

Why data strategy?

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- Data is everywhere. If you have a smartwatch, data's being collected right now on your heart rate, your blood oxygen levels, it counts the steps you take and the distance you walk or run. Likewise in our organizations, data is collected from many different aspects of a company. Nearly all the technology and digital leaders I speak with say they want to do more with the petabytes of data collected across their organizations. In practice, however, few have developed a strategy for unlocking the value of that data. Meanwhile, the amount of data and therefore the potential value to be realized keeps growing. In this course, I'll provide you with a game plan to develop a truly actionable data strategy for your organization. You'll learn how to organize your leadership teams for data success. I'll share tips for collaborating effectively with peers across your company and provide frameworks you can use to tie data strategy to your broader enterprise strategy. These tools will help you develop repeatable processes that turn data into valuable insights that can transform your business. I'm Peter High, the President of the Business Technology and Digital Advisory Firm, Metis Strategy; a forbes.com columnist; host of the Technovation Podcast; and author of multiple books, including my latest, Getting to Nimble: How to Transform Your Company into a Digital Leader. I've worked with technology executives for more than 25 years and have experienced firsthand the opportunities and pitfalls leaders face when determining how to take their competence with data to the next level. If you're ready to help your organization derive more value from an ever expanding pool of data, please join me in this course about data strategy. I look forward to embarking on this journey with you.

The building blocks of data strategy

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- In a conversation about data strategy, data may seem undifferentiated, as though all data is structured the same way. That assumption is incorrect, however. There are many kinds of data, and it's important to understand the differences to manage it effectively. In this discussion, I'll cover six types of data: master data, unstructured data, transactional data, metadata, hierarchical data, and reference data. This isn't an exhaustive list, but it's useful for our purposes and should help you better understand some important differences and nuances across the data landscape. Master data is the core data within the enterprise that describes objects around which business is conducted. Master data is not transactional in nature, but it does describe transactions. According to the "Data Management Body of Knowledge," which is an important guide to data management, the most commonly found categories of master data are parties, both individuals and organizations, and their roles, such as customers, suppliers, employees, products, financial structures such as ledgers and cost centers, and locational concepts. Unstructured data is information that tends not to have a predefined structure or organization, and it tends not to have a predefined data model. Unstructured information can be text-heavier than other kinds of data. It can be found in email, white papers, magazine articles, product

specifications, marketing collateral, and through voice and video channels. Transactional data relates to business events that have historical significance or are needed for analysis by other systems. They're often related to system transactions, such as sales, deliveries, invoices, claims, and the like. Transaction data typically describes an event. They have a time dimension, a numerical value, and they refer to one or multiple objects. Metadata is data that references other data. In other words, it's data about other data. It may reside in a formal repository or various other forms such as XML documents, report definitions, column descriptions in the database, log files, connections, and configuration files. Hierarchical data is often a set of data that are related to each other based on hierarchical relationships, sometimes considered a super master data management domain because it is critical to understanding and sometimes discovering the relationships between master data. That hierarchy may refer to scenarios where one datum is parent to another. An example of this is an organizational structure within a company highlighting who reports to whom. Reference data is a specific type of master data used to categorize other data or used to relate data to information beyond the boundaries of the enterprise. These may include currencies, countries, or time zones. They're often static or slowly changing over time. Choosing a one-size-fits-all approach to data is a recipe for disaster. It's important to bear in mind the nuances I'm highlighting in this course to better understand the variety of data and how best to manage it holistically. By understanding these differences and the relationships between different kinds of data, you'll have a better way to manage it and analyze it to drive better outcomes.

