SDA Bocconi
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Enterprise Data Strategy

Key Insights and Summary

Center for
Digital Strategies
Tuck at Dartmouth

Enterprise Data Strategy

Digital Strategies Roundtable
An executive roundtable series of the
SDA Bocconi School of Management at the Università Bocconi and
the Center for Digital Strategies at the Tuck School of Business at Dartmouth

Nearly a decade after the emergence of "big data," enterprises are still challenged to collect, use, manage and share this asset in ways that further business strategy and maximize its value. Whether data is being used to create new business models, make existing processes more efficient, or inform decision-making across the enterprise, its value potential seems to be limited mainly by our ability to absorb and analyze. The Roundtable met to discuss different approaches to "data strategy:" how an organization achieves its business goals through the strategic use of its data assets.

CIOs and their colleagues in data science and analytics from the Airline Reporting Corporation, the American Bureau of Shipping, Eaton Corporation, Huntsman, Levi Strauss & Co., Owens Corning, Tenaris, Tetra Pak and host Chevron, along with faculty from the SDA Bocconi School of Management and the Tuck School of Business, as well as Executive Fellows of the Roundtable, met to discuss the intersection of data strategy with business strategy, and how enterprises can best maximize their data leverage to generate the greatest business impact.

Key Insights Discussed in this Article:

 This overview was written by Hans Brechbühl, Associate Professor of Practice at SDA Bocconi & Director, Digital Strategies Roundtable, and Stephen Plume, Executive Fellow, Digital Strategies Roundtable. The Digital Strategies Roundtable publication series is edited by Hans Brechbühl.

Different Goals, Different Roads

The Roundtable discussion started with a brief profile of each company's current data strategy. "Talking about data strategy is really talking about business strategy," suggested moderator John Gallant, Senior Content Strategist for Ledgewood Media. "In some companies, there is a top-down recognition that data is at the core of the next phase of growth; in others, data is being used more in support of customer services, or to improve internal operations. Where is the focus for each of your companies?"

Eaton Corporation's CIO Bill Blausey described a revenue-centric approach:

> The charter of our brand-new Chief Digital Officer is to drive growth, by leveraging and monetizing data to create new value propositions. It's not digitization of back office processes, or of plant floors. Every hard product we build is already connected, and they're all feeding data.
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> But data by itself means nothing. It's how you combine the right sets of information, in the right environment, with the right partners, as an engine for new services and capabilities for our customers. Our goal is not just to drive more products, or more connectivity in our environments, or to say we market something; it's to generate real, top-line, profitable sales growth.

Airline Reporting Corporation (ARC) operates on similar principles, according to Scott Gillespie, VP Innovation and Analytics:

> We collect a ton of data from airlines and travel agencies. It all flows through our process, and we output data streams and data products to airlines, travel agencies, Wall Street firms, corporate customers, etc. So when we think about data, we're thinking about the data that flows through our organization, and not the data that we create internally. The internal data pales in interest and value to us. We're talking about ARC's ability to acquire data, commercialize it, and distribute it to interested parties.

"ARC has had a bifurcated strategy," added Gillespie's colleague Chuck Thackston, Managing Director Data Science and Research. "On one side, we moved money around in settlement, and on the other we acted as a data broker. Those two activities are now converging as we provide data-based tools and services to help airlines and agencies and others market their products. We are consolidating into a single more complex and more robust strategy, that is all coming together with data at the core."

"As a 150-year-old company, we've collected a lot of data," remarked Venkatesh Anandaram, VP IT Data & Analytics at Levi Strauss & Co.

> Our CEO recently defined "growth" for us as expanding out of our core business — bottoms and blue jeans — and becoming more of a lifestyle: get your entire closet, top to bottom. How do we win more direct-to-consumer business, where we can really know you personally? And with Gen Z, it's not just product — they also want to know

> us as a company. For us it's not just sales anymore, it's all about experience, and those are a lot of dots to connect.
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> So we've pivoted from leveraging data to run the business to leveraging data to grow and innovate. We're not monetizing our data by selling personal information; it's more in terms of being able to understand our customers better, in order to make the right next product recommendation, the right next experience as they engage with us.

"For your companies this sounds like a very top-down approach, where data is the key to your business," observed Nooshin Vaughn, VP Financial Planning and Analysis for Huntsman. "For us right now, it's almost completely the opposite:"

> Data is important, but our business runs as four semi-autonomous divisions. There are pockets of demand where we want data for certain things, e.g., to optimize manufacturing, or to increase sales through pricing excellence. But it's not very centralized, and our systems are also very disaggregated. We're more at the beginning of a journey that you are farther along, and we're just starting to look at those topics.

