THE BEST RUN **SAP**

Data Strategy Master Class

Outcome-Driven Data Strategy

THREE REASONS WHY

Outcome-driven strategy

OUTCOME-DRIVEN DATA

Roles, common missteps, and keys to success

ORGANIZING FOR SUCCESS

Key roles and relationships

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Master Class: Outcome-Driven Data Strategy

Three reasons why an outcome-driven data strategy is essential:

- Today's business strategies are depend more and more on "data" either to digitalize a process through automation, customize customer and employee experiences, or grow in new markets or through acquisition. Aligning a data strategy to the business strategy – so that the business strategy can be achieved – is the primary reason to have a data strategy. A data strategy must resonate within all levels of the organization. It needs to reflect the meaning and context of the business.

- A company needs a data strategy to prioritize its work. We all know that the amount of data a company generates and uses is significantly more than before. There will always be more data issues and requirements than resources. The company needs a way to prioritize its data activities on what will bring the most value through the data strategy. The strategy needs to be "living and breathing" and fully aligned with the business priorities yet flexible enough to shift as the business transforms and matures. It cannot just be some words in a document but must come to "life" within the organization.

- A data strategy outlines all the data capabilities that must be built to achieve business outcomes. That includes data quality management, and tools, business capabilities such as organizational structure, data acquisition, and data network strategy, compliance, and ethics capabilities. It also includes laying out a road map to develop evolving skills over multiple years while setting expectations on what can be delivered with what time frame, cost, and required executive

support.

THE INSTRUCTOR

Maria Villar teaches this class and is Head of Enterprise Data Strategy and Transformation at SAP SE. Maria advises SAP customers on the crucial role of data management in their digital transformation, leveraging over 20 years of practical, operational experience as the Chief Data Officer (CDO) of three companies, including SAP from 2009-2017.

In 2017, Maria was honored with the "Transformation of Collaboration from Inwards to Outwards" Award from the Massachusetts Institute of Technology. This award from MIT recognizes outstanding CDO leadership in driving business outcomes and business collaboration.

In addition to her experience at SAP, she has authored a book, "Managing Your Business Data from Chaos to Confidence," and published two online classes and numerous articles, most recently, "Time to Level Up: The Evolving Role of the Chief Data Officer."

THE WORKBOOK
This workbook supplements Maria's master class videos. Each chapter highlights key concepts taught in the video and includes the referenced templates.

Introduction
We've seen the facts around data volume and the types of increasing data. Risk is also increased from privacy and ethics challenges. Now is the time to look at how data is being managed and to manage data differently. Why is this so hard? We've been trying to manage data effectively for years and there are many myths about how to do it. While many companies know that managing their data is essential, we also know that it is tough. A recent survey done by Harvard Business Review highlighted why companies are failing in their efforts to become data-driven. This survey of sixty executives highlighted that technology is not the hardest part – it is the people and the process.

Three big myths of data that influence the success of your data program are:

- Data issues are IT issues. Data issues can stem from technology issues. Most often it is the process and the people.

- Start at project deployment. Data decays at a constant rate. Getting it right at implementation requires building more capabilities.

- All data is the same. Data quality does not mean the same thing to all processes. Some information is more critical for a business process, and some less so. As an example, at SAP, we looked at the most vital customer data. There were two hundred fields in a customer record, but only thirty fields were deemed crucial for a given business process.

Effectively managing data has been a misunderstood challenge. We could get by with back-office operations for data quality remediation. However, with the impact of digitalization on our business processes, companies are digitalizing their customer and employee experiences, automating the processes, and wanting to innovate with artificial intelligence/machine learning (AI/ML) and predictive analytics. All of these data-rich business outcomes require high-quality data in real time.

Why is now the most crucial time to embark on an outcome-driven data strategy? You've heard all of the statistics on data explosion and an unprecedented period of technological change. You may have started on a digital transformation or move to the cloud strategy at your company. These new initiatives are all data-heavy, which pushes new requirements for real-time, self-service cataloging and search, and governance across a modern, agile landscape. No longer can you have a department of data experts spending a month massaging and fixing data for reports or batch-style transactions. Instead, you may be receiving real-time data from sensors and third-party sources, blending that with new data types on the fly, and applying machine learning or predictive algorithms to run your business better. Data, data, data. You will need a flexible strategy for that!

SAP developed an outcome-driven data strategy. In 2009, we had a data crisis. SAP had a merger and acquisition problem during this first massive initiative. The company was changing our business strategy, and our data strategy was not evolving with it. We were moving to a cloud company powered by SAP HANA®and about to have many more acquisitions, yet we didn't have a strategy for this data acquisition.

This initiative caused a tremendous problem and forced SAP to look at the data with a business-first focus. We had to move with reactive to proactive and create an Enterprise Data Strategy program.

The data management team at SAP focused on business outcomes and was able to show a 422% annual return on investment. This fantastic ROI was showcased in the Nuclear Research Technology ROI award in 2013. In 2019, the group won a Nucleus Research ROI award for their Enterprise Data Management Engine Return on Investment (ROI), with a whopping ROI of 830%.

The team also won a TDWI award for Best Practice in Organizational Structure, 2013. Winners were chosen by a panel of independent judges with expertise in the field. They selected winners based on written entry forms and, if needed, follow-up interviews. Judges scored entries on business value, maturity, innovation, and relevance to other organizations.

Maria Villar – Chapter 2: Outcome-Driven Data Strategy

What is a business outcome-driven data strategy? It is holistic and comprehensive. As you see in Figure 1 below, it starts from what your business is trying to achieve, moves on to process change, and finally, to data landscape to include requirements and skills like people management and organizational capability management. You need to develop a road map and the metrics around those capabilities. Your strategy must start with the business outcome, then move to the processes that support it, and only then move to the specific capabilities required to support the business outcomes.

Figure 1: Outcome-Driven Data Strategy Process
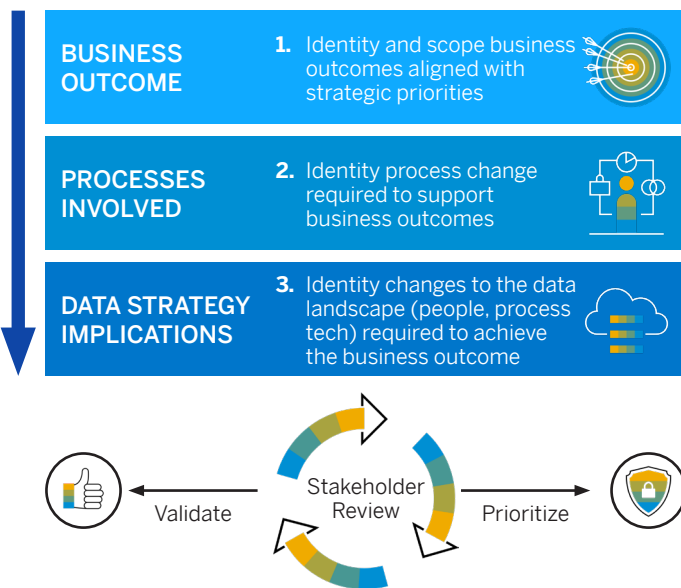
Guiding principles

- Know and manage your most important data. That is the data that will resonate with your business processes. Be broad. This does not have to be your master data. It could be transactional data and other data as well.

- Know all of the capabilities that have to be developed (beyond technical).

- Know what story you want to tell to help you establish baseline measures.

- Implement your strategy over the years and implement data workstreams within current projects (including transformation projects).

- Understand that data architecture is fundamental to end-to-end flexibility. A technical road map to achieve your data architecture is required.

- Measure, communicate, and sell the strategy often. Know the story, baseline those metrics, and be able to tell the story with your parameters.

These guiding principles must all be balanced for a holistic, outcome-driven data strategy – a perfect blend of business, operational, and technical viewpoints.

EXAMPLE AT SAP

The outcome-driven data strategy allowed SAP to keep our business and executive stakeholders involved and to change the culture. We could demonstrate €75 million of benefit in business outcomes for the six years studied. SAP won five industry awards during that time.

Figure 2: Aligning Business, Operational, and Technical Strategies

Enterprise data business strategy	Enterprise data operational strategy	Enterprise data technical strategy
Business priorites enabled by data strategy	Data process requirements	Enterprise data architecture
Org and governance requirements	Functional requirements	Data management applications
Metrics framework	Quality requirements	Third-party data
	Compliance requirements	
Know and manage the most high value data	**Build all capabilities to meet business outcomes**	**Enable with technology and E2E data architecture**

KEY TO SUCCESS IS ALIGNING BUSINESS OUTCOMES, BUSINESS PROCESS, AND ARCHITECTURE

ROLES

You have a data champion who advocates for why data matters to the organization. Business, IT, and management all play a role. IT is not in charge of the data's quality. We will discuss this further in the Responsible, Accountable, Consulted, Informed (RACI) models in future videos.

COMMON MISSTEPS

Missteps are seen again and again from the customers I talk to. Make sure to avoid them to increase the odds of success at your company. They are:

- Creating a tool-only data strategy

- Not having a principal executive business sponsor who plays an active role in supporting the program

- Overcommitting and under-delivering and using data speak instead of business speak

These missteps lead to a less effective data strategy.

