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Eliminate data chaos and ambiguity

Building a strong data governance foundation with a system of record framework


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The data challenge

There's no way around it: doing business today involves data—a lot of data.

After several years of exploring this new data-rich environment, your business may be feeling overwhelmed. You've stepped tentatively (or even boldly!) into this new world where it's possible to know just about everything about everything. You've introduced new processes and systems across multiple layers of your business, but now you find yourself with a multitude of data sources that, unfortunately, create overlap and ambiguity at every turn.

How can you confidently make use of all this data when it's not clear which records to use, who owns them, what they're called, and where they come from?

There's hope. And it doesn't involve rebuilding your disparate systems from scratch (thank goodness).

What's missing?

What's often missing is a formal system of data governance framework: a set of principles and practices that govern how your organization manages its underlying data. Some organizations establish a governance program but miss building a solid data framework as its foundation. To truly become a data-governance organization, you need to have a really good grasp on your data: what you collect, where it comes from, and what each piece of data is called.

A critical first step: defining systems of record

Deloitte has developed a simple yet comprehensive method to bring clarity to your entire data environment: the system of record (SOR) framework.

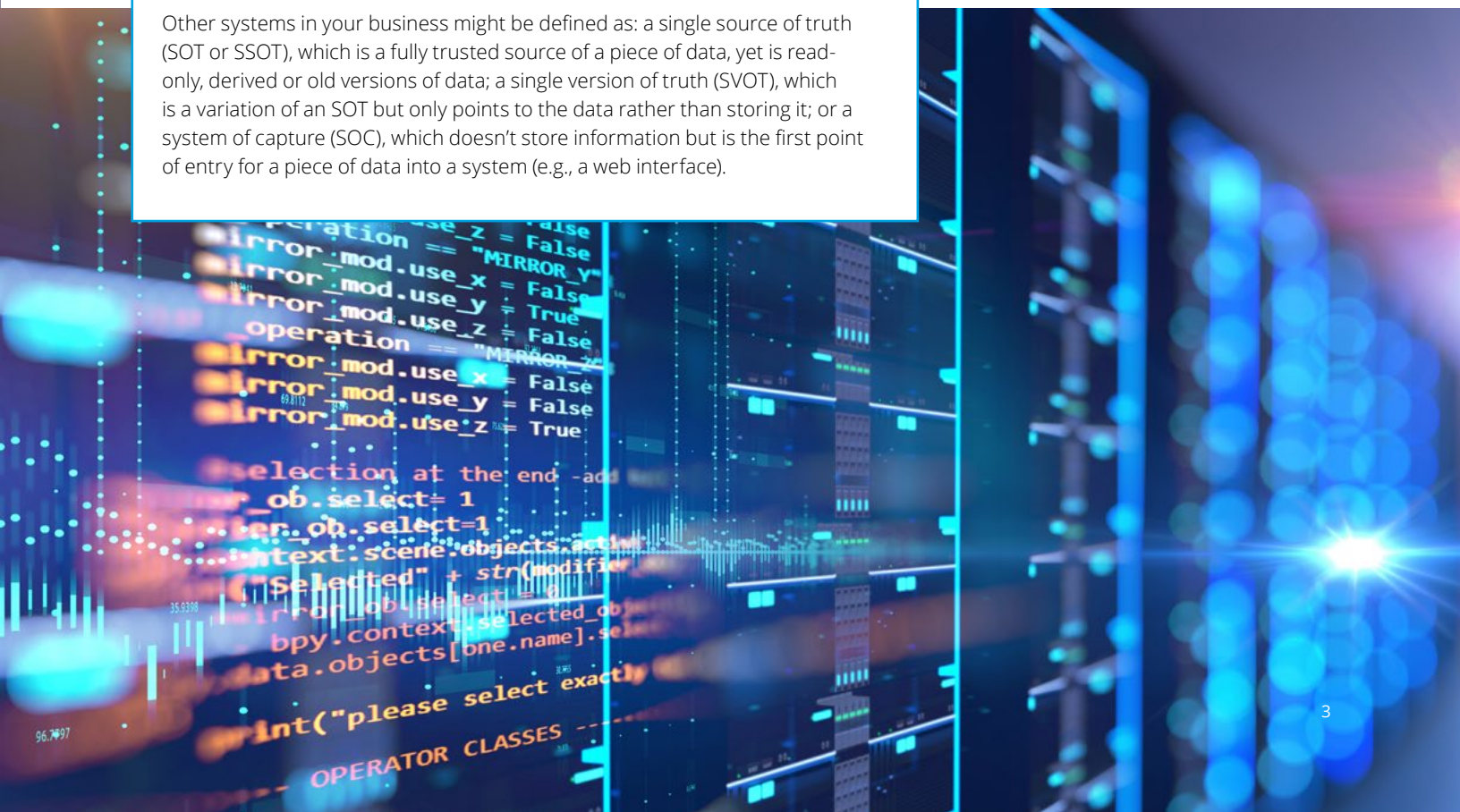
No matter where you are on your journey, to truly become a data-governance organization, it's critical that you identify the SOR for every piece of data you collect.