"We are not customer-facing to the end customer, and that means our needs are very different," added Huntsman's CIO Twila Day.

> The fact that we have multiple systems means that we have inconsistency in our data standardization, which affects our ability to pull things together. And there's not one business strategy, there are four. We've done things in areas where we've needed to — in linking customers, in supply chain — but overall there isn't a consolidated, standardized business strategy. We do need some standardization in processes and data, but there's a dichotomy between that objective and the culture of the company itself. Our data strategy isn't being driven by a huge, over-arching initiative.

"Much like Huntsman, we have three big divisions, and their strategies and approaches are as unique as their businesses," explained Steve Zerby, CIO of Owens-Corning. "I'll talk about the simplest of the three, roofing."

> Like Eaton, we have a new C-level executive, but the title is Chief Growth Officer. His agenda is about sharpening and executing on strategy, and not so much about monetizing this or that. The unique part in our roofing business is that there's an individual in the middle of our distribution chain that we never sell a thing to, and they never write a check to us: the local roofing contractor. Our biggest *customers* are the roofing distributors, but they don't put on roofs and don't control what gets picked. And the contractors don't pick us because of our materials; they love us, and they pick us, because we get them roofing jobs.
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> So our data strategy has evolved around this control point, around the 10,000 roofing contractors in the US. How do we learn everything we can possibly learn about them? They buy stuff, from us and from competitors, and they turn in those receipts. You can imagine all the data. Now we can target contractors in regions where we are under-represented. Roofing depends on regional materials: We can identify regional gaps and

feed our R&D organization to formulate products to fill those gaps. We can drive hot leads from our local web properties straight to the contractors. And because it's a local business, we now have the information to incent and manage contractors in Boston differently than we do in Atlanta.

"We're somewhere in-between," suggested Mark Meyer, Global IM at Tetra Pak.

> I see where Huntsman is coming from, and we've passed that phase. We had a lot of bottom-up stuff going on, and before we tried to go change the whole world, we put basic capabilities in place to make those bottom-up things easier, like a data science center of excellence.
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> Then we started to recognize that even though we had three very separate businesses, our customers increasingly wanted to work with us as a single business, and one of their biggest needs was for us to help lower their overall operational costs. We learned that we needed to take a more holistic strategic approach.
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> And so we looked, and we saw that our diverse businesses are connected, and becoming more connected. We need to change the way we look at data as a by-product of a solution, and start to see data as an asset in itself. Our first steps are to make the data available in order to create the capability to enable this new business strategy. We're not changing what our products are: We are helping the business that already exists to become a digitally-enabled business.

The Mother of Invention

Luis German, CPO and CIO described similar strategic origins of Tenaris' approach to data:

> Before the crisis of 2015/2016, we decided we needed to gather data on our products: Not because we were aiming at monetizing through a different business, but because we understood that eventually our main customers were going to require specific data from our products in order to make *their* operations more efficient. We set out to differentiate Tenaris by making sure that we can wrap our physical products with data, so that the information we can provide to our customers is different from what our competitors can do.
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> The main goal of that strategy was loyalty, not monetization. Now with margin-squeeze again in the oil and gas industry, we've shifted a little, and we are maintaining our first strategy while also putting more emphasis on how *we* can be more efficient using the data, how we can be better at cost reduction.

The American Bureau of Shipping (ABS) faces comparable customer and competitive dynamics. "We set the standards and approve the design and construction of anything that goes in the ocean: ships, offshore oil rigs, even wind turbines," explained ABS' CIO Maria O'Neill. "And then every year we inspect those vessels. So we see a lot of data, but until recently we've never really done anything with it."

> We are not the only organization that does this — we have to compete for the work. In the last few years, we've realized that we have a lot of data that can provide value to our customers: to help extend the lives of their vessels, as an example. So now we are focusing on data, and our CEO is talking about how data is at the forefront of our strategy.

"As Maria said, our business is a commodity business," added O'Neill's colleague Karen Jackson, ABS' Manager, Corporate Applications.

> What can we do to change the dynamics, to increase customer loyalty, to drive new revenue? If a customer dry-docks their vessel every five years, that's revenue lost to them. If we can change the dynamics, maybe they can dry-dock every seven years instead. We can collect and analyze information to do condition-based assessments, and also reduce the time it takes to complete the annual certifications.
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> So now the customer's vessel can be moving and making money, instead of sitting in port. We've been able to create certificate dashboards by reporting off the certificate PDFs to create specific business rules, which has never been done before. These are just examples of how we're combining information we collect with external sources to create more intelligence.

