Basics of

Business Intelligence (BI) and Data Management

(Summary)

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Oct 2022

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Topics

- New Digital Age
- DX requirements

DX: Motives and Enablers to BI

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- Data Literacy
- DM Governance
- DM technology

Data-Driven Organization

- Data Management basics
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BI Implementation

- Plans
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- Demo

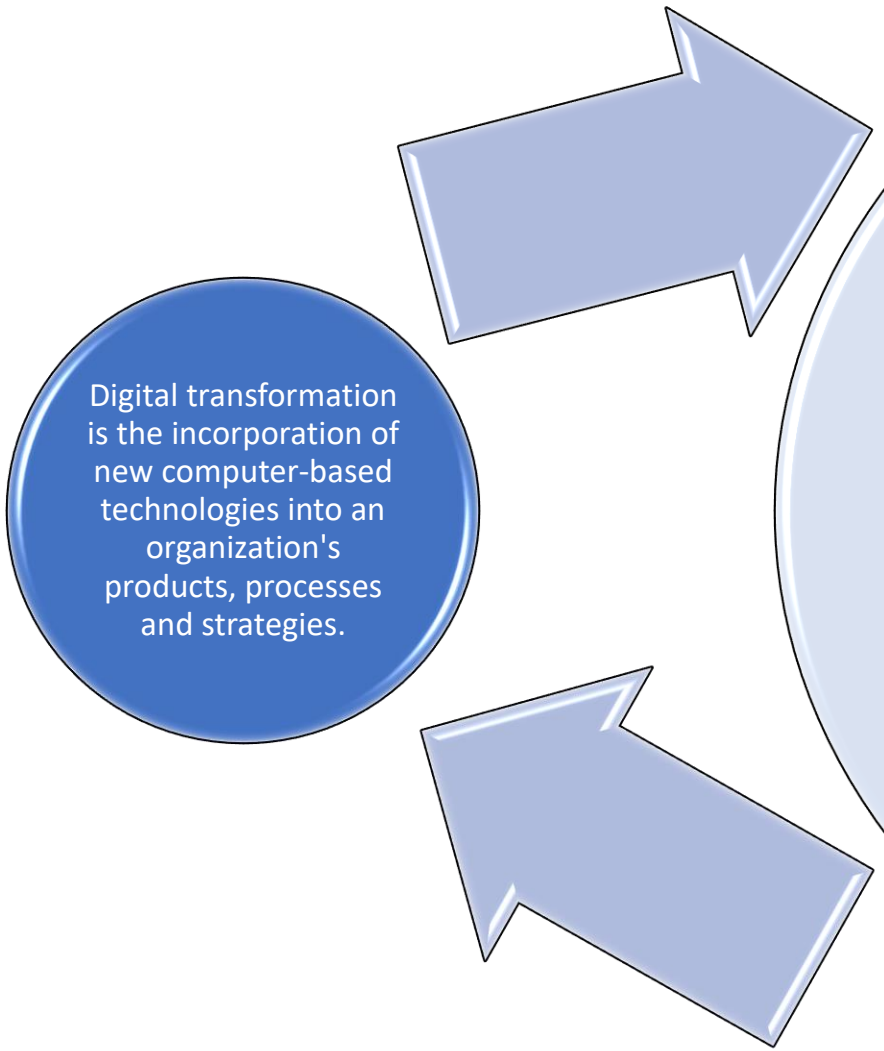
ICASAT BI case study

- Summary
- Any Question?

Q&A

DX: Enabler for BI

What is DX (Digital Transformation)?



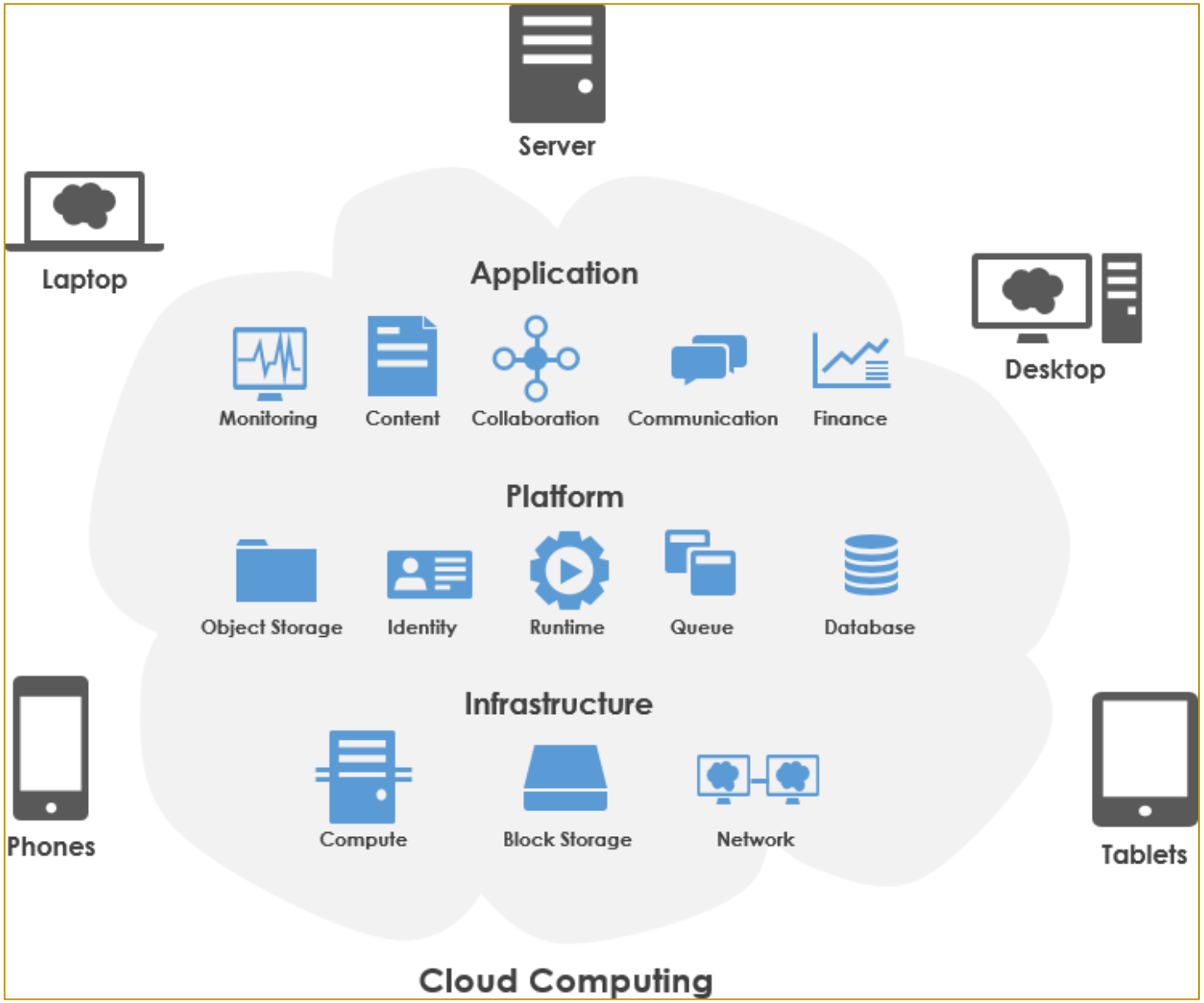
Digital transformation is the incorporation of new computer-based technologies into an organization's products, processes and strategies.

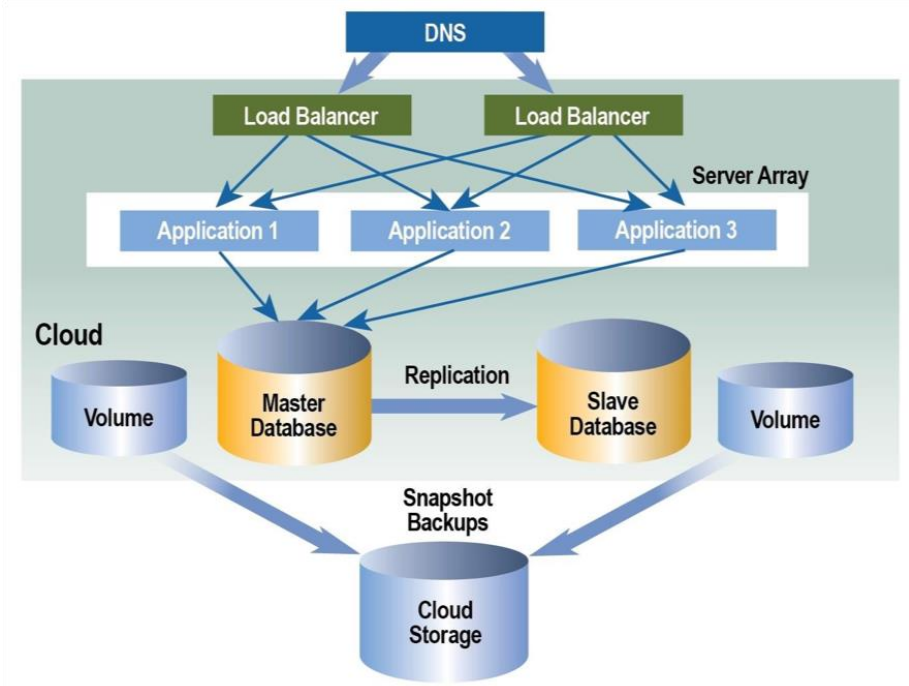
We are at the age of DX (Next Digital Universe); Digital Game Players:

