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Transform your data governance by redefining and reskilling the organization

Summary

Change is a constant. Organizations adapt by analyzing cause and effect. Once the nature of a cause is understood, organizations can adapt by devising and implementing relevant strategies.
Sometimes the cause is too big, too subtle or too complex for organizations to recognize the nature of the challenge facing them. The consequences of misdiagnosis include applying inappropriate remedies, draining resources and failing to address the underlying cause. Without addressing the underlying cause, problems persist, costs rise, productivity falls and management efforts focus on fixing problems instead of building from new opportunities.

In financial services, the emergence of 'data' in all its forms is a big, subtle and complex challenge. Current strategies for dealing with data have had only partial success. Working practices around data are often inefficient, costly and error-prone. Exploiting new opportunities inevitably requires costly and complex data integration and cleansing before benefits can be delivered.

A better approach is needed. Effective management of data quality across the complete life cycle, or master data management, has become an essential capability.
In this PoV, we challenge existing thinking on data management, explore new insights into data, people and organizations, and propose different approaches to leadership and organization.

We place people, skills and human energy at the centre of innovation and change, and we explain a governance control framework to empower people and create a productive enterprise.
Every organization has unique strengths. We explain how to build on existing strengths and develop new capabilities that enable your organization to master data.

Part 1: Challenges in the new economy

Change is constant

Change is a constant for organizations. Aspiration, competition, regulation and technology are forces for change that organizations know and understand. Organizations that can effectively deal with change continue to prosper. Those that cannot stagnate, get absorbed by others, or go out of business.

The organizational ability to learn and adapt has never been more important. It is therefore essential to understand the underlying capabilities so that they can be developed. Historically, those capabilities have included:

- Innovation
- Effective management
- Trained and effective personnel
- Robust processes, technologies and controls

Several emerging factors make dealing with change much more challenging, including: financial services growth, new market entrants, consequences of mistakes, understanding and applying new technology, and the overall quality of data used within the organization. In order to adapt to these and other changes and grow, organizations need to build on existing capabilities.

Growth opportunities in financial services

The financial services market is expected to experience huge growth driven by consumers and organizations embracing new products and business services. For example, the Internet of Things (IoT), the sharing economy and regulation-enforced open application program interfaces (open APIs) will cause huge increases in transaction volumes and values. The availability of vast pools of data, coupled with powerful analytics, will presumably create new and highly targeted insurance, investment and banking products.

While the future holds great opportunities, most financial organizations also need to address today's pressing issues. Typical priorities include: creating new services to meet customer needs, satisfying numerous regulations (trading, risk, privacy, conduct, etc.), implementing digital operations, establishing customer-360 strategies, and supporting better management decisions.

Incumbents or challengers?

Who will capture the market? Will it be the incumbent organizations, expanding social media giants, challenger banks or nimble start-up financial techs?

Incumbents may start with the advantage of established customer bases, but then face challenges of legacy systems holding them back, or the efforts of dealing with waves of regulation. New entrants avoid the legacy systems, but they require large investments to build their customer base and carry the significant costs of product development while complying with liquidity, conduct and other regulations.

The risks of getting it wrong are huge

Organizations cannot hide their failings. TV, press and social media immediately publicize any failures of retail banking system upgrades, interbank cash transmissions, credit card networks or, more recently, issues related to GDPR and data privacy breaches.

Reputational damage to organizations and their senior executives is becoming commonplace. Good brands can become tarnished or even toxic if problems persist. As more services become available and switching becomes easier, poor service or reputational damage will quickly result in lost customers and revenue.

The need to embrace technology to capture opportunities

The age of artificial intelligence (AI), machine learning (ML), robotics and "big data" is here. For example, robo-advisers and speech recognition/synthesis are now part of our daily lives. The ability to analyze data, find patterns and make or

recommend decisions will transform the products and services available.

While these emerging technologies enable new services, they also present new risks and uncertainties. Skilled resources are in short supply, and there is limited real-world experience of integrating these technologies with existing platforms.

Is the data fit for purpose?

Data accuracy poses one major challenge in using that data as the basis for analysis and decision-making. Internally-generated data may be valid for a particular purpose but not suitable in another context. Externally sourced data may have insufficient quality controls applied to it.

Too much time, effort and money is spent investigating and cleansing data. Experts estimate that fifty percent or more of the effort involved in quantitative tasks or analytics is consumed by data cleansing.[1]

> "Defects are not free. Somebody makes them, and gets paid for making them."
> - **W. Edwards Deming**

Poor data can cause process breaks, poor customer service, inaccurate regulatory reporting, increased risk and poor decision making. It can sap the energy of the organization.

The big question of whether or not data is "fit for purpose" faces many firms.

Is the organization fit for purpose?

