



Healthcare Data Governance

Improving decisions and outcomes
...from the boardroom to the bedside

Why this handbook?

This handbook was inspired by our clients—by what they know and where they want to go

Our clients know that data drives their organizations and is a critical tool for navigating a changing healthcare landscape. They understand that data is the fundamental force in rethinking how care is delivered and funded, how patients are engaged and educated, how medical research is conducted, and the roles of the payer and the physician.

In short, they know a lot about data—and they have a lot of it. Yet as the breadth, complexity, and volume of healthcare data grows, they find themselves increasingly challenged to leverage this asset to the benefit of their mission: improving care and lowering costs.

This handbook presents our approach to addressing this challenge. It provides practical, flexible, and actionable guidance for executing a data governance program that aligns with the organization's priorities, supports effective clinical and business decision-making, and maximizes the value of data to improve outcomes.

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ABOUT OUR APPROACH TO DATA GOVERNANCE

This section summarizes the concepts that underlie our approach to data governance. It also introduces a framework to guide your efforts—one that prompts you to create structures and plans tailored to the needs of your own organization. As always, **our emphasis is on principles, not prescriptions.**

When you elevate data as a strategic asset, you enable better decision-making and promote massive improvement in health, cost, and experience outcomes.

—Tom Burton
President, Health Catalyst
Professional Services

What data governance IS, and is NOT

Data governance IS:

- The discipline of managing data as a strategic asset—the orchestration of people, processes, and technology in a way that supports your organization’s priorities
- Focused on enhancing decision-making and supporting clinical, operational, and financial outcomes improvement
- An ongoing, cross-continuum, and cross-functional effort to optimize data for the benefit of your patients, staff, organization, and community

Data governance is NOT:

- An end to itself—governance for the sake of governance
- An event—a “one and done” activity
- An IT function or department in the organizational hierarchy



PRINCIPLES

These principles represent the core of effective governance; they’re the “must-haves” that support success in any organization, regardless of its specific structures or leadership.

- **Stakeholder engagement.** Move beyond the IT realm. Engage clinical, operational, and financial stakeholders around an awareness of data as a strategic asset—highlighting its value for supporting better decisions from the boardroom to the bedside.
- **Shared understanding.** Promote the goals and accomplishments of data governance across the organization and nurture a data-driven culture.
- **Alignment.** Ensure that data governance clearly supports the priorities and strategies of your organization, serves the needs of users throughout the data life cycle, and balances polarities.
- **Focus.** Think lean, do what matters most, and adjust as you go. Govern data to the least extent necessary to achieve the greatest common good.

Why it matters

For tomorrow’s imperatives

We have a tremendous amount of data in healthcare—but we’re only just beginning to see the benefits of data to understand and respond to the needs of our patients and the future of healthcare.

- **We don’t see all the factors that affect a patient’s health.**

What determines the quality and length of a person’s life? Access to and quality of clinical care are important of course, and our industry has some visibility into these determinants, via healthcare encounter data.

But what about factors such as our education level, how much money we have, what we eat, how much we exercise, the safety of our neighborhood, and the quality of our air and water? All of these factors have been clearly linked to human health and well-being—and they’re outside the traditional boundaries of healthcare delivery.

The result? Today we have an incomplete, “low-resolution” image of our patients, which limits our ability to improve and extend their lives.



Patient’s life



Healthcare’s low-res view of a patient’s life

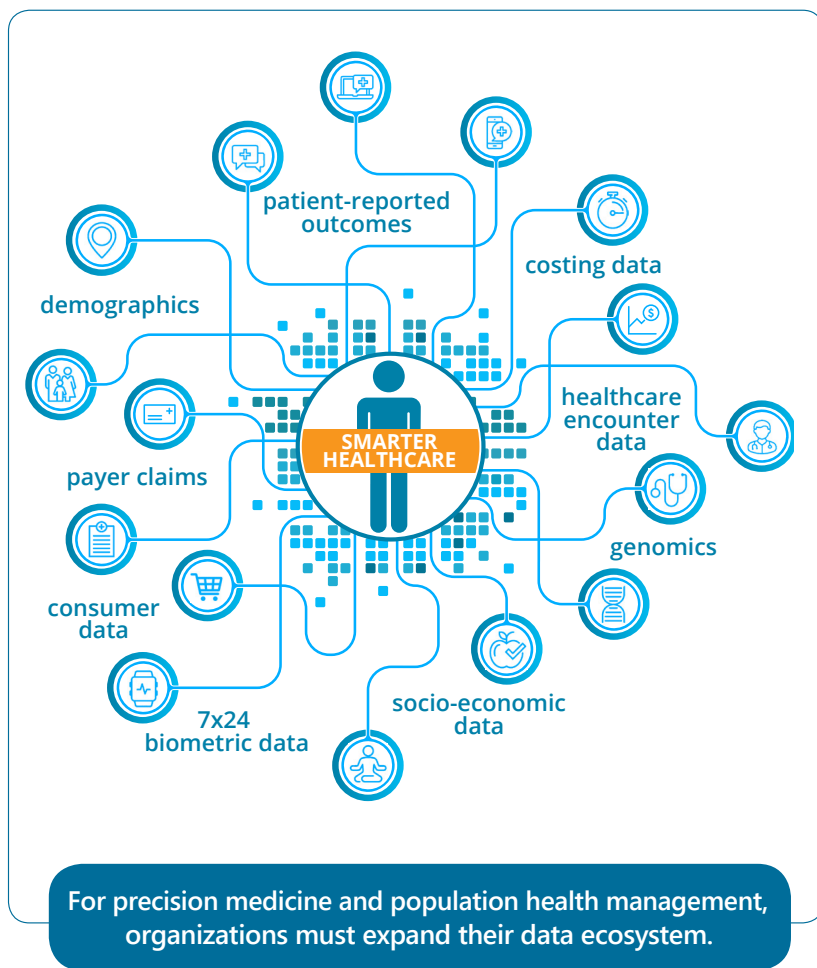
• **We need to adjust to the new value-based care landscape.**

The shift to fee-for-value drives the need for reliable data that measures cost of care, margin, and productivity across the continuum of care. It also necessitates the ability for leaders to evaluate the expected return on investments to improve specific healthcare outcomes. Yet most organizations are just beginning to develop strategies to acquire the content they need for population health management.

• **More data is available to help us face the future of healthcare.**

Innovation is expanding the range of data produced and making it easier to collect, analyze, and understand information. This opens the door to major advances in preventive care, quality of care, and cost of care at an individual and population level—so long as you have governance structures and processes to harness that power.

Done well, data governance is an accelerant to transformation. It allows organizations to achieve the breadth and speed of integration that’s required by healthcare reform, powered by clinical and technical innovations, and vital for improving the cost and quality of care for our patients and communities.



For today’s challenges

Organizations need data governance to meet future imperatives—but they also need it today (and urgently) to confront challenges such as these:

- Inability to respond to new analytic use cases and requirements
- Poor or unknown data quality; data is siloed, inaccurate, inconsistent, unstandardized, etc.
- Lengthy and inaccurate decision cycles
- Inconsistent analytic results from different sources attempting to answer the same question
- Lack of accountability or processes for fixing data quality problems

Do these issues sound familiar? If so, you’re probably aware of their implications for your organization and your patients: financial risks, operational inefficiencies, and safety concerns.

Better data governance can help you overcome these challenges—and in the process, return value to your organization. By ensuring that people have access to the right data and information at the right time and in the right format to make clinical and business decisions, data governance helps realize the organization’s investment in digital capabilities.

DEFINITION

Data governance refers to the people, processes, and technology that are proactively applied to ensure that an organization’s data is managed in a way that maximizes the value of that data to the organization.



WHAT WE SEE

Data governance is good for your circulation

Ideally, data moves smoothly and efficiently through the stages of its life cycle. The reality is, not every data item has a long and healthy life. This is where data governance comes in.

Good governance promotes healthy circulation through this cycle—helping ensure that data isn't missing, stuck in silos, corrupted or stolen, confused with other items, or rendered redundant, irrelevant, or unreadable.

By ensuring that the data is accurate and consistent—and that data users have the appropriate access, knowledge, and skills—data governance supports healthy circulation throughout the cycle. Most importantly, good data governance imparts trust in the data, so people will rely on it to make better decisions.

How we think about data governance work

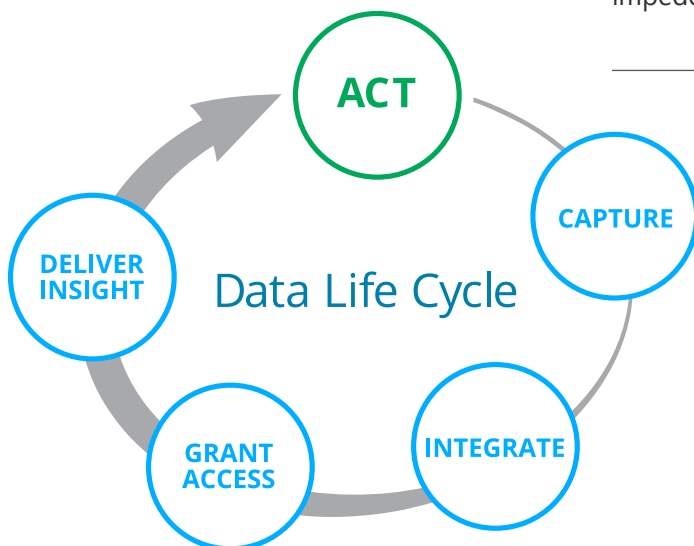
As an outcomes improvement organization, we believe that the value of data lies in its capacity to improve the cost and quality of care. We also believe, after W. Edwards Deming's foundational work in quality improvement, that resources should be organized around your front-line, value-added work processes—and that this is especially true of data governance.

The data life cycle represents the flow of data within your organization

The data life cycle, shown below, is important for our view of data governance. It begins with data being captured and integrated, and it proceeds, stage by stage, to its highest station: the moment when data informs human action. At this point, the cycle can begin anew, as the data-driven insights and actions propel additional movement in a "virtuous cycle" of improvement in the use of data.

The life cycle construct is helpful for data governance for several reasons:

- **It reminds us of the ultimate purpose of data: supporting human decisions and actions that improve outcomes.** This is the vision that should guide data governance priorities, decisions, and negotiations.
- **It shows the stages that data may pass through in order to be useful and highlights the cross-functional nature of this journey.** Consider how many different transactional systems that data may flow through—and how many different domains (clinical, financial, operational) it may touch—on its way to generating insight and inspiring action. For example, a clinical measure may go from your lab systems to your EHR...to your EDW where its integrated with financial and operational data captured in other systems...to a report or analytics application... that ultimately informs a contract negotiation or a staffing decision.
- **It's a useful conceptual tool for surfacing issues that data governance should address.** In looking at your key work processes through the lens of the data life cycle, your team can surface data-related issues that impede your ability to make better decisions.



CAPTURE

Do we have all the data we need to ideally manage this process—and is it accurate?

INTEGRATE

Have we integrated clinical, financial, and experience data?

GRANT ACCESS

Do those making decisions have access to ALL the data that could promote the best decisions?

DELIVER INSIGHT

What insights could be presented at the right time in the workflow to encourage better decision-making?

ACT

Do we measure how well we act—and do we know how often we fail to realize achievable outcomes?

Data governance encompasses three dimensions

In putting business and clinical processes through the data life cycle, you'll encounter challenges of three basic types: data quality, data utilization, and data literacy.