Data professionals talk about numbers of errors or percentages of nulls. Business needs to understand what can be done differently because those numbers can be improved. What processes can be changed to enable more effective marketing programs, increased customer satisfaction, and other business metrics?

KEYS TO SUCCESS

On the flip side of common missteps is this list of essential tips:

- Establish clear and accepted accountability models, roles and responsibilities, and get those approved early on.

- Set multi-year funding expectations as this is a transformational project.

- Communicate effectively for the story you want to tell, centered around business value.

- Introduce change management and address the people side.

These deliverables must be clearly spelled out in the ongoing program.

Assignment: Start filling in this template as we go through this master class.

Figure 3: Business Strategy Template

WORKING TEMPLATE: BUSINESS PROCESS AND DATA

Business Outcome	#1
Process Involved	[Use Level 1 and Level 2 process maps as a guide]
Data Strategy Implications	[For example: data acquisition implications, data quality implications, data update/maintenance implications, data for analytics]
Critical Data	[For example: customer, supplier, contracts]
Measures of Success	

Maria Villar – Chapter 3: A Methodology For Driving Data Strategy Excellence

A methodology for driving data strategy excellence

We have defined five steps that SAP uses. SAP can assist you in the five steps with consulting services, training, or industry and technical experts in the journey.

- **Align** – A data strategy strategy champion makes the case inside the company that a business outcome-driven data strategy is needed. The final stage is an agreement to run a series of workshops and schedule it across all of the stakeholder parties.

- **Define** – A data strategy champion develops an initial draft of business outcomes based on research. With that draft, you can start scheduling workshops to validate and prioritize the business outcomes. Research into company goals, financial statements, and websites all help with this stage. Once those are defined, then you can determine what the business processes and technical components are. What are the metrics, process capabilities, and personnel capabilities? Once business outcomes are defined, you can decide which data elements you need to support these key outcomes. This methodology can be done in a workshop mode with different stakeholders.

- **Design** – Now you put together the end-to-end data architecture and technical components that will enable that data architecture.

- **Initiate** – All the results from the workshop can be used to set up the data program execution. This includes finalizing organization structure, defining and identifying the owner (if different from the data champion) and kicking off some projects. Finally, which metrics should be used to define success?

- **Deliver** – Set up the ongoing program of deploying projects, measuring progress, and communicating results.

Figure 4: Sample Strategy Timeline

ENTERPRISE DATA TRANSFORMATION PERFORMS/SUPPORTS/MONITORS

Consulting Services/COE	Consulting Services/COE	EA/COE	Consulting Services/SI	
Align	**Define**	**Design**	**Initiate**	**Deliver**
Data Strategy Awareness	Data Strategy Workshops	Data Architecture Road Map	Data Management Setup	Deployment and Monitoring
• Why Data Excellence? • Key dimensions to consider • Voice of the Customer • Strategy next steps	• Business outcome driven • Critical process/data/system scoping • High level business/tech gaps and needs • "Buy-in" and funding criteria • High level SAP® solutions • Workshops next steps	• Data Architecture • Technical functionality • Data tools and reporting • Third-party data • Technical design/SAP solution road map Data Hub Project • Services next steps	• Program launch • RACI (Business/IT) • Change Mgmt • Policies/Governance • Data Workstream • Technology Projects • Data Lifecycle Mgmt	• Data Policies and Stds • Data Definitions • Data Governance • Data Quality • Data Lineage • Business Value Realization
C LEVEL	**BUSINESS AND IT LEADERS**		**CDO/CIO/EXEC SPONSOR**	
1 to 2 hours (iterative)	2 days to 3 weeks	30 days	30–60 days	Ongoing

2-6 MONTHS

Two essential tools will be the Business Model Canvas and the Context Map Canvas. There may already be a business model canvas for your company – a quick Web search will help you find it.

You can find additional business value canvases online and read details on how to fill out the canvas from this inside track presentation from SAP.

Context map canvases (downloadable form) can also be found online.

Figure 5: Business Model Canvas

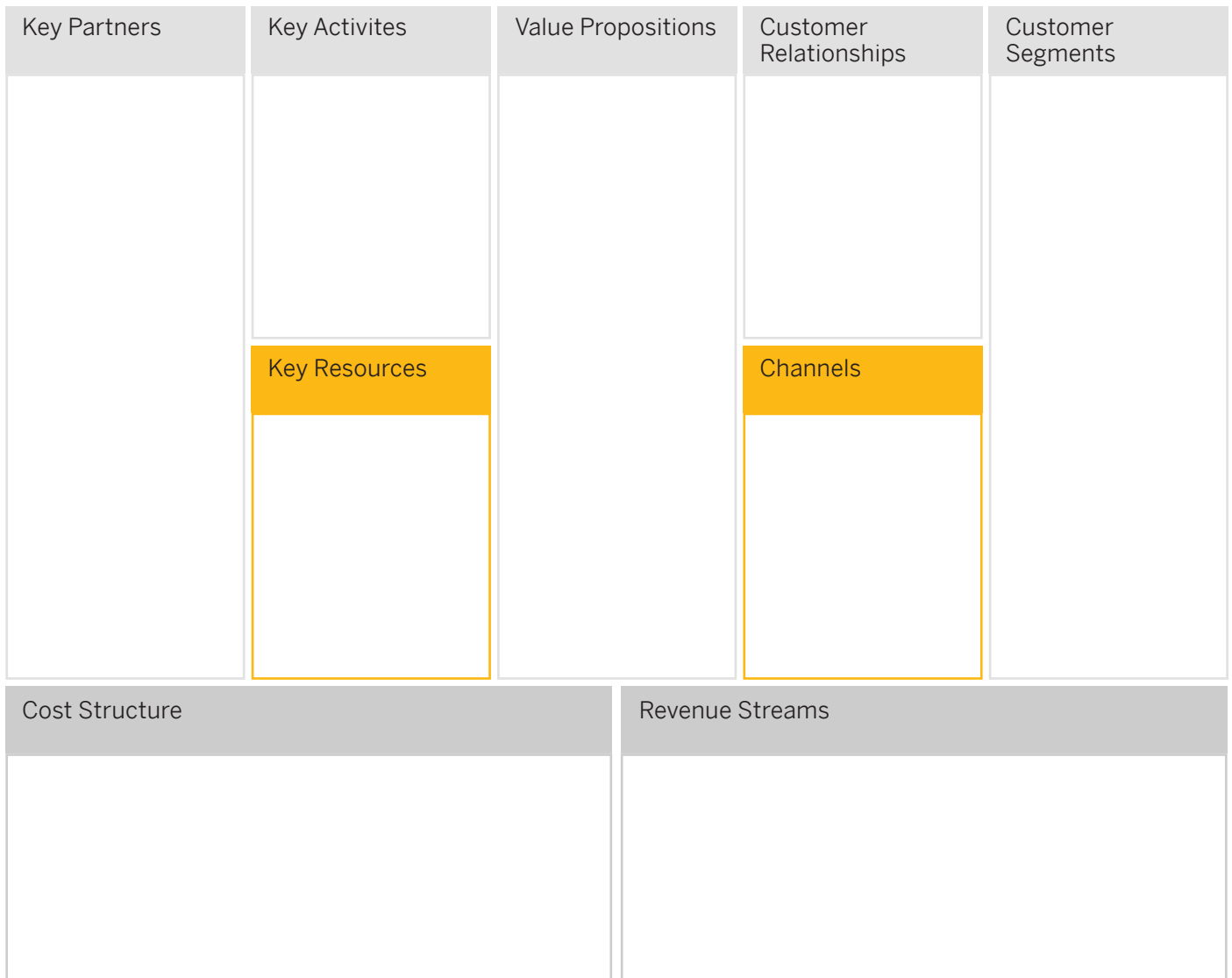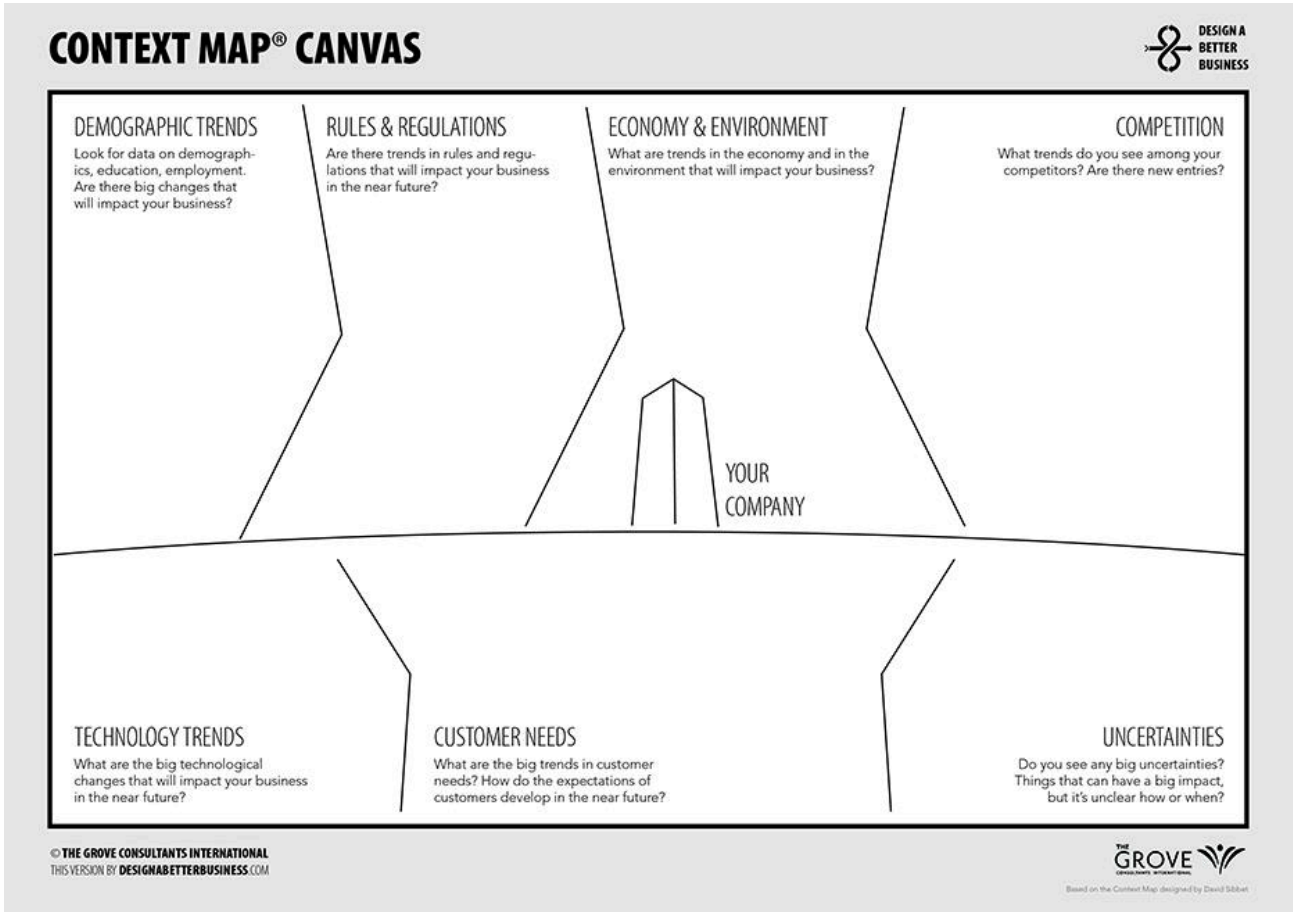| Key Partners	Key Activites	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		**Channels**	