A better question, however, might be: "Is the organization fit for purpose?"

Poor data is the outcome of an organization that doesn't understand the problem.

New insights into the nature of data, organizations and the interaction between them are needed.

By applying lessons learned from the correct insights, data problems can be solved.

Part 2: New insights and capabilities

Data is often seen as a technology issue. In fact, data is a systemic part of the entire ecosystem. The ability to generate "fit for purpose data" requires a "fit for purpose" organization.

Mastery of data requires insight. In this section we look at topics essential to achieving mastery of data in a way that benefits the organization. These are:

1. Opportunities outside of the organization
2. Nature of the data
3. Data at the heart of the organization
4. Purpose of the organization
5. Worldviews, data lakes and discoveries
6. Metadata as the new management tool
7. Learning ability of the organization

With these insights, executives can address the real challenges facing financial services organizations and create lasting strategies for productive, cost-effective and profitable growth.

Insight 1. Opportunities outside of the organization

Businesses achieve real results through innovation and change in the way they interact with customers, suppliers and, particularly in finance, with regulators.

Increasing amounts of data will come from outside the organization and will need to be integrated with internal data. This 'big data' usage helps to target and grow services.

The use of data services and APIs will grow enormously over the coming years as a means of transacting, informing, and servicing customers, suppliers, and

> "If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions."
> - **Albert Einstein**

regulators. In order to access valuable data from legacy systems, organizations deliver APIs as a new layer. Clients use the APIs to send queries into the legacy systems, because of the struggle to access, update or replace undocumented legacy systems. Those legacy systems usually contain golden nuggets of data that need to be accessed and integrated with APIs.

The reliable, secure delivery of data through APIs will be paramount. Firms must either create the APIs or ensure they are capable of integrating with them and exploiting them. It is often tempting to think that cleaning up legacy data systems is the right thing to do. In practice, however, merely addressing legacy can become counter-productive, as it addresses a symptom rather than an underlying cause.

It is not just data and systems that have proliferated. Waves of regulation resulted in a massive, and often uncoordinated, growth of policies, procedures, codes of conduct and controls. Despite best intentions, the outcome can be confusing, demotivating and confidence-sapping for people who just want to get on with their jobs.

The opportunities for the organization lie in the development and delivery of an efficient ecosystem that engages customers, distributors and suppliers, and that satisfies regulators. That ecosystem starts with what the organization has today. The future ecosystem is the result of a business-driven investment plan that delivers a rational set of policies, procedures, systems, services/APIs and processes that subsume the golden nuggets of legacy data. All of this is governed and run by a fit-for-purpose organization.

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[1] "Cleaning Big Data: Most Time-Consuming, Least Enjoyable Data Science Task, Survey Says," Forbes, March 23, 2016 (https://www.forbes.com/sites/gilpress/2016/03/23/data-preparation-most-time-consuming-least-enjoyable-data-science-task-survey-says/#392924bd6f63); "Data's Credibility Problem," Harvard Business Review, December 2013 (https://hbr.org/2013/12/datas-credibility-problem)

Insight 2. Nature of the data

You must understand the nature of the thing you want to control. The word "data" means different things to different people, according to the purpose for which they need it. There are many perspectives to data, and it is important to differentiate between them. Data may be:
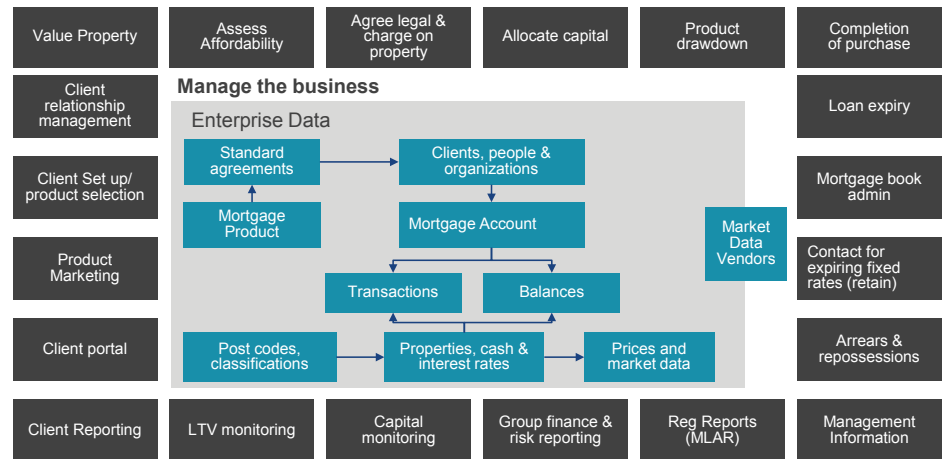
- An actual capture of some event (e.g., a transaction) or an object (e.g., a photo) at a specific point in time. Inevitably it will be a partial capture (e.g., the photo pixels will be at a specific granularity taken from a specific angle at a precise instant).
- A cleansed and integrated version of the above (e.g., subsequently verified and enriched with related data).
- A projection (estimated future value) based on some base data.
- An aggregation of several values either stored or calculated 'on the fly' – perhaps a month-end trading book value.
- An 'as-is' value reflecting a post-correction state.
- An 'as-was' value reflecting a pre-correction state.
- A composite value based on underlying values (e.g., a loan/value ratio for a mortgage).
- Identified differently for different uses. For example, security stock codes imply different attributes for issue or trading venue usage.