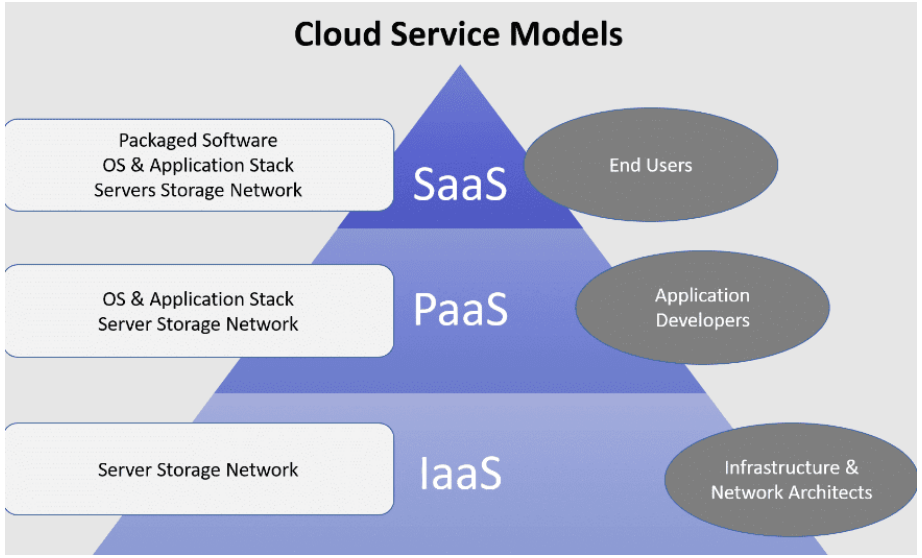
- Cloud solutions: DC-> IaaS/PaaS/SaaS/(Desktop-> Enterprise (private cloud)-> Edge -> Public Cloud)/Hybrid/Multi-Cloud/
  - ST Engineering: Idirect + NewTech & Comtec + UHP Romantis → New VSAT Hub is cloud-based!/Multi-Orbit (GEO/MEO/LEO)
- Connectivity: 5G/6G/Mobile standards/WiFi6/WiFi6E/WiFi7/LoRaWAN
- Block chain: DeFi/Crypto/NFT/(VARA in Dubai, Virtual Assets Regulatory Authority)
- AI/ML/DL/Intuitive AI/Conversational AI/NLP/Vision/Robots/Robotics/AIoT
- Data Science/Big Data/Data Analytics
- AR/VR (augmented reality/virtual reality)
- X-verse: Metaverse/Gaming/Web 3/UAE vision: top 10 cities in Metaverse economy/attract 5000 metaverse companies in 5Y (Healthcare, manufacturing, education, retail, future of work, gaming)
- Remote Working/WFH/Emirates: 42000 virtual Jobs by 2030 for $4Billion
- New IT/IS management best practices: Agile/DevOps/DevSec/CI-CD/DataOps/MLOps/New Job functions/Kubernetes/100,000 Golden Visa by UAE for top coders!/
- Low-code, No-code/focus on customer and employee experiences
- SDN (software defined networks)/A case on VSAT last year in CABSAT/SDSN: SpaceBridge
- Adopting API framework (delivering data securely)
- IoT/IIoT/AIoT/Smart Home/Smart City/Industry 4.0/Digital Twins/Drones/UAV/
- Digital economy/Digital smart cities/Autonomous vehicles/Future Mobility(flying taxis)/Health Care/Fintec/Energy/Education/Data economy/CX
- BI/RPA/cybersecurity/edge computing

• A Changing Demand Environment for Digital Innovation

Cloud Service Model







Benefits of DX

- Increased efficiency and productivity
- Better resource management
- More resiliency
- Greater agility
- Improved customer engagement
- Increased responsiveness
- Greater innovation
- Faster time to market
- Increased revenue
- Continued relevancy

What DX bring us?

Should sync with this global fast track journey

Customers are asking and chasing DX innovations

Should not lag the competitors

Should decide on any changes needed in the organization

- New business opportunities
- New Strategies
- Digital Culture
- Improved Processes
- Digital-literate peoples and hires
- Considering New technologies
- Planning New IT/IS solutions

Digital Age and DX relies totally on

"DATA"

So big impact:

DX is a key driver guiding broad Data Strategy and Data Management goals and activities

Shall think "Data-driven" on all these levels

- Should Setup a Data-Driven Organization

Data-Driven Organization

“Without Data you’re jut another person with an opinion”

W. Edwards Deming, Data Scientist

Data-Driven companies

What does a manager do?

- Controlling and exploiting the best out of its assets

Assets

- Physical assets
  - Hub, modems, routers, BW, .. Inventory, staff, time, …
- Virtual assets
  - Licenses, reputation, time, .. AND Data

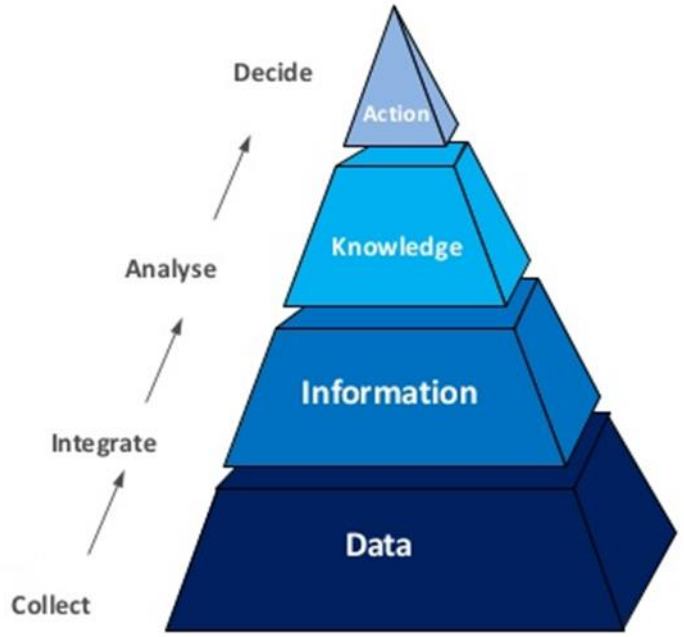
Work flows ->generates Data flows

Data Hierarchy (data/information/knowledge->Wisdom)

- Informed decisions via High quality data

Poor or low quality data

- Inhibits integration
- misguides analyze
- Failure to decide
- Blockage to action



So What does a manager do?

- Deciding (by deriving value from data) and Acting
- Work flow-> Data flow -> (data -> insight -> decide -> action) -> (improve) work flow (Cycle)

There is a strong need to do Data Management (BI is part of DM)

Data-Driven companies

At which DATA (Management) level our organization resides?

- Data Strategy?
- Data Culture?
- Data Governance?
  - Authority, control, decision-making on managing data assets
  - Data governance is the process of organizing, securing, managing, and presenting data using methods and technologies that ensure it remains correct, consistent, and accessible to verified users
- Data Architecture
  - A pillar of digital transformation, connects business strategy and technical execution
- Data Modeling
  - Documenting the core business rules and relations around data
- Data technology? Data warehouse?
- Data quality?
  - Data quality is the degree to which data is accurate, complete, timely, and consistent with your business's requirements
- Data literacy?
  - Data literacy ensures all data users within an organization are educated to a level that enables them to consume data with confidence within a specific business context
- Data Security? Privacy?
- BI & dashboards?
- Data Access? (visibility)

Data Usage? Do we Derive value? (informed Decisions or Daily operations?)

What is our "Data Maturity level" in organization/enterprise?

Data Maturity Model

Level 1 Basic	Level 2 Opportunistic	Level 3 Systematic	Level 4 Differentiating	Level 5 Transformational
▪ Data is not exploited, it is used ▪ D&A is managed in silos ▪ People argue about whose data is correct ▪ Analysis is ad hoc ▪ Spreadsheet and information firefighting ▪ Transactional	▪ IT attempts to formalize information availability requirements ▪ Progress is hampered by culture; inconsistent incentives ▪ Organizational barriers and lack of leadership ▪ Strategy is over 100 pages; not business-relevant ▪ Data quality and insight efforts, but still in silos	▪ Different content types are still treated differently ▪ Strategy and vision formed (five pages) ▪ Agile emerges ▪ Exogenous data sources are readily integrated ▪ Business executives become D&A champions	▪ Executives champion and communicate best practices ▪ Business-led/ driven, with CDO ▪ D&A is an indispensable fuel for performance and innovation, and linked across programs ▪ Program mgmt.. mentality for ongoing synergy ▪ Link to outcome and data used for ROI	▪ D&A is central to business strategy ▪ Data value influences investments ▪ Strategy and execution aligned and continually improved ▪ Outside-in perspective ▪ CDO sits on board

D&A = data and analytics; ROI = return on investment

Why a data-driven organization?

- Gaining a competitive edge through better decision-making and increased efficiency
- increase revenue and reduce costs
  - a data-driven organization can trust that it always makes informed decisions upon a foundation that is always reliable and up to date.
  - Reducing cost through more efficient, data-driven processes – both administrative and operational – such as overtime or inventory management
- As such, you remove whim and guesswork from the equation, while simultaneously negating the garbage-in-garbage-out problem
- Bolstering the quality of products, reputation and organizational processes
- Decision support for operational systems and processes
  - which can range from sales, production and marketing, to maintenance, logistics, service delivery, HR and other industry specific needs
- More nimbly (agilely and smartly) adjust to market changes
- Paves the way for being more innovative, proactive and agile
  - letting the data reveal new business opportunities for which to adapt
- On top of this, the organization frees up human capital that can be allocated towards efforts of creating additional value
- Empower your employees, equipping them with the tools to increase their autonomy and strengthen their decision-making foundation
  - a leaner, more efficient organization – and reduced dependency on external assistance
- Reducing cost through more efficient, data-driven processes – both administrative and operational – such as overtime or inventory management

Why a data-driven organization?