The six Vs of data

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- Developing a data strategy can be a daunting set of activities given how expansive the topic is. It can be helpful to break it down with the use of some simplifying mechanisms. One that I've used is the 6 Vs of data. Those are volume, variety, velocity, value, veracity, and variability, let's cover each of them. In a business context, the volume, or amount, of data is often a defining feature. And that volume is likely to grow. Evaluating data volume relative to processing capacity is critical since that data is only useful if it can be effectively synthesized. It's also important to develop rules and algorithms that dictate how increased data volume will be managed. Doing so, better prepares you to identify useful signals in an ever expanding pool of information. Your company likely has a variety of data to be processed as well. Just as data volume increases so does data variety. There's structured data and there's unstructured data. There are old or traditional data sources like the data that flows through your enterprise resource planning, or ERP systems, there are also a growing number of newer resources that can give you real-time feedback on customer sentiment or experience, such as data flowing from social media. The key is to define and manage the variety of data sources to ensure that you can categorize each data type appropriately and use the insights from across those sources to drive your business forward. The velocity with which data is generated and collected has never been higher given the rapid pace of change in business, and the many different

scenarios of one's operations and customer relationships that can be measured. There's a need to process data quickly to take advantage of the context in which the data is produced. For example, if data is related to an emerging trend, or if it has to do with a situation in a certain region, or city at a particular time, the ability to capitalize on those insights and derive value from them may be fleeting, and ability to act quickly is key. Value is the ultimate gauge of whether you manage your data effectively. This requires understanding which kinds of data potentially drive which kinds of value. Here are a few questions you can ask yourself to help determine the value of your data. Which data will help identify cost savings, or efficiencies in your operations? Are you properly setting up the data streams that will allow you to capture that value? Which types of data could generate insights that lead to revenue augmentation? To determine the types of data that can lead to new revenue streams, defining different customer personas can help. Think about the different types of customers that you serve and which data will tell you more about their likes and dislikes, so you can take action accordingly. The goal here is to leverage the volume of data and use it to deliver new types of value. Data veracity is also an important consideration. It can be difficult to identify data sources and to validate which are reliable and which aren't. This work must be done as it ultimately impacts your ability to make quality decisions. As a data leader, proving the veracity of data to colleagues and customers can also be a powerful way to build trust. Finally, variability highlights how fast and how broadly your data structure changes over time. The key is to contextualize the data as you manage it to provide better structure to it. Remember that small deviations in data can impact the results of your analysis. When variability is high, it's necessary to continue to check the validity of the conclusions you're drawing. The 6 Vs are a useful construct to bear in mind when you're developing your data strategy to eliminate blind spots as you organize yourself and your team.

Data governance is the best way to scale your data operation

Selecting transcript lines in this section will navigate to timestamp in the video - [Data governance is like the brakes on your car](#). Many people believe that the primary function of car brakes is to stop a vehicle. When in fact, they're there to allow you to go fast. Data governance sets standards and policies for the availability, usability, integrity, and security of data. When done well, data governance helps you grow fast, and do so with consistency. We are used to the notion of data always growing, and, as such, data governance can seem like an afterthought. That data will not be in a form to be translated into information, knowledge, and, ultimately wisdom, leading to action, unless it's trusted. In fact, without proper data governance practices, it's not hyperbole to note that your data can actually be a liability. Not long ago, I wrote about a multi-billion dollar technology company that added data to its customer relationship management system whenever a request was made. The