Miscommunication about data creates defects, so it's essential to communicate with precision about data. The context of the data as it is stored and used is of critical importance.

The subtleties of meaning reflect the subtleties embedded in the business. Effective communication about data must include business domain knowledge.

Insight 3. Data at the heart of the organization

Generally, data enters an organization through a data feed or is created by an internal process (e.g., customer set-up). The same data may later be consumed by many different business functions for numerous purposes.

Some of those purposes may require greater levels of trusted data than others.

Trust is built into data by ensuring:

- The point of capture understands the levels of trust required
- Any transformation of the data maintains the level of trust

Communication between consumers, producers and transformers of data is often not effective or just non-existent. Data dependencies and transformations must be understood and recorded.

Some data relates purely to a specific business function and can be managed locally. Most data is systemically re-used around the organization. For this reason, while we have to satisfy functional needs of any business area, we also need a systemic understanding of the impact of change on the organization as a whole.

Data needs to be seen as part of the organization's ecosystem, which means the identification of key data sets and their systemic development is crucial.

Insight 4. Purpose of the organization

From one vantage point, organizations are pools of human energy and creativity with purpose, culture and values.

Organizations work because people make them work. People provide the motivation, energy and innate abilities to think and adapt that make systems function effectively.

To channel that energy, 'leadership' provides vision and 'management' provides planning, resource allocation and varying degrees of control according to the culture of the organization.

It is people, with smart leaders and managers, who make data work for the organization.

- People and teams need to be empowered through the delegation of tasks and the development of their capability to perform the tasks. Highly skilled people are needed.
- People and teams need a control framework to ensure consistent use and quality of data across the entire ecosystem of the organization.
- Specialist functions and roles will always exist but may be transitory in nature. For example, data science skills will be absorbed into practitioner and management roles.
- Data is an integral part of a business, so accountability for data must follow the structure and culture of the organization.
- Regulation is a mandate for an acceptable level of behavior and competence, and must be embedded into the organization rather than being treated as an add-on.

> "It doesn't make sense to hire smart people and then tell them what to do, we hire smart people so they can tell us what to do."
>
> **- Steve Jobs**

- Responsibility for quality belongs to everyone. This starts with data quality and expands to encompass the organization's processes and interactions with customers, suppliers and regulators.

Insight 5: Worldviews, data lakes and discoveries

The scope and amount of data currently available are huge and growing rapidly. Two prevalent paradigms exist about processing this data. The first says that data should be cleansed and integrated before loading into a data store or lake. The second says that data should be loaded in its initial state into the lake and subsequently cleansed and analyzed for new linkages and the discovery of potentially valuable insights. The debate between these points of view is a worthy discussion that will run for some time, as both paradigms can be made to deliver required outcomes using different techniques.

No matter which approach is chosen, the organization must have clarity of purpose and its own unique view of the world, together with the scope and nature of the data it needs for its core processes—i.e., its "worldview." This worldview outlines the data to be captured, cleansed, integrated and organized for it to operate as a cohesive, productive organization. The organization must expend great efforts to ensure that this data is fit for its many purposes.

There is no limit to the additional data that can be analyzed for discovery. This should be encouraged. When meaningful discoveries occur, the relevant data should be incorporated into the core worldview.

Insight 6. Metadata as the new management tool

Metadata, the information about stored data, exists so that people or organizations can control their stored data. Metadata, therefore, must relate to the organization in order to support different types of management, development or operational activities.

Metadata needs to provide, at a minimum, the following views of data:

- A macro-level overview of the entirety of data usage by the enterprise and its component parts. This is for strategic decision-making about data and infrastructure. The organization must identify major data sets, assets and the people accountable.
- A micro-level view of individual systems or processes.

Joining up macro and micro levels of data should only be done when there is clear value and a sustainable path for maintenance of the relationship.

Google Earth provides a good example of metadata about our planet. Its 25,000-foot view zooming into street view is a collection of different layers of metadata with alignment algorithms. This approach gives the appearance of seamless integration (at huge cost and effort) but does not actually implement it.