Cost Structure	Revenue Streams

Figure 6: Context Map Canvas

CONTEXT MAP® CANVAS

DESIGN A BETTER BUSINESS

DEMOGRAPHIC TRENDS
Look for data on demographics, education, employment. Are there big changes that will impact your business?

RULES & REGULATIONS
Are there trends in rules and regulations that will impact your business in the near future?

ECONOMY & ENVIRONMENT
What are trends in the economy and in the environment that will impact your business?

COMPETITION
What trends do you see among your competitors? Are there new entries?

YOUR COMPANY

TECHNOLOGY TRENDS
What are the big technological changes that will impact your business in the near future?

CUSTOMER NEEDS
What are the big trends in customer needs? How do the expectations of customers develop in the near future?

UNCERTAINTIES
Do you see any big uncertainties? Things that can have a big impact, but it's unclear how or when?

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Based on the Context Map designed by David Sibbet

Assignment: Gather business drivers and understand your company's business. Gather how you make money and what the products, services, industry trends, and partners are. Look at your external website to see where the company wants to go.

Also, look at the business model canvas (or see if you can create one), as it offers a perspective of the internal information about your company's value proposition. There is also the context map canvas, which gives an external view of the competitors, external drivers, and any necessary legislation. The more you know about the internal and external workings of your company, the easier this will be.

Maria Villar – Chapter 4: In Detail: Defining Business Outcomes

Getting to business outcomes is the hardest part. We, as data professionals, think in data outcomes: improving data quality, building a dashboard, and installing master data governance. While these are great data words, they are
not business outcomes. First, get into the business mentality. The best way to do this is to do the work and do the research. Use your assignments from the business model canvas (internal drivers) and context map canvas (external drivers) as starting points.

Being business savvy enables conversations with business outcomes. The ability to talk the language of business is going to help you tremendously with your executive conversations and with driving the workshops. Here are other documents you should be checking out – public documents. Use this as your first draft to drive the business outcomes:

- Annual report

- 10-K

- Earning reports

- Senior executive interviews to the press

Use these because they use the words your company is using, making your terminology hard to debate within your company. Here is what to look for:

- Actionable

- Measurable

- Result-oriented

- Quantifiable

These could be financial, operational, customer, technical, and so on. Let's also look at the outcomes you knew inherently would be data-rich and which your data strategy will be a key component of. Examples you can use:

- Include statements around cost or operational efficiencies, with a specific margin improvement number. SAP identified an improvement target for margins. When these are communicated, you know that will lead to process efficiencies, which will lead to data efficiencies and data strategy elements.

- Improve customer experiences or digitalize the supply chain. These actions require the transformation of the processes to make them more automated and innovative. Data will be an essential part of changing those processes.

- Change a business model from license revenue to cloud subscription. Change fixed pricing to flexible pricing or change the markets that you are serving or to which you are adding new products and services – these are all business model changes. You will need data to get into these areas, which requires a data strategy.

- Grow through acquisition, which will require data management capabilities.

- Improve profitability for markets or products. That metric requires new models for the data, new pricing, and significant data changes to go along with it.

These five business outcomes will give you a place to start. Start with what your company is already saying publicly.

These documents are readily available, perhaps in the Investor Relations area on your website. Do not get overwhelmed by reading every page of the annual report. There are critical sections in each document that will contain business outcome words.

- **Annual report:** Look at the CEO letter that will summarize the findings and performance for the year, as well as the outlook for the future. Also, make sure to check the Risk Factors section.

- **10-K SEC Filing:** Look at the section for management discussion and risk. These will point out key areas where senior managers are investing and where they want to improve. Pay particular attention to the Management Discussion and Acquisitions sections.

- **Transcripts of the investor calls:** Listen to interviews that executives are giving.

EXAMPLES FROM SAP'S QUARTERLY REPORT

- "We want to accelerate operational excellence across all functional areas of SAP with a focus on growth, innovation, and efficiency, delivering an average one percentage point of non-IFRS operating margin expansion per year from 2018 through 2023. The achievement of our new cloud gross margin target is critical for our long-term success."

- "In terms of cost, we are on track to deliver targeted annualized cost savings of $100 million in fiscal 2019 and in excess of $200 million by the end of the fiscal year 2020. Also, we continue to take a hard look at how we can operate even more efficiently."

These specific targets will require process improvements.

Assignment: Identify business outcomes from your annual reports, 10-K, and investor relations documents. Try to get five substantial business outcomes to jump-start the workshops. Notice that tools and technology is only one section of these deliverables.

Maria Villar – Chapter 5: In Detail: Business Process To Data Strategy Implications

In detail: Level 1 (L1) business process to data strategy implications

Look for the most impactful business processes – not every single business process in your company. You will have limited resources and money, so spend wisely! Level 1 (essential business process) and Level 2 (associated processes) examples are below or use the ones you have already identified.

- Lead to cash – See Figure 7.

- Source-to-pay – See Figure 8.

- Design to operate – See Figure 9.

- Workforce management – See Figure 10.

Bring an initial point of view and a draft to your workshop, centered around business processes. These workshops will be with principal business and IT leaders. You will keep validating the outcomes and business processes, which you will target to vet with the CXO level. Get to the Chief Operating Officer (COO), Chief Financial Officer (CFO), or Chief Information Officer (CIO), whoever will have a crucial role to play. Prioritize your outcomes! You should come up with four or five and get feedback on which are the most important.

Let's work through an example with one operational, one financial, and one customer business outcome.

OUTCOME-DRIVEN EXAMPLES CUSTOMER OUTCOME

Understand, along with finance and business, what the costliest processes are in your company, or or the processes that may be the most manual. Changing these business processes is most likely to drive overall improvements and will already be prioritized in a broader initiative in your company.

Each executive will own a piece, and they will be ecstatic that you want to support them. If you are in manufacturing, source-to-pay may be the costliest and have the most opportunity for efficiency. It will also be ripe for data management strategy improvements.

In this chapter, we refer to Level 1 (L1) and Level 2 (L2) processes. L1 processes are at the top level, like source-to-pay. L2 processes are the next level of detail down, like supplier sourcing.

For source-to-pay (L1), which L2 processes will help? L2 processes such as supplier sourcing, supplier contracting, and invoicing are great places to start!

CUSTOMER OUTCOME:
Customer experience improvement or supply chain digitalization

Lead-to-cash will be a crucial process. For customer experiences, you need to focus on the lead-to-cash L2 processes of lead management, sales management, and pricing. On the supply chain side, L2 processes could be order management or logistics.

FINANCIAL OUTCOME:
Improve profitability for a market, product, or company

Improve the cost structure or a service, up-sell and cross-sell to an existing customer base, increase the price per unit, boost productivity, or introduce new products and services with a new price. In your workshop, identify which of the scenarios is most impactful for your company. Then identify which L1 and L2 processes will have to be reengineered.

Yes, this is a lot of work, but it is the most important work! Next, we will identify the data that supports these business processes, which is how you become business outcome-driven. You can then bring to the table what you know about the data that supports those critical processes.