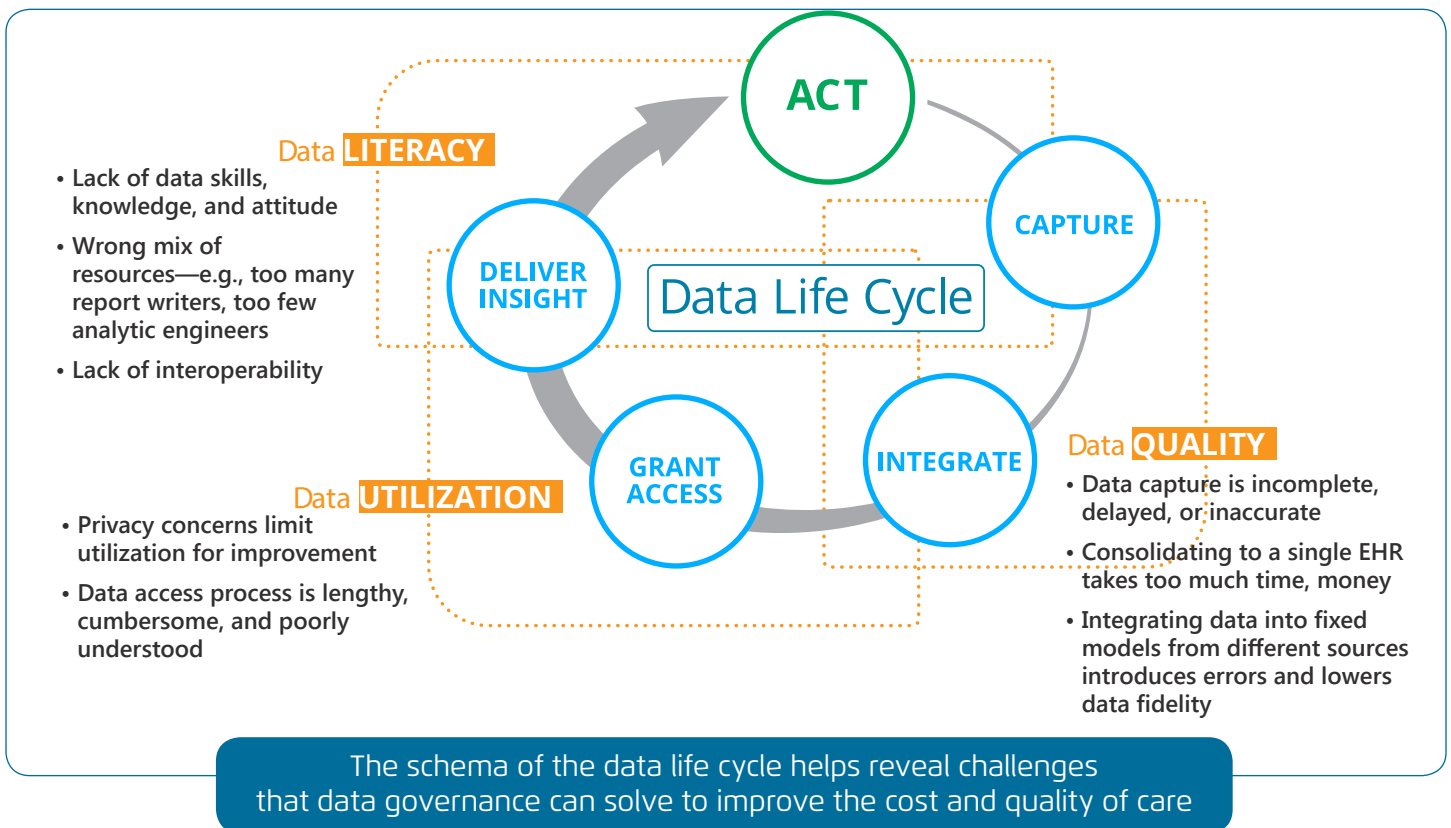
To address these challenges and facilitate the flow of data through its life cycle, then, your **data governance has responsibilities across these three dimensions:**

- **Quality:** ensuring that the data is timely, complete, and accurate to the extent necessary for decision-making
- **Utilization:** ensuring that data access and delivery are optimized for your organization
- **Literacy:** ensuring that the people in your organization have the skills, knowledge, and inclination to use the data for decision-making

Carrying out these responsibilities means that your data governance manages data as an asset. And as with other organizational assets such as buildings, human resources, cash, equipment, and so on, the goal is to eliminate waste and harness the greatest possible value from this resource.

“
Healthcare is on the brink of becoming a truly digital, knowledge delivery industry... As U.S. healthcare moves into its next stage of evolution, the organizations that will survive and thrive will be those who most effectively acquire, analyze, and utilize their data to its fullest extent.
 —Dale Sanders
 President of Technology Health Catalyst
 ”

Challenges in 3 dimensions



It's an ongoing process—and a balancing act

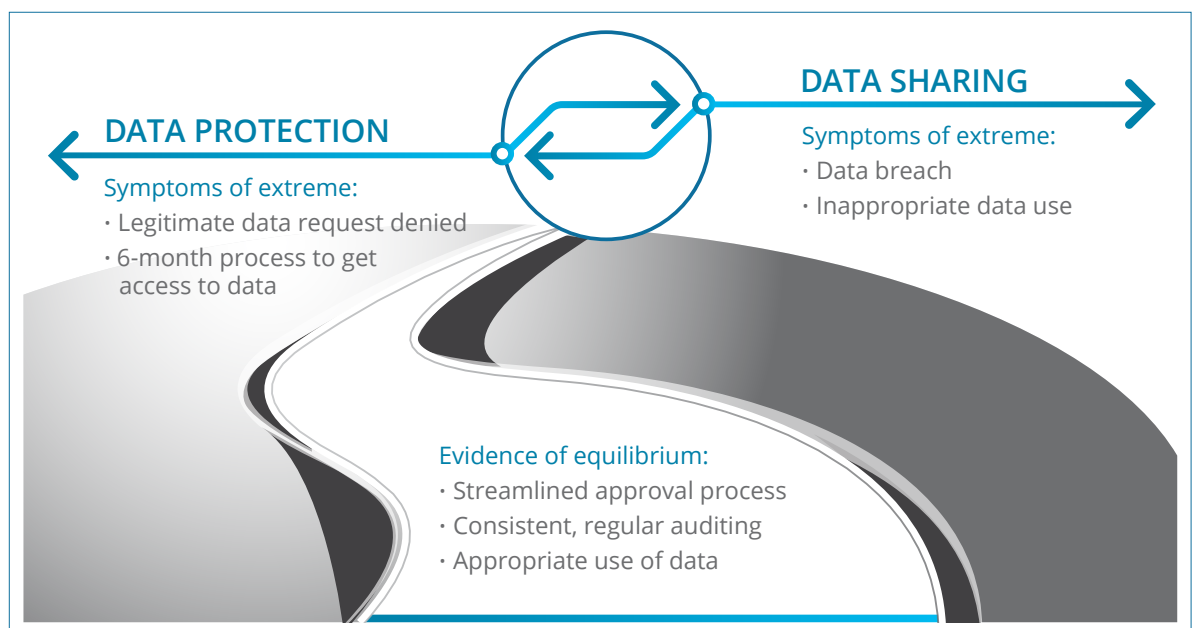
We often see data governance undertaken as an event, as a one-and-done effort meant to run more or less on autopilot. This approach usually doesn't work well. The questions you're concerned with today can't be answered just once; in healthcare, the questions are always changing.

For this reason, we advocate data governance as an ongoing and iterative process, responsive to changing circumstances and able to re-balance policies to manage conflict.

We use the concept of **polarities** to help us think about the commitments that, if not managed well, are frequent sources of conflict. A polarity is a pair of values that we tend to see in adversarial terms—this **VERSUS** that—but that in fact are interdependent and mutually valuable. Common polarities in healthcare include high quality **AND** low cost, process **AND** outcomes, flexibility **AND** consistency.

Example data governance polarity

To be effective, your data governance must identify and actively manage polarities.



Data governance is ground zero for tension around polarities. And unfortunately, most organizations aren't adept at managing them. They tend to err too far to one side or the other—or to oscillate between the extremes.

To be effective, your data governance will need to identify and actively manage polarities. Here, we encourage you to think of a polarity's paired elements as dual mandates to be coordinated and balanced, not opposing values to be compromised. As you shape policies, try to "understand the **AND**" in the middle of the two elements—and **be prepared to continually adjust and re-balance your approach as needed.**

It needs to be promoted

Organizations aren't used to thinking of data as an asset, and they tend to view data infrastructure as an expense rather than an investment. This is why data governance is often limited to the IT realm, under-recognized by key stakeholders and blocked from meaningful contributions to organizational strategies and outcomes.

Leaders must promote a data-driven culture. Executives need to endorse data as a critical asset and reinforce it with their behavior. They need to promote the goals and rationale for data governance, transparently share progress and results, and facilitate cross-functional participation and feedback. Communication is key to establishing a culture that values data-driven decision-making.

What to look for in this handbook...

The following pages present a framework and set of activities for establishing or optimizing effective data governance.



Icons highlight content in the following categories:



What we see

Common pitfalls, key advice, and encouraging words



Services & technology

Health Catalyst offerings that support effective data governance



Polarities

Values to be iteratively balanced and negotiated in your data governance work



At Exemplar Health...

Examples of how one (fictional) organization implements data governance



Promotion

Messages and mechanisms for promoting data governance and a data-driven culture



TOOLS FOR TRANSFORMATION

To support data governance at your organization, ask your Health Catalyst engagement lead for these additional resources:

- Sample team charter:
Data Governance Committee
- Sample job/role descriptions:
 - Chief analytics officer
 - Data steward
 - Data manager
- *Implementing Governance for Outcomes Improvement* handbook



HEALTHCARE DATA GOVERNANCE

Improving decisions and outcomes...from the boardroom to the bedside

PRINCIPLES

Stakeholder engagement
Shared understanding
Alignment
Focus

1

ELEVATE

DEVELOP A VISION & AGENDA

- Conduct qualitative and data-driven assessments
- Define a program and vision for data governance
- Secure executive support
- Layer a promotional component into data governance work



- What you don't know can hurt you. Consider: what do you wish you knew?
- Variation is often waste—and often opportunity.
- Analogy is the key to understanding: Get behind the wheel.
- It's best to build a clear case before you form a full team.



- Transmit the vision for data governance.

2

ESTABLISH

BUILD AN ORGANIZATIONAL STRUCTURE

- Form a Data Governance Committee
- Designate a leader
- Create a Data Governance Committee charter
- Consider the organization of subgroups
- Determine your approach to data stewardship
- Consider your organization's analytics strategy



- Governing from Mount Olympus? It's less than heavenly.
- If you treat data governance like a hobby, you'll get amateur results.
- Data governance is a marathon. Help your data stewards go the distance.



- Send the signal: data governance is a vital service to everyone.