"We are closer to the Huntsman approach, in that data is not necessarily a growth strategy," stated Ryder Booth, VP Capital Projects at Chevron.

> It's a solutions strategy. How do we use data to drive internal solutions, where we are the primary customer of that data? How do we eventually drill a well with data, but without people? How do we use data to run plants, or have plants run themselves, because they can act faster with data than humans can? Chevron really supports the Paris Accord: how can we use data to lower our carbon intensity? To understand where we should be using renewables inside our own operations? To bookend how we're a customer of our own data: Drilling a well would be on the end of very tactical and very practical, and getting to a two-degree world is more aspirational.

Booth's Chevron colleague Jim Green, General Manager — IT Service Delivery, explained the business impetus driving a new data strategy:

> After our last industry downturn in 2016, we decided that every business has to win in what they do. Our new chairman is a chemical engineer by training, and he gets the data thing: for every business, "You've got to know where you benchmark, and you've got to be the best-in-basin." That turns into a very objective data discussion.
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> Every region knows its operations have to hit a certain cost per barrel to be competitive, so that's what's driving digital programs, whether it's remote operations, or offshore, with ship movement going back and forth between the shore base and the platforms. Low margins are the mother of invention, so we're systematically looking at data and chasing opportunities in digital programs in the name of margin.

The Strategy Stack

"There's a dichotomy between data in service of existing business goals versus a strategy that makes the data ready for *any* business goal, because goals will change," Gallant observed. "In either case, you need a strategy to create a data platform to let you deliver those new capabilities. Do you have explicit data strategies, as distinct from business strategies?"

"We have a strategy that requires data," German laughed. "Honestly, I've never had a strategic discussion on data unless it was related to what we want to do with that data."

"Our thinking didn't start from the data," agreed Wayne Shurts, Armstrong World Industries board member (and former Sysco CIO). "We started from the business, and then we built a growth strategy that is dependent on a digital strategy that will probably result in a data strategy."

"We also started with the value part," affirmed Balaji Rajamani, Tetra Pak's Enterprise Architect — Data Management and Analytics.

> We conducted a series of interviews with different business stakeholders. At first, we got a lot of aspirational statements, but then we'd get into practical mode, and discovered there were a lot of fundamental things that needed to be delivered as well. So "value" is a combination of monetary aspects and growing existing businesses along with technology aspects like cleansing and democratizing data and creating a taxonomy.

"But isn't monetization only one use of data?" asked Hans Brechbühl, Associate Professor of Practice at SDA Bocconi School of Management. "Data has risen to a point in importance where we need to be figuring out proactively — not just opportunistically — what we do with it, and how we do it. We need to look at questions like what kinds of data we need to acquire at a strategic level, not just for this project or that project."

"Absolutely," Rajamani replied. "That's why we also need to showcase foundational activities with recurring value generation around the data."

> Our strategy is to enable both capabilities in both business and technology to deliver monetary value, improved productivity, and increased knowledge. Our foundation is clearly data organization, because one problem we face in monetization is that we can't fix all the problems with data, and if you delay value generation for a long time, people ask, "What's happening out there?"

"It's hard to see a data strategy independent of business strategy and objectives," Blausey agreed.

> And, we do have a strategy for our information, that we call an "information architecture," or a "data architecture." At first it was defensive: consolidate the data, rationalize the data model, and make it consistent across all our ERPs.

> Now pockets of analytic organizations have popped up, because the data has been democratized. They're taking our standard data and making it fit-for-use, and adding non-structured data from other sources to drive revenue. "Standardize" was the strategy; now we are morphing to accommodate these different groups. Our strategy has become both offense and defense.

"Our digital strategy was built around four pillars," added Blausey's colleague Tom Black, Eaton's VP Enterprise Information Management and Business Intelligence.

> Productivity, revenue growth, Factory 4.0, and our front-end. Now in every case the business is looking at an "offense" revenue growth opportunity or a "defense" cost-out opportunity. An example on the offense side: we used to have five million saleable parts; now we've decided to have one e-store, and to get into the e-store, the products have to be in a taxonomy that is searchable and selectable. So that meant we had to create an enterprise taxonomy, and every business group has a plan to get their products into our product data hub so that they can get into the e-store. That has had a big maturing effect on how Operations sees data.

"Three or four of our business units have described a data strategy, built from the ground up," Green volunteered. "The rest of the company is in varying stages of data management: building consistency, getting the taxonomy right. In our digital program, we set six principles from the CEO down. One of them is that data is an asset. What he's trying to do is to get everyone aligned that we've got to be transparent in our data, because there's a lot of siloing and protectionism that goes on. He's trying to break that down and get it transparent for performance."