company valued speed of fulfilling these requests over appropriate data hygiene. The result was 1000 different data elements for a single set of activities, multiple hard-coded definitions for the same information, and a plethora of incomplete, or duplicative records. As a result, leaders of different divisions of the company would use the same CRM database, but they would leverage different data to conduct the same analysis, leading to different conclusions. What should be basic, and easy to agree upon such as figures related to sales, were anything but. Unfortunately, the longer an organization takes to introduce data governance, the deeper the hole is to dig out of. A lack of data governance can cost millions to fix a new work, and the uninformed decisions, and misalignment across the company can result in a large opportunity cost as well. Good governance practices should begin by aligning broader business, and data related activities. They should lead to greater standardization of data systems, policies, and procedures. They should have the added benefit of reducing operational friction. Data governance should aid greater levels of transparency, monitoring, and tracking of data related activities. It should also increase the value derived from data, leading to better decision-making along the way. This is also a way to de-risk the organization through simplifying all that must be managed, which should also have the added benefit of reduced costs. Finally, your company should drive increased data literacy through training and education. There are several roles necessary to deliver data governance. First, the data governance program manager should define, and facilitate the development of the data governance operating model. He or she is the leader of the team. The data steward is accountable for data and processes that ensure effective control and use of data assets. The data steward should drive a more consistent set of policies and processes to manage data use, sharing, and collection, both internally, and externally. The data owner is responsible for ensuring that information is defined, governed, and used through systems and lines of business. The data owner should be the clear point of contact who will own and manage data as a strategic asset. The data architect is responsible for designing, and managing an organization's standard, and scalable approach for data management. This role provides a holistic view of how data is modeled, collected, processed, and distributed in a standard, secure, and scalable fashion across the company. Finally, the data user is a consumer of data for analytics, reporting, or regulatory needs. This role helps to ensure

The role of the chief data officer

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- Who should lead data strategy? Your company may already have a chief information officer, a chief technology officer, or a chief digital officer. Should one of these leaders oversee data strategy? In many ways, this is the optimal answer, as technical skills necessary to enact the strategy are likely to overlap with the skill base on the teams run by the executive or executives who carry the aforementioned

titles. If the executive or executives run great teams that are strategic and that have a reputation for being progressive in their thinking and sources of innovation for the company and its customers, they may well have the credibility to lead data and data strategy. If the leaders who carry those titles are not viewed as truly strategic leaders, or if their teams and their work is not viewed as well-run, this is often the first rationale to hire a new leader to oversee data strategy. That leader will carry the title of chief data officer. The chief data officer is a role that's gaining steam in many companies. The first person to hold the title was Cathy Doss, who took on the role of chief data officer of Capital One in 2002. By some estimates, today, nearly 65% of large companies have hired someone with that role, up from less than 10% a decade ago. The average tenure for the role is roughly two years. The reason for such a short tenure is partially based on a good chief data officer's ability to jump from one company to the next, perhaps accruing more responsibilities and compensation in the process. However, the bigger reason is that the roles are often poorly defined, and the new chief data officer's ability to make change may be marred by a lack of clarity. Chief information officers who were born less than a generation before the chief data officer also had short average tenures at the outset of the position due to a lack of clarity regarding the role, as well as a lack of norms as to what good looked like for the role. Therefore, part of the answer will be to have a growing number of chief data officers who do achieve meaningful tenures of four or more years, who others can learn from as to the evolution of their roles and influence in the companies they're a part of. As we wait for more chief data officers with successful tenures, there are some factors that are major differentiators. For example, it's best if chief data officers have a mandate for change and accountability for data. This ensures that there's no misconception that the old way of doing things might still be possible. A lack of clarity on that part can cause politics and fear to get in the way of progress for the new leader. Optimally, this should be supported by the chief executive officer and perhaps even by the board to help inoculate the new executive from the political considerations that can impede progress. For those hiring chief data officers, it's critical that the new chief be empathetic, a great communicator, and someone who's highly collaborative. This will help overcome the fear many will have that the new role represents a loss of some degree of autonomy over the data that their part of the company gathers, which, truth be told is the reality of the situation. At its best, the introduction of the chief data officer is also an invitation for greater collaboration across the company, as the new leader should bring the leaders of the other functions together for better coordination of efforts across the company. Data strategy should not happen in a silo. It should involve making the traditional silos of the business more permeable so that collaborations can percolate from across the enterprise.