SERVICES & TECHNOLOGY

- **Data and analytics assessment services:** Health Catalysts experts can guide or conduct an assessment to identify opportunities; may be done in conjunction with readiness assessment and analytic skills assessment
- **Support for your data governance portfolio:**
 - **Data quality:** Guidance for data acquisition, EHR data capture, data-flow tuning and monitoring
 - **Data utilization:** Assistance in assessing data availability and analytic skills.
 - **Data literacy:** Accelerated Practices Program, Analytics Platform and Application Training, Quality & Leadership Program
- **Data steward training:** Principles and on-boarding tuned to your organization's goals and structures
- **Adoption acceleration:** Health Catalyst's expertise in leadership and sustained change management can help ensure that your data governance is built to last

3

EXECUTE

IMPLEMENT A PROJECT PORTFOLIO

- Review the issues and opportunities surfaced in your initial assessment
- Determine a method for evaluating initiatives
- Assemble a portfolio of projects across the dimensions of data quality, utilization, and literacy

Data QUALITY—timely, complete, and accurate data

- Assessing the quality of those elements
- Prioritizing data quality improvement efforts

Data UTILIZATION—optimized data access and delivery

- Considering the 5 Rights
- Prioritizing data utilization improvement efforts

Data LITERACY—knowledge, skills, and inclination to leverage data

- Identifying the types of skills and knowledge needed to leverage data for decision-making
- Noting deficits and resources
- Prioritizing data literacy improvement efforts

- Select demonstration projects
- Set up processes to measure and monitor quality before, during, and beyond the projects you sponsor
- As you complete demonstration projects, return to your portfolio to take on new work



- A joined-up view of data governance and outcomes improvement is crucial.
- Beware the early fizzle. Aim to demonstrate value right out of the gate.
- Quality gets conflated with perfection.
- Data stewards have an important role in ensuring quality.
- Data sharing AND data protection? You can have both.
- Collaboration aids negotiation.
- A mix of creative, home-grown approaches can boost data literacy.
- Particular issues point to general challenges.



- Demonstrate data governance in action.

4

EXTEND

PURSUE PRACTICES TO SUSTAIN THE GAINS

- Regularly review your data governance project portfolio
- Establish a data governance dashboard
- Refresh team membership and leadership



- The Help Desk has it right: you may need to reboot.
- What does effective data governance look like? Nothing much.
- Role models matter.



- Demonstrate that data-driven is business as usual.

- **Data Operating System (DOS):** This data-first analytics and application platform allows organizations to access data across the entire care delivery system to deliver more effective and scalable programs—and drive better decisions and outcomes
- **DOS support across data dimensions:**
 - **Data quality:** IDEA (completeness), source connectors and data ingesting (timeliness), data profiling (accuracy)
 - **Data utilization:** Reusable logic (Fabric), standard data models, EHR integration, analytic apps
 - **Data literacy:** Atlas with integrated measures management
- **DOS applications and services to sustain a data-driven culture of continuous improvement including, for example:**
 - Touchstone
 - Leading Wisely
 - Analytic accelerators (100+)
 - Patient Safety Monitor: Surveillance
 - CORUS: Cost Insights

1

ELEVATE: DEVELOP A VISION & AGENDA

What would make your data a **distinguishing** asset to your business and clinical objectives?

This activity establishes a data governance vision and agenda aligned with organizational priorities. This groundwork elevates the status of data as a strategic asset and generates executive buy-in for the shared work ahead.



POLARITIES

- Ambition AND pragmatism
- Fixing current problems AND supporting future opportunities



SERVICES & TECHNOLOGY

- **Data and analytics assessment services:** Health Catalysts experts can guide or conduct an assessment to identify opportunities; may be done in conjunction with **readiness assessment** and **analytic skills assessment**
- **Data Operating System (DOS):** This data-first analytics and application development platform allows organizations to access data across the entire care delivery system to deliver more effective and scalable programs—and drive better decisions and outcomes

Why?

Many organizations still view their data as part of their expensive technology costs, rather than as a resource. The activities in this step can help effect a change in perspective, prompting executives to see data as strategic asset in, enabling better decision-making and powering clinical, financial, and patient experience improvements.

This step also provides the foundation for success in other ways, by providing:

- **A focus and set of objectives.** As with any collaborative effort, it's best to begin with a shared understanding of what you're trying to accomplish—and to define a limited, achievable, and strategically targeted scope for the work. This step provides clarity of purpose.
- **An incremental approach.** You cannot (and should not) put governance processes around all your data. Plan now to work where it matters most.
- **Executive support.** This step promotes buy-in by defining expected outcomes and demonstrating how they relate to the clinical and business activities central to the organization's strategic direction.

Who?

This initial step is usually launched and led by a **small group of leaders** with vested interest in the benefits of building a data-driven organization—the **Chief Analytics Officer (CAO)**, the **Chief Medical Informatics Officer (CMIO)**, the **Chief Information Officer (CIO)**, and so on.

The organization's **internal business planning or strategy team** often plays a supporting role, as may **external consultants**, who may handle the assessment component of this activity.

How?

We divide this foundational work into a few main activities, described here.

—○ Conduct qualitative and data-driven assessments

To identify a high-level vision and agenda for data governance, we recommend that you consider two perspectives: a view of your organization's current data "pain points" and usage, and a data-driven view of where better data governance could have the greatest impact on cost and quality.

Qualitative assessment: data pain-points and usage

We recommend commissioning a small team (or working with consultants) to assess the organization's data and analytic landscape and uncover data pain points that limit efficiency and insight.

This qualitative assessment can identify areas where the organization is struggling for the basics of data governance, such as having timely self-service access to the data for managing day-to-day functions. More broadly, the assessment can identify how data is used, which data is most important (or missing) for driving operational and strategic decisions, and the nature and extent of any issues solvable by governance. Suggested tasks for this assessment:

- **Determine participants.** For an appropriately comprehensive perspective—and to begin to build buy-in for data governance—include data consumers at the executive level, the managerial/directorial level, and the front-line staff level (analysts, data entry personnel). Aim for a minimum of 25 participants.
- **Document participants' perspectives.** We recommend surveying participants in small groups or one-on-one. Query to identify:
 - Any business or clinical processes that are broken or hindered by problems with data. (Pro tip: listen for phrases such as, "It's hard for me to do my job because of...")
 - Participants' data needs and the sources used to address those needs.
 - The drivers behind the organization's analytics and the value each tool or report provides.
- **Summarize data issues and the role of data in your organization.** You'll want to be able to answer the following questions:
 - What are your organization's most significant pain points as they relate to data? Not all items will be priorities for data governance, but in aggregate will help direct priorities.
 - Are the programs/projects identified in the organization's strategic plan well supported by data?
 - How pervasively is data used to drive decisions and improve outcomes?



WHAT WE SEE

What you don't know can hurt you. Consider: what do you wish you knew?

When we conduct assessments, we try to learn what people *don't* know—as well as what they do—about their tasks, areas of performance, patient population, costs, and so on. We ask: what would help you make better decisions?

Areas of missing insight often suggest the need for data governance attention.

Some examples:

- Revenue continues to trend downward, but financial leaders haven't been able to identify or address the cause.
- Regional quality teams are tied to the same improvement goal—but use different tools, definitions (metrics, inclusions/exclusions) and methodologies. The result? Teams spend more time defending their versions of the truth than they do acting on what the data reveals.
- The duplicate patient record rate is high in the master patient index, but no one knows how to escalate this data quality issue so it can be fixed.



WHAT WE SEE

Variation is often waste—and often an opportunity

Experts estimate that a third to a half of everything we do in healthcare is wasteful. This waste could be over- or under-utilization of certain interventions or significant differences in how efficiently care is delivered; it could come from clinicians and operators in different hospitals, clinics, or units performing the same function in significantly different ways. And, of course, it could also derive from data issues that slow transactions, introduce uncertainty, or perpetuate inefficiencies.

Key process analysis can point you to these hot spots of wasteful variation—and your best opportunities to improve.

We've seen organizations uncover opportunities to save lives and millions of dollars by measuring variation across clinical and operational processes.

Data-driven assessment: key process analysis

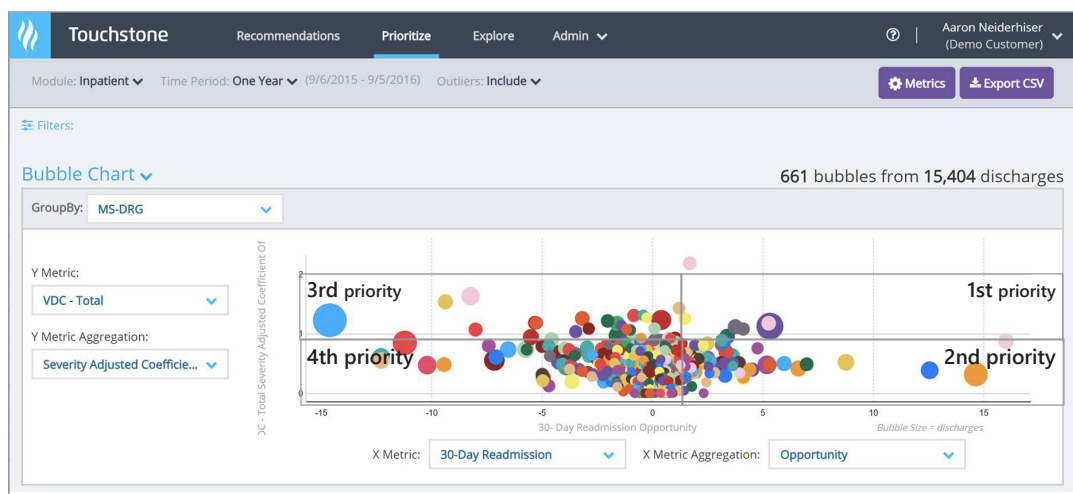
We recommend that you complement a qualitative assessment with a data-driven analysis. In organizations with established outcomes improvement governance, this is best handled at that level, where the analysis can inform the organization's improvement priorities as well as the agenda for data governance.

However, if your organization doesn't have that leadership in place to help set direction for data governance, we recommend that, at a minimum, you conduct a key processes analysis to identify large work processes with unwarranted variation. **Since it's likely that some of the variation is caused by data challenges, this analysis could point you to areas where data governance could have the largest impact on cost and quality outcomes.**

A key process analysis normalizes data, adjusts for severity of illness, and quantifies the magnitude of variation existing in each clinical and operational process. Of course, it won't identify why a process has massive variation; it could be caused either by data system variation or by clinical or operational practice variation. However, key process analysis will help to identify high-priority opportunity areas. A Pareto chart of opportunities can help your organization focus on a few large processes with significant variation—areas where concentrated effort can drive large improvements.

Key process analysis

Use data to identify work processes with significant variation. These are areas where data governance work could have the greatest impact on organizational outcomes.



—○ Define a program and vision for data governance

The next activity is to outline a data governance program that addresses the findings of your assessments and clearly defines objectives and expected outcomes. In doing so, you help establish a compelling vision of the benefits your data governance program will drive toward. A suggested sequence:

- **Identify focus areas.** Based on your assessment results, look for:
 - **Areas where the organization’s clinical and business operations are being negatively affected due to data limitations.** For example, if the organization is incurring penalties for missing quality targets, but has no ability to use data to identify the cause of the quality gaps, you may choose this as a focus of data governance.
 - **Areas where attention and investment will fuel a competitive advantage or move the organization toward an important strategic goal (e.g., “best of class”).** If your organization wants to move toward value-based care and risk-sharing contracts, for example, you’ll need reliable insight into utilization to effectively manage under these new arrangements.
- **Create a case for work in these areas.** Partner with an internal planning or strategy teams, if needed, to craft the proposal.
 - **Quantify the impact of focusing data governance in select areas.** For example, your business case might demonstrate that by improving data quality through governance, the organization could increase the identification of patients needing follow-up by X%.
 - **Articulate how proposed priorities for data governance align with the organizational vision and strategies.** How does the data governance agenda connect to where the organization is headed? Perhaps the vision for your system is to capture the regional healthcare market amid increasing competition and growing demand for services. In this case, you'd want make explicit how managing inbound and outbound patient referral data can help the hospital understand opportunities to attract and retain business.



WHAT WE SEE

Analogy is the key to understanding: Get behind the wheel.

How can you communicate the value of data governance to your organization? We like the following analogy, which emphasizes the principle of alignment:

Data governance is like maintenance on the wheels of your car.

When the wheels are out of alignment, you get a variety of undesirable—and sometimes dangerous—side effects.

