data at sufficient quality?
- How will success be measured using KPIs?

The Gartner Decision Intelligence Model



**LOB: Line of Business*
ID: 373145

Graphic adapted from Gartner, Decision Intelligence Is the Near Future of Decision Making: A Gartner Trend Insight Report, 2018

[INSIGHT]

Data-Driven Business Culture

Empowering your data teams for success.

Even as companies launch new big data projects, many still have lingering questions about how to use them to drive optimum business value.

A recent New Vantage survey of technology and business executives representing many of today's largest corporations revealed some alarming stats on the depth and scope of this cultural challenge. [18]

The following are some of the key findings from the survey:

- 72% of survey participants report that they have yet to forge a data culture
- 69% report that they have not created a data-driven organization
- 53% state that they are not yet treating data as a business asset
- 52% admit that they are not competing on data and analytics

Sharpening your data focus

To achieve a cultural change, organizations need to first start seeing data for what is truly is a valuable asset that needs to be guarded, properly handled and readily accessible. We need to infuse data into the decision-making process across the enterprise. The goal is to bring the benefits of big data insights to business users as seamlessly and transparently as possible, without disrupting their day-to-day activities (and without the rigid confines of complicated IT tools).

The rise of self-service analytics platforms has helped ease this burden. However, business users are looking to further reduce the time and complexity of extracting insights from data, which is critically important in today's fast-moving digital era.

Making data readily accessible is only one part of the equation. Human bias is another challenging element as people are inclined to see only what they want to see. Like the parable of the blind men and the elephant, people tend to create their own versions of reality and truth from their own limited experience and perspectives

Disparities in analytical findings are a common occurrence in many organizations, which opens the door to unintended biases that must be resolved through adept use of statistical techniques. To avoid the potential for bias, data analysis and conclusions should be free of opinions, leaving all decision-making centered squarely on a fact-based foundation. Using data in its purest form will help produce more exact, more targeted and thus more effective results.

The conventional mode of approach to analytics—a multitude of disparate databases, with access limited to select users—has revealed to be hugely ineffective. Businesses need to operate from a single version of the truth, understanding which numbers they should be focusing on among the volumes of data they have on hand. It is not uncommon to see high-level managers arguing with competing versions of the truth, which can prove to be a risky practice.

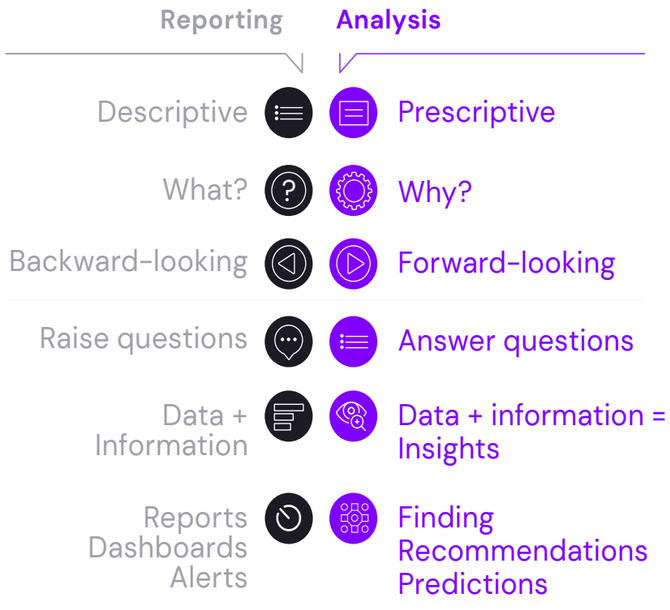
"Having multiple versions of the truth can lead to confusion, paralysis and bad decision making. Inconsistent, contradictory data erodes trust in the numbers and impedes the ability of an organization to understand its current performance or forecast into the future with confidence." [19]

Empower your data team

One of the most effective techniques for creating data-driven culture is finding ways to empower your business users. The following are a few recommendations:

- Hire a chief data officer: This person will need analytics expertise along with a keen understanding of data science and algorithmic approaches.
- Engage your leaders: Keep your data leaders involved in strategic discussions because they are perfectly positioned to deliver value by finding new ways to use analytics to improve business intelligence efforts.
- Provide the right tools: Data teams need to be empowered to acquire the tools they need and should not be limited to the tools the IT department might choose.
- Optimize in-house expertise: Be sure to leverage your team's combined experience, which can help you gain an important advantage in your particular industry or business niche.
- Give them a voice: Let the data team members think for themselves and ask questions; don't impose on them your definition or one version of the truth.
- Accelerate insights: Speed is a competitive weapon. Business intelligence tools must capture a substantial amount of data in near-real time without diminishing the running of current processes and jobs. Queries must return in seconds rather than minutes or hours, and reports must update dynamically.
- Keep the focus on analysis: Reporting is not where the action is. Rather, analytics is the domain where people are exploring data, investigating the business and uncovering connections and insights in the data that will drive the organization forward. Analysts should be spending only a fraction of the day doing reporting and the rest of it doing analysis.