- Increased quality
  - Quality in this context is highly connected to accuracy in decision making, sustainability and reputation.
  - More data-driven, and hence more qualified decisions, run all the way through your organization, ensuring:
    - Increased trust
    - improved environment, health & safety (HSE) procedures
    - Fewer decisions and reduced loss during production
    - Increased product quality
    - Increased customer satisfaction
- As for corporate reputation, having precise, actionable data available – and the know-how to apply them – allows you to: (called BI)
  - Make better business decisions
  - more precisely communicate with target audiences, where market data are available, strengthening organization-stakeholder relationship
- being at the bleeding-edge of what is often referred to as the fourth industrial revolution
  - Increases brand awareness
  - augments market sentiment
  - Attracts tech-savvy, aspiring young talent
- A data-driven organization manages data in such a way that it creates a single version of the truth
  - This means and requires that the data is both relevant, reliable and available

Data Strategy

Building a data-driven organization must be rooted in your organization's business strategy

Both clear budgetary allocations and leadership involvement on Data Strategy and Data Culture

It is crucial at this stage to start with your business needs, not technology

What is the problem I need to solve?

What kind of data would help?

Where will I source it from?

How will I store and safeguard it?

How will I analyze it?

Who will be responsible?

How will it be shared across the team?

How will it be implemented into the team's working processes?

How to gain support for your data strategy

- **Transparency:** share data across the business
- **Readability:** present data that anyone can understand
- **Trackability:** track data that monitors business performance
- **Actionability:** source data that pinpoints where to take action

A Glance at DMBOK2.0 Framework

Data Management

- Is currency, life blood, new oil
- Is an (virtual) asset like any other (physical) asset
- Is a meta-asset that describes other assets
- Key to competitive advantage
- Enabler for decision-making
- Failure to manage data is like failure to manage capital
- Is the means by which an organization knows itself
- So it is a strategic goal: to get (derive) value from data (assets)
- Not only assets but also vital to the day-to-day operations
- When it is exchanged (internally or externally); it can provide information about how an organization functions -> shows department or company's data maturity level
- Assumption is that data simply exists. But data does not simply exist. Has to be created or Obtained
- Data is a form of information and information is a form of data
- Both data and info should be managed

Data Management Goals

- Understanding and supporting the information needs of the enterprise and its stakeholders, including customers, employees, and business partners
- Capturing, storing, protecting, and ensuring the integrity of data assets
- Ensuring the quality of data and information
- Ensuring the privacy and confidentiality of stakeholder data
- Preventing unauthorized or inappropriate access, manipulation, or use of data and information
- Ensuring data can be used effectively to add value to the enterprise

The DAMA-DMBOK Framework

The DAMA Wheel

- defines the 11 Data Management Knowledge Areas

1.Data Governance

- provides direction and oversight for data management by establishing a system of decision rights over data that accounts for the needs of the enterprise.

2.Data Architecture

- defines the blueprint for managing data assets by aligning with organizational strategy to establish strategic data requirements and designs to meet these requirements.

3.Data Modeling and Design

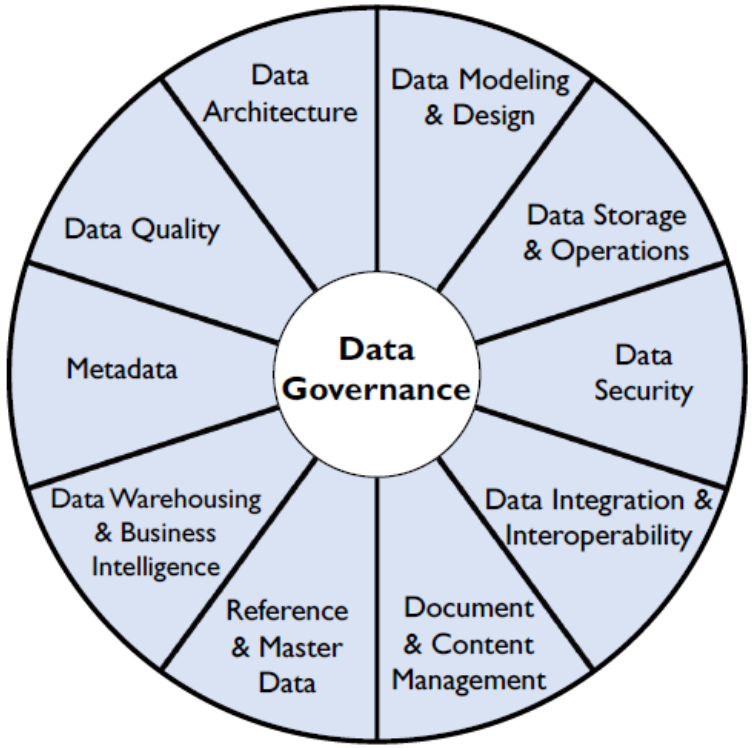
- is the process of discovering, analyzing, representing, and communicating data requirements in a precise form called the data model.

4.Data Storage and Operations

- includes the design, implementation, and support of stored data to maximize its value. Operations provide support throughout the data lifecycle from planning for to disposal of data.

5.Data Security

- ensures that data privacy and confidentiality are maintained, that data is not breached, and that data is accessed appropriately.



The DAMA-DMBOK Framework

6.Data Integration and Interoperability

- includes processes related to the movement and consolidation of data within and between data stores, applications, and organizations.

7.Document and Content Management

- includes planning, implementation, and control activities used to manage the lifecycle of data and information found in a range of unstructured media, especially documents needed to support legal and regulatory compliance requirements.

8. Reference and Master Data

- includes ongoing reconciliation and maintenance of core critical shared data to enable consistent use across systems of the most accurate, timely, and relevant version of truth about essential business entities.

9.Data Warehousing and Business Intelligence

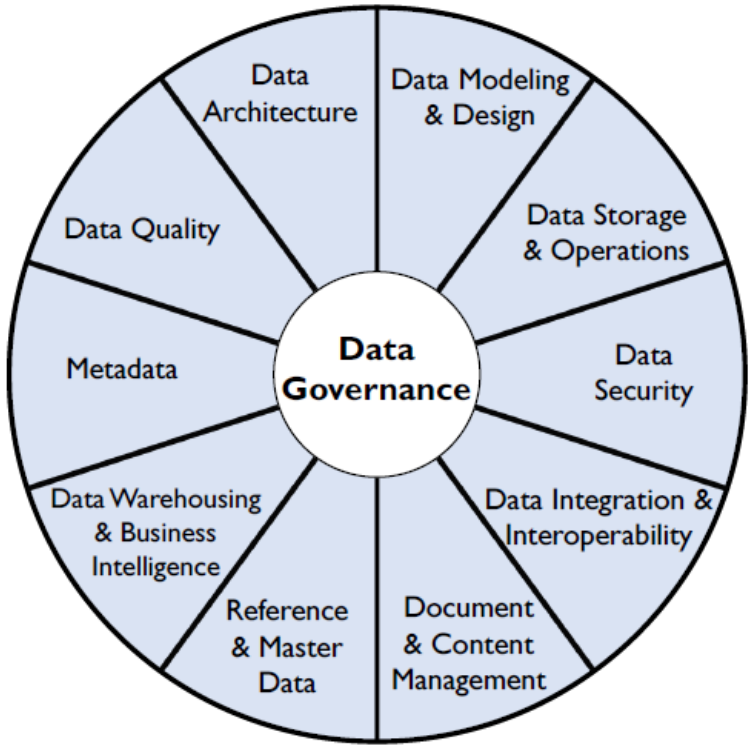
- includes the planning, implementation, and control processes to manage decision support data and to enable knowledge workers to get value from data via analysis and reporting.

10.Metadata

- includes planning, implementation, and control activities to enable access to high quality, integrated Metadata, including definitions, models, data flows, and other information critical to understanding data and the systems through which it is created, maintained, and accessed.

11.Data Quality

- includes the planning and implementation of quality management techniques to measure, assess, and improve the fitness of data for use within an organization.



Data Literacy

Data literacy is about making users that are not part of an organization's data team more data literate.

It's about educating regular business users about the information available to them and organizing this information in a way that makes it easy to identify and consume.

When a data governance team acknowledges the importance of data literacy in an organization's data governance strategy, the result is a well-defined data catalog that any member of staff can access.

When they don't, many users are left without access to important data impeding their ability to perform professionally and contribute to the overall growth of a data-driven company.

Without widespread data literacy and clearly defined data terms and frameworks, communication channels can break down—and the results can be catastrophic.

Before implementing a data literacy program your data team needs to ask these key questions:

- How can we organize our data so people can find it easily?
- How do we find and determine which terms are necessary for our company?
- How do we achieve consensus on, define, and present these terms?
- How do we provide universal access when confidential user data is included in the data catalog?

Data Risk and Data Quality

Data not only represents value, it also represents risk

Low quality data (inaccurate, incomplete, or out-of-date) obviously represents risk because its information is not right

But data is also risky because it can be misunderstood and misused

Organizations get the most value from the highest quality data –

available	relevant	complete	accurate	consistent	timely	usable	meaningful	understood

Information gaps – the difference between what we know and what we need to know to make an effective decision; and so profound impacts on operational effectiveness and profitability.