For one thing, the faster you go, the rougher the ride. You get unnecessary wear and tear on the tires and on every other part of the car, which in turn makes maintaining your car needlessly expensive.

If your wheels are out of alignment, you simply can't get maximum performance out of the car.

In the same way, you need effective data governance to ensure that the people, processes and technology around data are aligned with the goals of the organization.

This alignment ensures that you are managing your investment in data in a way that enhances data's value to the organization—and drives your organization forward swiftly, smoothly, and cost-effectively.



WHAT WE SEE

It's best to build a clear case before you form a full team.

Program champions sometimes struggle to get executive buy-in for data governance or to retain engaged membership once teams are formed. These common, initial missteps contribute to the problem:

- The data governance program lays out ambitious goals without tangible benefits: “We will be the international leader in healthcare digitization.”
- The case is built around an issue—but it's not a priority for your leaders.
- The governance committee is established before there is clear direction and goals.

Advice: Take a pragmatic approach. Clearly articulate the expected benefits of data governance to your organization, identify a compelling focus—and then build your teams around initial direction and goals.

—○ **Secure executive support**

Meet with C-level executives to obtain sponsorship and support for a data governance program. Their support is needed to underwrite the work ahead—and is critical for elevating the status of data as a strategic asset.

In presenting to executives, we suggest leading with a “burning platform” priority (e.g., budget cuts or other financial pressures, poor clinical quality ratings, etc.) and elevating data as an asset in meeting that challenge.

Ground your proposal with the business case outlined previously.

Presenting a results-oriented approach and agenda—rather than a set of lofty intentions—is more likely to yield the focus, engagement, and support you'll need from leaders.

—○ **Layer a promotional component into data governance work**

Communication and promotion are a critical for shaping an organizational culture that supports large-scale transformation and improvement. The “Promotion” sidebar in this and subsequent steps gives ideas for promoting various aspect of data governance.

At this early stage, your aim is to communicate commitment to the data governance agenda and enthusiasm for the benefits it will bring across the organization. This message is best delivered by your CEO or other executives.

eg.

At Exemplar Health...

Elevating the importance of data

The Chief of Strategy and Chief Medical Information Officer lead the effort to identify compelling focus areas for data governance.

Armed with the findings from interviews and key process analysis, the two champions secure executive buy-in for a data governance program initially centered on these themes:

- **Population health.** The Population Health Department, which is responsible for the hospital system's 125k patients in risk-based contracts, is **struggling to measure and coordinate patient care**.
 - They're challenged to accurately identify a patient's primary care provider, which makes it difficult to measure provider performance.
 - Key data such as clinical conditions, medications, and blood pressure are inconsistently populated in the EHR, limiting the department's ability to identify cohorts for their care management program.
 - Front-line clinicians complain about receiving sets of duplicative reports that are difficult to use.
- **Orthopedic surgery.** The key process analysis showed significant **variation in orthopedic cost and quality**, and the Chief Financial Officer has cited concerns regarding the organization's ability to accurately measure ortho costs per case. The organization's Outcomes Improvement Leadership Team has already prioritized ortho as high-priority area for improvement and assigned the Chief Medical Officer to lead efforts.
- **Analytic staff.** The demand for data and analysis is extraordinary and the organization can't keep up; managers across the system partially attribute this to the **challenge of training and retaining data analysts**.
 - The local market is very competitive, and it's difficult to hire data analysts with the skills and background needed.
 - Each department is using different analytic tools; as a consequence, analysts' skill sets are narrow and the analysts can't team up across departments to help respond to requests.
 - When new analysts are hired, their on-boarding is made difficult by the lack of documentation on how standard metrics are calculated.

POP HEALTH

- how to measure, coordinate care?
- PCP IDs, cohorts for CM, reports

ORTHO SURG

- how to understand variation, costs?
- support for existing improvement effort

ANALYTIC STAFF

- how to meet overwhelming demand?
- hiring, tools, skills, reference resources



Promotion

Transmit the vision for data governance.

Once you've got buy-in, you need your CEO or leadership team to broadcast the vision for the program.

Explain: Why is data governance important? What outcomes can people expect? How can people support data governance?

The goal is to send an early signal—a rallying message—to the entire organization: Data governance is coming. It will bring important benefits across the organization. It's a cross-functional team sport—and it's likely not an optional experience.

2

ESTABLISH: BUILD AN ORGANIZATIONAL STRUCTURE

Who are the right people—and what are the right structures—to realize the vision?

This step is about building an organizational structure to fulfill the data governance mandate. It includes establishing a Data Governance Committee to drive efforts, and determining additional teams and roles to execute the work.



POLARITIES

- Inclusiveness AND agility
- System-wide AND local control
- Deep front-line expertise AND authority over process



SERVICES & TECHNOLOGY

- **Governance consulting:** Guidance for establishing and optimizing teams and practices for outcomes improvement in healthcare
- **Data steward training:** Principles and on-boarding tuned to your organization's goals and structures
- **Data Operating System (DOS):**
 - Atlas: data stewardship section

Why?

Getting organized and bringing the right people to the table is important to the success of any new initiative. It's especially important for data governance, which must contend with substantial complexity:

- **Governing data is a cross-cutting effort that impacts many groups**—and governance decisions often sit at the intersection of competing priorities (financial versus clinical versus operational, one specialty group or facility versus another, etc.). You want to curate team participation with this cross-functionality in mind.
- **Resources for data governance are likely limited**, especially at first. Getting the right people in the right groups will help you make the most of what's available.
- **There's no single, "one size fits all" template for structuring data governance resources**; organizations have different needs, and their governance structures need to be tailored accordingly.

Note that we recommend establishing teams only after you have a high-level agenda for data governance. We believe in organizing people around the work that most needs doing, rather than setting up teams that then look for work. This is consistent with quality improvement theory, which asserts the importance of identifying key work processes and organizing work around them.

Who?

Typically, the **leader-champions** who developed the case and agenda for data governance program—e.g., the Chief Analytics Officer, the CMIO, the CIO—collaborate with **other executives** to identify membership in the Data Governance Committee.

Once established, the **Data Governance Committee** is responsible for determining additional teams to help execute the work.

How?

With the data governance agenda defined at a high level, you can now identify people and structures to fulfill it. Don't rush through this work—and don't automatically default to the usual IT suspects. Data governance crosses every functional area and affects people at every level; it's a significant team effort that has to smooth the seams between local and enterprise-level concerns and practices.

—○ Form a Data Governance Committee

Your leadership group should include people with significant use and/or authority for data, who are well positioned to drive change, and who represent the range of your data consumers. Aim for a group of about 10-15 that consists of:

- **Sponsors and chairs:** executives who can help lead change, advocate for budget, and elevate the visibility and stature of the program
- **Key beneficiaries:** people whose work is likely to directly benefit from the program and who can bring a level of commitment and importance to the Committee—perhaps your Population Health Director, Chief Strategy Officer, Head of Orthopedics, etc.
- **Operational data owners:** people whose teams are responsible for capturing data—for example, managers in Registration, Billing, EHR Implementation and Training, and so on
- **Data consumers:** people who regularly use data to inform decisions such as your data analysts and department managers
- **Representatives from other system-wide leadership groups:** people serving on teams whose work should align and coordinate with data governance decisions—for example, representatives from your organization's Outcomes Improvement Leadership Team, Compliance Team, Security Committee, etc.

The 3 Systems: essential elements for improving a process



WHAT WE SEE

Data governance works best in the context of a broader improvement framework.

Ultimately data governance should support better, more affordable and accessible care to the patients and communities you serve.

At Health Catalyst, we use The 3 Systems framework (at bottom left) to describe the components of outcomes improvement work. Data is vital to each of these components, helping organizations identify and monitor best practice, track and promote adoption, and drive analytics. Indeed, outcomes improvement work nearly always has a strong data governance element.

For this reason, we advocate that your data governance function be tightly aligned with your outcomes improvement governance, if you have one. This ensures that data governance is focused on the right priorities and targets improvements that matter most to the organization. The connection may also suggest team structures for data governance, as when data experts are integrated into improvement teams.

See the handbook, *Implementing Governance for Outcomes Improvement* for guidance on establishing this in your organization.



WHAT WE SEE

Governing from Mount Olympus? It's less than heavenly.

There's no *right* way to structure your data governance.

Still, our experience shows us that there is a *wrong* way to structure governance: any way that seems too centralized, too top-down, too divorced from the needs of people on the front-line of key clinical or business processes.

Our suggestion: make sure your Data Governance Committee and subteams have participants with firsthand knowledge of how data is produced or consumed to get work done.

This will help you stay focused on the goals of data governance—the efficiency and effectiveness of key clinical and business processes—rather than governance for its own sake.

Technical and domain expertise make a dynamic duo.

We recommend pairing technical experts with domain experts (clinical, operational, financial) on your improvement and data governance teams. With data as the common “language” among experts of different disciplines, this pairing:

- Ensures that your data has the appropriate context to be meaningful and actionable
- Boosts analytic acumen more broadly throughout the organization
- Helps build a culture that values data-driven decisions and continuous outcomes improvement

—○ Designate a leader

We believe the Committee should include at least one role that is substantially dedicated to driving and supporting the overall program. Typically this person is hired or promoted into the position of Chief Analytics Officer or similar; this person can chair the Data Governance Committee. A senior project manager should support this executive.

Who's a good candidate to lead your Data Governance Committee? Consider someone who:

- Is technically skilled and customer-service oriented
- Has a clear vision and expertise for leveraging data to the benefit of clinicians and administrators; can ensure a strong connection to the organization's outcomes improvement governance
- Has the ability to motivate people around the vision; respected in the organization
- Realizes that data governance is a means to an end; views data as an asset, not a monument

—○ Create a Data Governance Committee charter

The first duty of the Committee chair is to help create a charter that defines roles and responsibilities and aligns with the mandate endorsed by the executive team. The charter should address these questions:

- Whom should we serve and what are they trying to do?
- What services should we provide so that they can succeed at what they are trying to do?
- In what ways do we promote a data-driven culture?
- How do we know we are doing a good job?
- How do we provide the services?

The charter should also be explicit about its reporting and escalation practices; does it report to your Outcomes Improvement Leadership Team, the Corporate Compliance team, or some other body?

The Committee in turn organizes and supports any data governance subgroups and the data-steward community of practice. Here, the Committee's chief function is to remove roadblocks reported up to them—and to escalate issues as needed.

In most organizations, the Data Governance Committee is also responsible for deploying and supporting any data-governance tools.

—○ Consider the organization of subgroups

Ultimately, smaller teams will need to deliver against much of the data governance agenda. (For this reason, it's important to give subgroups authority to resolve tactical issues on their own, where possible.)

Although the need for specific data governance subteams is often revealed over time as work processes are analyzed and the data issues attached to them are revealed, it's still helpful to consider these questions early on:

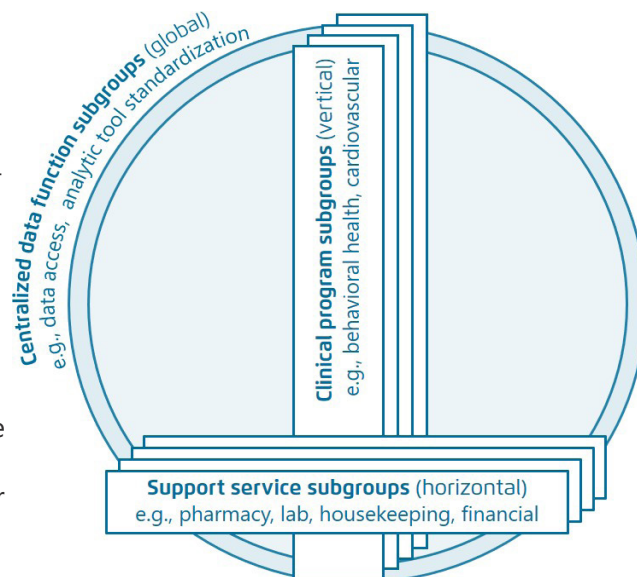
- **How will the subgroups be staffed?** Organizations often choose to place two or three Committee members on each subgroup, then have these people identify others to help accomplish the work. Be careful not to overload the subgroups with C-suite execs. Subgroups are working groups, and C-suite execs likely don't have the time.
- **How will resource constraint issues be adjudicated?** If, for example, the technical people you need for a subgroup are busy with an EHR roll-out, how will you determine priorities?
- **What is the life expectancy of a subgroup?** Some organizations prefer short-lived subgroups organized to accomplish discrete projects; other organizations decide on standing groups that tackle issues and manage work in a particular area.