Key attributes of reporting versus analysis



Breaking through the change barriers

To succeed in the digital age, organizations need to accelerate innovation, which requires an environment that celebrates and encourages originality. Some businesses attempt to curb failure or risk-taking, but taking risks is the prerequisite to innovation. Organizations that foster creativity, set aggressive goals and aren't scared of failure are better prepared to thrive in the midst of business or market uncertainty.

Assess what cultural changes your organization may need to undertake to become more data driven. This often requires an impartial and open review of processes, people, and technologies across the enterprise. Be ready to challenge long-held beliefs and customary patterns. Set lofty goals that surpass conventional limitations and require people to extend their creative boundaries. Your desire to break free from traditional practices can pave the way to greater innovation, enabling employees to see the potential often buried within the status quo.

“When it comes to leading by example, an executive’s responsibility extends beyond just carving out the budget and signing off on new analytics tools or hires. The leadership team must be prepared to immerse themselves in data and exemplify the behaviors that they want to see their organization emulate.” 20

Organizational change must be driven from the top from your business leaders.

Implementing the right technologies and hiring the best talent can help, but people and tools will not necessarily assure the transformation of a culture resistant to change.

- Defining a new strategy and creating new and detailed indicators (KPIs) can help measure success, but it won’t necessarily drive people to trust such metrics.
- Training employees can help lessen the data knowledge gap, but it won’t necessarily oblige them to apply or use what they’ve learned.

Though these efforts can contribute, it is the commitment and involvement of the leadership and their desire for a data-driven environment that is the most influential factor in cultural transformation.

Change is indeed challenging, but the effort can pay dividends far beyond the initial investment. With a data-driven culture, your business will be better positioned to:

- Bolster organizational agility because decisions are no longer made in the dark or by gut feel.
- Use faster and better insights to unlock new and hidden opportunities, allowing you to drive innovation and gain competitive advantage.
- Improve data democratization, expanding the opportunity for nonspecialists to be able to gather and analyze data without requiring outside help.

Access to data and the ability to leverage that data is essential to creating consumer-centric models of care, improving outcomes, and reducing costs. Don’t be afraid and be ready for the change. After all, this is the first step toward complete data democratization, where the availability and ease of access of information in a digital format are accessible to the average end user as part of their everyday workplace environment.

The intelligent use of analytics offers businesses a powerful competitive tool. By implementing a more analytical, data-driven approach to culture development and organizational management, your data teams are able to gather deeper insights into the levers and drivers of your business performance.

Conclusion

Putting data to work for your business is far from a one-dimensional problem, which is why you shouldn’t seek one-dimensional solutions. At Kin + Carta, we design our teams to better reflect the nature of our client’s challenges. To unlock the full value of your data, we bring digital strategists, data scientists, UX designers, engineers and creatives together to deliver tangible results across the business. Whatever your next landmark looks like in the journey to becoming a data-driven organization, it starts with taking action.

Get in touch today.

We’d love to help you make it happen.

Endnotes

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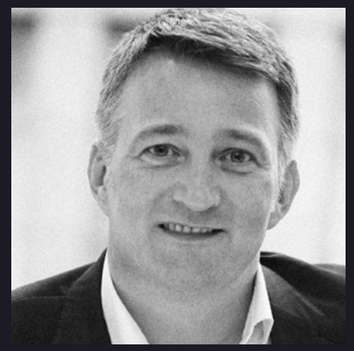

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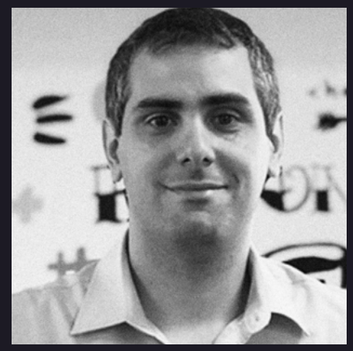

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Kin + Carta exists to make the world work better

A global consulting firm built for the 2020s, we make the journey to becoming a digital business tangible, sustainable and profitable by building digital twins to replace existing analog processes, designing and launching new digital products and services, and unlocking future innovation through modernization initiatives.

Kin + Carta seamlessly integrates the strategic consulting, software engineering and marketing technology needed to help businesses Make It Happen.

We're organized around three integrated pillars that have been either historically siloed or shoehorned together: Kin + Carta Advise, a tech-centric management consultancy; Kin + Carta Create, a next-gen software engineering studio; and Kin + Carta Connect, a digital marketing agency.

Headquartered in Chicago and London, our clients have access to a global ecosystem of 1,600 strategists, engineers and creatives across four continents.

KIN+CARTA

From Storage to Story: Delivering New Value by Unlocking the Power of Data

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