By collaborating with all of the different interests, both inside and outside of your company, we can help you establish a framework that governs your entire data environment, clearly identifies the matrix of SORs in your system, defines a consistent business vocabulary for referring to your data, and builds company-wide agreement on the whole thing.

What is an SOR?

A system of record is a system or application that is defined as the authoritative source for a given piece (domain) of information. It's where that piece of data is created, managed, and stored, and it's where every other system that requires that piece of data goes to get it.

Other systems in your business might be defined as: a single source of truth (SOT or SSOT), which is a fully trusted source of a piece of data, yet is read-only, derived or old versions of data; a single version of truth (SVOT), which is a variation of an SOT but only points to the data rather than storing it; or a system of capture (SOC), which doesn't store information but is the first point of entry for a piece of data into a system (e.g., a web interface).



Reducing system complexity

To identify the SOR for a given piece of data, we consider several questions:

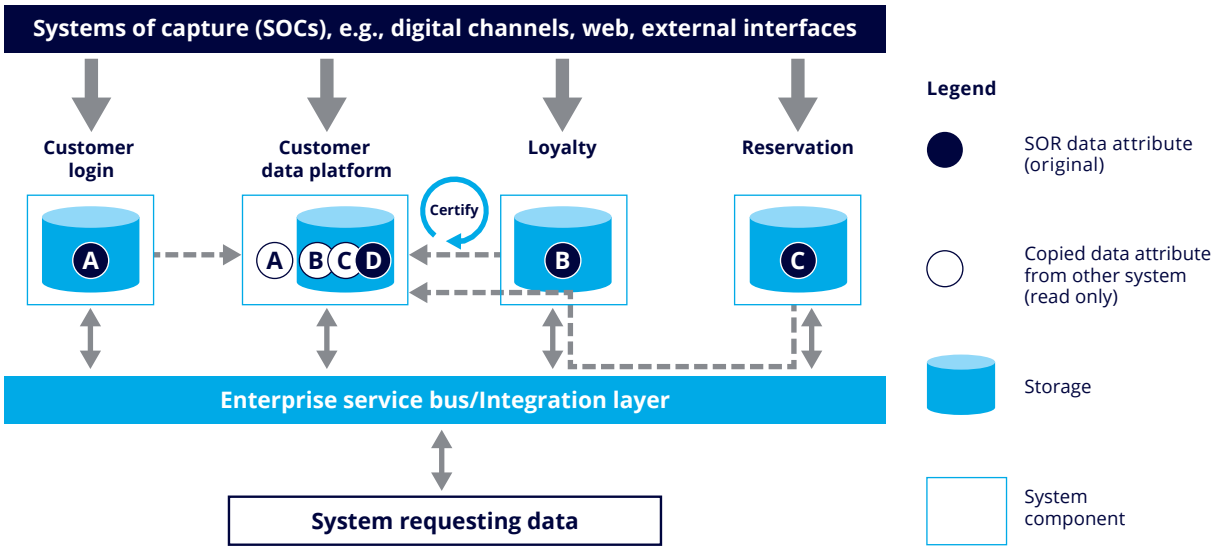
- In what system does the data originate?
- In what system(s) is the data stored?
- What system would be considered the authoritative source of the data in an audit or other compliance situation?
- What system synchronizes changes to the data across other systems or applications?