Additionally, as you plan for subteams, consider that some groups may need centralized data governance authority, while others could coordinate with (or fall under the auspices of) existing teams designed to improve and manage specific work processes. For example:

- **Centralized data function subgroups (global):** Some functions should be centralized and likely need improvement—such as analytic tool standardization or streamlined data access.

- **Clinical program subgroups (vertical):** Data expertise for the processes a patient would go through for a particular condition or disease, such as heart failure or pregnancy, across the continuum of care.

- **Support service subgroups (horizontal):** Data expertise for care support services (e.g., ICU, cath lab), ancillary support services (e.g., lab, imaging, pharmacy), and non-clinical services (e.g., rev cycle, laundry). These processes have their own unique data life cycle needs.



WHAT WE SEE

If you treat data governance like a hobby, you'll get amateur results.

Some pitfalls to avoid at this stage:

- The program lacks dedicated leadership and struggles to gain traction.
 - Advice: If your organization is serious about managing data as a strategic asset, you'll need some level of designated leadership. Find someone with the vision and skills—and give them the authority—to lead your data governance program.
- The program relies on “borrowed” resources and fails to make real progress.
 - Advice: It's important that participants see data governance as a high priority. If conducted via a “whoever's not busy this week” approach, the work will always fall to the bottom of the list. Our advice: make sure that your execs are visibly and consistently engaged. Their support and follow-through will have a trickle-down effect.

It's best to organize around the work, not the technology.

Many organizations want to organize data governance around their IT systems (e.g., their EHR, their budgeting and accounting tools, their HR system, etc.). This may be convenient for your technical staff, but it nearly always reinforces data silos and limits the impact of data governance.

To maximize the value of data as a strategic asset, you need to orient governance around the needs of people on the front lines of your key clinical and business processes.



WHAT WE SEE

Data stewardship should be a community of consistency.

Organizations with effective data governance will standardize processes and tools across the data stewardship community.

Having a consistent way of handling data access, training, data lineage documentation, and so on across the organization helps make the data stewardship function more efficient and scalable.

—○ Determine your approach to data stewardship

With Governance Committee subgroups executing against specific objectives, your organization still needs to ensure that data is maintained over the long term. This is the role of data stewardship, embodied by a caretaker of data (or team of caretakers) within a particular domain, such as a lab director who is steward over the LOINC lab codes or a clinician who helps manage the data definitions specific to her clinical area.

Most organizations have little trouble identifying people who understand the use and value of particular kinds of data. The challenge is in arriving at a model that ensures data stewards are focused appropriately—and not overtaxed by stewardship responsibilities.

To determine your approach to stewardship, seek agreement on answers to these questions:

- **What are the key functions of data stewardship?**

To improve and manage the data life cycle within a particular domain, data stewards:

- Work closely with technical experts to improve the quality of data **captured** in transactional systems
- Ensure the integrity and fidelity of the data as it is **integrated** with other data
- Grant and remove data **access**: data for the right people at the right time in the work process
- Work closely with analysts to generate and deliver **insight**
- Promote data literacy by helping others understand where in the workflow analytic insights add the most value to **decision-making** and by training others to understand and use data in the context of that domain

- **What's the best combination of people and teams to do this work effectively?**

Ideally, all of these stewardship functions within a domain are handled by a single person with some technical expertise and a deep knowledge of front-line work processes. But while this may be possible in some highly integrated organizations, the reality is that **most organizations need a combination of approaches to stewardship:**

- Rely on “superstar” data stewards: build stewardship responsibilities into the job descriptions for a small number of key roles operating within well defined sets of work processes (e.g., you may designate a Data Manager for the Cardiovascular Clinical Program)
- Rely on a team of more part-time data stewards who collaborate to ensure good flow through the data life cycle of a process (e.g., you may deputize an ambulatory CV data steward to ensure data completeness in capturing ejection fraction in the ambulatory EHR, and a cath lab data steward to ensure that cath lab processes produce accurate and complete data for that process)

- **What's the right level and scope for stewardship?**

In establishing a data stewardship model for your organization, also ask:

- At which level of a department/team should data stewardship reside (e.g., leadership, analyst/content developer, clinician, etc.)? Here, you'll want to include people who are close enough to the work to understand how the front-line process works, yet high enough in the organization to have the authority to make changes.
- What's an appropriate scope for stewardship, individual subject area marts (e.g., pregnancy) or some broader domain area like a clinical program area (e.g., Women and Children)?

- **What's the profile and position of an effective data steward?**

What are the required skills for a data steward—technical, organizational, clinical, personal etc.—and how might job descriptions need to be adjusted once they are identified? You want to ensure that accountabilities are clear and that the people who inhabit this function have the skills, authority, and time to do it well.



WHAT WE SEE

Data governance is a marathon. Help your data stewards go the distance.

Data stewardship runs into trouble when the demand on individual experts proves too great over the long term. It also struggles when it seems cumbersome—when stewards are charged with tending data without a compelling tie to value, and the work seems incidental to “the real work” of the organization.

To ensure sustainable and valuable data stewardship, we recommend the following:

- Be selective about the data you formally include in your stewardship program. Start small, pace well, and stay mindful of your priorities and the stewards' capacity.
- Be thoughtful in determining a model for data stewardship. Data governance is important, so it's worth spending time on identifying a model that seems most workable given your resources and objectives for data governance.



WHAT WE SEE

A thoughtful start pays dividends.

Two lessons we've learned from successful client organizations:

- Be patient. Take time to choose the right people and to on-board them effectively.
- Where possible, fortify the impact of data governance by establishing a strong connection to outcomes improvement governance initiatives and teams.

—○ Consider your organization's analytics strategy

As you establish data governance structures and prepare to sponsor projects, be aware of where certain functions reside in your organization—and how data governance fits into your overall analytics strategy.

For example, most healthcare organizations have moved (or will move) to a hub-and-spoke organization for analytic functions and staff. So in planning data governance work, ask yourself: **Is this work best handled once, globally, for the entire organization—or is there justifiable local variation that suggests that this function be handled in a more distributed fashion?** You want to democratize and spread data broadly but also gain economies of scale for certain functions.

Below is a chart of items that are commonly centralized and others that are usually best left distributed.

Hub-and-spoke analytics structure

Centralized functions (hub)

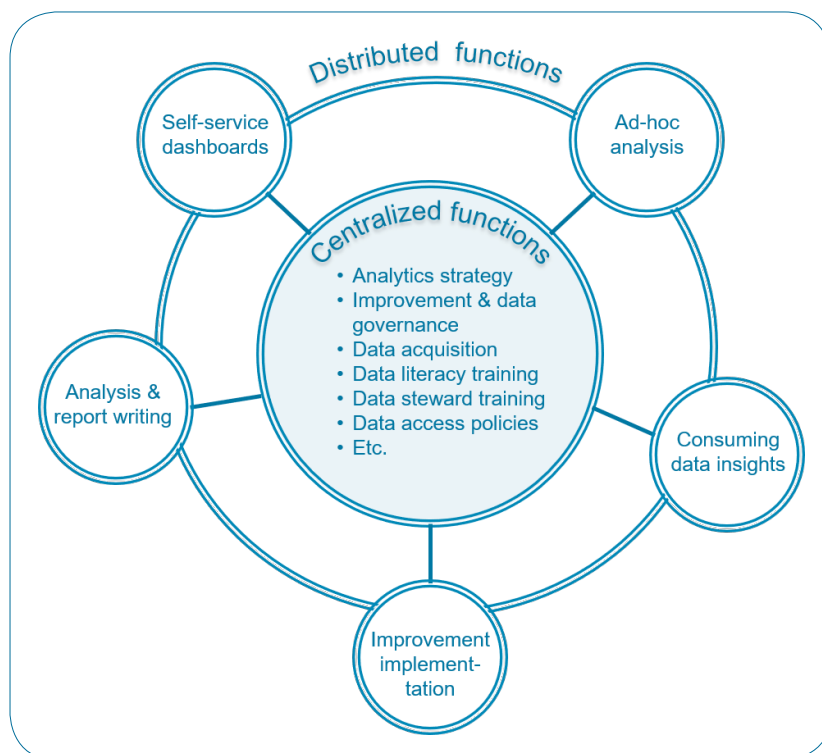
- Analytics strategy
- Improvement governance and data governance (opportunity prioritization)
- Data acquisition and integration
- Standard data definitions and calculations
- Analytic tools selection and deployment (platform, visualization)
- Data literacy training
- Data steward training
- Data access/security policy and process

Distributed function (spoke)

- Implementing and maintaining a self-service dashboard
- Ah-hoc analysis
- Analysis and report writing
- Consuming data insights
- Improvement implementation

Example hub-and-spoke analytics structure

Keep this scheme in mind as you design your data governance—and recognize, too, that what you learn through data governance work may in turn prompt your leaders to rethink the organization's overall analytics strategy and structure.

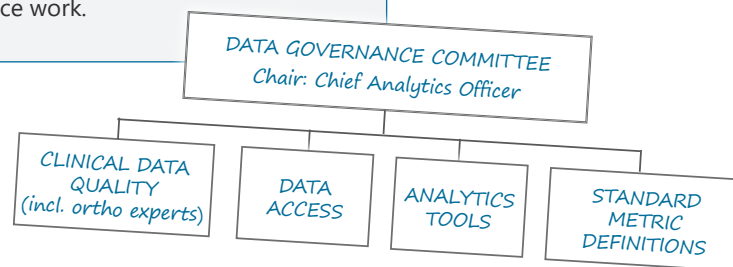


At Exemplar Health...

Establishing a data governance structure

The newly established data governance program at Exemplar Health provides for the following:

- **A standing Data Governance Committee of 11 members from a range of clinical and business areas.** The Committee:
 - Is chaired by the organization’s Chief Analytics Officer, who is supported by another person whose primary role is to support data governance.
 - Includes representatives whose departments are heavy data consumers as well as representatives from departments responsible for data capture.
 - Contains members with connections to other relevant system-wide teams, such as the Chief Security Officer and Chief Compliance Officer.
 - Includes a communications lead to explain and promote the program’s aims throughout the organization.
- **An agreement regarding how it plans to organize subgroups and data stewardship functions.** The Committee:
 - Forecasts the need to establish four initial subgroups in each of the following areas: Clinical Data Quality, Data Access, Analytic Tools, and Standard Metric Definitions.
 - Determines the criteria for electing data stewards at the appropriate level for each clinical program and support service area.
 - Ensures that two members of the Ortho Improvement Leadership team are represented on the Clinical Data Quality subgroup.
 - Identifies a potential list of subject matter experts to staff the subgroups and data stewardship functions.
- **A decision to conduct a small number of demonstration projects, before proceeding too aggressively to establish the program.** The Committee recognizes the need to establish early wins and build some organizational muscle for data governance work.