"We all know the 'tech stack:' One way to think about data is in a 'strategy stack,' suggested Alva Taylor, Associate Professor at the Tuck School of Business and Faculty Director, Center for Digital Strategies.

> You have the corporate strategy up at the top, then all the different functions — marketing, new product development, operations, etc. And supporting all of those is your data strategy. Each of the levels above it will have some common requirements, but they'll also have different ones.
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> All of your companies have a data strategy. For some it's more implicit than explicit, but it's connected through the stack. It doesn't necessarily say you have a uniform way of handling all data. It does say there's a set of questions that you ask about value generation and ROI from each component — and you make sure to ask those questions ahead of time, not after.

"I would say we probably have more of a 'data program' than a 'data strategy,'" O'Neill mused. "We have governance, GDPR; we are building a data warehouse, and there are data solutions being built. A 'strategy' is something different."

“A strategy is the blueprint,” Day suggested. “The blueprint that you are working against, the guiding principles that you answer to. A strategy provides the foundation, and without one, you end up with a hodgepodge.”

“Just because there’s a need to think more holistically doesn’t mean that overnight you’re going to know everything and have a perfectly-written document that’s going to guide every decision,” Brechbühl protested. “But it does make sense to articulate some principles: why and where will you share data? What’s your approach to data in the value chain? These are strategic concepts. Data architecture, data management, data governance: Those are all important pieces of a good data strategy, but they are not in and of themselves an actual data strategy.”

“But as long as the concept of a data strategy is that esoteric, you’re not going to convince your CFO or your CEO that you need to do anything,” Vaughn pointed out. “The term ‘data strategy’ is very ambiguous. Even in this room, everybody seems to have a different idea of what it means.”

“It’s fine to have a generic foundational concept of a data management strategy, but when you start talking about business specifics, the very generic concept doesn’t serve anybody,” Gillespie agreed.

“Different companies have different ways to determine value,” Thackston rebutted, “But the strategic objective is that every plan, action, or policy should be designed to increase the value of the data asset. How do you do that? Governance, security, accessibility, use cases where the data helps to make better business decisions. These all increase the value of the asset.”

Starting Points

“Maybe a first thing to notice is that lots of activities are being done in multiple locations around the organization, so you can start with just standardizing and rationalizing,” Meyer proposed. “Why are there 15 different databases? Get them together and save IT some money. You can do really simple things, take care of some of the basics, while putting principles and guidelines in place. You can decide the taxonomy and the metadata and where everything is going to be stored.”

“The ‘scatterization’ of data is a real problem,” Booth added.

> How do you get it into the state you need for it to be useful to solve problems? Should you standardize your data across your company, or do you standardize it by different functions within your company? We found that data standardization is being driven by lots of outside forces — e.g., the taxonomy of our supply chain data was being driven by tax codes, and not by supply chain standards.
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> Going to a cloud-based supply chain solution forced us to re-look at our taxonomy, and I became a believer in standardizing by functions. Supply chain needs to check with their industry and develop a taxonomy based on that, because if we Chevron-ize that

data, we can have all the APIs we want, but if the taxonomy is not correct, it will not communicate. If Tenaris offers us a great new solution in supply chain, we won't be able to use it if they can't read our data. The drilling function needs to get their data into industry standards for drilling, and IT's data needs to be in IT standards.

German corroborated the importance of sharing data and communicating:

> We have KPIs for comparing productivity, but when we look at maintenance, or at energy consumption, there is very limited sharing or exploring of data to find the best in class, and to copy from one plant to another.
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> So our investment now is to move data out of local databases. Let's put it in the cloud and make sure it's readily available, not just for data scientists, but for the general engineering population. Let's push it out there so it can flourish across the company. One early example: we've been able to cut energy consumption in the making of steel by two or three percent. That's a lot of CO2. So we are working to see if our customers, or the market, are willing to pay extra because our pipes consume less energy to make than our competitors.

KEY ELEMENTS OF A DATA STRATEGY

- GOVERNANCE
- ARCHITECTURE
- PRIVACY
- SECURITY
- DATA ACQUISITION
- DATA MANAGEMENT
- ANALYTICS & AI
- ACCESSIBILITY
- COMPLIANCE

Levi Strauss CIO Chris Clark supported starting with technical foundations:

> We created a cross-functional team to establish a distributed architecture across all our regions and markets. Two years in, we're about to retire our final database, and we'll have migrated the entire data set into SAP HANA. We understand the quality and completeness of the data, we can look at taxonomy. We're starting from a place of strength.
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> Our second workstream included governance, security, and privacy. Self-governance is our operating model, so what are the processes we're going to follow, how do we stand up teams for analytic use cases, etc. And the third leg was advanced analytic AI, looking at the business. Where *are* the opportunities? How do we prioritize their value?