This diagram illustrates how different systems work together as the authoritative sources for their own pieces of data. Here, the SOR for data attribute A is the customer log-in system, while the SOR for data attributes B, C, and D are customer data platforms, loyalty and reservation, respectively. The customer data platform contains *copies* of A, B, and C, but it is not their system of record.

We help you to clearly understand what information is owned by what system and how it flows from component to component, providing clear lineage and traceability for every bit of data.

Simplified view of data entities and systems

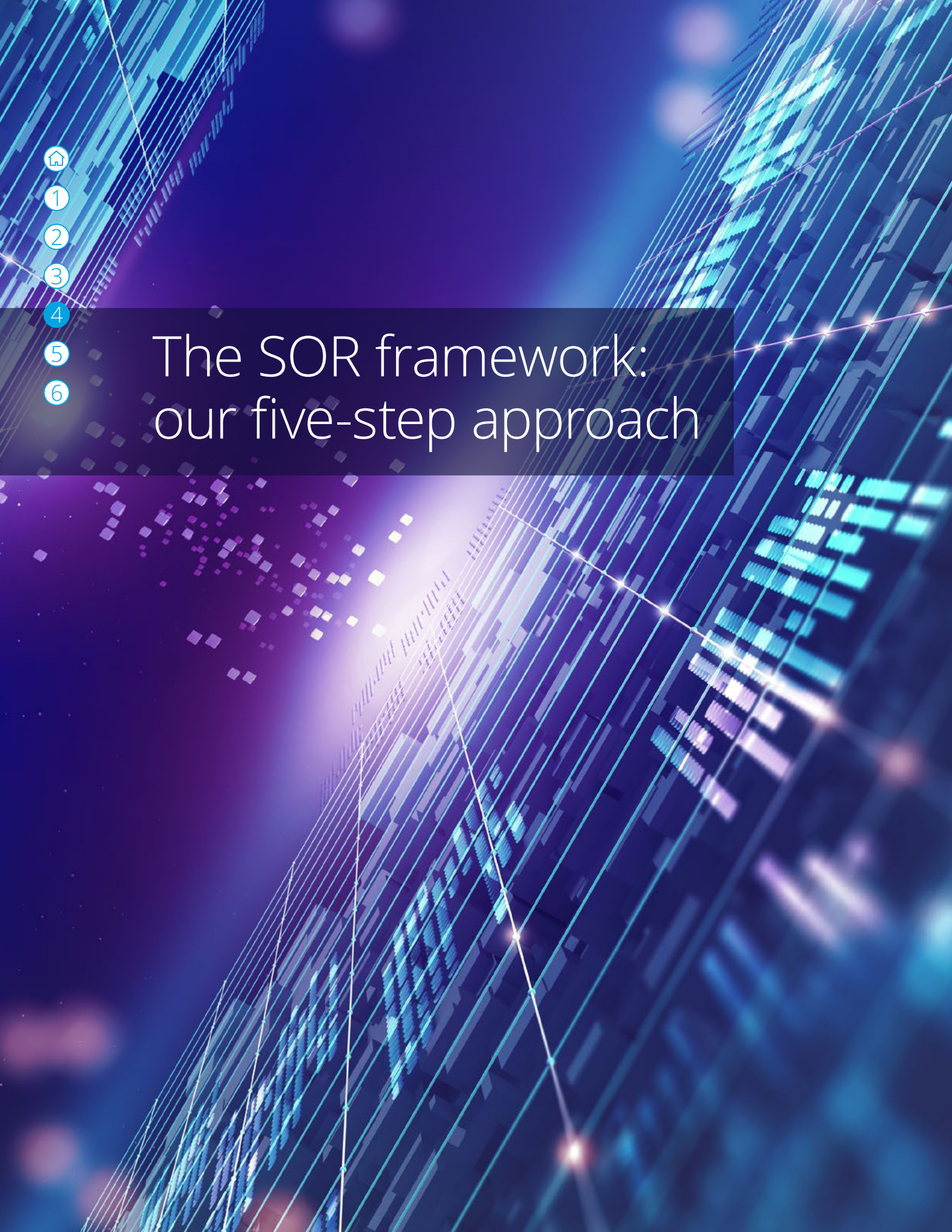
The diagram shows two distinct approaches in data management that build the view from those SOR attributes: one holding only pointers to actual SORs (providing flow-through of the data, shown for attribute A), and the other replicating and storing the business entity view outside the SORs. The system copying the data from others becomes a Single Source of Truth (SOT) for the copied data attributes.