Metadata has no value unless named individuals (or roles) are assigned to be accountable for that data. This accountability should naturally flow back to the business organization.

For purposes of this paper, we define three types of metadata:

- **Business metadata** describes the meaning of data for the organization's purpose and processes. Business metadata can greatly facilitate the usefulness of the data to different functional groups within the organization.
- **Technical metadata** provides specific descriptive attributes of the data, such as data type, length, lineage or results from data profiling.
- **Process execution metadata** presents statistics on the results of running the Extract Transform and Load (ETL) process itself, including measures such as rows loaded successfully, rows rejected or time required to load.

Insight 7. Learning ability of the organization

The ability of an organization to learn faster than its competitors has become a critical asset. In practice, the organization learns through its people.

People learn through education, training, experience, experimentation and luck (good or bad). They distil their learning into the organization through:

- Publications, data records, processes, systems, procedures, controls and metadata
- Discussion with others in collaboration networks such as teams, working groups and peer reviews

Almost everyone's job depends on data, so it is imperative that people learn the aspects of data mastery that are relevant for their roles. Increasingly, organizations recognize this importance, indicated by the fact that data management and data quality tasks now appear on job descriptions. The organization's goal of 'excellence in task performance' now includes excellence in the management of data pertinent to specific roles and functions.

The distillation of an individual's learning experience into valuable collateral for the organization lies in the effective use of metadata management. Tools and processes must exist which enable individuals to create, query and maintain all forms of metadata.

The only sustainable competitive advantage is an organization's ability to learn faster than the competition.
Peter M. Senge
meetville.com

Part 3: Applying the insights

Since data is at the heart of the organization, and quality data must exist for the organization to grow, then trust in data is essential. To trust an organization's data, there must be trust in all the steps and processes the organization follows to collect, store and use that data.

Organizations need to be redefined so that effective management of data becomes integral to the company's culture, values and processes. People need reskilling to cope with the diverse nature of data and the challenges data management poses for organizations.

Other attributes, such as collaboration, must be part of an organization's culture to enable it to be productive, efficient and data-centric.

Redefine the organization

Leadership
Leadership must recognise and promote the importance of data as a critical asset of the organization. Leadership must:

- Encourage identification and cataloguing of data assets with measurable quality.
- Ensure clear accountability for data with a chain of command leading back to top management.
- Ensure accountability is integrated with core organizational management.
- Promote, prioritize and sanction capability improvements for skills, technology and processes to ensure the organization is fit for purpose.
- Deliver a clear, rational and integrated

> "......I am unable to point to a single instance in which stunning results were gotten without the active and personal leadership of the upper managers."
>
> "All improvement happens project by project and in no other way."
>
> **Joseph Juran**
> **Quality evangelist**

framework of policies, processes and controls to foster alignment of data development and usage.

- Empower an organizational unit, such as the Chief Data Office, to own and enforce the control framework.
- Mandate the development and periodic review of a business-driven, financed and resourced plan for the development of critical data assets/ sets. This creates better-quality data and facilitates the integration of legacy data and the retirement of legacy systems.
- Ensure the development of subject matter experts (SMEs) and the fostering of collaboration across the organization to facilitate the adoption of 'bottom-up' ideas into data development or quality improvement.
- Encourage transparency, openness and inclusiveness in the dialogue about improving the organization's trustworthiness for data.

Management

Management encompasses a set of activities that may be carried out by any number of people with planning, analysis, resource allocation, decision making and control tasks within their job role. Managers need to ensure the following tasks are completed, either by themselves or by a trusted delegate:

- Specify the data needed to carry out the role or process for which they are accountable.
- Prioritize the importance of the data and define its quality (completeness, accuracy and timeliness).
- Collaborate with other interested parties to define and record the data meaning, usage, source and destination.
- Where practical, assume organizational accountability for relevant data to ensure consumption, production and storing of the data is fit for purpose.
- Ensure that processes for measuring and remediating quality (part of the control framework) are understood and utilized by people within their remit.

Practitioners, line-of-business or functional personnel

Anyone working with data is a data practitioner and needs to be aware of the importance that the organization attaches to data quality. Practitioner roles vary, and include a bank teller opening a new account or a risk analyst processing aggregated data from numerous operational systems. Practitioner roles cut across organizational boundaries and include management, expert workers or tellers.

According to their role and responsibilities, practitioners will either carry out the management function or they will carry out delegated tasks to ensure the quality of data is fit for their specific task. For the bank teller, this might mean following procedures to ensure correct values are entered on intake forms, so that subsequently aggregated risk data can be correctly classified.

Data management
Specialist data management roles and skills are required. As organizations learn and evolve, those skills—such as reporting, analytics and quality management—will transition to practitioners and managers. This process must be encouraged and developed.