"Individual use cases cost money, so even if they fit the strategy, they have to have an ROI," Vaughn argued. "Whenever someone comes to me, my number one question is, 'Is anyone going to *do* anything with the information?' Having the information is pointless if no one is going to do anything with it. More data that tells us more precisely something we already know isn't going to affect anything."

"You *are* asking the right question," Meyer acknowledged. "It's not good enough for a team to say, 'We want this data.' How are they going to use that data to turn it into revenue or savings? When they can define that use case, then you populate your data set. You don't put anything in your physical warehouse unless you know you have turnover for it. It's no different with data."

"One goal when we started to form our strategy was to shift the culture to smaller bites, that are consumable and show value," Anandaram volunteered.

> If you keep saying, "We're doing something, but it's a six-month exercise," you lose the willingness of the business to collaborate. So part of our data strategy became to build hypotheses, test them quickly, and make sure they work. We have hundreds of use cases out there; how do we identify where to start? We need a framework. Does this use case tie back to the growth strategy? Do we have the requisite data? Is it easily available? Is the business function ready to work on this problem at this point in time, versus their other priorities? Is this small enough to fit inside our vision, so that we can get to "good enough" through small chunks, and then either expand or move on?

German described how Tenaris has balanced the tension between providing a solid technical foundation with aspirational business ideas:

> We talk about "discipline at the core and flexibility at the edge." There's foundational governance and data readily available in a single location: That's discipline. IT has a key role in making sure that we have a single version of data for everybody who's going to be using fit or different purposes. That's flexibility. The problem is, we don't yet have full clarity on what those purposes are. Getting resources based on the uncertainty of how the data will be monetized is what we are struggling with.

"We express it as 'We want a data-driven culture,'" Meyer concluded. "It's so simple, and yet it's the truth. When someone makes a proposal, you say 'Show me the data.' If they can't, you send them back to get it. What's the value of solving the problem, and do we have the necessary data? If we don't have those two, how do we know we're going to get something back?"

"It's *All* About the Data"

"Whose responsibility it is to roll out and deliver a data strategy?" Gallant asked.

"*That* is the challenge," Booth answered.

> The purpose behind data is to drive solutions to problems, so each function needs its proper bits of data. The IT group has to help establish a common strategy so that data is in a useful place, that allows different functions to build off it, to deploy anchor solutions that either deposit or receive data. I'm owner of the Capital Projects data for the company, and once I have that strategy from IT and our Chief Data Officer, then I can march to our business strategy. I need help from IT professionals and data architects, but once we have the strategy of how to get data into the right order, I can take the second step of creating and deploying anchor solutions.

"You can build a data strategy for procurement, for example, that they can drive almost independently," Zerby pointed out. "But they still don't want to participate in the heavy lifting that is required, like an ERP roll-out, because 'It's not about the data strategy.' Except it's *all*

about the data strategy. If you don't have somebody in a chair who plays in all these things, I don't think they come together anywhere else."

"It's always best if you can get the different businesses to own whatever they're trying to do," Shurts agreed. "But the CIO needs to be the proactive nudging force to get their interest, and make sure they pay attention."

"It's clearly the responsibility of the CIO," Blausey concurred. "The advantage we have is that we see patterns across the company. So we're in a better position to create a cohesive, enabling strategy than any other part of the organization. We lead such things, but depending on what the area is, you need partnerships with the businesses to make it happen."

"I agree, and let me tell you what we are going to do, so you can ask me in a year how well it's working," Meyer offered. "We created a Data Board. IT will chair the Board, and the other three representatives are: Head of Process, to cover the ERP and all the connections in our process model; Head of Product Data; and Head of Data Science, because of the analytics capabilities."

"Very similar," Clark nodded. "We created a Data Strategy Task Force, that meets every two weeks. It's chaired by the CEO; I'm there as CIO. It includes two regional vice presidents, because that's the level where we believe the greatest value is going to be. Functional leaders participate, and cross-functional use case teams. The teams brief the task force, run a two-week sprint, and report back to the task force."

"And who brings potential data solutions to work on?" Gallant followed up.

"It happens in different ways," Black responded.

