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Beyond the AI Buzzwords

10 Essential Foundations for Competing with Data, Analytics & AI

Understand the capabilities. Ask better questions.
Connect technology investment to business advantage.

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Start with a business question:

> **Which customers are becoming less profitable, why is it happening, and what should we do?**

The challenge. Each team sees a different part of customer profitability:

Finance: margins, rebates, and returns. **Sales:** pricing, discounts, and account relationships. **Operations:** delivery, freight, and service costs. **Customer Service:** complaints, returns, and the effort required to support the account.

Different data, definitions, and time periods can lead each team to a different explanation.

The risk. AI can summarize their findings in seconds. But incomplete information or conflicting definitions can produce a polished explanation of an unreliable answer.

The opportunity. Connect reliable information, shared business meaning, analytical models, and approved actions into a better way of operating.

> **You do not need to become a technologist. You need to understand how these capabilities turn a business question into a better decision and action.**

This guide outlines 10 core foundational capabilities I believe are key to your business success - and what you, as a business leader or consumer of data, analytics, and AI, should expect from each.

BUSINESS FOUNDATIONS | EXECUTIVE GUIDE

01 Cloud Data Platforms: Give the Business a Reliable Information Backbone

A cloud data platform connects orders, inventory, costs, and customer information for reuse. Predictive models forecast demand or flag risk; optimization models recommend actions within business constraints. Reports and AI assistants help people use the results.

Why cloud can create business value

LAUNCH FASTER

Start a forecast pilot without waiting for new servers.

FLEX CAPACITY

Scale processing for quarter-end, then reduce it.

FOCUS THE TEAM

Use managed services to reduce infrastructure upkeep.

Why choose one platform over another?

Platform	A reason it may fit your business
Microsoft Fabric	You use Power BI and want a unified analytics environment.
Snowflake	Managed analytics and controlled data sharing are priorities.
Databricks	Data engineering and machine-learning development are central.
Google BigQuery	You favor serverless analytics within a Google Cloud environment.
AWS services	Your applications and data already use AWS; compose services to fit.

Choose for fit, not the label. These platforms overlap. Compare existing investments, team skills, integration, security and data-location needs, and total cost - including migration, usage, data transfer, and support. These are illustrative starting points, not rankings. [1]

Know the scope. S3 provides storage; Redshift provides warehousing and analytics. A storage service alone is not the full platform. Cloud is not automatically cheaper, and it does not fix poor data or unclear ownership.

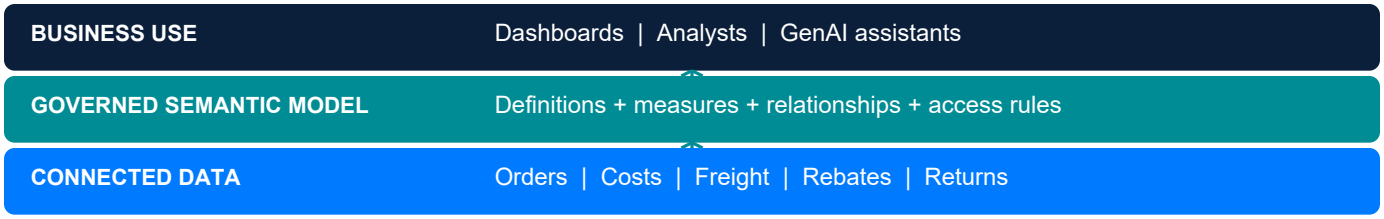
> **LEADERSHIP QUESTION | Which option gets our priority decisions into use fastest, with controls, skills, and costs we can sustain?**

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02 Semantic Layers: Make Sure "Margin" Means the Same Thing Everywhere

Without a sound semantic layer, GenAI analytics will struggle to scale into a consistently reliable business capability.

A semantic layer gives analytics and AI approved business definitions, calculations, and relationships. [2]



Example | One question, two very different answers

Which customers are least profitable? Gross margin may exclude freight, rebates, and support costs; contribution margin may include them. An agreed definition keeps dashboards, predictive models, and AI aligned.