Enhancing data literacy across the enterprise

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- Recently, I heard a great data strategy story from Sandeep Dadlani, who is the Global Chief Digital Officer for Mars. Sandeep joined the nearly \$40 billion revenue private manufacturer of confectionary, pet food and other food products and animal care services in mid-2017. He recognized that data resided in each of the businesses, but the data was not linked together. More over, where it was used. It was used in pockets, but a broader strategy wasn't in place. The first thing he needed to do was to bring everything together in a data lake, which is a repository of data stored in its raw format, ensuring that the data is in a single place and can be universally accessed. He also realize that in order for Mars, as a whole, to take full advantage of data, to draw better conclusions, to impact the business, he needed to train his team. First, Sandeep engaged various analytics vendors to help train his team. Next, he worked with a massive open online course provider to curate a machine learning training session. He initially planned to train 50 members of his team. When the email offering the training was accidentally sent to all 130,000 Mars associates, a magical thing happened. Thousands of them signed up to take the training. Sandeep discovered that more people wanted to learn about data and analytics and machine learning than he could have dreamed. Most of these people were in non-technical roles. This was inspiring and Sandeep wanted to build upon this momentum. Although, he believes that traditional offsite training has its place, he doesn't believe that the return on investment for such training typically delivers the results the company should expect. Instead, he built out a festival. As this was during the COVID pandemic, it was a virtual festival, but as one of the few people outside of the company invited to partake of the sessions, I must say, it rivaled the quality and ambition of conferences put together by the tech giants. Sandeep called the event the Mars AI Festival. He invited everyone he knew of who was a big name in artificial intelligence, perhaps the highest order of data and analytics disciplines, and to his surprise, almost all of them made time for his event. This included academics, authors and CEOs of prominent AI companies. Microsoft CEO, Satya Nadella, gave the keynote address at the event. These speakers enlightened the audience. Roughly 200 Mars associates spoke about the ways in which the company leveraged data and AI to do extraordinary things and strategic technology partners provided training sessions for free. There was even a DJ as music played between sessions. To further build on this momentum, some weeks later, Sandeep held a No-Code Hackathon. The idea was to create a coding program for non-coders. Another 2,000 Mars associates, again, many of them in non-technical roles, developed no-code or low-code skills to take back to their day jobs. Sandeep even got the senior executives within the companies to take the training course as a means of inspiring those who might've thought the course wasn't for them. Ultimately, Sandeep's goal is to create the Netflix of training with data and analytics being the tip of the iceberg. He wants his colleagues to take training when they want and where they want. His goal, as I believe yours should be as well, is to raise the bar on data knowledge. Sandeep and team are now in the

process of embedding these digital capabilities and digital talents, like data analytics and AI, directly into the Mars business segments,

Three interlocking components of data strategy

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- What is data strategy exactly? Data strategy is how structured data management enables the application of data to deliver business value. A leader in the field, Chris Davis, has written extensively about this topic in his column in CIO.com. And he suggests that data strategy should comprise of three interlocking components: business strategy, data application, and data management. Let's cover each. Clearly defined business strategy should articulate the experiences and outcomes that will be improved by the synthesis of data to develop information, knowledge, and wisdom. Use cases associated with the business strategy create purpose, drive prioritization and provide the rationale for investment into data capabilities. The rationale might come in the form of enhanced customer experience, the development of new products and services, bolstered partner and go-to-market experiences, better employee experiences, and the implementation of operational capabilities. This provides both an internal perspective relative to the company's operations and employees and the external perspective relative to its customers and the products and services they buy. Data application is the way an organization harnesses data to aid turning information into knowledge and ultimately into wisdom as well as the means by which the company can drive action at scale. Data are most commonly applied through statistical models, visualizations of various kinds, and human or automated decision systems. A data strategy should define various formats, tools, and interfaces for how data can be used for reporting and descriptive analytics, as well as diagnostic, predictive, prescriptive, and cognitive analytics. For example, a manufacturing company that's trying to maximize production and minimize downtime of an assembly line may collect data from sensors, internet of things or IOT devices that monitor the temperature and vibrations on a particular device in the manufacturing system. By collecting that real-time data and aggregating it with other sources of data, such as historical maintenance records, the manufacturing company is able to deploy learning algorithms that can detect when a particular set of conditions is likely to result in a maintenance issue that could lead to system downtime. As the algorithm detects these conditions, technical engineers could be automatically dispatched, replacement parts can be ordered, and costly downtime can be avoided. Data management fosters preparation of high-quality, scalable, secure, and trusted data to be used for general data application. Managing data requires defining your overall approach to data strategy, clearly specifying how your people, processes, technology, systems of measurement, and performance improvement will establish a sustainable operating model. The operating model will be required to define and manage data architecture