What is BI?

Definitions of BI

BI is a technology-driven process for analyzing data and delivering actionable information that helps executives, managers and workers make informed business decisions.

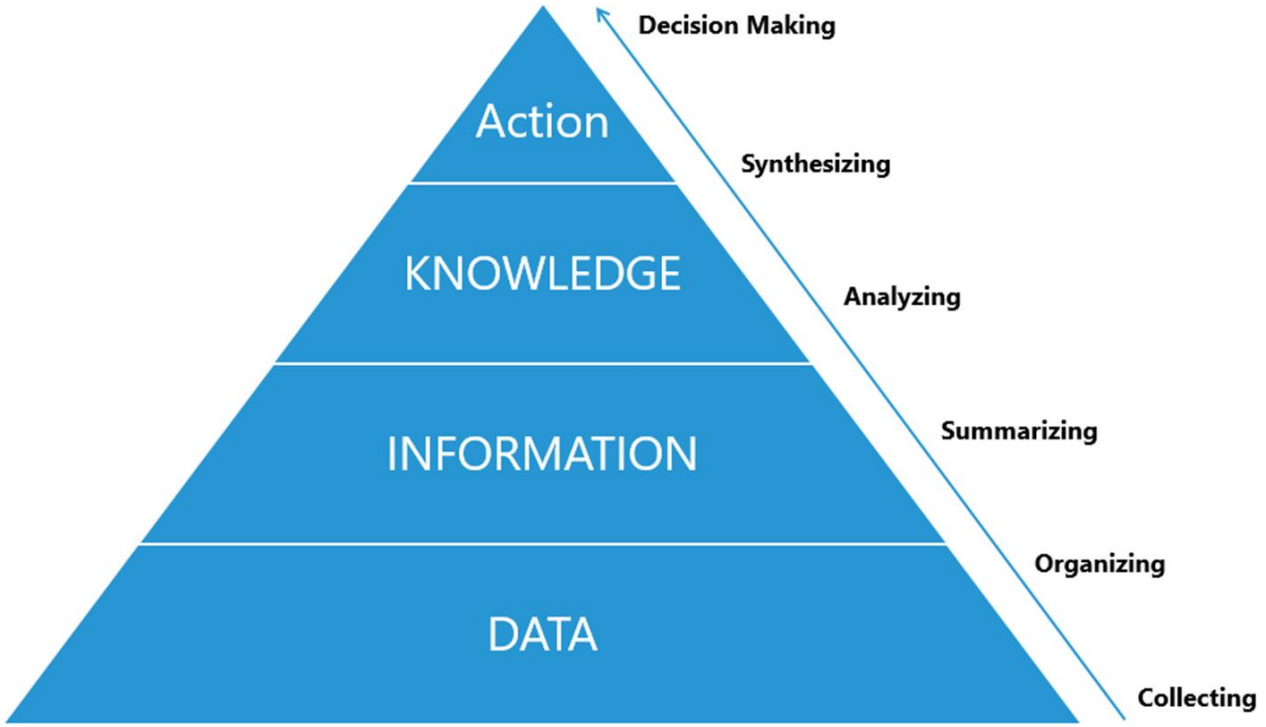
BI is a set of practices of collecting, structuring, analyzing, and turning raw data into actionable business insights.

BI considers methods and tools that transform unstructured data sets, compiling them into easy-to-grasp reports or information dashboards.

BI comprises the strategies and technologies used by enterprises for the data analysis of business information.

BI is the process of turning raw data into actionable information that can improve business decisions.

It is an umbrella term that stands for both processes and solutions — the process of transforming data into actionable insights and the tools that access and analyze data and present those findings in an accessible way.



Benefits of BI

speed up and improve decision-making (Faster Analysis by Visualization)	Cost cutting by optimize internal business processes and Single Truth	increase operational and organizational efficiency and productivity	spot business problems that need to be addressed	identify emerging business and market trends, Why changed? What changed?
develop stronger business strategies (Data-Driven Business)	drive higher sales and new revenues by Trend Awareness	gain a competitive advantage over rival companies	It can monitor customer behavior and Improve CX	Transparency, Efficiency, Profitability, Sustainability
It can help optimize processes and Govern Data	Centralized Intuitive KPI dashboards and Easy to access and share info, No Silo	Clear Accountability through efficient Governance and Reporting	Time Efficiency by shortening decision-making process	Allows manpower to focus on skillful tasks rather than monotonous tasks

BI Functions

Common functions of BI

- Reporting
- Online analytical processing
- Descriptive Analytics
- Data mining
- Process mining
- Complex event processing
- Business performance management
- Benchmarking
- Text mining
- Predictive analytics
- Prescriptive analytics

BI solutions provide historical, current and predictive views of business operations

By Business Intelligence, Transform data into successful decisions

BI outcomes

Insight

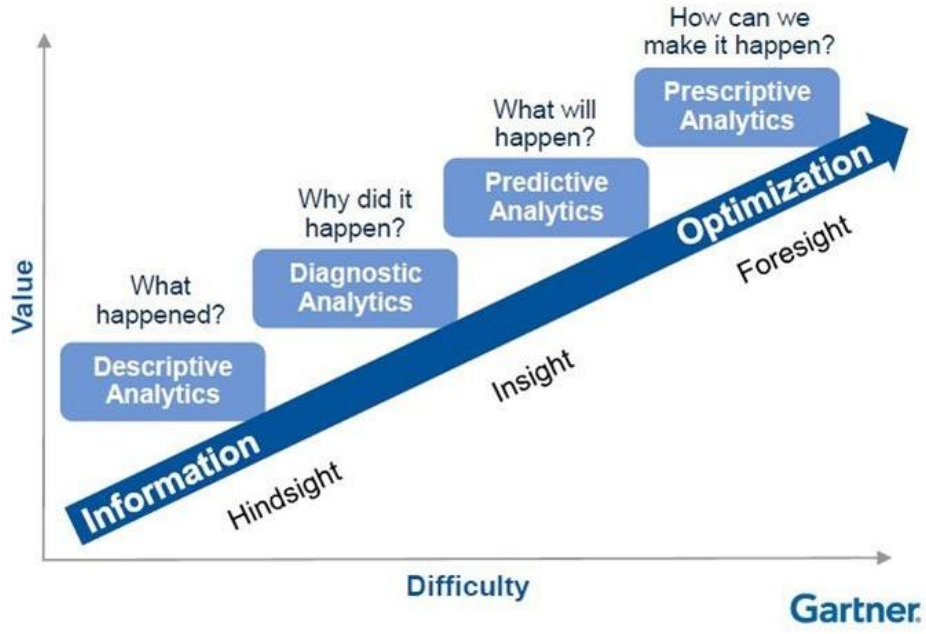
- Reports which tell us the current or former status of our data. This insight answers questions such as:
  - How is the organization performing?
  - How much revenue did we incur?
  - Where do our constituents live?
  - How much funds did we raise?
  - What is the average patient discharge rate during weekends?
- Reports providing insight are valuable, but they mostly offer an operational perspective. Some are used to inform strategic decisions, but they don't always provide the full picture as to why the numbers and outcomes are the way they are.

Hindsight

- This second outcome of the Analytics & Business Intelligence umbrella provides the analysis needed to understand why we have the current numbers we do –what were the factors, the environment, and decisions which impacted the outcome of these numbers. It answers questions such as:
  - Why are we performing this way?
  - Which investments proved to be successful?
  - What are we learning from the results of A/B testing?
  - What customer factors affected the sales outcomes?
- Hindsight also determines and provides knowledge and understanding of the context.

Foresight

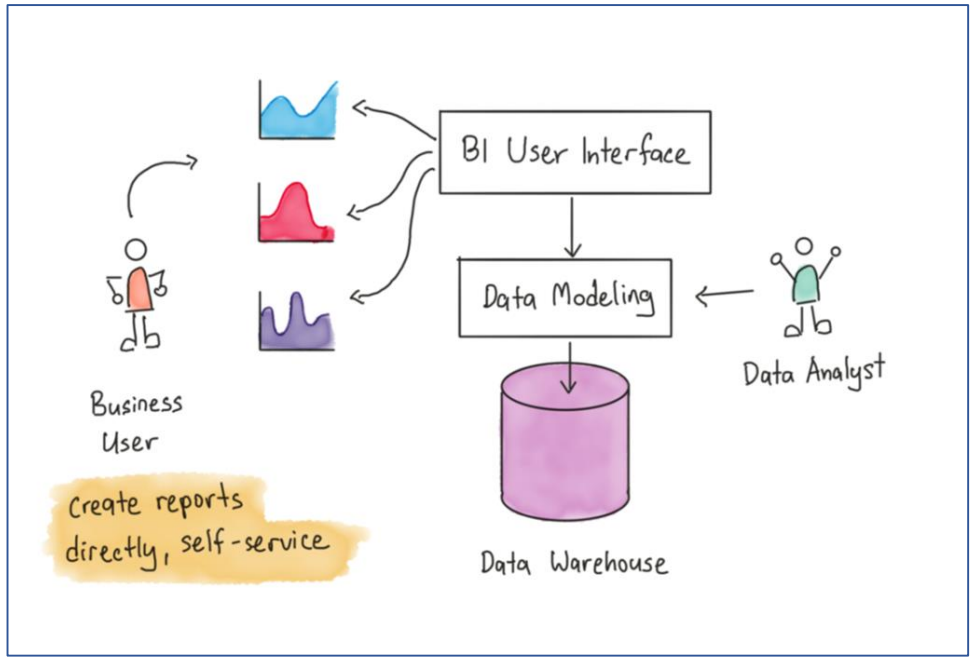
- The third outcome is about foresight. This showcases the true value of analytics, depending how you define it, because through the exploration of historical and live data and application of different statistical, data mining, predictive, and other analytics' methods, it provides us with a better understanding of the future and the potential paths to follow. It answers questions such as:
  - How will the organization perform in the future?
  - How can we gain a competitive advantage?
  - What effect might certain changes have on our bottom line?
  - Where will most alumni move to one year after graduation?
  - Which customers are more likely to purchase?
  - What impact will the next flu season have on the respiratory clinic?