Other key skills will remain centralized and must be developed for the benefit of the organization. These skills include:

- **Master and reference data management**. Regardless of the architecture or paradigm choice, it is absolutely critical that the organization has the domain knowledge and skills to develop cleansed and trusted named data sets (e.g., "Customer"). The ability to cross-reference and integrate data from diverse sources to support the construction of the organization's worldview will become one of the most important capabilities for the organization to innovate and grow.
- **Data meaning and metadata**. Our earlier discussion of the many faces of data introduced the numerous complexities in defining and recording of metadata. This requires specialist roles with unique skills that must work closely with lines of business and functional units.

- **Governance and enforcement.** People and organizations must be empowered to work with data and deliver rich new services. Data should be aligned across the different parts of the organization, so there must be local control functions that are accountable to the body that owns the control framework.
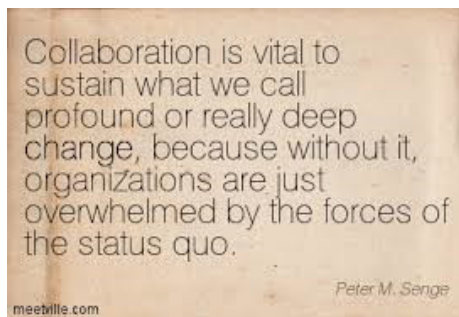
Control functions

Key control functions such as Internal Audit, Legal, Data Privacy, Conduct, Risk, Finance and Compliance must be woven into the control framework as stakeholders. Representatives from the bodies or controls established must be included as appropriate. Failure to do so will generate duplicated controls or data silos.

Collaboration

Organizations work because people make them work. Since data is pervasive across an organization, people must not be afraid to reach out across organizational boundaries, whether to access the data, verify it, or apply it in a new way.

An amount of formal or informal working groups will need to be established to foster collaboration around data as the organization becomes more aware of that data and its potential.

Collaboration is vital to sustain what we call profound or really deep change, because without it, organizations are just overwhelmed by the forces of the status quo.

Peter M. Senge

meetville.com

Meetings can become self-generating and time-consuming. If working groups become routine, then create clear terms of reference specifying roles, purpose, deliverables and timings, and then circulate the information to relevant parties to maintain transparency.

Create a control framework for data

There are many ways to implement a control framework for data that meets the dual needs of empowering individuals and teams, together with ensuring alignment and consistency of data across the organization. A typical framework will consist of the following:

Leadership stream

- A collection of relevant and integrated policies such as data management, data privacy, record retention, information security and personal data usage
- An organizational structure empowered by the executive board and populated by senior management from across the organization to monitor and control the governance program
- An organizational unit such as the Chief Data Office tasked to implement the control framework
- Additional procedures, controls and guidance defining the overall data governance process, accountability and quality management

Data control stream

- Control process to be followed for the development and implementation of data
- Data meaning: The data dictionary and associated collaborative process for identifying, agreeing on the meaning, defining usage and assigning accountability for data
- Data design: The architecture of the patterns reflecting the worldview
- Data integration: The standards for specification of transformations and creation of the worldview
- Data assets catalogue: The master or reference data sets with metrics specifying the level of trust associated with the data sets
- Data accountability: For the data assets catalogue, the quality accountability for consumption, production and definition of data

Data quality stream

- Data quality process: The end-to-end process by which the organization prioritizes data and incorporates it into quality management processes to assure a level of trust for the data
- Data quality dimensions: Identification of a set of dimensions (e.g., completeness, accuracy) by which data quality can be measured
- Data quality measurement: The process by which actual data is compared to its quality measures to establish trust or the need for remediation

Tooling stream

Once the organization and processes have been established, it will be appropriate to design, build or buy a series of tools to support the organization. These include

- Issue management
- Data architecture and modelling
- Data dictionary, glossary and related metadata such as lineage and accountability
- Master data management
- Reference data management
- Data profiling
- Data discovery
- Data inventory and cataloguing

Reskill the organization

Creating a trusted organization

An organization's goal should be to transform itself so that it can be trusted for data.

The key ingredient for successful transformation is to reskill the organization by extending the capabilities of people and embedding practices into culture. The reskilling activities have to occur at a series of levels. For example:

- General awareness-training for staff on the importance of data and the commitment to ensuring the organization can be trusted
- Specific skills training for the various processes, tools and roles described in the sections above. This includes everything from architecture, design, dictionary maintenance, quality, analytics and data science.
- Domain knowledge development so that SMEs are available to cover all aspects of the worldview

- Management workshops to facilitate accountability for data
- Specialized data planning capabilities to analyze major regulatory, customer or other organizational change to identify, quantify and plan for the impact and development of strategic data assets.