and data platforms, data governance, data operations, data privacy, and data security. A critical discipline for complex organizations is to establish a master data management or MDM capability that enables trusted data to scale by integrating data governance into data operations. Consider the case of a business-to-business software company that acquired a complimentary software offering with an overlapping customer base. Effective data governance practices allowed them to rationalize the master customer data between the two entities. This prevented double counting of key revenue metrics for Wall Street and streamline the process of aligning the new combined sales team and the new customer base. How can you evaluate the effectiveness of your company's data strategy? There will be specific metrics for many tactics you implement

Data strategy's influence on five aspects of analysis

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- Since data is everywhere, creating a strategy to manage it can seem so difficult that one might simply choose to put the work off until an easier path materializes. To make the Herculean task of creating a data strategy easier, it's important to understand the types of analysis that the data will serve. These are descriptive reporting and analytics, diagnostic analytics, predictive analytics, prescriptive analytics and cognitive analytics. Let's take those in order. First, descriptive reporting and analytics refers to the method of using data to provide a retrospective view. This answers the question what happened? Examples of reporting that should be generated are transactional, financial, operational and historical reporting. Second, diagnostic analytics offers trends based on behaviors and correlations. It answers the question why did this happen? And what can we learn from it? Competitive analytics, performance evaluation, monitoring and alerts, self-service analytics and statistical analytics are each examples of diagnostic analytics. Third, predictive analytics comes into play when the amount of historical data enhances the ability to predict what might happen in the future. It answers the question what's most likely to happen? This should include a rules-based engine and ability to schedule outcomes, better forecasting the development of organizational scorecards and the development of dashboards. An example of predictive analytics can be found each time Netflix recommends a show to you based on what you've previously watched. Fourth is prescriptive analytics. This refers to analytics that provide suggestions about what actions to take based on previous analyses. This answers the question what should we do? Optimized outcomes, enhanced decision support, real-time analysis and machine learning are each examples of prescriptive analytics. Fifth, and last, is cognitive analytics. This approximates some facets of human level intelligence when applied to common analytics tasks, bringing together analytics and practical decision-making. Some combination of decision automation, natural language processing, neural networks, artificial intelligence, signal processing and

robotics are examples of cognitive analytics. Ultimately, this helps you get to know your users and customers better, leading to better customer and user experiences. It also leads to better decision-making where the evaluation of decisions proves to be correct. It also should drive cost-savings and other efficiencies. As more data is gathered and used, organizations can drive greater value by identifying issues and changing course as needed. This is what the author and New York University Stern School of Business Professor, Scott Galloway, refers to as the Benjamin Button Effect. Whereas most products are like humans, aging as time passes, the value of data increases with the passage of time so long as it's managed effectively. We see this value creation regularly as consumers of companies, such as Amazon and Waze, which leverage data to help us find a new book to read, a show to watch or how best to avoid traffic. By focusing on the five aspects of analysis that are noted in this section, you can develop a better pathway to data and analytics success.