Self-service BI vs. Traditional BI (Static Reports)

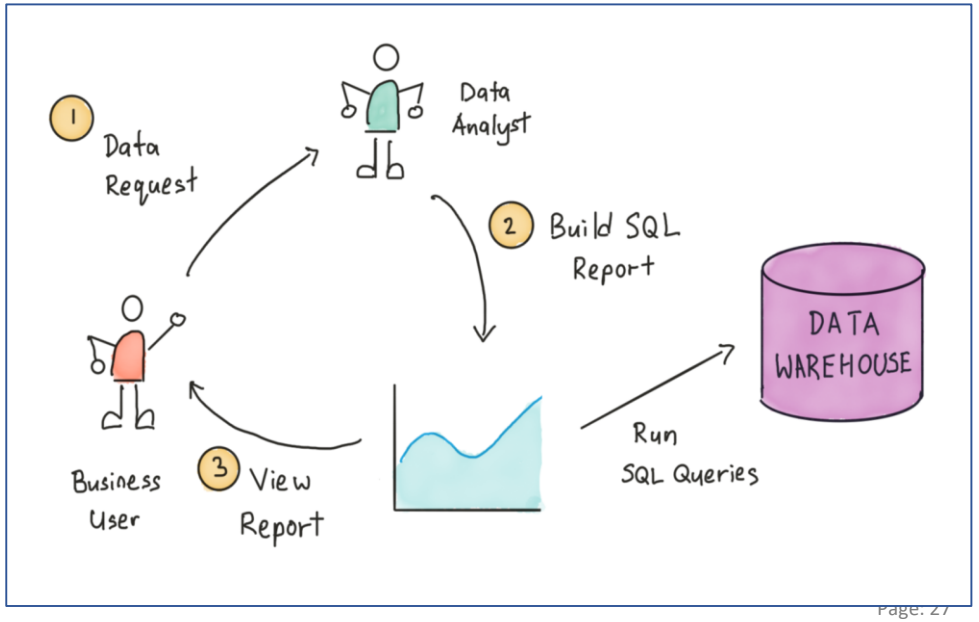
Self-service BI

- Today, modern companies and solution providers utilize self-service BI. This approach allows business users as well as executives to get the reports that are automatically generated by the system.
- Automated reporting doesn't need power users (admins) from your IT to process each request to your data warehouse; however, technical staff is still required to set up the system.
- Automation may lower the quality of the end reports and their flexibility as it will be limited by the way the reporting is designed. But, as a benefit, the self-service approach doesn't require actual technical staff to operate in the system all the time. Users that are not tech-savvy will be able to serve a report for themselves or access a dedicated section of the data storage.



Traditional BI

- Traditionally, BI was designed for executives only. Since the number of users and types of data is limited, there's no need for full automation. So, a traditional BI flow type requires technical staff as an intermediary between the reporting tool and the end user.
- If an end user wants to extract some data, he or she has to make a request and tech staff will generate a report from the required data. In this case, your IT department acts as a *power user*, a user that can access data and influence its transformation.
- The traditional approach offers a more secure and controlled data flow. But, relying on the IT department may introduce a lag in flexibility and speed in case of processing big amounts of data (especially for big data). If you strive for more report control and precision of reports, form a dedicated IT team to take care of queries and report formation.



BI team Roles

- BI managers
- BI architects
- BI developers
- BI analysts
- BI specialists

who work closely with:

- Data architects
- Data engineers
- Other data management professionals (DMP)

And Also with:

- Business analysts
- End users

Tasks

- Design, develop and maintain BI solutions and strategies
- Collection of data and hypotheses

Background

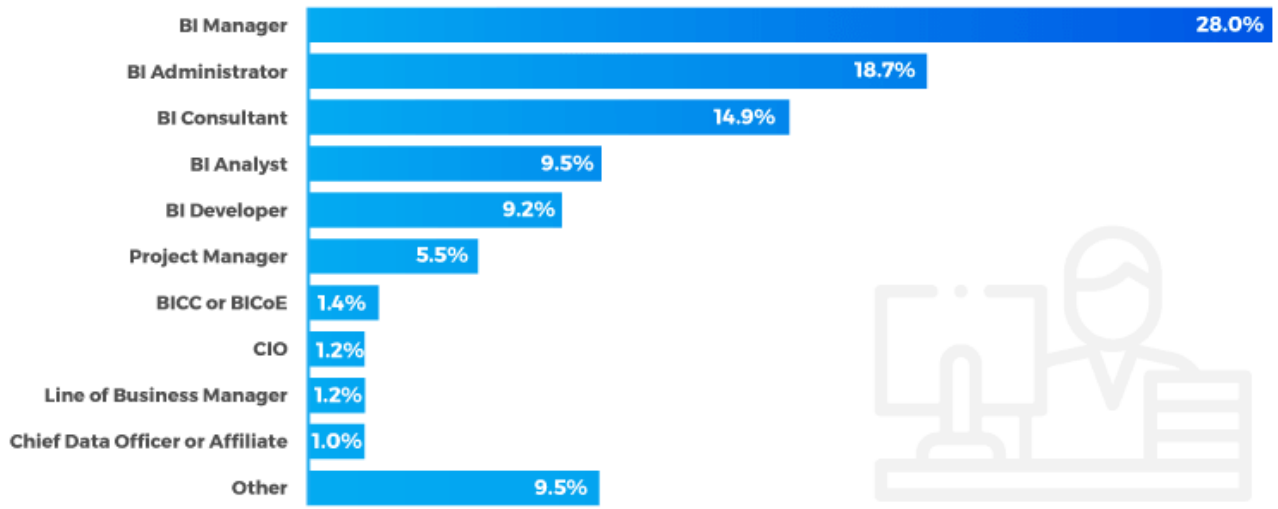
- Bachelor's Degree in Computer Science, Business Informatics, Economics or Engineering

Skills

- Experience with business intelligence tools and technologies
- In-depth knowledge of IT

Salary

Junior: $ 56,000
Average: $ 80,000
Top: $ 111,000



Business Intelligence or Business Analytics?

BI & BA	• Are not the same
Business intelligence	• relies on real-time and historical data. In essence, it tells organizations what's happening and how things got to this point
Business analytics	• focuses on predicting what is going to happen in an organization in the future based on past trends and offering suggestions for things that could be done differently for improved outcomes
B. Analytics	• can be a part of the business intelligence process
Question:	• What is Business Analysis? Answer: BA -> BABOK; BI -> DMBOK; DA -> DSBOK

Common Myths on BI

7 common myths about BI tools

Myth 1: “This is too expensive for my business.”

- One of the most common myths about BI tools is that they’re only for huge enterprises with deep pockets.
- This simply isn’t true.
- There are BI tools available for businesses of all sizes, and many of them are very affordable.
- In fact, some BI tools are even free.
- BI tools can save businesses a lot of time and money. So, even if you’re on a tight budget, a BI tool may be an investment you can’t afford to pass up.

Myth 2: “I don’t need a BI tool because I already have a reporting system.”

- Another common myth about BI tools is that they’re unnecessary if you already have a reporting system in place.
- But the truth is that BI tools can do much more than just generate reports.
- As we’ve seen, they can also provide insights through data visualizations and dashboards that businesses might not be able to get from their reporting system alone.
- This can help businesses save time and make better decisions.

Myth 3: “I don’t need a BI tool because I have a data analyst.”

- Another common myth about BI tools is that they’re only needed if you don’t have a data analyst on staff.
- But the truth is that BI tools can be helpful even if you do have a data analyst.
- Data analysts can use BI tools to save time and make their jobs easier. And, as we’ve seen, BI tools can also provide insights that data analysts might miss on their own.
- So even if you have a data analyst on staff, it’s still worth considering whether a BI tool could be beneficial for your business.

7 common myths about BI tools

Myth 4: “I don’t need a BI tool, I can just use Excel.”

- Another common myth about BI tools is that they’re not necessary if you’re already using Excel.
- While it’s true that Excel can be used for some basic data analysis, it’s not designed for complex tasks like data visualization or reporting.
- BI tools are much better suited for these tasks, and they can save you a lot of time.
- So even if you’re already using Excel, you don’t necessarily have to completely reject the idea of using a BI tool.
- In fact, you might find that using both Excel and a BI tool can be beneficial for your business.

Myth 5: “I don’t need a BI tool because I have a CRM.”

- Another common myth about BI tools is that they’re not needed if you have a customer relationship management (CRM) system.
- But the truth is that BI tools can be very helpful for businesses that have CRMs.
- CRMs can be complex, and it can be difficult to get the information that you need from them.
- But BI tools can make it much easier to access and analyze your CRM data.
- CRMs are great for managing customer data, but they’re not always the best tool for analyzing that data.
- With BI tools, you can easily access your CRM data and generate reports that will help you make better business decisions.