For a framework to be successful, it should be simple, easy to adopt, compatible with existing tools, and incorporated into all levels of the organization. With that in mind, Deloitte's SOR framework is:

- **Tool-agnostic:** We provide your framework on easy-to-use Microsoft Office templates, making it simple for any team in your business to use it with any other tool in your enterprise.
- **Phase-agnostic:** We can begin working at any stage of your program, wherever you have a need for data governance.

The SOR framework: our five-step approach



Using our field-tested process, we work with you, your internal stakeholders, and your vendors to develop (and get agreement on) a five-step SOR framework, which becomes the critical backbone of your data-governance program.

STEP 1

SOR GUIDING PRINCIPLES
A documented set of rules that govern how data is managed throughout the company and how the system of record will be determined for future data.

STEP 2

DATA-DOMAIN TAXONOMY
A classification of your company's data into meaningful categories and sub-categories reflecting your organization and the domains it operates in. The taxonomy provides a unified view of the data in an organization and introduces common terminology across multiple systems.

STEP 3

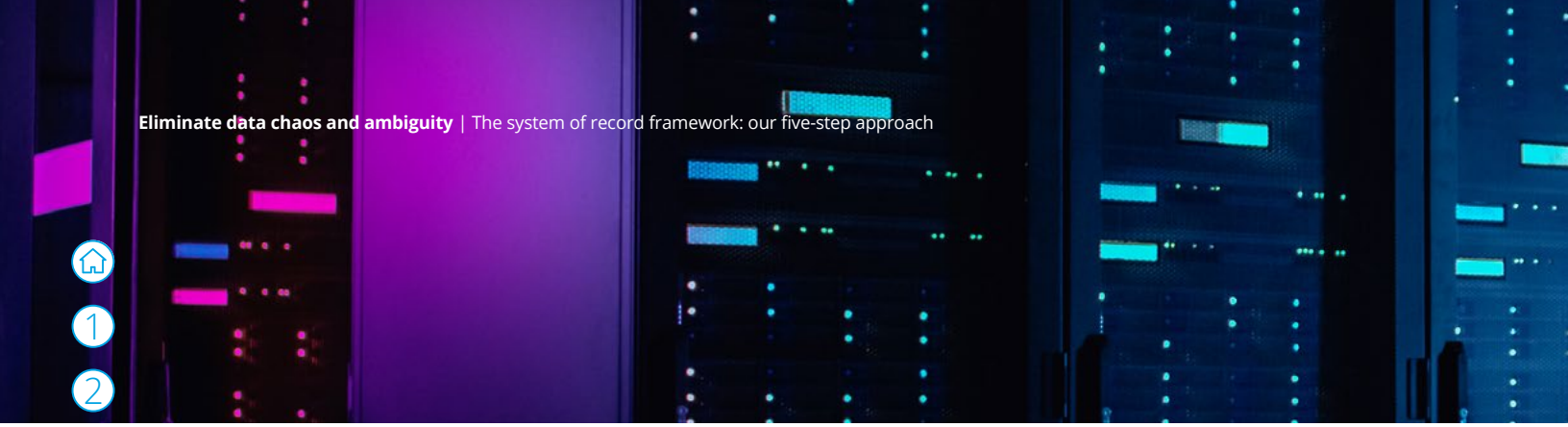
DATA CATALOGUE
A complete list of every data attribute your company collects, where it resides, who owns it, its metadata (both business and technical), its data-security-related parameters (such as PII and PCI), and more.

STEP 4

SOR MATRIX
A map that identifies what data attributes are generated and managed by what system, as well as all the other systems in which those attributes exist or overlap.