INVESTIGATE THE DATA THAT MATTERS THE MOST

You will hear us talk about critical data elements (CDE). We are not limited to master data. Think about all of the data that has to be managed effectively. It could be master data, but please include transactional data, data for analytics, reference data that has to be managed, experience data about your customer, IoT, and innovation data (AI or ML). Include all of the data in this step.

MANUFACTURING EXAMPLE

Source-to-pay, including supplier, sourcing, and contracting as material processes, is one example. At the master data level, you need supplier data. You'll also need financial data, contractor data, and invoicing data. For analytics, you'll need to measure how the process is accomplishing your goals, key performance indicator (KPIs), and
metrics. Start by identifying the major topic areas, not every single field in thoseareas. You will do that later. Instead, you are focusing on essential data areas.

Examples of business processes, from various sources, can include the Hackett Group.

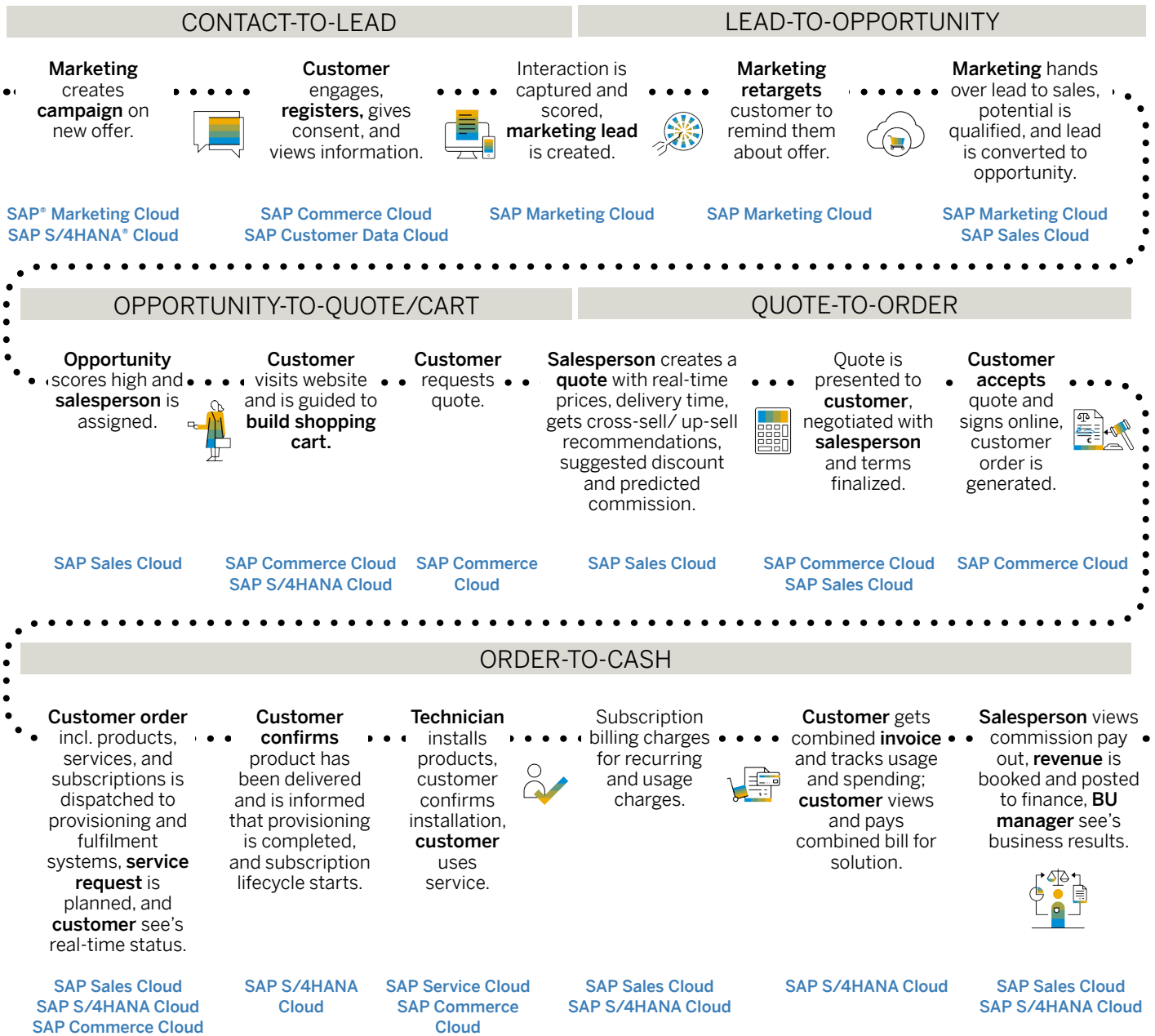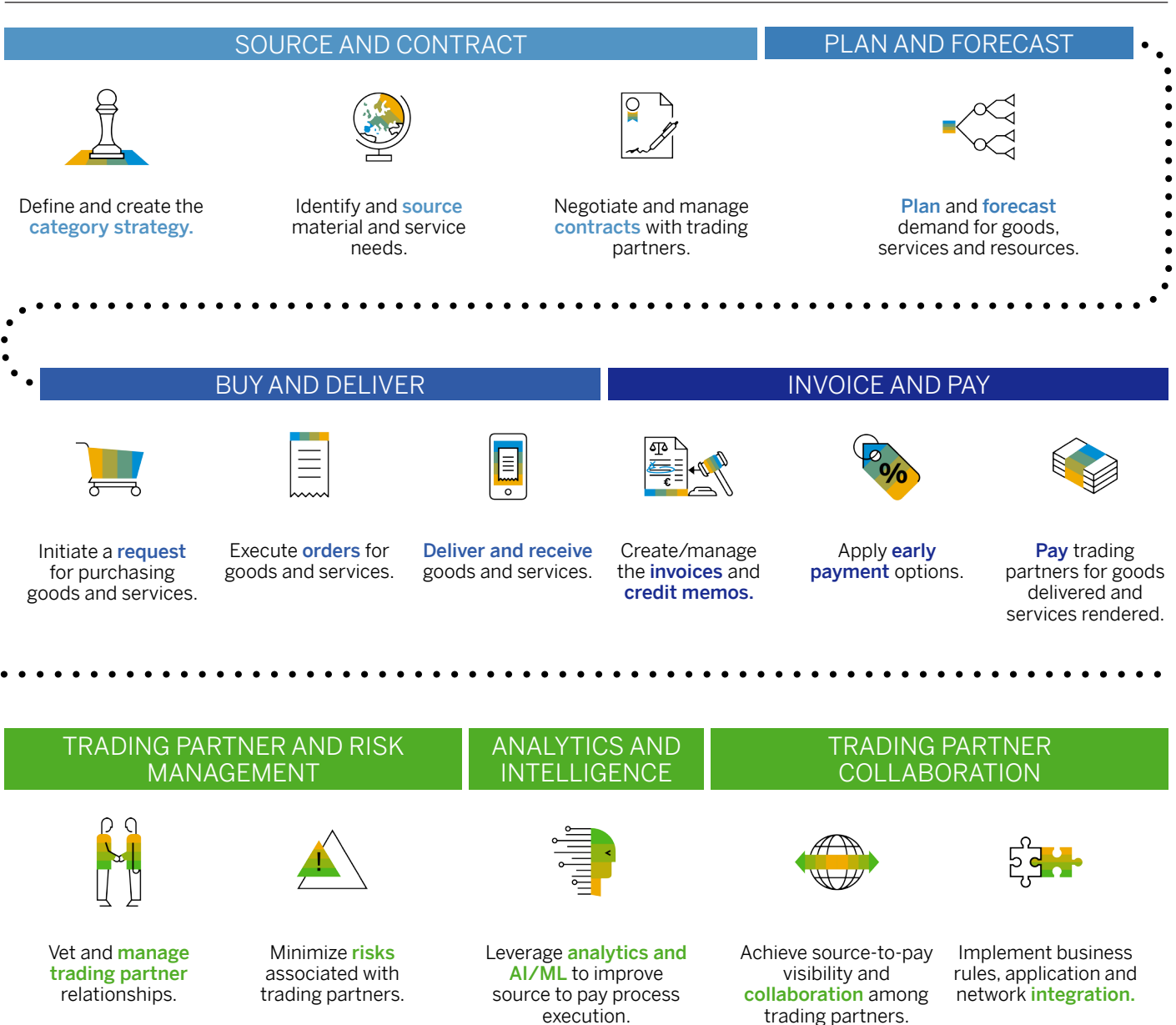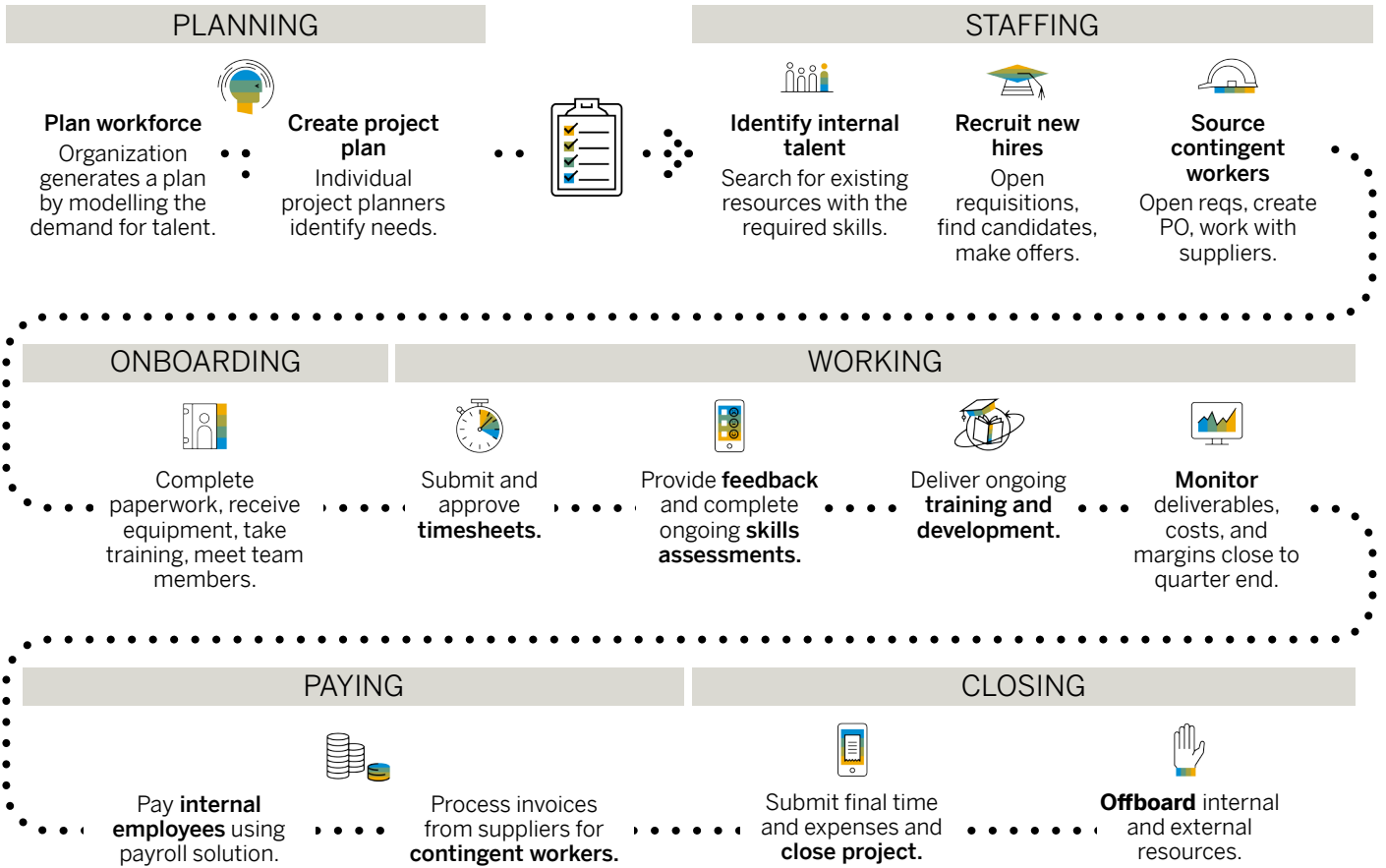## Figure 7: Lead-to-Cash Process Flow – Substeps, systems, people