Critical capabilities for sustainable innovation

Control and quality management are essential capabilities, but they don't build data systems. That requires people who can understand the business need and build the right data system in the right way.

Nearly every project or regulatory implementation requires data. Too often, this need is met with a tactical data solution because a strategic option is not available. As previously discussed, this saps energy and inhibits innovation.

The critical data capabilities to develop a strategically viable option are domain knowledge, data design, transformation, integration, organization, analysis, distribution and specification. In addition, excellent project management, coordination and collaboration skills are needed to integrate with business-driven projects.

Where possible, develop multi-skilled individuals who understand the business domain and have the capability to articulate, specify and implement different components of a strategically viable option.

With trusted data sets and a trusted organization, there is less need to develop tactical options for each project. This opens the pathway for a series of business projects where the energy goes into product or service innovation rather than data acquisition.

Crawl, walk, run, forgive

Transforming the organization is a worthy, essential and complex endeavour.

This point of view has been a discussion of best practices in leadership, development and governance of data. Over time, the organization will need its own version of the capabilities, processes and controls mentioned in this document.

It does not need them all at once, however. That would be indigestible.

 "Start small, succeed and scale" is an advisable approach for taking control of data.

The essence of the control framework could be applied to an important but manageable subset of data on a business-driven project. The characteristics of a useful pilot project include:

- A small quantity of important data items (15-30)
- Data with enough complex characteristics to represent the typical challenges that will be faced. For example:
  - Multiple consumers of data and possibly multiple producers
  - Data integration and master data management
  - A mix of raw and derived/calculated data to demonstrate transformations
- A reasonably important project with senior-level sponsorship and visibility
- Achievable project goals

Lessons learned from one or more projects of this scale and nature can be absorbed quickly so that the organization can scale up.

As these initial projects progress, numerous anomalies and challenges will be created about data meaning (as-is, as-was, cancelled/rebooked, etc.). Typically, classification structures (e.g., security type or product type) are developed and found wanting as other perspectives are encountered. This is to be expected, so set expectations accordingly, even to the extent that the initial metadata may be scrapped and rebuilt.

A degree of tolerance is essential for people and the organization to develop the set of coordinated skills, knowledge and processes required.

Part 4: How we can help

The benefits of data mastery can be enormous. For the organization, such mastery can open the gateway to innovation, productivity and growth. Individuals gain the opportunity to make a transformational contribution in their current role and to acquire skills, experience and contacts which open doors to other opportunities.

In this paper we have discussed three essentials to achieving data mastery:

- Redefine the organization
- Create a control framework for data
- Reskill the organization

Hitachi Consulting and EDMworks, together with allied technology and advisory firms, help people and organizations achieve data mastery.

Every organization brings unique strengths, so we provide advisory services to baseline and develop the capabilities of individuals and the organization as a whole.

Our comprehensive data governance framework, depicted in Figure 1, identifies where a customer is on their data governance journey, verifies that all elements of the framework are connected, and avoids silos of information or processing. Many of the eight stages detailed below will have existing technology, ongoing projects and allocated resources to improve that aspect of the business, and the data governance framework complements this. You need not rip out and replace existing processes or set out to complete each individual stage in sequence. We help you take a holistic view of the organization's flow and management of data to identify high- to low-risk areas of focus for the business.