Maintain it as a business product

Practice	What good looks like
Assign accountable owners	Business owners approve definitions; data stewards maintain them.
Define and document	Record formulas, detail level, periods, exclusions, synonyms, and origins.
Test before releasing	Reconcile to trusted totals; test joins, access rules, and representative AI questions.
Control changes	Version, review, and approve updates; assess downstream impact and retire duplicates.
Monitor and improve	Track freshness, quality, usage, and wrong answers; review definitions as the business changes.

Gartner | April 8, 2025: "Semantic layers are a key component to unify data across increasingly diverse use cases." [2]

Shared meaning is foundational; quality data, access controls, and evaluation remain essential.

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03 Large Language Models and RAG: Give AI the Right Reference Material

LLM = the language engine. A large language model learns patterns from vast amounts of text to generate responses. Think of a capable writer: it can draft and summarize, but does not automatically know your current business facts.

RAG = look it up before answering. Retrieval-augmented generation connects that language engine to reference material. Think of an open-book task: the application finds relevant pages and gives them to the LLM with your question. [3]

A customer return | How the pieces work together

1 ASK

Can this customer return this product without a fee?

2 FIND EVIDENCE | RAG

Retrieve the current policy, customer contract, and purchase details.

3 DRAFT AN ANSWER | LLM

Use the question and retrieved evidence to explain the applicable terms.

4 VERIFY BEFORE ACTING

Show sources. Check dates and exceptions; escalate if evidence is missing.

Business value: Faster answers with inspectable evidence. RAG supplies references at answer time; it does not retrain the model or guarantee correctness.

Recent research | Relevant is not always enough

Google Research, May 14, 2025: Research presented at ICLR 2025 found that RAG systems can still give incorrect answers when retrieved context is incomplete. The researchers recommend checking whether the evidence is sufficient, improving retrieval, and allowing the system to decline an answer. [3]

My takeaway: Keep references current, enforce permissions, and test answers. RAG finds knowledge; a semantic layer defines measures. Analytics often needs both.

> **LEADERSHIP QUESTION | Can we verify the evidence - and does the assistant know when to ask for help?**

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04 Agentic AI, MCP, and Skills: Connect Understanding to Action



Assistant: Explains or drafts. **Agent:** Uses tools and coordinates steps toward a goal. Use a defined workflow for predictable tasks; an agent adds flexibility when the next step depends on what it finds. [4]

Example | Respond to a supplier delay

ASSESS
Find affected orders and inventory.

COMPARE
Use forecasts and optimization to evaluate alternatives.

RESPOND
Recommend or initiate an approved action.

Component	Its job in plain language
LLM	Understand the request and explain alternatives.
RAG	Find supplier terms and procedures.
Predictive + optimization models	Estimate demand or delay risk; compare feasible fulfillment plans.
MCP	A standard interface for supported tools and data. [5]
Skills	Reusable instructions and resources for the process. [6]
Agent	Coordinate the steps and tool use toward the outcome.

What business leaders must decide

Set authority: Reading stock is different from changing an order. **Require approval:** A draft supplier message is different from a purchase commitment. **Maintain the process:** Test connections and playbooks as systems and procedures change.

> **LEADERSHIP QUESTION | What may run automatically, what needs approval, and who owns the result?**

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05 Natural-Language Analytics: Talk to your data

I believe natural-language analytics transforms analytics as we have known it - from consuming reports to a regular conversation with the business.

Ask in everyday language, learn from the answer, then ask a better question.

A COMMON PATH TODAY

Write SQL or find someone who can

Navigate reports and filters

Request help from the analytics team

New question? Repeat the handoffs.

A CONVERSATIONAL PATH

Ask: "Which accounts lost margin?"

Follow up: "Where did freight rise?"

Dig deeper: "Which orders drove it?"

Ask > Learn > Refine > Act

Why this can be more powerful

What changes	Why it matters to the business
Wider consumption	Explore without learning SQL or complex report navigation.
Experts engage	People closest to the business add context and challenge answers.
Regular engagement	Use insights in daily decisions, beyond scheduled reviews.
Evolving questions	Explore new questions beyond a fixed report, with governed data.
Learn, then dig deeper	Compare a segment, test a hypothesis, examine an exception.
Analyst capacity	Shift routine requests to self-service; focus analysts on harder work.

Technologies that make it possible [10]

Amazon Quick Suite / QuickSight: Ask data questions and explore answers in the AWS analytics environment.