CONTACT-TO-LEAD

Marketing creates **campaign** on new offer.

Customer engages, **registers,** gives consent, and views information.

Interaction is captured and scored, **marketing lead** is created.

SAP® Marketing Cloud
SAP S/4HANA® Cloud

SAP Commerce Cloud
SAP Customer Data Cloud

SAP Marketing Cloud

LEAD-TO-OPPORTUNITY

Marketing retargets customer to remind them about offer.

Marketing hands over lead to sales, potential is qualified, and lead is converted to opportunity.

SAP Marketing Cloud

SAP Marketing Cloud
SAP Sales Cloud

OPPORTUNITY-TO-QUOTE/CART

Opportunity scores high and **salesperson** is assigned.

Customer visits website and is guided to **build shopping cart.**

Customer requests quote.

SAP Sales Cloud

SAP Commerce Cloud
SAP S/4HANA Cloud

SAP Commerce Cloud

QUOTE-TO-ORDER

Salesperson creates a **quote** with real-time prices, delivery time, gets cross-sell/ up-sell recommendations, suggested discount and predicted commission.

Quote is presented to **customer**, negotiated with **salesperson** and terms finalized.

Customer accepts quote and signs online, customer order is generated.

SAP Sales Cloud

SAP Commerce Cloud
SAP Sales Cloud

SAP Commerce Cloud

ORDER-TO-CASH

Customer order incl. products, services, and subscriptions is dispatched to provisioning and fulfilment systems, **service request** is planned, and **customer** see's real-time status.

Customer confirms product has been delivered and is informed that provisioning is completed, and subscription lifecycle starts.

Technician installs products, customer confirms installation, **customer** uses service.

Subscription billing charges for recurring and usage charges.

Customer gets combined **invoice** and tracks usage and spending; **customer** views and pays combined bill for solution.

Salesperson views commission pay out, **revenue** is booked and posted to finance, **BU manager** see's business results.

SAP Sales Cloud
SAP S/4HANA Cloud
SAP Commerce Cloud

SAP S/4HANA Cloud

SAP Service Cloud
SAP Commerce Cloud

SAP Sales Cloud
SAP S/4HANA Cloud

SAP S/4HANA Cloud

SAP Sales Cloud
SAP S/4HANA Cloud

Figure 8: Source-to-Pay Process Flow

SOURCE AND CONTRACT			PLAN AND FORECAST

Define and create the **category strategy.**

Identify and **source** material and service needs.

Negotiate and manage **contracts** with trading partners.

Plan and **forecast** demand for goods, services and resources.

BUY AND DELIVER			INVOICE AND PAY		

Initiate a **request** for purchasing goods and services.

Execute **orders** for goods and services.

Deliver and receive goods and services.

Create/manage the **invoices** and **credit memos.**

Apply **early payment** options.

Pay trading partners for goods delivered and services rendered.

TRADING PARTNER AND RISK MANAGEMENT		ANALYTICS AND INTELLIGENCE	TRADING PARTNER COLLABORATION	

Vet and **manage trading partner** relationships.

Minimize **risks** associated with trading partners.

Leverage **analytics and AI/ML** to improve source to pay process execution.

Achieve source-to-pay visibility and **collaboration** among trading partners.

Implement business rules, application and network **integration.**

Figure 9: Design-to-Operate Process Flow – Substeps, systems

DESIGN

Receive customer feedback – define **requirements** and **system concept** for new/changed product.

SAP® Intelligent Product Design

Create **product design** and maintain master data for new/changed product.

SAP S/4HANA®
SAP 3D Visual Enterprise
SAP Engineering Control Center

Hand over to manufacturing and service to manage BOM and routing.

SAP S/4HANA
SAP Engineering Control Center
SAP Asset Intelligence Network

PLAN

Plan **demand** for new/changed components.

SAP Integrated Business Planning for Supply Chain
SAP S/4HANA

Plan **supply** for new/changed components.

SAP Integrated Business Planning for Supply Chain
SAP S/4HANA

Create master **production schedule.**

SAP S/4HANA

PROCURE

Procure **components** to build **subassemblies.**

SAP S/4HANA

Manage and track inbound delivery.

SAP S/4HANA
SAP Logistics Business Network, global track and trace option

Receive procured components into warehouse.

SAP S/4HANA
SAP Business Network for Logistics with global track and trace functionality

MANUFACTURE (SUBASSEMBLIES)

Schedule subassembly production.

SAP S/4HANA

Produce subassemblies and track progress.

SAP S/4HANA
SAP Digital Manufacturing Cloud

Receive subassemblies into warehouse.

SAP S/4HANA
SAP Digital Manufacturing Cloud

SELL

Receive customer **sales order (assemble-to-order).**

SAP S/4HANA

MANUFACTURE (FINISHED PRODUCT)

Schedule finished product production.

SAP S/4HANA

Produce finished product and track progress.

SAP S/4HANA
SAP Digital Manufacturing Cloud
SAP Asset Intelligence Network

Register serialized finished product.

SAP Digital Manufacturing Cloud
SAP Asset Intelligence Network

Receive finished product into warehouse.

SAP S/4HANA
SAP Digital Manufacturing Cloud

DELIVER

Plan transport, pick, pack and load product for **delivery.**

SAP S/4HANA

Perform and track **outbound transportation** and receive proof of delivery.

SAP S/4HANA
SAP Business Network for Logistics with global track and trace functionality

OPERATE

Receive asset master data and **onboard** asset.

SAP S/4HANA
SAP Asset Intelligence Network

Monitor assets with IoT data, perform analysis, **predict** asset failure.

SAP Predictive Asset Insights

Plan asset maintenance.

SAP S/4HANA
SAP Asset Strategy and Performance Management
SAP Predictive Asset Insights

Perform inspection, **maintenance** and repair.

SAP S/4HANA
SAP Service and Asset Manager
SAP Predictive Asset Insights

Request **product improvement.**

SAP Asset Intelligence Network
SAP Intelligent Product Design

Decommission asset.

Figure 10: Total Workforce Management Process Flow

PLANNING

Plan workforce
Organization generates a plan by modelling the demand for talent.

Create project plan
Individual project planners identify needs.

STAFFING

Identify internal talent
Search for existing resources with the required skills.

Recruit new hires
Open requisitions, find candidates, make offers.