STEP 5

SOR CONCEPTUAL DATA FLOW
A visual representation of the SOR matrix, showing what data flows throughout the company and how the various systems interact.



STEP 1

Establish SOR guiding principles

We work with you to establish a set of SOR-related guiding principles, based on industry best practices, that will govern your data program, and we make sure all stakeholders (internal and external) understand, contribute to, and buy in to them. These would ideally integrate into your established data governance and architecture principles, insofar as they exist.

Examples of top-level guiding principles (each of which is supported by a detailed list of associated practices):

Guiding principles

- A single version of information is captured, enriched, and exposed to all channels, and used by all operational processes in a secure and confidential manner.
- All business projects that impact data must contribute to and comply with the SOR data strategy.
- Data is made available based on governance rules regarding usage and confidentiality.
- If components with similar capability exist, the SOR framework will determine what data domain will be owned by what component.
- Sound data management is everyone's responsibility.

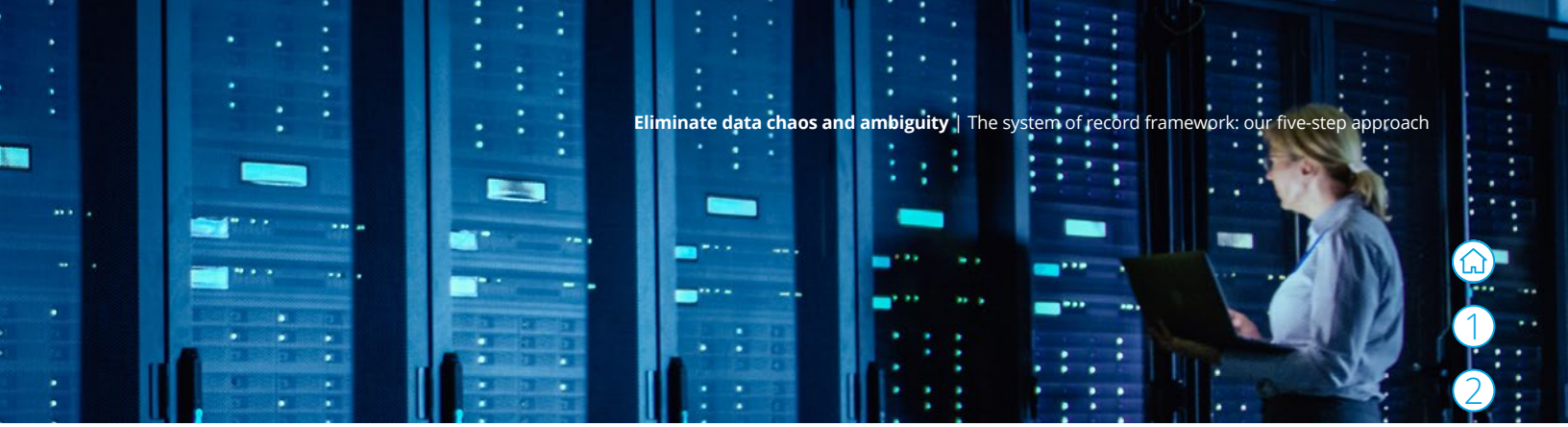
STEP 2

Design data-domain taxonomy

We review every one of your systems to gather all of their disparate details, and then, in consultation with your stakeholders, create an appropriate hierarchy of categories and sub-categories. Our framework supports a three-level structure, which helps you better understand the relationships between data points. We assign a single, unifying name and category for every attribute, grouped by process or business use. For example, the taxonomy might have a level-one category called "customer information," which is then sub-classified into a "declarative profile" at level two; level three could include "customer identification, log-in details, consent, contact information, location." Together, these naming conventions and categories become your data domain taxonomy, which will provide the consistent basis for all future data needs, including data access control, residency, and compliance.