> In one case, the senior procurement officer got the vision to create a single 50-petabyte database. In another, the sales leaders looked at sales and order data in one place, and website visitors in another, and realized those could be connected to identify hot leads. We got to, "Really? How much is that going to cost?" very quickly.
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> The data evangelist role becomes someone who can sit in the middle of that discussion, and help people make the linkages to increase the value of the data. Once you get a senior leader with an idea, and an IT person with the data, then you need the unicorn who brings in external data. Having the right people together at the right time is often what causes a new initiative to gel.

"And if you can convince someone else, who is not in your function, to do your marketing for you, you start to get wins, because they start talking in the language of other folks," Booth emphasized. "If you get someone to present on data strategy that is not your CDO, other people start to listen."

"And then people talk to people, and you get a groundswell in the number of people in the company who are aware of what's going on," Zerby chimed in. "We communicate at three levels:"

> We call one program the 'Analytics for Action' program: Data scientists have office hours, just like your old college professor. There are posters in all our buildings: "Bring your own problem, bring your own data, and an hour later, you're capable." We solve lots of problems that way, and lots of people build skills. It sounds like a lot of work, but once you get into the routine, it's only a few hours every week.
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> In the second tier we meet once a quarter to do a deep dive with our three big businesses. We present a case study on a project we did for one of them, in an educational and sharing way, and the other businesses ask questions. A little bit of competition goes on, and we get really good, direct feedback.
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> And last, we submit the best case studies we have to win some industry awards, and then we talk about them at the top of the company. Each award happens inside somebody's business, and they get to puff out their chests about what went right.

"Early in our data science program we started writing one-page stories," Green recounted. "They were like something you'd see in an airline magazine. They were written very clearly, without technical language or acronyms. We also created a one-page 'Data Science Story of the Month', and sent them to company leadership. The stories really helped: 'Business X did this, and received this kind of value.' The stories weren't too precise, but they started to foster leader-level peer pressure."

"Those data-science stories really got us locked in on the importance of data," highlighted Bill Braun, Chevron's CIO. "The attitude was along the lines of:

> "The IT team has been telling us that data is important, and OK, it seems important." What these stories helped was to describe the purpose and the vision of where data could take us. By showing data in a foundational layer, and then cloud-based solutions on top of that, then we got the fun of creating a digital solution to go solve a simple problem. Everyone wants to play in *that* playground. But unless you have the simple things in order, you can't get there.
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> That's what helped us say, "We have to get our taxonomy correct, we have to democratize our data, we have to make it very visible, and we have to explain how the platform works in simple architecture terms that any business leader can understand. Putting that whole picture in place helped other business leaders see the importance.

"I send out a monthly IT portfolio update to the whole team," Clark added. "The idea is just to tell our story, in Saturday language. We had 140 projects in the portfolio last year, and a lot of my peers can't get their heads around that. So we write about the key things they need to know, domain by domain, and the value that we're driving for them from within the IT portfolio."

"The communication is really important, being able to speak to C-level people in their language," O'Neill agreed. "They want to know how something is going to aid with the top line or the bottom line, and you have to be the one to connect those dots for them. Recently someone took a plan to our CEO, and told him they could improve our cost-to-serve. *That* he

understood immediately, and agreed to sign the check. If you speak in his terms, and you connect the value of the data to one of his priorities, he will agree to it."

Bumps in the Road

"What have been the biggest obstacles to implementing your data strategies?" Gallant asked. "Have they been technology-related? People-related?"

"People distractions," Zerby answered. "They're not prioritization problems. The problem is Vendor X finding his way into someone's office with some new shiny something. Our management team is great about not making any commitments at all about technology until we have the right conversation, but even if a vendor comes in for a couple of hours, it slows us down. It's very expensive, because we have to put our best people in those conversations, which means they're not doing great things for us. It only takes one or two of these meetings in a quarter to suck a lot out of the system."

"Getting people to trust the data and the analytics over their own gut intuition," Shurts submitted.

"Legacy remediation," Clark answered. "That was a lot of heavy lifting: We had 11 different major databases globally, that user communities were absolutely reliant upon. We had to get those retired, and in the process, rationalize the reports we were getting, because there were hundreds. We needed fifty. That was step one."

"And then IT had to help rationalize the business metrics, which was challenging, because we don't run the businesses," Anandaram continued.

> No one in the different businesses really wants to talk with each other, and the expectation was that IT would bring them all together and facilitate the conversation. Each region has their own variations, and there's no global function to bring them all together. That slows things down, because it impacts the adoption of what you have built, or you want to build. So one of our big things from early on was change management, and showing the value-add of bringing them to a new platform to the businesses, versus just pitching a CDO or CIO vision.