Microsoft Power BI Copilot: Explore reports and semantic models through questions and summaries.

Custom chat agents: Use Copilot Studio and approved data services to tailor an assistant for a workflow or customer portal, with role-specific access.

Make it dependable: Shared definitions, current data, permissions, evidence, and trained users. Escalate consequential decisions for expert review.

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06 Speed to Decision: Getting Information When It Matters

I believe the time between a business event, an insight, and an action is becoming a source of competitive advantage.

Even if live information is not essential today, prepare for more decisions that demand faster responses.

EVENT → Something changes

INSIGHT → Recognize what matters

DECISION → Choose a response

ACTION → Act while it matters

1 | Match information speed to the decision

Real-time analytics evaluates events as they happen or shortly afterward. Start with the decision: will fresher information change the outcome?

Situation	Decision window	Value of a timely response
A suspicious payment awaits approval.	Seconds	Evaluate risk before money leaves the business.
Inventory drops below an expected level.	Minutes or hours	Reallocate stock or replenish before orders are missed.
A manager reviews product assortment.	Days or weeks	Use historical patterns to make a considered planning decision.

2 | Connect the signal to an accountable action

A faster alert creates little value without a response. Name the owner, define the trigger and authorized action, and set a response time. Measure losses avoided or service protected.

3 | Build for changing expectations

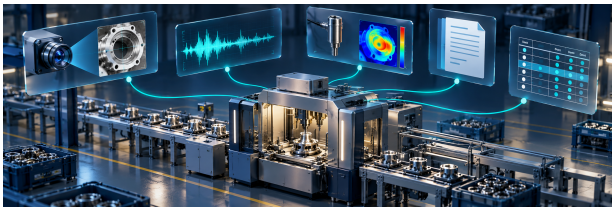
Identify where information from yesterday may soon arrive too late. Prioritize fresher data and reliable responses for those decisions. Every decision does not need live data.

A machine detects unusual vibration and alerts an operator immediately. Processing near the machine is called **edge computing**. It helps when a local response is needed or connectivity is unreliable: less time between a warning and a protective action.

Ask: How quickly must we know, who will act, and why?

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07 Multimodal Analytics: Look Beyond the Spreadsheet



The opportunity | Much of the business is outside tables

IBM Think 2025 cites **80% of data as unstructured**, including documents, images, and audio. This is an industry estimate, not a measured share for every organization. Connect this evidence to business records to make it useful. [7]

IMAGES	SOUND	SENSORS	DOCUMENTS	RECORDS
See defects	Hear changes	Track conditions	Read context	Link to operations

How to connect the pieces

1. Extract. Read documents, transcribe audio, or detect image features. Preserve sources and check quality. Sensor readings are often already structured.

2. Connect. Match signals to a customer, asset, order, or batch ID and time. Apply shared definitions, permissions, and traceable data origins.

3. Use together. Combine signals with costs, quality, or sales measures. Models identify patterns; people validate findings and act.

Illustrative example | Investigate a manufacturing defect

Connect defect photos and technician notes to the **same machine, batch, and time** as vibration, material, and scrap-cost records. A predictive model can flag rising failure risk; teams investigate and prioritize maintenance. Patterns guide investigation, not proof of cause.

Research perspective | Gartner, April 2026

The Gartner research note **How to Build Multimodal AI Apps Leveraging Image and Video** (April 2, 2026) recommends integrating different data types into workflows to improve decisions, agent accuracy, and use cases. The public abstract offers guidance, not measured ROI. [7]

MY VIEW | Connect evidence to business context and action to unlock its value.

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08 Embedded Analytics: Put Intelligence Where Work Happens

Embedded analytics places insights, recommendations, and AI capabilities inside the applications and processes where decisions occur.

Example | Customer retention inside the CRM

In a customer relationship management (CRM) system, show risk signals, explain them, recommend actions, and record responses to measure retention.

ILLUSTRATIVE CRM VIEW

Account: Harbor Industrial

RETENTION RISK: HIGH

Signals: delivery issues + fewer repeat orders

Recommended next step: review service history and contact the buyer.

Record action + outcome

Other uses: Replenishment guidance in purchasing, cost/service trade-offs in planning, and policy guidance during customer conversations.