From training to process implementation and providing sufficient access controls throughout the business, our data governance framework provides the core foundation to enable businesses to grow fast, trust their data, and increase project agility.
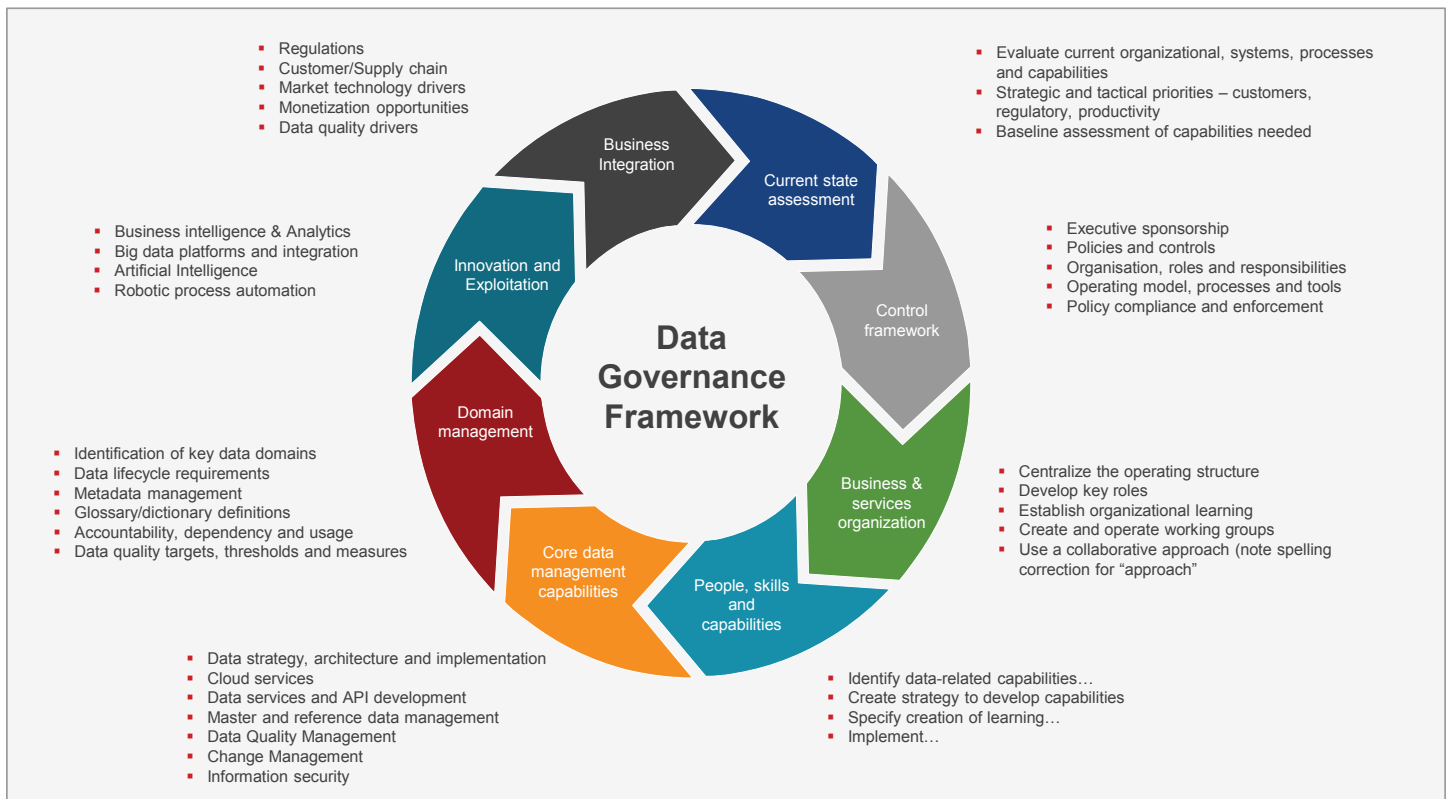

Figure 1: Hitachi Consulting and EDMworks Data Governance Framework

Where do we start?

Traditionally, most consulting firms will assess a company's business and technology environment and then provide a 100-page slide deck on how to fix it and put a good data governance framework in place. Hitachi Consulting and EDMworks do not believe this is effective.

We believe that collaboration is key, bringing deep domain knowledge, innovation and engineering principles to our solutions as well as end-to-end capabilities and commercial agility that few other organizations can match.

Small incremental steps, starting in high-risk areas first and then expanding out to low-risk areas over a period of 12 to 24 months, can establish an efficient, accurate framework that is acceptable to senior leadership as well as frontline employees. Figure 2 provides an example of how we work with you throughout this journey.