PROMOTION

Send the signal: data governance is a vital service to everyone.

Data governance is often seen as more obstructionist than enabling—as a committee dictating rules and work without an appreciation of users’ priorities, needs, challenges, constraints, and so on.

Counteract this by:

- Promoting the fact that data governance brings together stakeholders from finance, clinical operations, administration, and other domains—and that its work has value across functions.
- Transparently sharing the goals and work of data governance—and establishing feedback mechanisms.
- Emphasizing the “why” of data governance: serving your organization’s most important clinical and business processes.
- Finding ways to make clear that data governance is not solely an IT function.

3

EXECUTE: IMPLEMENT A PROJECT PORTFOLIO

How do you ensure everyone has the data they need for better decision-making?



POLARITIES

- Data accuracy AND timely delivery for decision-making
- Data sharing AND data protection
- Transparency AND privacy



SERVICES & TECHNOLOGY

- **Support for your data governance portfolio:** From opportunity analysis to project implementation, Health Catalyst experts can help you assemble and execute a meaningful docket of data governance initiatives.
 - **Data quality:** Guidance for data acquisition, EHR data capture, data-flow tuning and monitoring
 - **Data utilization:** Assistance in assessing data availability and analytic skills.
 - **Data literacy:** Training offered through Health Catalyst University, including Accelerated Practices Program, Analytics Platform and Application Training, Quality & Leadership Program
- **Data Operating System (DOS):**
 - **Data quality:** IDEA (completeness), source connectors and data ingesting (timeliness), data profiling (accuracy)
 - **Data utilization:** Reusable logic (Fabric), standard data models, EHR integration, analytic apps
 - **Data literacy:** Atlas, Measures Manager

In this phase, the Data Governance Committee assembles a portfolio of prioritized data governance projects and assigns people and resources to pursue data quality, utilization, and literacy improvements. We recommend beginning with a small number of demonstration projects; the Committee can then build on the resultant experience, skills, and engagement for additional work.

Why?

By sponsoring a set of discrete projects with unambiguous goals, the Data Governance Committee **supports disciplined focus** on the work. The project-portfolio approach to data governance has these advantages:

- **Breaks the work into manageable units** that can be phased over time
- **Allows for different people to be called on** to support different projects in the data governance portfolio

All of these benefits help your Data Governance Committee make the most of its resources and maintain momentum over time.

Who?

The **Data Governance Committee** identifies projects and allocates resources to them. In this work, the Committee may coordinate with your organization's **Outcomes Improvement Governance** or other strategic executive team.

To execute prioritized data improvement opportunities, the Committee typically consults with **data stewards**, **operational data owners** and **representatives of other system-wide groups** with significant responsibilities for data (e.g., the Compliance Committee, the Security Committee).

How?

To execute your data governance agenda, we recommend these practices:

—○ Review the issues and opportunities surfaced in your initial assessment

Revisit the findings of your initial assessments (the qualitative survey of data pain points and usage, the data-driven analysis of key processes). Where do you see the greatest potential to improve key work processes via data improvements?

Generate a short list of possible projects that will be compelling to your leadership and that are in step with important organizational goals.

One way to ensure alignment with organizational priorities is to leverage the connection between the Data Governance Committee and your Outcomes Improvement Leadership Team. Which outcomes improvement effort would most benefit from focused work to boost data quality, utilization, or literacy? There are nearly always significant opportunities for data governance embedded in organizational improvement efforts.

—○ Agree on a method to evaluate projects

How will you prioritize initiatives for data governance? We recommend a systematic process that considers the initiative's expected value and required effort—and we recommend that you get stakeholder agreement on this method now, before you try to select projects. Having an objective means of scoring potential initiatives helps remove some of the politics around the data governance agenda. It also sets you up to be able to better quantify the return on effort for each initiative.

To establish your evaluation method, seek agreement on:

- **A standard way to quantify the value of an initiative.** Some data governance initiatives may have clinical value, increasing patient safety or saving patient lives. Some may have financial impacts, such as increased revenue or cost avoidance. Other initiatives could improve clinician, operations, or patient experience.
- **An accepted way to characterize the expected required effort for an initiative.** Here, “effort” could encompass cost, complexity of change, time required, etc.

With agreement on a standard way to assess value and effort of potential initiatives, you can use the matrix at right to guide selection. Plan to sponsor a mix of projects for your portfolio: projects that aim to support different kinds of improvement (clinical, financial, operational, etc.) and that fall within each of the “green” sectors on the value/effort framework. We also advocate assembling a portfolio with a mix of data quality, utilization, and literacy projects—guidance for which appears in the next section.



WHAT WE SEE

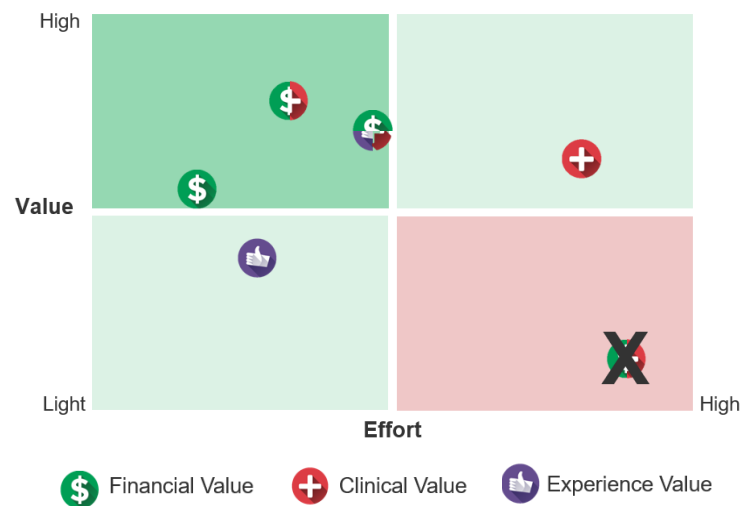
A joined-up view of data governance and outcomes improvement is crucial.

Since the ultimate goal of data governance is to improve clinical, financial, and experience outcomes, it makes sense to coordinate the work of data governance and improvement governance.

Two tips:

- Make sure the executive leader or sponsor for data governance (your Chief Analytics Officer or similar) also participates in determining your outcomes improvement priorities.
- Consider integrating data experts into existing, ongoing outcomes improvement work. Improving work processes nearly always includes improving the data that underlie them.

A framework for evaluating initiatives: value + effort





WHAT WE SEE

Early fizzles are common. Aim to demonstrate value right out of the gate.

New data governance programs often struggle. We see a few common reasons:

- The program is more focused on difficult-to-enforce policies than on projects with tangible impacts aligned with the organization's strategy.
 - Advice: Be tactical with respect to the projects you undertake. Choose achievable projects with organizationally meaningful impacts.
- The project portfolio is loaded down with long-term, "heavy lift" projects. The horizon for success seems too far away.
 - Advice: Select a mix of short-term and medium-term projects. You want at least a few "quick wins" to continue to build momentum. Just as important, you want to be thoughtful in the way you match people and projects; be wary of spreading people thin.
- Projects are poorly organized and recognized.
 - Advice: Designate a few projects as "demonstration projects" and direct your teams to pursue them with at pace, with particular energy and focus. (If possible, enlist a skilled project manager to help.) These high-visibility demonstrations can build muscle, morale, and executive support for additional projects.
- Leaders neglect to allocate sufficient resources for the work.
 - Advice: Ensure that the Data Governance Committee has knowledgeable champions who can advocate for the program during budgeting and planning cycles.

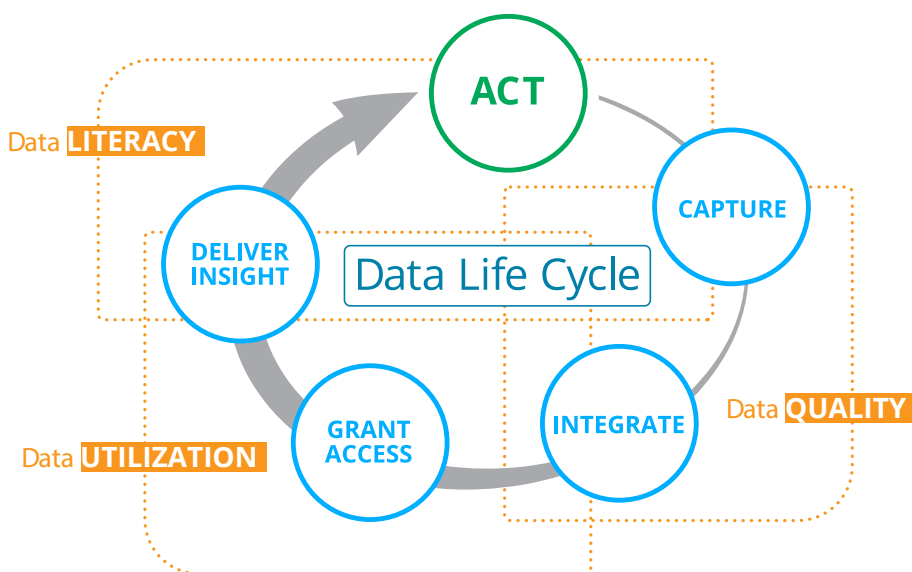
— Assemble a portfolio of projects across the three dimensions: data quality, utilization, and literacy

The goal of data governance is to ensure that everyone—from the bedside to the boardroom—is equipped with the data they need to make better decisions. To serve this goal, we recommend leveraging the data life cycle to guide both the assembly of a project portfolio and the work itself:

- **Identify the clinical or business work process(es) at the heart of the focus area.** The processes could be clinical, operational, financial work processes—or a mix. Examples are sepsis care process, housekeeping staffing, outpatient billing, or annual budgeting.
- **Run the work process through the data life cycle.** Start by asking how data is captured now (or should be), how it's integrated, and so on. Overlaying the as-is and best-practice work processes onto this cycle helps your team more see the issues that impede your ability to efficiently make better decisions with data. Do users have the data they need? Is it accurate and is it integrated with data? Do users have access to data at the right time, and is the data actionable? Fixing these issues is the work of data governance.

Using the data life cycle as a framework for investigation, you'll turn up opportunities to improve data quality, utilization, and literacy. The following sections provide guidance for identifying and selecting projects within each of the dimensions.

Uncover opportunities in 3 dimensions across the data life cycle



Data **QUALITY** —timely, complete, accurate

Data quality issues are most common in the CAPTURE and INTEGRATE phases of the data life cycle.

Begin by considering: what clinical or business process is at the center of your project—what needs is the data supposed to serve? Working with the people on the front line of the process, identify the data elements—the specific fields or calculations—that drive (or should drive) the work.

If, for example, the project relates to network leakage, you'll be interested in provider roster data. If room turnover is a focus, you'll want to include bed-clean time on this list. And if your sepsis improvement work is limited by missing time stamps, this element may also go on your list.

Assessing the quality of these elements

Look at your list, and consider each element in terms of these aspects:

- **Timeliness (latency):** Do you get the data when you need it?
- **Completeness:** Do you have the data you need, or are you missing some elements of the data?
- **Accuracy:** Is the data correct; does it reflect what happened/is?

Prioritizing data quality improvement efforts

Working with front line experts to understand the flow of data through a work process, you may uncover more data quality issues than you can tackle at once. Which efforts should the Data Governance Committee choose to sponsor?