OBSTACLES TO USING DATA TO DRIVE BUSINESS STRATEGY

- MANAGING PRODUCT DATA
- GETTING THE DATA
- ACCESS TO THE DATA
- ORGANIZING THE DATA
- COLLABORATING WITH THE DATA
- MOVING DATA TO ANALYTICS
- NOT UNDERSTANDING THE VALUE
- NOT THINKING ABOUT CHANGE
- GETTING FUNDING & RESOURCES
- DERIVING VALUE TO SELL
- TIME PRESSURE TO SHOW RESULTS
- OPERATIONALIZING THE INSIGHTS

"Change management was critical," German affirmed.

> We are collecting information from OT, from PLCs, from databases that were owned for 30 or 40 years by small organizations on different manufacturing sites. They were

> reluctant to let the data go, because they thought it was a threat to their jobs. They thought keeping the data was their main asset, the main value they represented.
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> It took time to find the right partnerships, where we could showcase that by allowing this new data infrastructure we freed time from their current data management activities in order for them to do more value-added activities. And once we had a few showcases, then it spread very quickly — not necessarily from OT, but from the country managers. The moment we started to showcase what we did in Argentina, what we're doing in Mexico — people started to ease up. But in the beginning, there was a lot of resistance, because data-as-an-asset was thought to be belong to a specific group that didn't want to share.

"Another problem to highlight is the excessive amount of time we spend in technical assessment," Rajamani suggested.

> We decide on one vendor as an enterprise tool, say for visualization, and some group always says, "We will use another tool because it has this one feature." We respect them, but the time and effort invested is clearly far, far more than the actual value they generate from that one feature.
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> And then there is the issue around lack of clarity of ownership: data is born in process A, but it is like water, and flows into process B, and C. Additional information gets added by each process. When something goes wrong in the master record, who is accountable? Everybody wants the data, but when there is a problem, they all look at everybody else.

"I'm sorry, I'm not in IT, so words like 'accountable' and 'governance' just flag that you're going to keep me from doing what I need to do, that you're going to slow me down, that you're going to bring me to a screeching halt," Vaughn protested.

> When two groups start arguing about differences in the data — we know those numbers are different. We accept that we have different purposes and we are running things for different reasons, so I've always recoiled at the argument that there should be a single version of truth. There isn't a single answer — the answer depends on why you need the information. So long as you have defined your differences, what problem does resolving the difference correct? The two views don't *need* to be the same.

"That's the whole challenge of taxonomy and repository," Meyer concurred. "If all the pieces aren't defined, then every person you talk with has their own version of what each piece means, and nothing gets resolved. Data ownership is going to get interesting, and data stewardship on top of this is going to be even more so."

"As data becomes more prolific, that is going to be interesting," Thackston agreed. "Who owns the customer? In our business model it could be the agency or the airline or the distributor, and many of the companies here will have a similar question. There isn't a right answer, but who has the rights to use the data? Who has the right to be forgotten? Who should they ask? It's going to get a lot more complicated."

Gallant brought the discussion to possible next actions: “What has to happen inside your organizations to move these initiatives forwards? What skillsets to you need?”

“Eaton has hotspots popping up in our operations, that we’ve called ‘analytic pods,’” Black answered.

> They hire a data scientist, then a business analyst — the “business translator” — and a developer or a scrum master or whatever. Then they start to iterate, and they need data. They’re hiring IT jobs, while we are holding IT flat. You can imagine a little frustration exists, but if you stand in the way of it, you’re like the rock in the water, and it will go around you. So we’ve adopted an enable-them strategy and we shovel data at them — all the data they can swallow. That helps them go faster, and eventually all kinds of solutions and projects come out. Self-service just kind of happened: We wouldn’t have gotten there if we hadn’t embraced the unknown.

“Data scientists per se haven’t been a big challenge,” Zerby commented. “We go after master’s grads, right out of school. We created a hub-and-spoke, with data engineering and a pool of data scientists in the hub setting direction, with a bit of ‘rent-to-own’ if the spokes need talent. The biggest challenge is to service 170 facilities in 44 countries around the world with data science capabilities.”

“We’ve embedded a subject matter expert with one of our major airline customers,” Gillespie volunteered. “It’s not quite the same as embedding within a business unit, but it’s proving to be the best thing we’ve done in a long time. She sits in their revenue management group, with the goal of understanding how they use our data, so she can report back to us how we can improve to be more fit for their use. It’s not a sales role — she’s a conduit between our organization and this airline.”

“That’s very similar to our ‘business translator’ role,” Anandaram observed. “A business translator is an SME who understands the business process and the data, who works with the data science team, with engineering, architecture, and the business stakeholder, to drive whatever outcome they’re trying for. It’s a bridge that’s important, because he or she can bring both a data perspective and a process perspective to eventually drive the outcome.”