Source contingent workers
Open reqs, create PO, work with suppliers.

ONBOARDING

Complete paperwork, receive equipment, take training, meet team members.

WORKING

Submit and approve **timesheets.**

Provide **feedback** and complete ongoing **skills assessments.**

Deliver ongoing **training and development.**

Monitor deliverables, costs, and margins close to quarter end.

PAYING

Pay **internal employees** using payroll solution.

Process invoices from suppliers for **contingent workers.**

CLOSING

Submit final time and expenses and **close project.**

Offboard internal and external resources.

Assignment: Continue to fill out the business strategy template. In this section focus on the relevant business processes involved.

Figure 11: Business strategy template

WORKING TEMPLATE: BUSINESS PROCESS AND DATA

Business Outcome	#1
Process Involved	[Use Level 1 and Level 2 process maps as a guide]
Data Strategy Implications	[For example: data acquisition implications, data quality implications, data update/maintenance implications, data for analytics]
Critical Data	[For example: customer, supplier, contracts]
Measures of Success	

Maria Villar – Chapter 6: In Detail: Data Strategy Implications

The five steps of data strategy excellence include awareness and raising the consciousness of your company on the importance of a data strategy (see the previous definition of the methodology phases). This section covers how to run a Define workshop, including steps and deliverables for the workshop. This workshop could be two weeks long; we are just giving the main points on how to get started. The workshops help give the alignment on what to tackle next.

With the prioritized outcomes, impactful business processes, and CDEs, you will need the data strategy requirements.

These are the questions you will have to ask concerning the data that must change:

- **Reporting and analytics:** For the outcome in that process, what reporting, and analytics will you need? What will help you identify which data has to be managed for effective analytics?

- **Data acquisition:** If you are entering a new market or a new country, you may not have the information your business will need. You may have to buy data externally. Where can you buy it from, what are the terms and conditions, who will purchase the data, and where will it reside?

- **Data quality:** Is the data that you currently have to support the process good enough? Do you know what the criteria are? Do you have to enrich or supplement to meet the process requirements?

- **Data ethics and compliance:** Security and privacy should be investigated. Data ethics must go to the Chief Data Officer (CDO), particularly for people data. How will you evaluate data ethics? Do you need new policies for automation, and do you need guardrails around the decisions that will be made? You don't need details at this point, but make sure that you call this out as a nontechnical capability.

- **Organization:** Recommend the preferred organization at this point. Frequently, we try to put an organization in place and try to sell a large organization, and that many times falls on deaf ears. However, if you start with the business outcome, which requires these business processes and data elements, this discussion will be much easier. The role of the CDO should also be included.

- **Metrics:** How will you measure the success of the program? Include the delivery of business outcomes, the cost of the program, and other parameters.

Take a look at the included materials to help guide the discussion in your workshop.

Data strategy canvas

This data strategy canvas is not all-inclusive. You'll need that anyway, but this is another way to communicate overall direction in one slide. Make it crisp and identify the key messages within your strategy. These are the topics to include in your data strategy canvas:

- Key business strategy, goals, and outcomes
- Short-term priorities, the high-level business processes (L1 and L2)
- Measures of success
- Requirements (acquisition, ethics, quality)
- Critical data (master, reference, transactional)
- Accountability model. Will you need a head of data or data leaders in which area? Make that accountability clear at a high level.
- Technical, organizational, and data risk.

You'll need this snapshot for communicating effectively.

Figure 12: Data Strategy Canvas

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1 BUSINESS STRATEGY, GOALS, OUTCOMES

As communication in public documents and statements

Ex: Financial, operational, strategic, technical, customer goals

2 SHORT TERM PRIORITIES

Current year priorities, current transformation initiatives communicated internally and/or externally

3 BUSINESS PROCESS DRIVING GOALS

Business processes that will be *materially changed or transformed* to achieve the goals and outcomes

EX:
- Total Workforce Management
- Lead-to-cash
- Design to Operate
- Source-to-pay

4 DATA STRATEGY REQUIREMENTS

What is required of data assets to achieve the business utcomes from business process changes? How can that happen?

Ex: Acquisition of new data, real-time data quality to support AI, analytics, data ethics policies, automated data processes redesign, new accountability models and RACI, regulatory and compliance requirements, technical architecture, data shared services

5 CRITICAL DATA

Data domains that will *materially impact* the business outcomes from the business processes that are driving the business goals. New requirements to be addressed in the data strategy

(Master data, operational data, experience data, external data, unstructured data, sensor data)

8 DATA STRATEGY RISKS

Technology risk: Maturity and feasibility

Operational risk: Skills, processes, culture, data quality risks

7 MEASURES OF SUCCESS

Business value metrics that demonstrate the data strategy is executing successfully and supporting the business outcomes

Ex: Cost saving/avoidance, process automation improvements, employee productivity, data quality value metrics

6 DATA STRATEGY ACCOUNTABILITY MODEL

Critical organizational goals required to deliver on the data strategy

Ex: Data Leaders, Head of Data, Business Sponsor

DATA STRATEGY RISKS

Articulating data strategy risks may be new for your organization. Here are some examples of the kinds of topics you may include in the data strategy canvas:

- **Technology risks:** Innovation requires new data types like AI and machine learning. Will you have to take risks to achieve the data strategy? Make sure to document what the technical level of maturity will be.

- **Operational risks:** If you don't have the right skills in place, perhaps use data scientists. Do you need better process definition than you currently have? Maybe the culture in your company is a risk because managing data is new to your organization (use the benchmarking).

- **Data quality risks:** Start with profiling of the data quality that is required. Do you know already where you'll have gaps in certain areas? The more you can articulate and document this, the easier it will be to acquire resources and remediation and set proper expectations.
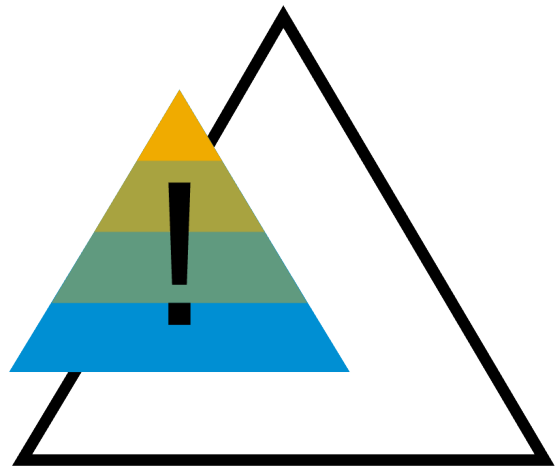
Assignment: Continue to fill out the business strategy template. In this section focus on the data strategy implications, critical data, and measures of success.

Figure 13: Business Strategy Template

WORKING TEMPLATE: BUSINESS PROCESS AND DATA

Business Outcome	#1
Process Involved	[Use Level 1 and Level 2 process maps as a guide]
Data Strategy Implications	[For example: data acquisition implications, data quality implications, data update/maintenance implications, data for analytics]
Critical Data	[For example: customer, supplier, contracts]
Measures of Success	

Maria Villar – Chapter 7: Organizing for Success

Cross-functional executive sponsorship is key to a successful data strategy plan and implementation.

KEY ROLES AND RELATIONSHIPS

Who is going to run the data strategy session? If you don't have a CDO or Chief Analytics Officer (CAO) or a head of data, how do you find that person? There's always someone who has a passion for data. Maybe it is someone who is the head of IT, the CIO or someone who understands that a data strategy is needed. Sometimes this is an informal role that is not needed for a long time. Designate someone bold, persistent, and well respected in the company that will be heard. Find those people.

Participants in the strategy workshops will include business, IT, process owners, those that understand which processes are essential, and transformation leaders. Having those people at the workshops, and providing feedback will be crucial. The next important role is organizing for perpetuity. Who is going to run this? It may come from inside the company, but it should be someone close to the business processes. IT plays a critical role in enabling technology.

CHIEF DATA OFFICER AND CHIEF ANALYTICS OFFICER

You need a head of data, CDO, or CAO. That role is critical. That person needs the right executive presence, communication style, and ability to be a change agent. They need to report to a place that values the function. Most want to work inside the business, including CFO organizations. If you are inside the CIO organization, you need a partner on the business side. Why? CDOs are proving to be the linchpins of digital transformation.

An executive data sponsor requires lots of friends. You need someone senior to provide the support. It helps that the head of data is responsive to essential issues and walks the talk of why data is important. Give advice and counsel. SAP's CFO was a great executive sponsor. He participated in programs and provided accountability that we needed. Chief Process Officers (CPO) are excellent, too. They will also provide air cover for important decisions.

You will have more than one sponsor. SAP started with the head of sales because that was the most important sponsor. Then SAP moved to CPO, the COO, and then the CFO. Executive sponsors can change because of program expansion and executive movement. Sponsorship is great for your program because you'll have to keep educating and training your executive sponsors.

Metrics are important. Get away from data metrics like defects fixed, or account records created. Look at cost avoidance, cost savings, employee productivity, new insights, and more. It is important to tie back to the outcomes (key capabilities).

DATA LEADERS
Who is going to be your data leader? The data needs a leader to drive the capabilities and be close to the business.

TIME COMMITMENT
The CDO would be a full-time role. The other roles will depend on the work that has to be done. The more time you spend, the faster you will go. The amount of time they spend will influence results, and in the beginning, it will be close to full time.