From data warehouse to data lake to lake houses

Selecting transcript lines in this section will navigate to timestamp in the video - Although the analysis of data goes back much further, in the 1980s, there was a hunger for better use of data and analytics. A field of business intelligence emerged, and with it, the concept of data warehouses that took external and operational data and combined that data from multiple sources into a single consistent data store loaded into data marts. The data could then be used for business intelligence and the generation of reports that once took hours of manual work. It was easy to locate, access and query data. As long as the data was well-organized and clean, the data preparation was straightforward. The downsides were that it was an expensive way to store and analyze unstructured data or streaming data, and it often required an overcommitment to a single vendor. In the early part of the last decade, the concept of data lakes took shape. Both structured and unstructured data could be combined in a central storage repository, holding data from many sources in a raw granular format. This is the data lake. The data can either flow through to data preparation and validation, which will in turn, prepare the data for machine learning and data science activities, or it flows through to an extract transform and load, or ETL, which is the general procedure of copying data from one or more sources into a destination system, which represents the data differently from the source. The data can be translated to real-time databases or to data marts. From there, the data can be used for reporting and business intelligence analysis. The advantage of a data lake is that it works well for complex data processing, and it can handle structured and semi-structured data. It's also a cost-effective storage mechanism, no matter the data type. The data lake offers greater levels of flexibility. Whereas data warehouses require predefined rules for storing data in order for it to be processed and queried, data lakes are more flexible, as they don't need to have predefined rules. One of the more sophisticated users of data is

Lumentum, a company that manufactures optical and photonic products and earns roughly \$1.7 billion in annual revenue. The company's Chief Information Officer is Ralph Loura. Across his tenure as chief information officer of companies like Hewlett Packard, Clorox, and Rodan and Fields, he discovered that no matter the company or industry, there were remarkable inefficiencies in data analysis. He concluded that nearly 70% of activity related to data processing was simply moving data around, leaving only 30% of activity to actually adding value. One needs a way to store streaming data quickly and easily, and data warehouses tend not to be appropriate for that. Conversely, if you can't query, model and analyze that data while it's fresh and can provide business critical insights, you're not progressing at an appropriate level. This makes data lakes a less compelling choice. Ralph and Lumentum have implemented a hybrid approach between the data warehouse and data lake models, drawing upon the advantages of each, it's called a data lake house. As he noted to me, he believes this to be the option with the greatest flexibility. For instance, it allows one to connect the many different types of analytics engines. Data lake houses allow companies to move data between data lakes and purpose-built data stores more readily. They require a scalable data lake be in place, that analytics services be purpose-built and that there be unified governance and unified data access.

Data management across the organization

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- To bring data strategy to life requires data management. In its most basic form, data management is exactly what it sounds like, managing the vast amounts of data that you've collected to gain insights that will help you make better decisions. But there's more to it. Let me explain how it works and ultimately, how it ties back to your company's business strategy. The business strategy defines targeted outcomes. For example, every for-profit company has some version of grow revenue as a strategy to pursue. The metrics associated with it will be defined by how much and by when. A variety of tactics will determine the methods to use grow revenue. For instance, that additional revenue may come through selling more to existing companies, finding new customers, developing new products and services or acquiring another business to name just a few examples. The data application defines how you'll apply data to address the outcomes. You might ask yourself what data do you need to determine your current revenue levels? How will you monitor its increase and define causality? Where did that increase come from? How will the data help you understand what's gone wrong, for example, and why was revenue growth not achieved in one of the tactical areas identified, among other questions you might ask. Data management identifies how you store, prepare, maintain and secure data for the planned application. Let me define five areas that are critical to data management. They are data architecture and platforms, data governance, data