We work with you throughout the timeline to provide training, as well as help with implementing processes and adoption of technology.
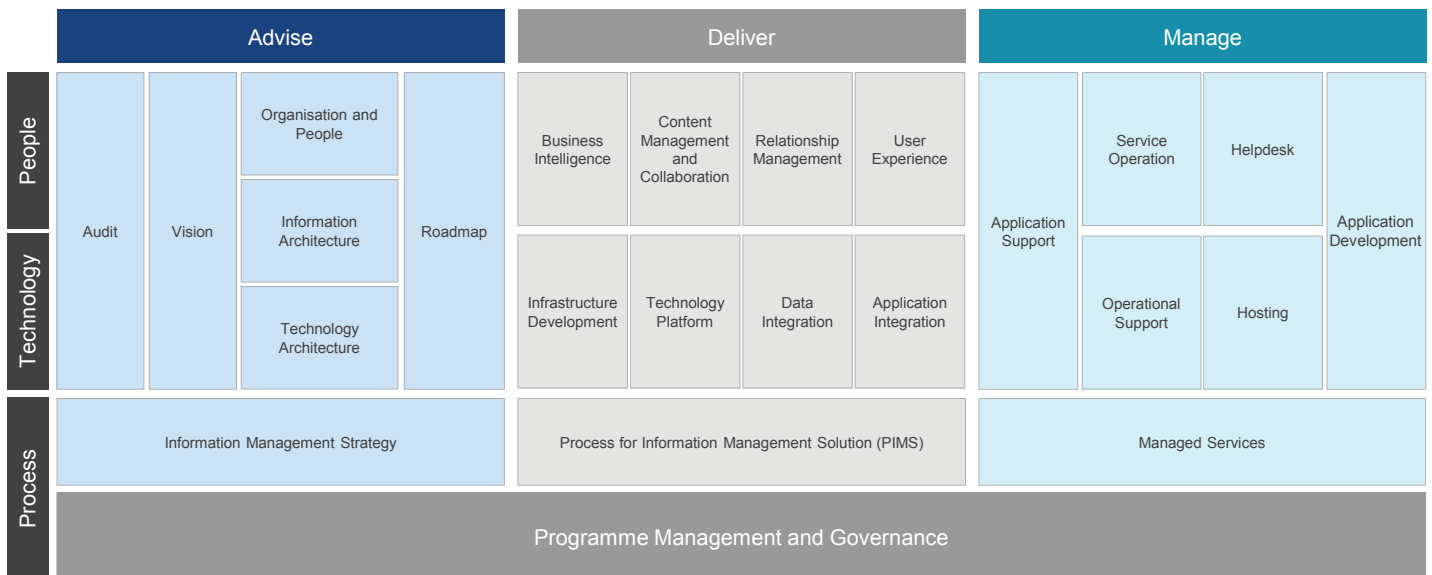
	Advise					Deliver				Manage			
People	Audit	Vision	Organisation and People	Roadmap		Business Intelligence	Content Management and Collaboration	Relationship Management	User Experience	Application Support	Service Operation	Helpdesk	Application Development
			Information Architecture										
Technology			Technology Architecture			Infrastructure Development	Technology Platform	Data Integration	Application Integration		Operational Support	Hosting	
Process	Information Management Strategy					Process for Information Management Solution (PIMS)				Managed Services			
	Programme Management and Governance												

Figure 2: Working with clients throughout the data governance program.

Data Governance Assessment

We work with you to envision the future state, assess your organization's technical and social readiness for the new paradigm, and provide a framework.

Step 1: Envisioning and strategizing

4 to 8-hour workshop

Participants include executive sponsor and key stakeholders

- Understand current key challenges
- Identify future goals
- Present "art of the possible" scenarios with effects to the bottom line

Step 2: Proof of concept

3 to 4 days

We use your own data to present you with modelling and insights

- Compare with your current insights
- Achieve usable value within a few days
- Identify quality issues with your data
- Identify gaps in the data
- Demonstrate how that data can be tracked end-to-end

Step 3: Detailed understanding, road map and proof of value

3 to 4 weeks

Participants include program sponsor and key stakeholders

- Key data journey mappings
- Current state evaluation against data governance framework
- Gap analysis / maturity model analysis
- Business case and ROI justification
- 12- to 24-month roadmap
- Key success criteria and metrics

Conclusion

Gaining control of your organization's data to achieve mastery can seem like an overwhelming task. But following a logical approach, starting small and scaling up with successes can put an organization onto the path toward established and trusted processes and data throughout the enterprise.

About the Authors

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Dennis is a specialist consultant providing executive advisory on data strategy, data governance, data architecture and data modeling. He is the Chief Executive of EDMworks, a data management, industry leadership and training organization. Dennis has worked in data management since 1990, holding senior positions at project, program and enterprise level within global financial organizations.

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Suranjan has consulted some of the largest investment banks in world in the risk and regulation space. He has hands-on experience with architecting the solutions presented in this paper. Suranjan has a broad understanding of the financial services industry, and he leads this industry vertical at Hitachi Consulting.

Serif Otterburn
Financial Services | EMEA Solutions Group, Hitachi Consulting

Serif has worked in the financial services space for six years, in developing custom solutions with a particular focus on insurance and regulation. Serif's actuarial background has provided her with specific capabilities in managing and handling data within large organizations.

About Hitachi Consulting

Hitachi Consulting is the global solutions and professional services organization within Hitachi Ltd., a global innovation leader in industrial and information technology solutions and an early pioneer of the Internet of Things. Hitachi Consulting is a business integrator for the IoT era and a catalyst for digital transformation. Using our deep domain knowledge, we collaborate with clients to help them innovate faster, maximize operational efficiency and realize measurable, sustainable business and societal value. As a consulting-led solutions company, we can help you leverage data as a strategic asset to drive competitive differentiation, customer loyalty and growth. To learn more, visit www.hitachiconsulting.com.

About EDMworks

EDMworks was founded by experienced Data Strategists, Architects and Governance specialists with deep experience of leading transformational change across large, complex global organisations. At the core of their ethos is a passionate desire to empower people and enable organisations to improve engagement with customers and stakeholders.

To book a personal discussion:

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