SOR domain taxonomy template

SOR data flow tags	Level 1 – Taxonomy	Level 2 – Taxonomy	Level 3 – Taxonomy	SOR component
1A	Customer	Customer declarative profile	Identification	Customer login platform
1B	Customer	Customer declarative profile	Contact	Customer login platform
1C	Customer	Customer declarative profile	Location	Customer login platform
1D	Customer	Customer declarative profile	Consent	Customer login platform



STEP 3

Create data catalogue

Next, we help you assemble a complete listing of the company's data, which the data governance team will then manage, ideally in an enterprise metadata management tool. We gather every unique data attribute from all of your various systems into a single, comprehensive listing, tagging each one with as much information as possible, such as its description, format, and length. This catalogue is completely source-agnostic, which helps to bridge the gap between your technology and business teams.

SOR data catalogue template

Data catalog control#	SOR data flow tags	PII/ PCI/ others	Data/ metric	Friendly name	Description	SOR data type	SOR data length	Default values	Data format	List of values/ examples	Business rules/reqs
DC_1	1A	PII	Data	Prefix/Title	A prefix is placed before a name and are commonly used in a person's title	String	25			Dr., Ms, Mr., Mrs.	Alpha only. No special characters permitted.
DC_2	1A	PII	Data	First name	A personal name given to someone at birth and used before a family name	String	25			Emily	Alpha only. No special chars & numeric with the exception of hypens and apostrophes.
DC_3	1A	PII	Data	Middle name or initial	A person's name (typically a personal name) placed after the first name and before the surname	String	25			Rawat or "R"	Alpha only. No special chars & numeric permitted, including periods, with the exception of hyphens and apostrophes.
DC_4	1A	PII	Data	Last name	A surname is commonly referred to as a last name because it is usually placed at the end of a person's full name, after any given names	String	28			Forman	Alpha only. No special chars & numeric permitted.
DC_5	1A	PII	Data	Email address	An email address is a unique identifier for an email account	String	60		Must be in the format of me@mail.com		No special character accepted besides "." (dot), "_" (underscore), "@" (at sign). Two of permitted characters should not follow each other (to be separated by letters, numbers)

STEP 4

Build SOR matrix

The SOR matrix maps the unique attributes in the data catalog with every appearance of that attribute in other systems. Using the decision criteria outlined as part of step 1, connecting it to the taxonomy defined in step 2, and using any existing schemas and metadata for participating systems, we now help you determine the SOR for each attribute. For example, a single data attribute (e.g., "customer first name") might exist in several systems under several different names ("name, custname, first name"). We review these and assign a single SOR to that attribute, and clearly identify the overlaps across the program.

This matrix holds all attributes used across your data program, and is critically valuable to any future situation where it's important to establish the lineage of your data (e.g., audit/compliance activities) or identify data gaps (e.g., development or migration activity).

SOR matrix template

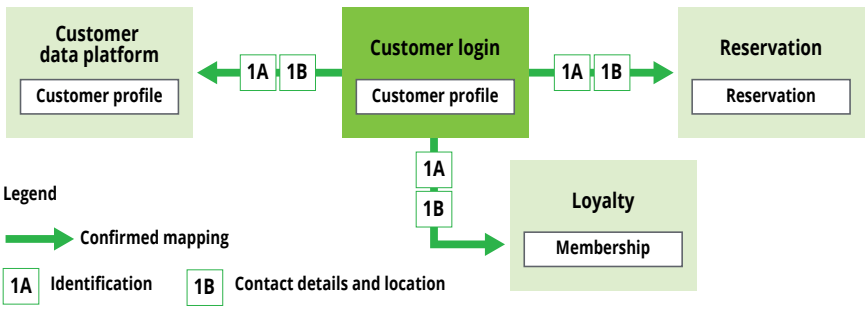
Data Catalog Control#	SOR Data Flow Tags	Level 1 – Taxonomy	Level 2 – Taxonomy	Level 3 – Taxonomy	SOR component	Friendly name	Customer login	Customer data platform	Loyalty platform	Reservation platform
DC_1	1A	Customer	Customer declarative profile	Identification	Customer login	Prefix/Title	customer_prefix	consumer_prefix	salutation	universal_name_title
DC_2	1A	Customer	Customer declarative profile	Identification	Customer login	First name	customer_firstName	consumer_firstName	given_name	universal_name_ firstName
DC_3	1A	Customer	Customer declarative profile	Identification	Customer login	Middle name or initial	customer_middleName	consumer_middleName	initial	NA
DC_4	1A	Customer	Customer declarative profile	Identification	Customer login	Last name	customer_lastName	consumer_lastName	family_name	universal_name_ lastName
DC_5	1A	Customer	Customer declarative profile	Identification	Customer login	Email address	Email	consumer_ communicationEmail	email_address	contact_email_ address