operations, data privacy and data security. I'll provide a brief overview of each. First, data architecture defines standards to collect, store, manipulate and disseminate data. Platforms provide an integrated set of technologies to meet your end-to-end data needs. The combination intends to deliver relevant data to team members who need it when they need it. It also ensures that when the team members interact with the data, the data has been organized to make higher-quality decisions based upon them. Second on the list of requirements is data governance. This is the process of managing the availability, usability, integrity and security of the data in enterprise systems, using internal data standards and policies that also control data usage. When done effectively, data governance ensures consistency and trustworthiness of data. It's important to develop data governance awareness on the team, optimally even beyond those whose primary responsibilities are in the data realm. Data operations, sometimes referred to as data ops, defines the people, processes and products necessary to enable consistent and secure data in an automated fashion. It typically involves the combination and analysis of large databases, controlling the flow of data from its source, through to the point where it provides value. Data privacy relates to confidential data that must remain confidential, such as personal data, financial data, and data related to intellectual property. There are growing regulations that dictate data privacy at the state and federal level, protecting both the confidentiality, as well as the immutability of data. Regulations include the Payment Card Industry Data Security Standards or PCI DSS, often related to credit card payments and the Health Information Portability and Accountability Act or HIPAA related to health data. Data security is the field focused on protecting unauthorized access, theft or corruption of data. Though the topic of data would focus one's attention on security at the software and application level, it also must include physical security of storage devices and other hardware, as well as access controls. This should take into considerations threats from inside your company, as well as out, in addition to security issues that might result from human error. Data management is a critical element to formulating a comprehensive data strategy and by focusing on each of these building blocks, you'll take what is a complex topic admittedly and build the right practices to enable better outcomes for the long term.

Data strategy's relationship with IT and digital strategy

Selecting transcript lines in this section will navigate to timestamp in the video - Data strategy shouldn't be created in a vacuum. It's most effective when linked to business and IT strategy. A business strategy should identify the why and the what. An IT strategy and data strategy translate the what into the how. For those companies that attempt these strategies independently, they often have issues with adherence to data governance, regulatory and compliance standards, and have less ability to establish and maintain a single source of truth for enterprise data

assets. These companies also may limit their ability to integrate real-time advanced analytics, automation, and machine learning into other core business applications. Finally, the disconnect may create gaps in the approaches that could become security issues. These can be serious impediments to long-term data success. The IT strategy should articulate approaches to people, processes, and technology. Data strategy should provide another level of specificity, especially if the data team reports to the IT chief. The data team may leverage the agile methods, the product orientation, the software development, and the cloud-based infrastructure that IT brings to life. The data team will also be responsible for unique and shared data management and data application capabilities to accomplish business strategies. The best data and analytics departments will be responsible both for the data architecture of its own data platform, visualization and analytical tools, and the data architecture that's a component of the company's overall enterprise architecture. The business strategy should define experiences and outcomes that will be improved with data. They should include customer experience, employee experience, partner experience, operational capabilities, and product and service line innovation. Each of these should be defined through the strategy. And the way in which each might be enacted should be with better use of data. The data should help identify where the opportunities may lie in each of these domains. And they should also be used to gauge progress or lack thereof by providing metrics along the way. Therefore, data can help define the inputs as well as helping to define the efficacy of outcomes. If there's a corporate objective to improve customer experience, for example, and there's a corresponding IT objective to improve digital customer experience, each layer can be brought to life through data strategy. The data strategy should ascertain current levels of customer and digital customer experience. As each goal is defined, the data should track progress toward these goals or lack thereof. The data strategy should also define how the data will be tracked using, for example, machine learning as a key component for data synthesis. You may feel as though you're swimming in data. By developing a well-defined data strategy linked to your company's corporate and IT strategies, you will drive better results using your data.

Data strategy's relationship with business capabilities

Selecting transcript lines in this section will navigate to timestamp in the video - Data strategy is the why of data. What are you solving for? In the early stages of development of a data strategy, I recommend asking the following questions to help you identify specifics, since the initial use cases may be narrow in scope. The questions include: are consumer behaviors changing? Would it be helpful to leverage data, to track these changes, to garner insights on how to change them, or to influence that change? Is your company under cost pressure? Will collecting and analyzing data on various cost factors lead to better decisions on where to cut