TIPS
Notice that we do not use data stewards. Instead, they are data leaders. You want them to be from the business, and Data Steward is not as compelling a role as Data Leader. This person needs to be a change agent and not a manager. You'll get a better reception.

Data owners are not used. Steer away from this. In the lifecycle of data, there isn't one owner. The company owns it, and we all play roles. Talking about data owners leads to misconceptions about how broad the responsibilities can be.

Maria Villar – Chapter 8: Communicating with Storytelling

Messaging of business outcome-based metrics is key to illustrating the value of an outcome-driven data strategy. Further programmatic support will be garnered through this best practice.

BRANDING

Many of us are introverts and don't promote well. You will have to learn how to do this. When you have a business outcome-driven data strategy, you message about how you enable company goals. You could hire someone with that background, who will also do training. We branded our program, "One SAP for Data Quality." This helped message that we needed everyone's involvement to solve the issues. We even broadcast our messaging on websites and posters.

EVANGELIZING

The Business Engineering Institute of St. Gallen study on "Turning information and data quality into sustainable business value" highlighted that companies needed to spend time, money, and effort on communication. The study highlights that if you have $100 to spend on a data program, spend $90 on executing on the program, and $10 on communicating the results of the program. Without communication, people are less willing to participate because they are unsure of the impact.

EFFECTIVE METRICS

Business outcome-based metrics are recommended, such as productivity, process improvements, and so on. You can convert those metrics to dollars with formulas. However, you need to be able to trend this over time to best tell the story. Messaging over time on how you have improved strengthens your account and the stickiness of that story. Telling a story of improvements over five years also helps with the investment. For example, SAP saw over €75 million worth of benefit from individual project benefits. Tell one story with one number over time.

Figure 14: Benefits of Enterprise Information Management Program

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Cost Improvements	• TCO IT improvements • Cost avoidance • Reduced manual costs • Third-party data provider costs
Business Value Measures	• Employee productivity (back office, sales, marketing) • Process improvements (speed, customer sat.)
Data Quality Improvements	• Field/record completeness, validity, accuracy score • Errors per record • Duplicates eliminated • Data quality costs • DQ automation
Compliance	• Regulatory and industry standards • Legal • Privacy

What Are The That Metrics Matter?
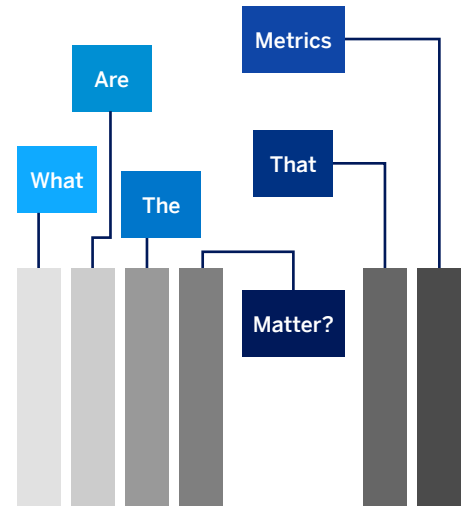
YTD BENEFITS =
€75M + 20% ROI

HOW DID SAP GET TO THOSE KINDS OF INCREDIBLE NUMBERS?
Here are some examples.

We, first and foremost, included data strategy metrics in key SAP software transformational projects.
We measured the program's collective performance and benefits but also from each project within the overall program. Projects have specific goals to improve one of the many inhibitors to data management success. The goals could be process reengineering, IT automation, data quality, or compliance improvements.

We have found these key performance indicators (KPIs) are effective at measuring progress, but they can also be translated to business value metrics:

• **Cost reduction projects:** Metrics such as total-cost-ownership (TCO) improvement, returned mail reduction, and reduced manual costs are measurable but can also be assigned a dollar value.

• **Process reengineering projects:** Set a process improvement target (KPI) and those improvements can then be quantified into some employee productivity, revenue, or speed benefit.

- **Data quality projects:** Set particular and measurable KPIs such as errors per record, completeness, and so on. The challenge SAP has had with these metrics is assigning a dollar value that is significant and meaningful. However, we still use these metrics because all programs will ultimately have data quality improvement as a goal.

- Legal or internal compliance projects: percentage of data standards that are met by the systems in scope. Also, if the auditing or internal controllers have internal assessments where non compliance issues were identified, set a target for reduction. Monetizing these goals, especially if there are monetary penalties that are saved, supports further quantification of value.

Figure 15: Metrics Used at SAP

OUR OWN JOURNEY TO BECOME AN OUTCOME-DRIVEN DATA ORGANIZATION
SAP RUNS SAP

What have data quality improvements done for SAP?

Saved Money

Over €70 million benefits through master data improvements

Over €13 million saved with better contact data

Saved Time

25,000 hours of increased productivity for account executives in 2015 due to sales enablement solutions from the account data management team

Increased Productivity

10% increase in marketing productivity through continuous data quality improvements year over year

Improved Efficiency

50% improvement in business process efficiency

70% increase automated data operation processes

THESE DATA MANAGEMENT CAPABILITIES ARE FOUNDATIONAL TO OUR ABILITY TO ANALYZE AND PREDICT OUR OPERATIONAL METRICS WITH THE DIGITAL BOARDROOM AND OUR INTERNAL PROCESS TRANSFORMATION TO BECOME A CLOUD COMPANY POWERED BY SAP S/4 HANA®

Assignment: Find your executive sponsor. Have some initial conversations around the broad scope of the program and potential impact at your company. Also, identify who your critical friends of data will be and talk to them with your executive sponsor.

Maria Villar – Chapter 9: Highlight: Ethics In Data Strategy

Data ethics is a new organizational data risk. While the CDO can't solve this on their own, they need to lead and coordinate how the company deals with it. Data ethics are principles that inform the company about the rights and wrongs of using data. These are subjective. Your company may confuse this with data privacy. Data privacy compliance is a legal compliance with brand implications. Data ethics is judgmental and goes beyond the rules. It is different from The EU General Data Protection Regulation (GDPR). In GDPR, you can be explicitly fined, but data ethics violations risk your brand and reputation.

When you look at data ethics, it is usually about mismanaging data. **There are three risks:**

- Unintended biases
- Unintended consequences
- Invasion of privacy

UNINTENDED BIASES
By unintended biases, we mean when algorithms don't have sufficient data as input, perhaps for AI. However, any automated business rules can bring unintentional biases. When you don't have enough information, this leads to errors. One example is facial recognition. Because there isn't enough data for females and people of color, you could misidentify people when that software is used.

UNINTENDED CONSEQUENCES
Of course, unintended consequences mean when the result is different than planned. An Australian company with a map application started to display areas in Australia that were secret war zones, which became a big issue. They did not have enough reviews within their process to keep that from happening.

INVASION OF PRIVACY
Where does tracking become surveillance and you cross the line? For example, OnStar knows when you have an accident and can contact the police, your insurance agent, and your significant other. That may not be what you want.

These are all judgment calls, and at what point do they become areas that misrepresent the brand?

Example at SAP
We have taken the topic seriously and have made it a senior management topic. At the CFO and presidential level, we review scenarios and establish guidelines. One of our first actions was to declare our values publicly and make sure everyone knew these values.

We also have a steering committee where we operationalize these data ethics and have an advice and counsel board of experts in the field that will influence our next steps.

As you implement automation and AI, addressing how you handle data ethics is critical. Consider what SAP has done.

Maria Villar – Chapter 10: Technical Solutions

The design phase requires a technical data strategy that supports the overarching data strategy defined in workshops. It needs an end-to-end data architecture and road map for delivery. Luckily, SAP has many tools to help you with the strategy. Choose the tools that have the most impact on your project and implement those first.

The architecture also needs guiding principles. It must:

- Be flexible
- Be adaptable
- Ingest data of any kind, of course, including master data
- Ingest data from multiple providers, both SAP and non-SAP

SAP® BUSINESS TECHNOLOGY PLATFORM
SAP® Business Technology Platform (SAP BTP) is the platform for an intelligent enterprise. Customers can achieve agility, business value, and continual innovation through integration, data to value, and extensibility of all SAP and third-party applications and data assets.

MODELING
Modeling includes business information models and data movement. Consider a solution like SAP PowerDesigner® software to help manage complex information architectures and visualize the potential impact of new technologies before you implement them.

FLEXIBLE PLATFORMS
All of these technical solutions should work together and serve multiple use cases like analytics, transactions, and applications. We will be asked to do more and more to manage our data in the future. New technologies like predictive analytics, blockchain, AI, experience data, and more will be crucial. Having a flexible architecture to respond to those needs continues to be essential.

Consider solutions such as **SAP HANA** and the SAP HANA Cloud database, which is the foundation of SAP BTP, whether in the cloud or on premise.

DATA ORCHESTRATION
For better efficiency, leave the data in place. Have a central location to manage the data transfers and data rules, but govern centrally. This change in approach from a data movement requires a different perspective. Consider the **SAP Data Intelligence solution**, an all-in-one data orchestration solution that discovers, refines, enriches, and governs any type, variety, or volume of data across a distributed data landscape.

DATA QUALITY

Data quality will always be important for both batch mode and real-time scenarios. You can profile what data looks like – really important for a merger and acquisition – and then know how you need to enrich that data for business processes. Document your metadata that needs to be available throughout the organization. Business rules that subsequently enforce your policies are critical.