STEP 5

Visualize the SOR data flow

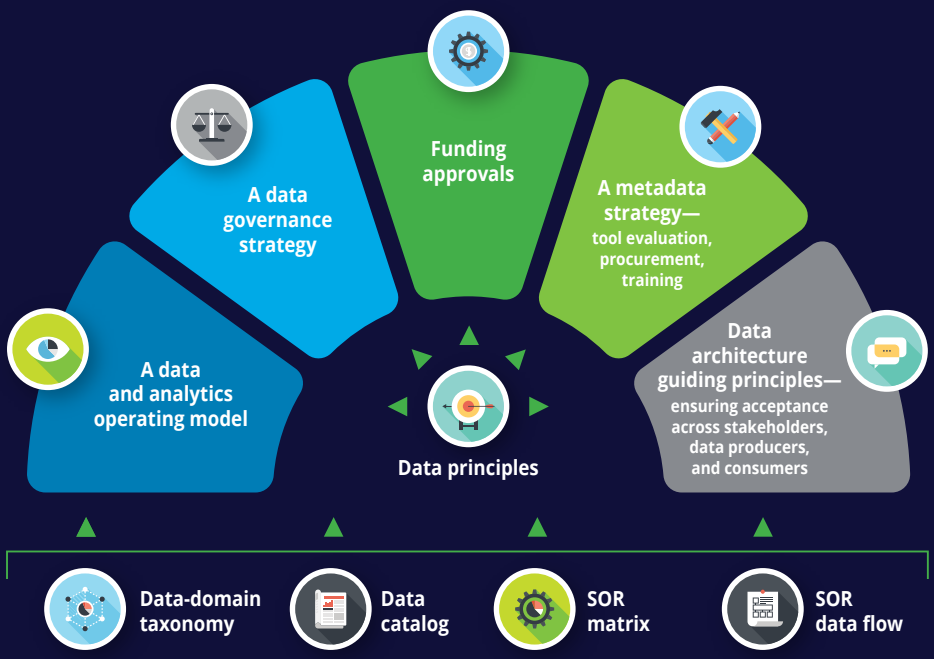
Finally, we create a visual representation of the SOR matrix, to help all stakeholders understand how each attribute is represented, transmitted, and accessed across all the components of the system. We can represent the data at the domain or attribute level, depending on your preference for granularity.

SOR contextual data flow view



Seizing the data opportunity: what comes next?

Once your SOR framework is established, it is important to set up the appropriate operating model and integrate the framework into your data governance processes. The next steps will vary, depending on your program's current maturity and your cultural orientation toward a data and analytical mindset. We can discuss a number of options with you, including working with you to establish some or all of the following program elements.



By underpinning your system with a reliable foundation and by securing your business stakeholders' confidence in your program's data quality, the SOR framework gives you a solid footing from which to go deeper into the world of data management, customer personalization, and even machine learning and artificial intelligence.

Expediting your journey to data excellence: Deloitte can help

The SOR framework is a critical component of any data-governance program, giving your stakeholders a shared understanding of each piece of data, where it comes from, how it moves through enterprise tools, and what it means to the organization.

We will help you develop an organizational culture in which everyone understands their role in data governance—and takes it seriously. Together, we will investigate and define overlap, take action and remove ambiguity from your system from your system and make sure it's absolutely clear to everyone, for today and into the future.

With our strong focus on governance and accuracy, Deloitte can help expedite your journey into this brave, challenging new world that relies so heavily on a solid foundation of data.

Deloitte's team of data modelers, architects, engineers, scientists, analysts, and stewards brings extensive experience in helping organizations like yours turn a complex mix of disparate sources of data into a comprehensive data-governance practice. Our broad perspective on the data world allows us to bring best practices to you from within your industry as well as beyond it.

Contact us to explore how Deloitte's SOR framework can support you on your data journey.

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