To make your selection, consider that work to improve the overall consistency of those data elements will likely come from one or a combination of these approaches:

- **Fixing data at the source.** For example, if your PCP assignment data is being captured inaccurately at patient registration, you'll need to correct it in the EHR. Note that in this and other "fix at the source" scenarios, your application administrators will need to take an active role.
- **Acquiring additional data sources.** Many healthcare systems, for example, have determined they need to acquire patient-reported outcomes and social determinants of health to support their strategies.
- **Revising the logic that determines how data is integrated.** For example, you may need to improve the logic in the analytics platform that matches patient IDs across disparate transactional systems.
- **Encouraging transparency and emphasizing process, not people.** Instead of focusing on who is handling data "incorrectly," see if there's a process fix that supports everyone doing the right thing. For example, if some physicians aren't routinely documenting blood pressures (or are using the wrong field), it may make more sense to change the process to have the M. A. record it. You'll encourage transparency, avoid a "witch hunt" feeling, and support a data-driven culture.
- **Aim to get data directionally correct, not perfect.** It may not be feasible—or necessary—to get every data element 100% perfect. Consider how the data is used and design projects to get it "good enough" for those purposes.



WHAT WE SEE

Quality gets conflated with perfection.

Data quality is an area where organizations tend to get fixated on perfection. This is not only inefficient, it's usually unnecessary.

An example: You want to measure length of stay in your ICU. Ideally, you'd have a record of the minute every patient arrived in the ICU and the minute they left. But your organization only has this data for about 75% of its ICU patients.

Is 75% "perfect" data quality? No. But consider: 75% is probably adequate for gaging your average length of stay. It's directionally correct—and certainly doesn't warrant a huge investment of effort to try to fill in the missing 25%. A reminder or two about documentation to the right providers is probably appropriate—and meanwhile, you can move forward with the data you have.

Data stewards have an important role in ensuring data quality.

Your data stewards are usually in the best position to address data quality issues, as they have the combination of subject-matter expertise (front-line work, best practice) and authority to enact appropriate change. Expect to lean on them to ensure data quality in their respective areas.



WHAT WE SEE

Data sharing AND data protection? You can have both.

Managing the data sharing / protection polarity is a key data governance challenge. How to find the right balance for your data access processes? Try these tips:

- Make data stewards the owners. Shift the access decision away from IT, into clinical/business owners' hands. (IT usually overemphasizes data protection.)
- Trust, but verify. In general, we advocate for broad access to data. So we advise organizations to assume good intent and grant access to data liberally—while at the same time increasing the frequency and depth of their auditing capability. This promotes utilization without compromising security.

Collaboration aids negotiation.

The mission of a Data Governance Committee can sometimes overlap with that of the Security and/or Compliance Committees. This can create tension and confusion.

Cross-representation on your Data Governance Committee helps. It allows the teams to complement and support one another's work. In particular, it proves helpful in negotiating agreements and practices to address common concerns about data access and delivery. For example:

- "Some data needs to be highly protected and guarded"
- "Tools are expensive, so we need to limit what people use"
- "Users might share inaccurate or inconsistent reporting"

Collaboration between data governance, security, and compliance functions will lead to better thinking and better practices.

Data UTILIZATION —access, delivery

Problems with data utilization are most common in the GRANT ACCESS and DELIVER INSIGHT phases of the data life cycle.

Data utilization refers to the ways that people share, give, and receive data within the organization—data access and delivery. Data utilization improvement work aims to ensure that:

- People have access to the data they need to be effective in their roles
- The data access processes—the processes by which people are granted access to data—are well-defined and fully operationalized
- People get access in the form, mode, or environment that best allows them to leverage the data or share data content (as in reporting)

Data utilization processes are often jointly shared among the Data Governance Committee, Compliance Committee, Security Committee, and the business/clinical/technical owners of the systems in which the data reside. To proceed with work in this area, you'll need representation from each of these groups.

Considering the 5 Rights

A lot has to go right with your data before it can influence better decisions and actions. As you note how data flows through a work process, consider these five factors to identify opportunities for data governance:

- **Right information.** Are we serving up the right information to deliver an actionable insight? Do end-users need to see a trend, a pattern, correlation, or causation?
- **Right audience.** Who will consume the data? How will they use it? Consider whether you're delivering what's needed to your stakeholders. Do your executives have data to support funding decisions? Can domain leaders effectively manage processes? Can your innovator-analysts use data to explore root causes of poor outcomes and design better processes for better outcomes—and can your early adopters learn, share, and promote the improvements?
- **Right granularity.** What's the right level of information for the questions your users are asking?
- **Right time.** How often do users need the data? Annually, to support contract negotiations? Monthly, to track compliance with operational best practice? Real-time, to support clinical care decisions?
- **Right visualization/modality.** Given the use case, what's the most appropriate way to visualize the data? What's the most convenient device to deliver the information: tablet, desktop, cellphone...?

Prioritizing data utilization improvement efforts

Considering the 5 Rights in relation to a specific work process will likely yield several options for improving data utilization. Problems with data access are most common; sometimes adjusting policies will support improvement. Prioritize data utilization work according to its potential to make data actionable.

Data **LITERACY** —knowledge, skills, inclination

Data literacy issues often turn up in the DELIVER INSIGHT and ACT phases of the data life cycle.

People in healthcare know this truism: data itself won't change the world, but people with data will. The key, of course, is data literacy—ensuring that people in the organization have the knowledge, skills, and inclination to leverage data in decision-making. To help identify data literacy improvement opportunities, we suggest the activities below.

Identifying the types of skills and knowledge needed to leverage data for decisions

As you use the data life cycle to trace the flow of data through a particular work process, think about the discrete skills, needed in varying proportions by different people in different roles:

- **Conceptual analytic skills:** How do I perform X type of analysis?
- **Technical analytic skills:** How do I use X tool to do my work?
- **Contextual interpretative skills:** What does this result mean?
- **Persuasive presentation skills:** Let me show you....

Consider, too, the expectations and incentives that might prompt—or discourage—the application of those skills. Are people inclined to leverage data to make decisions and inform their work? If not, why not?

Noting deficits and resources

Working with data stewards, identify where data consumers commonly have skill deficits. Consider how your organization supports the acquisition and development of these skills. Where are the gaps?

Prioritizing data literacy improvement efforts

As you weigh which data literacy issues to sponsor, consider that work in this area often requires encompasses a range of approaches:

- Hiring and retaining people with the skills you need
- Training and mentoring current employees
- Revising work structures and processes so as to boost learning opportunities
- Providing reference tools that make it easy for people to get help
- Setting expectations for literacy appropriate to job role (no one is allowed to opt out of using a new tool, e.g.)



WHAT WE SEE

A mix of creative, home-grown approaches can boost data literacy.

Consider these common data literacy challenges—and a few of the solutions we've seen work well:

- The organization is rich in data, but lacks the skill sets to leverage it.
 - Advice: It's unlikely you'll be able to hire your way out of this problem. Instead, we recommend developing the skills of your current users. You probably have untapped potential here, and by supporting the development of their skills in a strategic way, you can increase the value of your data and lift the organization's reputation as a great place to work.
- Departments don't have the resources to invest in training.
 - Advice: Consider different training formats (online, classroom, at-the-elbow... internal or external) and different mechanisms such as apprenticeships. Also think about process changes such as pairing technical and nontechnical users in certain tasks. Collaboration can support skill-building in ways that direct instruction can't.
- The organization has invested in a resource like a data dictionary, but no one uses it.
 - Advice: Try a carrot-and-stick approach to promote the use of data governance resources. For example, widely promote your dictionary as a helpful resource (carrot)—and adopt the rule that executives won't look at reports that don't use the standard definitions (stick).



WHAT WE SEE

Particular issues point to general system challenges.

The issues you encounter and address in one project may indicate system-wide challenges you should tackle in follow-on data governance work projects.

For example, if in your demo project you discovered that users struggled to receive a particular item of data in a timely way, you may want to review your data access processes more broadly.

If you encountered a scarcity of analysts with the skills to generate and present meaningful insight into the cost of delivering care, you may want to assess and address data literacy in the organization, or consider integrating additional data into your analytics platform to enrich analysis.

—○ Select demonstration projects

Once you've established a portfolio of worthy data governance projects, we suggest picking a small number of these—say, two to four—to serve as demonstration projects. Demonstration projects are useful because they:

- **Provide a stage on which to showcase the value of data** as a strategic asset
- **Allow the Committee to gain skills and experience** before fully committing to data governance structures or additional projects
- **Can meaningfully inform next steps for data governance**, as the particular issues you encounter in these demonstration projects will likely lead you to the more general problems that should be tackled at a system-wide level
- **Generate momentum and buy-in** for continued data governance work

To select demonstration projects, you should of course rely on your agreed-upon method for evaluating projects (expected value and effort). Beyond that, however, you'll want to look for opportunities that will significantly engage your leadership (the "burning platforms"—urgent needs such as the need to reverse declining revenue, achieve clinical benchmarks, and so on). You'll want projects that will allow you to measure ROI, and you'll want to feel reasonably confident that you can realize that return.

—○ Set up processes to measure and monitor quality before, during, and beyond the projects you sponsor

This will help you know if you're successful, ensure that you sustain the gains, and provide a means to show the value of data governance efforts.

—○ As you complete demonstration projects, return to your portfolio to take on new work

Leveraging the learning and skills from the demonstration projects, continue to execute on your data governance agenda. As you work through your portfolio of projects, expect to create new subgroups, add and subtract team members, or rethink how your data governance work coordinates with other organizational initiatives. Build around the emerging demands of your projects—and work incrementally.



At Exemplar Health...

Pursuing demonstration projects

Looking to establish early wins and build some organizational muscle, the Data Governance Committee decides to sponsor demonstration projects. These will focus on the needs of the Population Health Department and efforts to improve management of orthopedic surgery, both of which are high priorities of the Outcomes Improvement Leadership Team.

The Committee reviews the issues initially identified and looks to identify where in the data life cycle breakdowns are occurring and where opportunities exist to improve data quality, utilization, and literacy.

Based on this review, the Committee formally establishes two subgroups to focus on three demonstration projects:

- **The Clinical Data Quality subgroup** executes two data quality projects:
 - Working with the Registration Department, the subgroup creates a process to measure and improve the accuracy of the patient's primary care provider assignment when a patient arrives for an outpatient or inpatient visit. The result is a 35% increase in correct patient-provider assignments, increasing the department's ability to improve provider-performance reporting and to coordinate patient care.
 - Working with the ortho department, the subgroup helps create a process to ensure all surgical procedures have a start and end time-stamp documented in the EHR. This project raises to 85% the percentage of surgeries having complete timestamps, which improves the finance team's ability to calculate the cost per case for orthopedic procedures.
- **The Analytic Tools subgroup** executes one data utilization project.
 - Working with front-line clinicians, the subgroup is able to combine duplicative reports and make them available within the EHR. This not only reduces the time required to produce the reports, but increases by 30% clinicians' use of the reports to support their decisions. It also increases clinician satisfaction.

Concurrently with this work on the demonstration projects, the Committee identifies data stewards for a handful of key areas such as the provider roster, patient enrollment, and medications. The stewards act as the organization's experts on data creation and use in these areas.

As the conclusion of the demonstration work, the Committee's communications lead publishes a success story for each demonstration project. In plain, nontechnical language, the stories explain the reason for the project—and the benefits it brings to the organization.





PROMOTION

Demonstrate data governance in action.

Promote the importance of data quality, data utilization, and data literacy:

- Highlight the current data governance project portfolio. Explain how and why projects were selected, who is leading and participating, and the expected benefits and outcomes.
- Publicize examples of how the use of data is driving better clinical and business decision making.

Seize opportunities to share data widely—for example by displaying key metrics in prominent public locations. This sends the message that the metrics and targets are collectively owned. A sense of shared responsibility is important to building a data-driven, outcomes improvement culture.



At Exemplar Health...