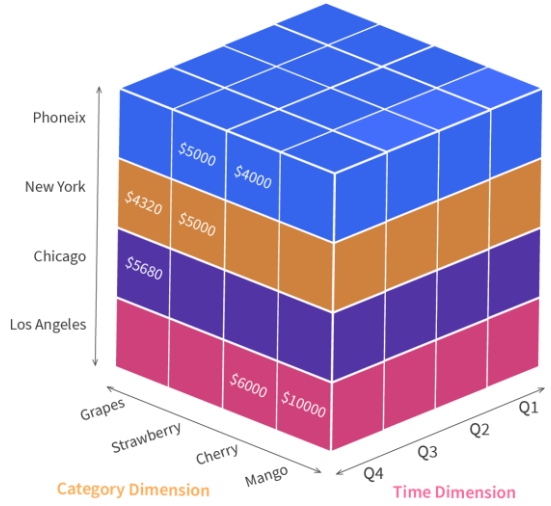
Myth 6: “BI tools are only for big companies.”

- This is another myth that simply isn’t true. As we’ve seen, BI tools can be beneficial for businesses of all sizes.
- They can help small businesses save time and money, and they can provide insights that businesses might not be able to get from their data alone.
- This myth is likely based on the fact that BI tools have traditionally been expensive and difficult to use. But as we’ve seen, there are now many BI tools that are affordable and easy to use.

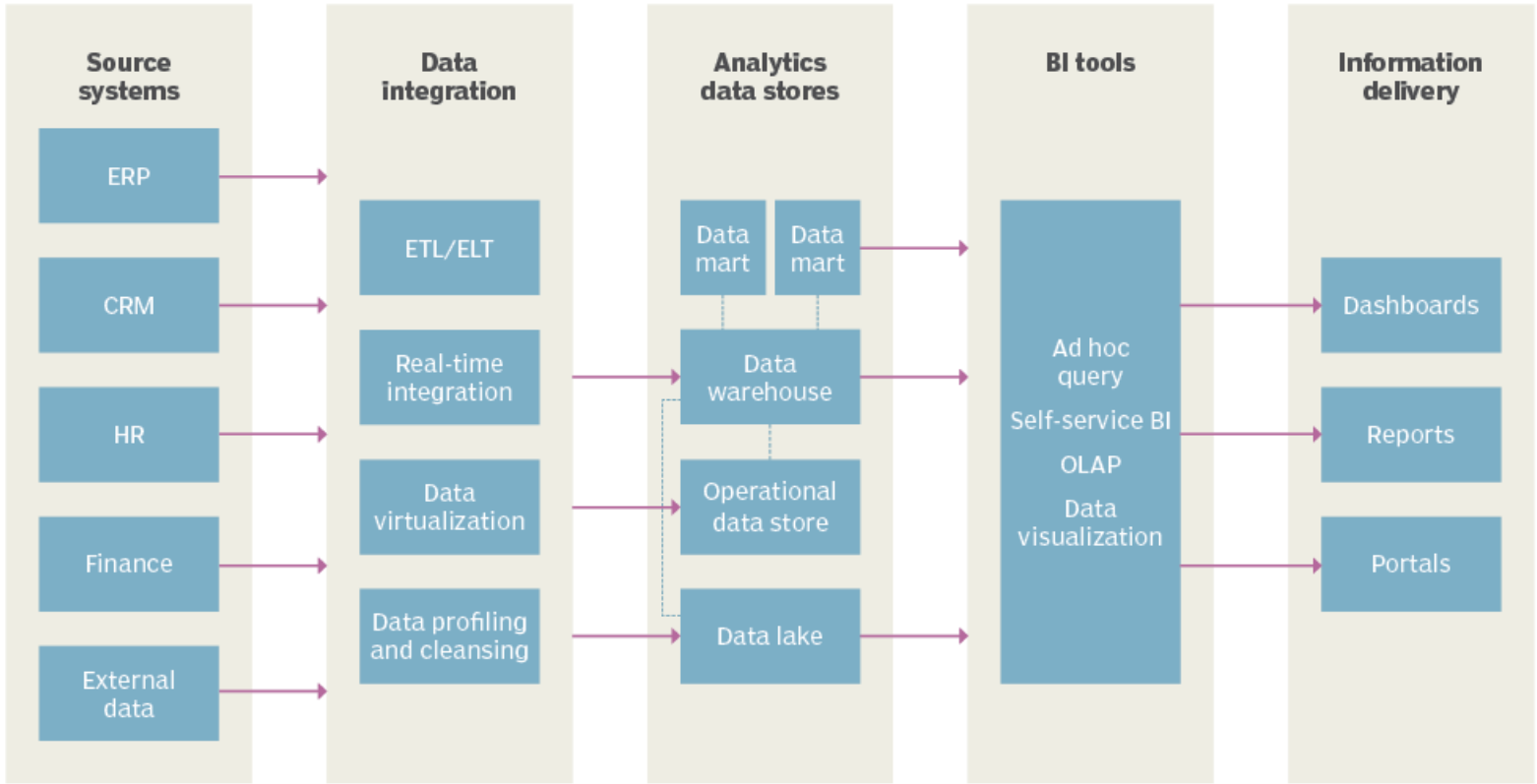
Myth 7: “BI tools are a passing tech fad.”

- BI tools have been around for many years, and they’re only getting more popular.
- In fact, Gartner predicts that BI and analytics will be one of the most important trends in business in the coming years.

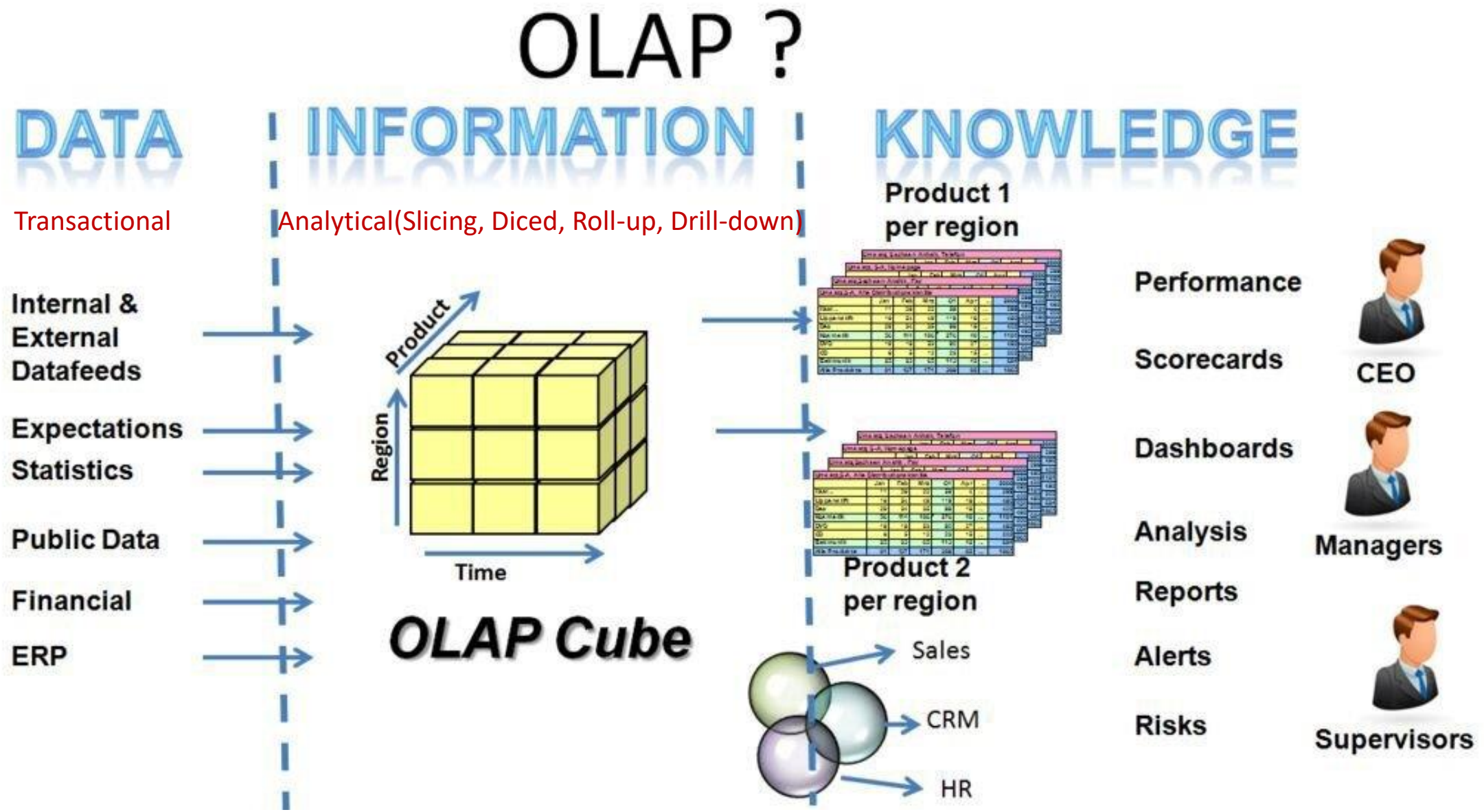
How does BI work?



BI Architecture



How BI Works?