costs and where not to? Ultimately it's important to align strategies to business capabilities. If you're not familiar with the term, business capabilities are an integrated set of processes, technologies, and deep expertise that are manifested as a functional capacity to capture or deliver value to the organization. They outline what the business should do to succeed, as opposed to how a business operates. An example might be generate sales. There are people involved in generating sales, such as account executives, and a general sales team. There are processes like sales enablement, and sales forecasting. There's technology in the form of tool suites to monitor sales, like customer relationship management systems. Lowe's chief information officer, Seemantini Godbole said, "When speaking with business partners and aligning IT strategy with the broader company strategy, it is important to speak the language of the business, and to be outcome-oriented." Business capabilities are a great way of accomplishing this, as they target the what without diving into the technical details, and connect strategy to near-term actions. When defined well, these business capabilities are a good place to turn to when developing a data strategy, as it helps identify topics of importance where better data can help advance the cause. Business capabilities are also useful in helping to determine the sequence and prioritization of different aspects of the data strategy. In addition to the generate sales business capability, you may have another, to recruit new team members. If you determine that you need to recruit salespeople, then focusing your data on improving the process may be in earlier priority for the data strategy. Fawad Butt, has been a data leader at Northern Trust, Kaiser Permanente, and was the chief data officer of UnitedHealthcare. He refers to leveraging the business capabilities as the city planning view of data. He wants told me, "You don't just build a city, you plan. There should be residential areas, commercial areas, and industrial areas. This breakdown will help one determine where schools and hospitals should be, where highways are needed, and where skyscrapers are most likely to be built." One must continue to review data platforms and capabilities during this phase to highlight the flows of data. The city planning view establishes the current and future state of data, along with the migration path between them. This will clear the path to use the data effectively, leveraging reporting, business intelligence, advanced analytics, artificial intelligence, machine learning, and the like. Just like business technology in digital strategy, creating linkages to business capabilities are a great way to organize your efforts and build momentum for your data strategy.

Developing a Data-Driven Operating Model

Selecting transcript lines in this section will navigate to timestamp in the video - [Instructor] How do you focus the attention of your business on the right areas where data will have the greatest impact? A great place to start is to focus on customer outcomes. If you're able to improve customer experience, then you're on the surest pathway to grow your revenue and deepen your relationships with your

customers. Let me provide an example to paint this picture more clearly. Adobe is a software as a service company that earns roughly \$13 billion in annual revenue. The company's chief information officer is Cynthia Stoddard. She's been in her role for nearly six years, and has been a CIO multiple times, most recently at NetApp. Despite its scale, Adobe continues to grow at a fast pace, and early in her tenure, Cynthia realized that to support that growth, she needed to enable better decisions using data. As a result, she and her team helped define a data-driven operating model for Adobe. The area that Cynthia believed was most impactful was a data-driven framework to drive improvements in customer experiences. First, Cynthia aligned leaders of the various departments of the company meeting weekly to discuss performance based on a unifying plan that was developed to drive cross-functional collaboration. Once the framework was defined, IT introduced data management capabilities. The cross-functional leadership group agreed that the emphasis should be on information timeliness and accuracy. Cynthia identified that the key to delivering the data in the right way included consistency of measurement, having a well-defined governance process, and having a sound technology framework. Another ingredient for success has been to focus on well-defined customer-centric key performance indicators, which push the company to determine what data is focal. It requires assembling data from various sources that accurately represent the entire customer journey. An Adobe paper that covered this noted, "Being able to gather data, segment it, build audiences, and act on those segments is the backbone of personalization. The model helps us make sense of the data around us." The framework that was developed is called the Customer Improvement Framework. It involves five stages, discover, try, buy, use, and renew. Discover entails offering free signups for a product, for example. Trying it involves simply downloading and using it. The hope is to convert a meaningful percentage of those who try to buy. Ongoing use of the product is monitored and engagement scores are kept. Finally, client retention is evaluated through renewals. At each stage, data is collected and evaluated to determine the efficacy of the team's efforts, and then the team can course correct based on what the data tells the executive team. I like this example because it highlights how to organize a data-driven operating model at a significant scale in a dynamic company. It also highlights the need to focus efforts on some specific use cases that will be of high value. This provides the proving ground that will help you extend your data strategy more broadly across the enterprise. Starting in one area that is high value drives outcomes that matter while offering a learning environment to build on. Following this example will put your team on the path to successfully harness insights from your data.