Executing your data governance portfolio

After the initial success of the demonstration projects, the Committee decides to focus on a few targeted areas—as well as launch work on several broader issues.

The Data Governance Committee assigns new projects to the previously existing subgroups while changing some of the subgroup membership to ensure the right subject matter experts are represented:

- **The Clinical Data Quality subgroup** focuses on one data quality project:
 - Working with the EHR Training and Optimization Department, the subgroup identified clinicians who, more than others, tend not to use standard fields when documenting clinical conditions, medications, and blood pressure. The subgroup establishes a training/communication plan to improve these providers' documentation. The result is a 15% reduction in data recorded in open text fields, which increases the department's ability to identify patients for its care management program.
- **The Analytic Tools subgroup** focuses on one data utilization project and one data literacy project.
 - The subgroup first conducts an audit of the analytic tools used across the hospital system. Based on the results, the subgroup decides to eliminate some tools and consolidate purchasing of others—resulting in \$210k savings in annual license fees.
 - The subgroup completes a skills assessment of data analysts across the organization. To address the gaps identified, the group implements additional training on some of the broadly used analytic tools and on several key workflows within the ADT and billing systems. Surveys indicate that training significantly improved analyst engagement and productivity.

Additionally, the Committee formally establishes two other subgroups:

- **The Data Access subgroup** focuses on two data utilization projects:
 - The subgroup conducts an inventory of the most critical data assets across the organization and documents the process by which access is granted. Based on this, the subgroup designs a consistent, streamlined access-approval process, which cuts users' access wait-time from 10 days to 2.
 - The subgroup establishes rules for handling highly confidential and protected data such as employee salary, sensitive health conditions, etc.. These provisions allow for broader, and in some cases temporary, use of data when warranted.
- **The Standard Metric Definitions subgroup** focuses on two data literacy projects.
 - The subgroup identifies the most commonly used metrics, and prioritizes documentation of these metric definitions in an online repository.
 - In working through the initial set of definitions, the subgroup sees inconsistency in how metrics are calculated. In response, they establish a phased approach to developing and maintaining standard definitions.

To further enhance data stewardship, the Committee:

- Identifies additional data stewards for areas such as the charge master, population health registries, lab and radiology results, and discharge and transfers of care.
- Endorses the creation of a centralized analytics organization to create a process for surfacing issues and answering data-related questions.

How do you ensure your data investments are built to last?

This activity is about establishing practices and mechanisms to help you sustain initial gains, identify and pursue emerging opportunities, and continue to nurture a data-driven culture.

Why?

Establishing a set of practices to continually support and improve data governance work is important for these reasons:

- **To ensure ongoing relevance and value.** Is your data governance portfolio still aligned with the organization's current priorities?
- **To uphold the gains.** Improvements to data quality, utilization, and literacy will need to be monitored and maintained.
- **To bring new energy and fresh perspectives.** Data governance opportunities are seemingly endless, but people's time, energy, and focus for governance work are limited.
- **To build momentum for achievement.** Data governance work is often challenging and unglamorous. But success can lead to more success—*if it's recognized and promoted.*
- **To set the stage for continued investment in the program.** When executives are shown the value that the data governance work is bringing to the organization, they're more inclined to provide appropriate support.
- **To nurture a data-driven culture.** Do people routinely use data to make decisions and monitor performance? Do your work processes, hiring practices, and training programs reflect the status of data as an important organizational asset? Promoting data governance work reinforces desired behaviors across your organization.

Who?

The **Data Governance Committee** typically identifies and implements the supportive practices discussed here. In addition, the **data stewards** are key to promotional efforts. The organization's **internal marketing team** may be involved in crafting and delivering communications.



POLARITIES

- Spreading and sustaining AND pursuing new opportunities



SERVICES & TECHNOLOGY

- **Adoption acceleration:** Health Catalyst's expertise in leadership and sustained change management can help ensure that your data governance is built to last
- **Success stories:** Health Catalyst can partner with you to capture and highlight the improvements you've achieved via data governance
- **Data Operating System (DOS): Applications and services to sustain a data-driven culture of continuous improvement including, for example:**
 - Touchstone
 - Leading Wisely
 - Analytic accelerators (100+)
 - Patient Safety Surveillance
 - CORUS: Cost Insights



WHAT WE SEE

The Help Desk has it right: you may need to reboot.

Data governance efforts often start off with a lot of enthusiasm and engagement. After 6 months or so, however, people find their energy flagging.

This makes sense: data governance is hard work, and participants are often “volunteered” for work that’s additional to their regular responsibilities.

Yet while a bit of burnout is understandable, it’s not inevitable. Organizations can take steps to maintain engagement.

Advice: Look for ways to refresh the work. Can you identify new stakeholders to fold into the effort? Who shows interest, and who’s lost interest? Consider: are you still focused on your original goals for the program? Regularly refreshing your membership and focus will help maintain momentum of your data governance efforts.

Role models matter.

The commitment to being data-driven usually cascades down through teams and to the organization as a whole. As a leader, you need to model—not just talk about—the value of data. Some good practices we’ve seen:

- Get the dashboard on your mobile device. Check in frequently and visibly. Ask questions; follow up.
- Get in the habit of asking for relevant data before formalizing decisions. Check your gut against the facts—and prefer to go with the facts. Expect your direct reports to do the same.
- Train. Spending time on data skills training sends the message that these skills are important.

How?

Like clinical quality or safety, data governance isn’t something that can be “completed”—it’s an enterprise-wide mentality shift toward continuous improvement and the value of data to drive that improvement. The activities summarized below are designed to continually support your data governance work and outcomes.

—○ Regularly review your project portfolio

Healthcare is an incredibly dynamic field; organizations need to adjust strategies frequently. Set up a regular cadence for reviewing your portfolio in the context of organizational priorities. And, as work on projects is completed and the Committee considers new opportunities to sponsor, be sure to check alignment with emerging plans and concerns.

We additionally recommend that you consider some of the common, high-value initiatives listed on the facing page. In our experience, these efforts can yield important benefits early on in your data governance journey.

—○ Establish a data governance dashboard

Track progress on Committee-sponsored projects and monitor ongoing performance in areas where the work is complete. Intervene as needed to make sure you sustain—and extend—progress on completed data governance work projects. Assign clear accountability for ongoing monitoring of your performance indicators and make report-outs a regular part of data governance meetings.

—○ Refresh team membership and leadership

Establish a general practice of rotating Committee sponsors, chairs, and members. Data governance is challenging, and you’ll likely need to build in ways for some people to step back from time to time. You also want to harness fresh perspectives and new energy for data governance. Stay on the lookout for people who are interested in particular projects—these may be good people to tap for your subgroups.

—○ Foreground data in meetings

Data Governance Committee members can include data governance as a standing agenda item in staff and departmental meetings. Members should also seize opportunities to foreground data and data governance in other meetings, for example by making it a common practice to review key metrics and develop action plans based on the results.

—○ Create success stories to promote wins

As the data governance teams work through the project portfolio, make sure that efforts and resulting improvements are documented in success stories. Work with the organization’s marketing department to create polished pieces that can be widely shared.

—○ Infuse data-centric messages into everyday work

Your internal websites, corporate events, and shared spaces may provide opportunities to update the community on data governance projects.

Data governance projects to consider

Investigate and improve DATA CAPTURE for your key business and clinical work processes.

What's the most efficient and fool-proof way to capture the data needed to manage and improve a process? As you work toward a solution to this question, avoid overdoing data capture (wasteful "recreational" data collection) and underdoing it (defaulting to what the EHR captures, for example, without considering what truly serves best practice).

Create a strategic DATA INTEGRATION PLAN.

Start with an inventory of your existing transactional systems, then use data to prioritize sources to integrate in your analytics platform. Here, you'll want to prioritize the integration of systems that support key work processes with high variation; you may also identify the need to acquire data outside your existing systems, such as patient-reported outcomes measures, to drive improvement.

Streamline your DATA ACCESS POLICIES AND PROCESSES.

Consider granting access to entire teams or roles, establishing automatic access, and giving data stewards authority to grant access via automated approval processes. At the same time, ensure that your auditing functions are robust and automated ("trust...but verify").

Here, you may want to leverage both technical safeguards (hard stop, data masking) and administrative safeguards (training, auditing, alerting/reminding). Encourage all parties to focus on the shared goal: managing privacy/security concerns in a way that supports desired business and clinical outcomes.

Examine your DATA TOOLS AND USER INTERACTION with them.

See if there are opportunities to eliminate duplicative tools or better leverage existing tools. Do you have different people or teams doing the same work or generating similar reports? You may have opportunities to eliminate redundancies by sharing content.

Alternately, you may discover a need for new tools to tailor data delivery to users' needs. For example, some people need access to real-time data in their workflow, others benefit from access to a broad dataset in a separate analytic environment, and others only need a static report they can view in a browser—while data scientists need robust analytic tools.

Conduct a high-level CENSUS OF THE WORK AND SKILLS of your data consumers.

As with any census, you'll want to note where people "live" (i.e., what department/region/initiative they work in or are assigned to). You'll want to document in a general way the type of work they do—e.g., financial reporting, quality monitoring, etc.—and the types of skills they need. Keep in mind that this census doesn't assess the proficiency of individual users; your goal is to get an aggregate view of needs and skills—as well as any gaps.

Review the RESOURCES supporting your data users.

Consider what's in place to help people use data in their daily work. For example, do you have accessible repositories for metadata, data lineage, etc.? Do you have a well maintained data definitions library that houses commonly used metrics? Do consumers have a place to go when they need help or can't resolve a question or problem on their own? And just as important: do your data end-users know what data resources are available and how to access them?

Review your SKILL-BUILDING processes and programs.

Do you offer any training programs? Are there ways of structuring teams or work—e.g., multidisciplinary teams, data "apprenticeships"—that might raise skills and acumen?



WHAT WE SEE

What does effective data governance look like? Nothing much.

Effective data governance functions like effective cybersecurity: when it's working, it's ambient; you don't notice it—and when it's not working, you have a process for reacting and resolving.



PROMOTION

Demonstrate that “data-driven” is business as usual.

Capitalize on the momentum and successes of the data governance program by:

- Using every email, presentation, and meeting as a chance to share data insights, promote data-driven wins, and emphasize data’s importance to the organization.
- Publishing success stories demonstrating the achievements of the data governance portfolio – highlighting what worked and lessons learned.
- Promoting upcoming work the data governance committee is about to embark upon.



At Exemplar Health... Extending the gains

As a result of the feedback from the subgroups, the Committee identifies key missing data—areas where the lack of data is limiting insight and improvement. The Committee recommends to the Finance Committee that they consider the adoption of an activity-based accounting system, which will allow the organization to better measure expense drivers.

Additionally, the following practices sustain the work of data governance and ensure ongoing focus and alignment:

- A Data Governance Dashboard tracks the status and outcomes of each project in the portfolio, displaying pre-project baselines for key metrics, post-project results, and current performance.
- As projects conclude and Committee members’ bandwidth frees up, the Committee chooses new projects for the data governance portfolio based on alignment with organizational goals.
- The communication lead continues to publish and promote the impact the Committee’s work.
- The Committee commits to a re-assessment of the data and analytics landscape every other year to assess for opportunities across all five stages of the data life cycle (capture-integrate-grant access-deliver insight-act).
- The Committee reviews membership periodically to ensure the infusion of new perspectives and to provide broad exposure across organizational functions.
- The Committee acknowledges that as work proceeds they may need to evolve both the subgroups needed and/or the membership within each subgroup, based on the projects.
- The CEO makes his engagement and support visible. He frequently touts the importance and work of data governance and identifies opportunities to bring Committee members to the table for important decisions, Board presentations, and so on.