Top BI tools in 2022

According to Mordor Intelligence, the business intelligence industry is so popular that it is predicted to reach a value of USD 40.50 billion by 2026

BI Tools features

Data visualization

ETL, Integration, Data warehouses

Interactive dashboards, Modeling, Query, metrics, KPIs definitions, Languages (DAX, R, Python, …)

Alerts and notifications (set thresholds for high or low numbers)/can be outside of BI tools

Embedded Analytics (visualization in the company web page, cloud app, or for customer access, …)

BI reporting tools

Desktop, Cloud, PaaS, SaaS, Enterprise , Self-service

Data Mining, Big Data (Hadoop)

- Also known as “data discovery,” data mining involves automated and semi-automated data analysis to uncover patterns and inconsistencies. Common correlations drawn from data mining include grouping specific sets of data, finding outliers in data, and drawing connections or dependencies from disparate data sets.

Predictive analytics

- forecast future events based on current and historical data. By drawing connections between data sets, these software applications predict the likelihood of future events, which can lead to a huge competitive advantage for businesses.

Descriptive modeling

- seeks to reduce data into manageable sizes and groupings. Descriptive analytics works well for summarizing information such as unique page views or social media mentions.

Decision analytics

- Take into account all the factors related to a discrete decision. Decision analytics predict the cascading effect an action will have across all the variables involved in making that decision.

NLP (Natural Language Processing)

- Data comes in three main forms: structured, semi-structured, and unstructured. Unstructured data is the most common, and includes text documents and other types of files that exist in formats that computers can’t read easily.
- also known as text analytics software, combs large sets of unstructured data to find hidden patterns.

25 BI Tools

- Top Business Intelligence Tools
  - Enterprise Business Intelligence Platforms
    - #1) Oracle NetSuite
    - #2) Integrate.io
    - #3) Zoho Analytics
    - #4) HubSpot
    - #5) Query.me
    - #6) SAS
    - #7) Birst
    - #8) WebFOCUS
    - #9) BusinessObject
    - #10) IBM Cognos
    - #11) MicroStrategy
    - #12) Pentaho
  - Database Integrated Products
    - #13) Microsoft BI and Power BI
    - #14) Oracle BI (OBIEE+ and Endeca)
    - #15) SAP BW + HANA
    - #16) Oracle Hyperion
  - Data Discovery And Visualization
    - #17) Qlik and QlikSense
    - #18) Tableau
    - #19) Board
    - #20) Sisense
    - #21) Adaptive Discovery
  - Niche And Innovative
    - #22) Yellowfin BI
    - #23) Style Intelligence
    - #24) Bizzscore
    - #25) Jaspersoft

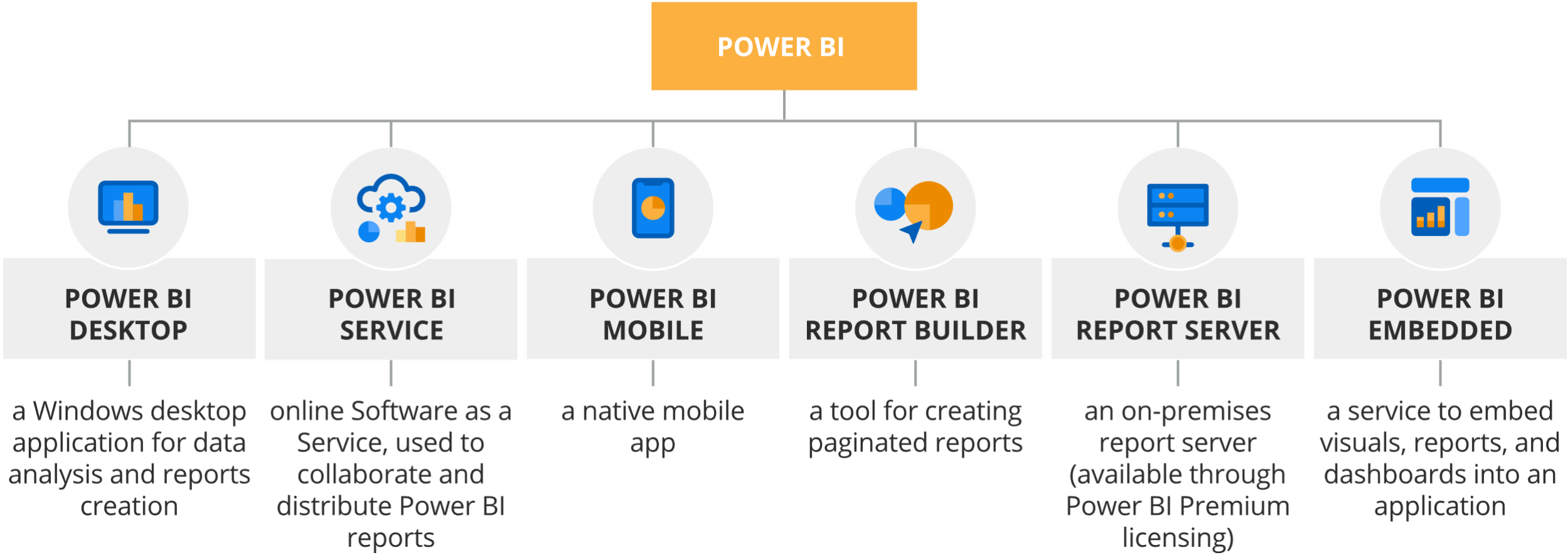
Gartner magic Quadrant (2022)

Microsoft Power BI

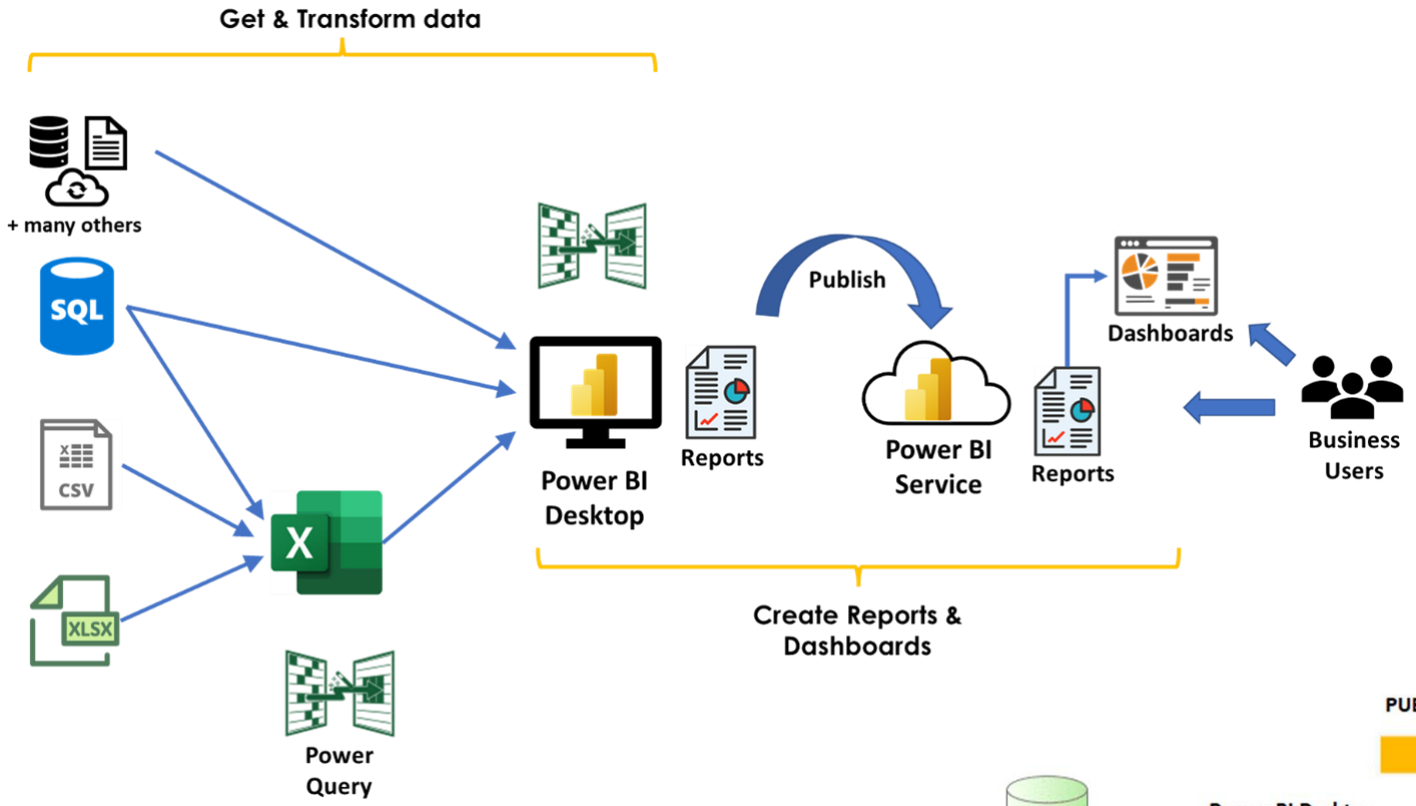
Bridge the gap between data and decision making