External evidence | Workflow integration and results

McKinsey, March 2025: Among 25 organizational attributes, workflow redesign had the strongest relationship with reported GenAI impact on earnings before interest and taxes (EBIT). Survey: 1,491 respondents, July 2024; association is not causation. [11]

Peer-reviewed evidence, 2025: Brynjolfsson, Li, and Raymond studied an AI assistant introduced into customer-support work involving **5,172 agents**. Access increased issues resolved per hour by **15% on average**. Results varied; one company does not establish universal returns. [11]

MY VIEW | Differentiation develops when analytical intelligence becomes part of how the organization works.

Leadership question: Where will people encounter the insight, act on it, and provide feedback? Define owners and track adoption, response, and business outcomes.

BUSINESS FOUNDATIONS | EXECUTIVE GUIDE

09 Data & Analytics Products: A Product Mindset Is Key

MY VIEW | A product mindset is key to dependable analytics, sustained reuse, and faster business value.

From my experience | More reports do not necessarily mean better answers

In a global enterprise environment, **I led the shift** toward shared analytics practices, reusable products, semantic models, and governed self-service. I established a global Analytics Center of Excellence, bringing together common tools, reusable patterns, governance, and training.

This work contributed to a 50% reduction in global BI reports, addressing fragmented reporting and duplicated effort.

That experience reinforced my belief that analytics must be managed as a business capability. Sustained value requires a clear purpose, accountable ownership, consistent definitions, and ongoing attention to users. A product mindset brings those disciplines together to build confidence, improve efficiency, and accelerate business value.

Map the product disciplines to the benefits

Product discipline	Benefit to the business
Shared definitions	Consistent measures reduce conflicting answers and build confidence.
Named ownership	Clear accountability speeds issue resolution and prioritization.
Quality + freshness	Detect problems before they undermine decisions.
Reusable data and logic	Less duplicate preparation and development; faster delivery and lower cost.
Consumer-led roadmap	Focus on real decisions and user needs, improving adoption and time to value.
Access + data origins	Discover assets, use responsibly, and trace the numbers.
Ongoing improvement	Feedback, controlled changes, and retiring duplicates sustain reliability.

Data mesh is optional; product thinking is fundamental. Domain ownership with shared standards is one approach. Product discipline does not require a full mesh transformation. [8]

Leadership question: Who owns the product, who uses it, how dependable is it, and what business value does reuse deliver? Track adoption, quality, delivery time, and cost.

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10 Governance, Visibility & Cost: Make Scale Sustainable

Clear rules, visible performance, and sound economics make approved work repeatable and exceptions easier to resolve.

SET THE RULES

Who owns it? What data and actions are allowed? When must a person approve?

SEE WHAT HAPPENS

What evidence was used? What did the AI do? Where did it fail?

MANAGE THE VALUE

What does a successful outcome cost? Is the benefit worth it?

Example | An AI assistant recommends a customer refund

CHECK	RECOMMEND	APPROVE	RECORD
Current policy + access	Within approved limits	Human review if needed	Action + result + cost

Name an owner. Keep permissions and approval limits current; retain an audit trail of recommendations and outcomes.

Turn technical oversight into business questions

Focus	What leaders should expect
Data + AI governance	Agreed definitions, quality standards, safe uses, and decision rights.
Observability = visibility	Evidence, actions, errors, response times, and usage can be traced.
Ongoing evaluation	Test accuracy and permissions; monitor failures and correct recurring issues.

Count the full cost: Software, model usage, data, search, integration, monitoring, and human support. Tokens affect model charges but are only one part of the economics.

BUSINESS MEASURE | Cost per correctly resolved customer issue - compared with the value created.

Reference: NIST AI Risk Management Framework. [9]

BUSINESS FOUNDATIONS | FROM UNDERSTANDING TO ACTION

Bring the Foundations Together Around a Business Outcome

Which customers are becoming less profitable, why is it happening, and what should we do?

The framework deliberately combines technologies with operating disciplines: technology enables analysis, while ownership, reuse, and controls make it dependable in daily work.