“Where do these business translators come from? Do you train them? It doesn’t sound like a role you can hire for, because they have to come equipped with your company knowledge, don’t they?” Gallant asked.

“They do have to come from the business,” Anandaram acknowledged. “They have to understand the business very well, and they have to be data-savvy. Not everyone is cut out for the role. You have to handpick them, and then show their value so that you can train others in the organization. It’s a new role in a new organizational structure.”

“The business translator role is very interesting,” Vaughn commented.

> We have technical people who want to do their best to meet the business' needs, and we have business people who know how they do it today, and getting the two to talk and come up with something sensible that doesn't go overboard can be very difficult. We struggle to find business people who can speak the right language to technical people. We have only a few people who can really do it, and they can't be in every meeting.
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> And even then, you find tech people spending 100 hours building something that the business isn't really going to be happy with. They'll be happy in the moment, but miserable in the long-term, because building what they think they want isn't going to help them get the results they need.

"The trick is getting people to change from what they do every day to realizing they can drive better value," Jackson added. "Someone does a report because that's the way it's been done for the last 30 years, and you have to show them that they're not getting the kind of value out of it that could happen if they just looked at it differently."

"One of the key messages is that we have to re-skill our people," O'Neill emphasized. "There's a constant need to send them for training to augment what they already know, and teach them the new ways of doing things. Otherwise they're going to get stuck in one technology that they're good at, and they'll be left behind. They're going to be out of a job."

"We are doing OK with getting a good group of our existing people through skills changes," Green reflected.

> We have a good COE in the center. People are framed up, and we move them back and forth. Data engineering continues to be a struggle, and to be honest, we're hiring a healthy mix of under graduates and graduate students, and they're doing just fine. This new workforce learns fast. They're operating on new technologies all the time, and they have no problem learning the business. They soak up everything you throw at them. To the extent that we have an established workforce that's struggling as a whole: We're going to have to move on without them.

"The people issue is big, but the even-bigger issue is automation," Green continued. "A lot of stuff can be automated, and you have to get ruthless. You have to get human hands off it, and then we'll be better off. Our fundamental premise is that the software engineers are going to run the place when the dust settles: Everything will be automated, and it will take software engineers to make that happen."

Future (Im)Perfect

"One lesson from our discussion today is that companies who are already treating their data like an asset think about it very differently from those who are not," Day observed. "If you don't have that cultural mindset that your data is an asset, then you aren't taking advantage of all the ways that you can use it in order to enhance the business and support business strategies."

“We do need to look at data as an independent element,” German emphasized. “There’s the old framework of people, technology and processes — that framework needs to become people, technology, processes, and data.”

“And it’s not about one theme, or one skillset,” Anandaram added. “We all need a multitude of skillsets, and diversity in knowledge and thought processes, and they all have to come together. It clearly takes a village to deliver in this domain.”

“In the past there’s been lots of territorialism between IT and business, and it’s difficult to get much done that way,” declared Vaughn. “To do this right is going to require collaboration between both parties, especially on thinking about the question of ‘What aren’t we doing with our data?’ Have any of us really even thought about that?”

Gillespie extended the thought: “There is an assumption here that all the work we are doing to change out our tech stack will result in us being positioned to provide much more competitive, much more valuable data products. I’m not sure we’ve fully described how what we are undertaking bridges to specific goals. We are building foundations, but we don’t yet have these data strategies articulated to solve particular problems.”

“The real strategy is to increase the value of the data asset by linking the elements to tap the untapped potential,” Black suggested.

“Whatever you are doing today, you are generating data; the question is how to maintain that data as an asset,” Rajamani elaborated.

> One of your objectives is to make it fit for purpose for today’s business and consume it. At the same time, there should be a continuous exploration of this asset to identify what else can be done with it. If the data comes from Business A, and A is treated as a subset, then you’re never going to think beyond A. But if you take the data and collaborate with someone else, perhaps you have a chance to completely disrupt a new market. This can only happen if you keep the data as an asset. Data strategy is going to have to run in parallel with business strategy.

“Many of the companies that I interact with would just roll their eyes to even discuss whether data is an asset or not,” Taylor commented. “That assumption is the tip of their strategic spear. The interesting part for them is how strategies are evolving. If we come back to this topic two years from now, we’re going to have a completely different discussion.”

“I can’t think of another subject that the people in this room would be so all over the map on,” agreed Zerby, summarizing the day’s discussion. “That tells me that we have a long way to go before data strategy is something that we all are good at. And the people who *do* become good at this are going to be very scarce, and they’re going to become very valuable.”

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