Consider solutions like these:

- **SAP Data Quality Management, microservices for location data,** provides simple API calls to embed data quality services to validate addresses and enrich with geocodes.

- SAP Information Steward software combines data profiling, data lineage, and metadata management to gain continuous insight into the integrity of your enterprise data model. Understand how the quality of your data impacts your business processes to enhance operational, analytical, and data governance initiatives.

- SAP Data Services software supports integration, high quality control, and cleansing of data and helps streamline processes to maximize efficiency.

- **SAP HANA smart data integration and SAP HANA smart data quality software** deliver real-time data integration, quality, and transformation capabilities as part of the SAP HANA platform to support both operational and analytical use cases.

MASTER DATA GOVERNANCE

How to master your critical data. Consider remediation and reporting solutions like the SAP Master Data Governance application, which is directly embedded in business process tools like SAP S/4HANA®, a real-time enterprise resource planning (ERP) suite built on the advanced in-memory platform, SAP HANA.

RETENTION AND ARCHIVING POLICIES

Lifecycle management tools are essential for complying with Global Data Protection Requirements (GDPR), so that you know when to retain, archive, and delete your data. Consider solutions such as the SAP Information Lifecycle Management component to automate data archiving, retention, address risk, and legal compliance to protect the privacy rights of your consumer data.

ANALYTICS
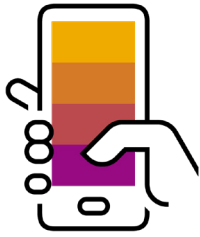
Don't forget remediation and reporting for self-service analytics and application building. Consider solutions like SAP Analytics Cloud, which delivers all the analytics capabilities you need, such as business intelligence, planning, and predictive analytics for actionable insights in real-time. For data warehousing in the cloud, consider the SAP Data Warehouse Cloud solution.

Maria Villar – Chapter 11: Student Questions and Answers

QUESTION:
My business leaders all talk about becoming "data-driven," but there's no follow through. How do I get their commitment?

ANSWER:
Have business leaders publicly commit to what they're going todo, and commit to their business teams and their management about what they are going to do. Then you follow up and make sure that you measure it. Have follow-on meetings to make sure they are delivering on their commitment.

QUESTION:
How do you overcome the project-based mindset of "aren't we done with this yet? We did it last year."

ANSWER:
Project mentality is one of the big myths of data quality management. That's precisely why you need an outcome-based data strategy. That strategy will begin to set that expectation that it's not just a project but an ongoing program. The strategy will also communicate the expectations of the resources and multi-year funding. You'll need an ongoing investment.

QUESTION:
I've heard about your "Data Quality Tales of Woe" technique. Could you explain it and how best to use it?

ANSWER:
Data Quality Stories of Woe is a way to collect the perception of data quality. This technique happens when you start as a data leader. People will tell stories about all of their bad experiences. Collect these stories to identify the pain points and how to remediate them. Don't let that override your perceptions, because in many cases, perception doesn't match reality. Use that marketing program to communicate the results and value. There will be a perception that you have to manage and show results for. Use the Data Quality Tales of Woe to communicate the before and after.

QUESTION:
Security and compliance are two things that keep me up at night. We've talked some about compliance, but could you go into more detail about how security concerns can be addressed in a data strategy?

ANSWER:
Addressing all of the security and compliance programs supports a data strategy. A business outcome-driven data strategy combines the security and compliance into your holistic plan, including the data elements that support compliance.

Maria Villar – Chapter 12: Encouragement

Don't feel overwhelmed! Getting this done is common-sense work. You can do this in pieces. Find those data-rich initiatives in which data can make a significant impact. You can launch this with success. Start small and then grow. Don't try to tackle it all at once unless you have a tremendous amount of executive support.

The more you do and demonstrate success, the more opportunity you will get to do more, but you must use measures to help you tell the story with the most impact. You've got to be bold and persistent. Do not take "no" for an answer – just "not yet." Figure out how you can communicate value.

Find both an executive sponsor and some friends of data. Where are your data peers? Look outside your industry into conventions and communities that can support you. Webinars, white papers, and blog series can all help you. For specific recommendations, check out the Resources chapter.

Benchmarking surveys can help you figure out where you are –not only for yourself but also for the industry at large. SAP has an eight-question survey for you to assess yourself, as well as the more comprehensive maturity survey available from the SAP Value Lifecycle Manager site.

For a simple eight-question self-assessment you can take, see Figure 16.

Figure 16: Data Strategy Self-Assessment

DECISIONS TO MAKE:

Business Leadership Commitment

Critical Data Requirements and Priorities

Data Leader Role with Accountability

Org Structure

Funding Level

Project(s) to Start

Measures of Success

1. **Do you have a data strategy that addresses the data needs of company goals and strategic initiatives?**

2. **Are future state data management capabilities and end vision defined? (Business, technology)**

3. **Do you have a data leader/champion?**
   - With enough authority to drive consensus and decisions?
   - With an escalation path defined to address data issues across the company?
   - With a critical mass of resources to execute the role?
   - With active business and IT participation?

4. **Is there an ongoing data quality maintenance program or shared service to maintain data quality – with accountable roles, with proper tools, with data quality metrics and reports?**

5. **Do strategic initiatives include a "data workstream" where data management capabilities are implemented per the data strategy?**
   - Including a charter, deliverables, go/no-go criteria, lifecycle management, change management?

6. **Is there a forum for cross-organization decision-making, that is to say, accountability decisions, global rules, and yearly data project priorities?**
   - Who runs the forum?
   - Who makes final decisions?
   - Who participates from the business and technical community?

7. **Are the ongoing data management tasks for creating, updating, and deleting data quality maintenance and governance agreed upon?**
   - If distributed, is there an agreed-upon RACI in place?
   - With senior management knowledge and approval of the roles?
   - Staffed for execution of the role?
   - How will accountable parties be held accountable?
   - Will shared services be provided for them to be successful?
   - If so, who is responsible to define, build, and fund the shared services?

8. **Are metrics in place to measure program progress and business value?**

We used to have to spend much time pointing out why data is important. Now, we don't have to. Companies know why data is essential, but you need to direct the future for your company.

Maria Villar – Chapter 13: Resources
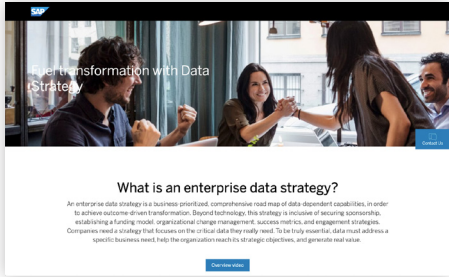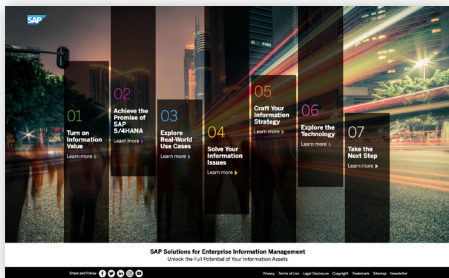

Fuel your business transformation

View now ›
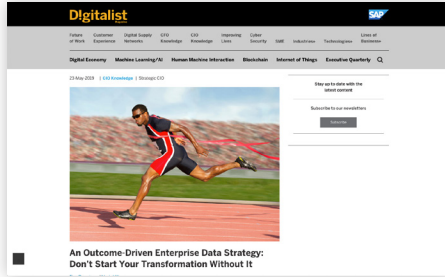
Enterprise Data Strategy Six-Part D!gitalist Series
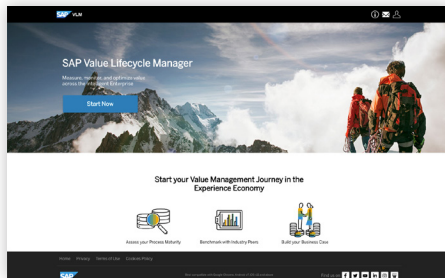
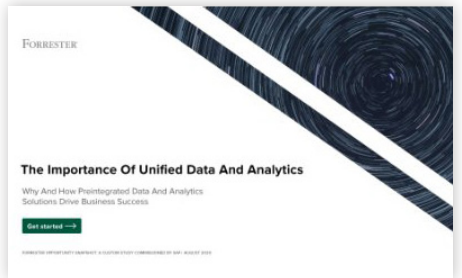View now ›

Data Value Formula

View now ›

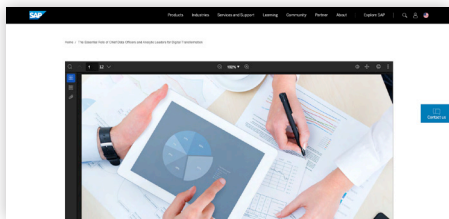### Data Management Use Case Discovery Tool from SAP

View now ›

Data Management Assessment

View now ›

Unified Data and Analytics from Forrester

View now ›

The role of chief data officers

View now ›

If you would like to start your outcome-driven data strategy process, SAP is happy to help. You can either contact us at datastrategy@sap.com, or reach out to your account team.

" You've got to be bold and persistent.
Don't take No for an answer."

Maria Villar

We would love to hear your feedback on this master class. Join the conversation or tweet us at #DataStrategyMasterclass.

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