Foundational capability	Contribution to the profitability decision
01 Cloud data platforms	Connect customer, order, cost, and service information.
02 Semantic layers	Define contribution margin, customer, and reporting periods consistently.
03 LLMs + RAG	Retrieve contract and policy context; explain findings with evidence.
04 Agentic AI, MCP + skills	Connect tools and reusable instructions to coordinate approved next steps.
05 Natural-language analytics	Let managers ask which accounts lost margin, then explore follow-up questions.
06 Speed to decision	Refresh signals and route exceptions in time to protect margin or service.
07 Multimodal analytics	Combine call notes, images, or documents with orders and costs to enrich the investigation.
08 Embedded analytics	Put recommendations in the CRM or planning workflow where employees act.
09 Data + analytics products	Maintain reusable inputs and logic with clear owners and quality expectations.
10 Governance, visibility + cost	Control access and approvals; trace actions and measure cost against value.

The analytical engine | Predict, optimize, explain

PREDICT
Forecast demand or score customer-loss risk.

OPTIMIZE
Choose inventory or delivery plans within cost and service limits.

EXPLAIN
Use GenAI to communicate findings and retrieve context.

Start with a valuable decision. Select the capabilities it needs, assign owners, and measure the outcome. You do not need all 10 before making progress.

BUSINESS FOUNDATIONS | FROM UNDERSTANDING TO ACTION

What Business Leaders Should Do Next

Choose a costly decision or recurring problem first. Use its symptoms to identify the foundation that needs attention.

Where should you start?

If you see this...	Prioritize this...
Conflicting numbers	Semantic definitions and accountable data owners.
Repeated preparation and duplicate reports	Reusable data and analytics products.
Insights that rarely lead to action	Embed guidance in the workflow; name the response owner.
Decisions made with stale information	Match data freshness and alerts to the decision window.
Valuable evidence trapped in files	Connect relevant documents, images, or audio to business records.
Routine questions create a backlog	Governed natural-language analytics and user training.

Turn a priority into a measurable commitment

Select one workflow. Define the decision, users, and current performance. **Assign an owner.** Agree on data, controls, and responsibilities with technology partners. **Test and measure.** Compare results with the baseline, count operating costs, and expand only when quality and value justify it.

Your next step: identify three decisions worth improving. Choose the first, name its owner, and agree on the outcome and measure of success.

Turn understanding into an actionable roadmap

At Data Busting Analytics, I help leadership teams identify high-value decisions, assess the foundations, establish ownership, and build a practical delivery roadmap.

DATA BUSTING ANALYTICS

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Start a conversation at DataBustingAnalytics.com/contact

Source Notes & Research

Examples are illustrative except the anonymized career experience on page 10, which reflects the author's account. Platform names are examples rather than rankings or recommendations. Source links are clickable.

1. Cloud data platforms
Microsoft Fabric overview
Snowflake architecture
Databricks terminology
BigQuery overview
AWS: data lakes and warehouses
AWS: benefits of cloud computing
Snowflake: data sharing and collaboration
Databricks: machine-learning lifecycle

2. Semantic models
Microsoft Fabric terminology
Gartner, April 8, 2025: Rethink Semantic Layers to Support the Future of Analytics and AI (public abstract)
Gartner, June 17, 2025: Adopt a Data Semantic Approach to Drive Business Value With GenAI (public abstract)
Microsoft: Content lifecycle management

3. Retrieval-augmented generation
IBM: What is RAG?
Google Research, May 14, 2025: RAG and sufficient context (ICLR 2025 research)

4. Workflows and agents
Anthropic: Building effective agents

5. MCP
Introducing the Model Context Protocol

6. Skills
Anthropic: Building agents with Skills

7. Combining data types
IBM: What is multimodal RAG?
IBM Think 2025: How enterprise data becomes the most powerful tool for AI
Gartner, April 2, 2026: How to Build Multimodal AI Apps Leveraging Image and Video (public abstract)

8. Data products and distributed ownership
AWS: What is data mesh?

9. Governance
NIST AI Risk Management Framework

10. Talk to your data - technology examples
AWS: QuickSight evolves to Amazon Quick Suite
Microsoft: Copilot for Power BI overview
Microsoft: Add a Fabric data agent to Copilot Studio

11. Embedded analytics and workflow value
McKinsey, March 12, 2025: How organizations are rewiring to capture value (survey fielded July 2024)
Brynjolfsson, Li & Raymond: Generative AI at Work, Quarterly Journal of Economics, May 2025