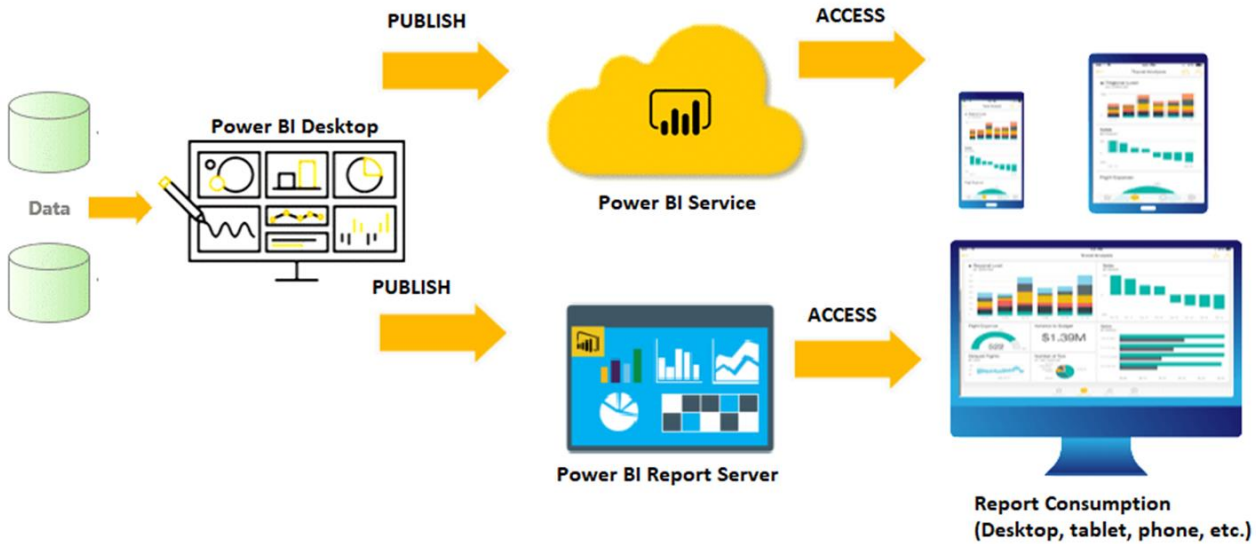
Microsoft is named a Leader in the March 2022 Gartner®
Magic Quadrant™ for Analytics and Business Intelligence Platforms.

Power BI Components

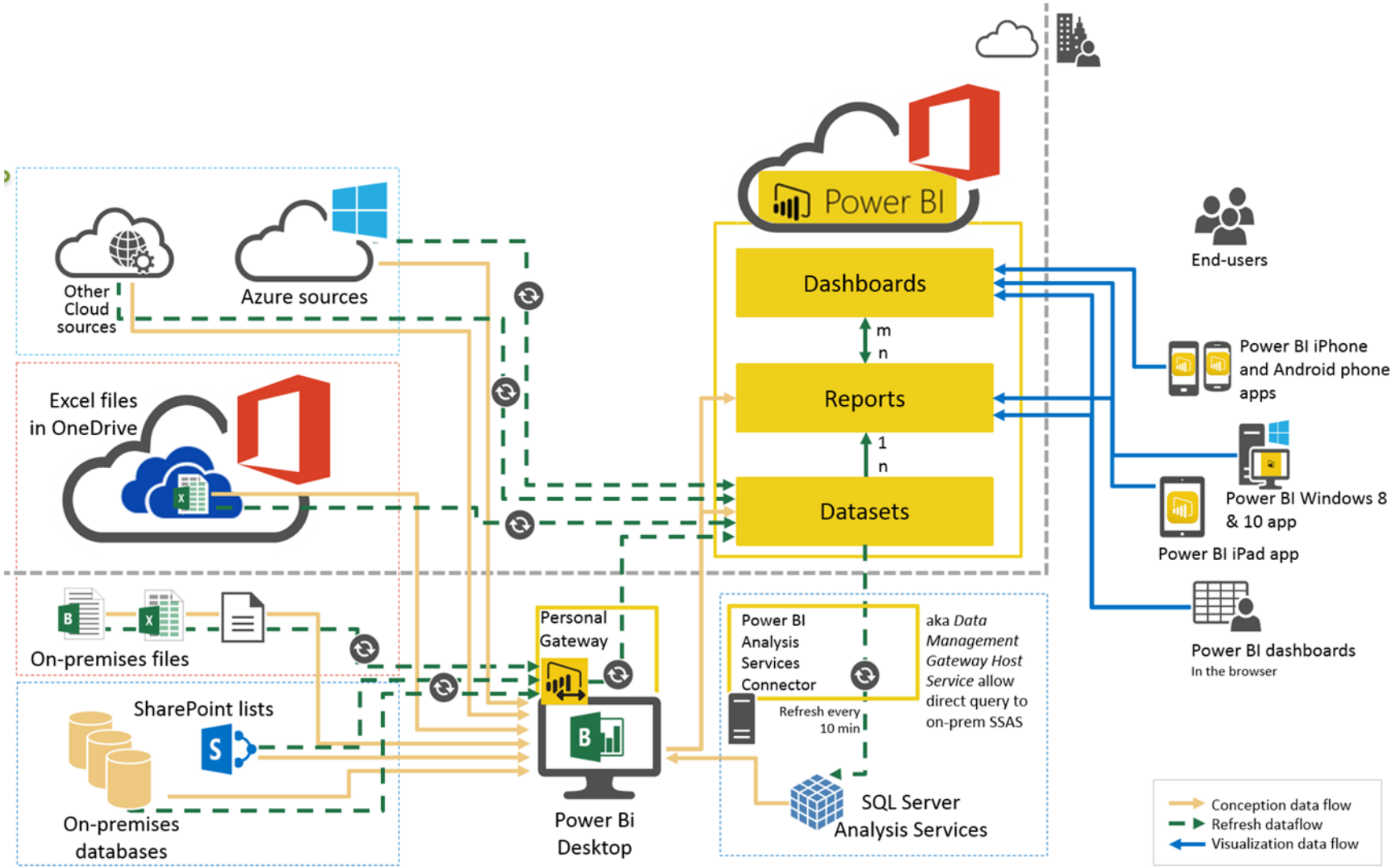


How Power BI works?





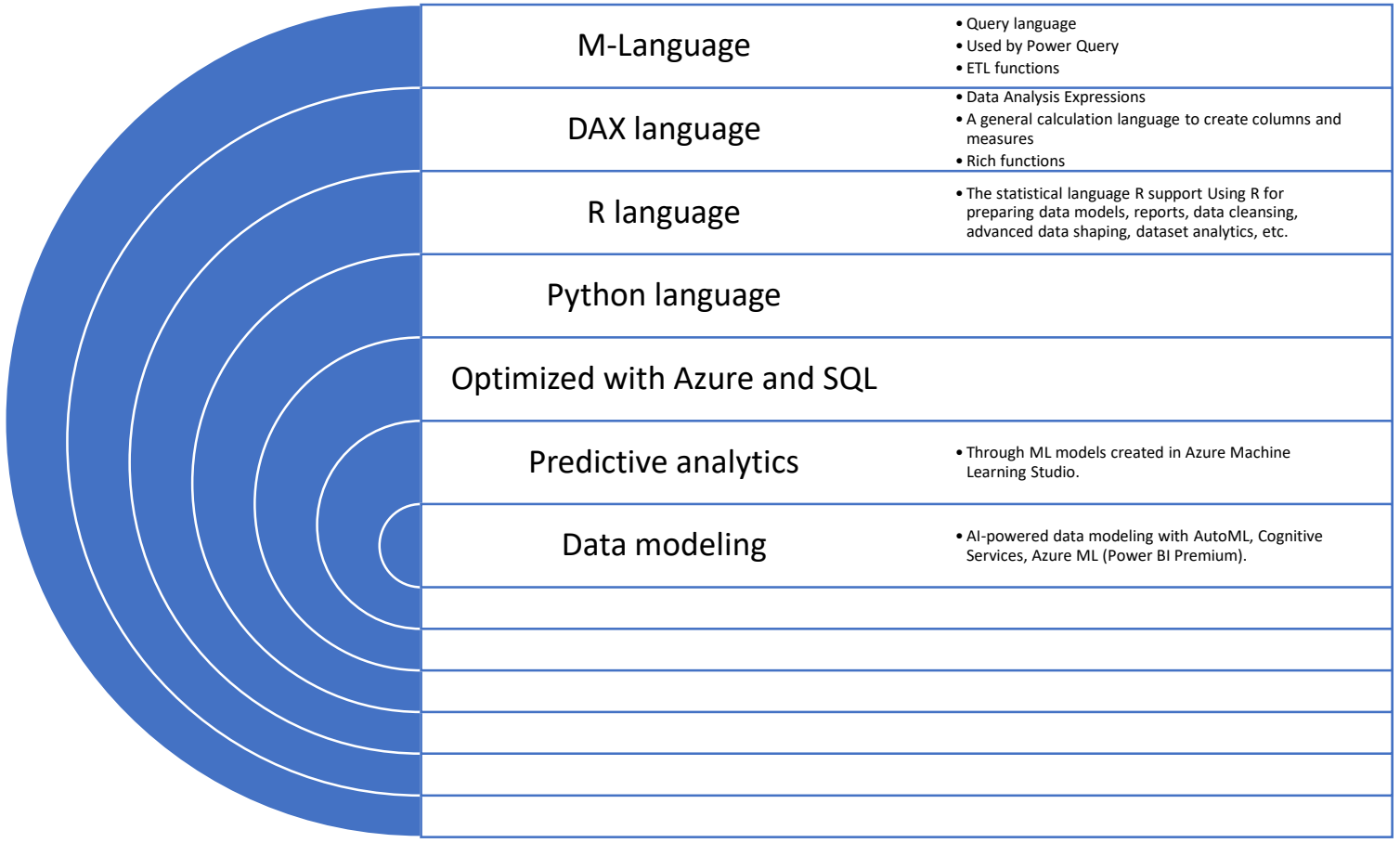
Power BI Architecture



Power BI Products and Pricing

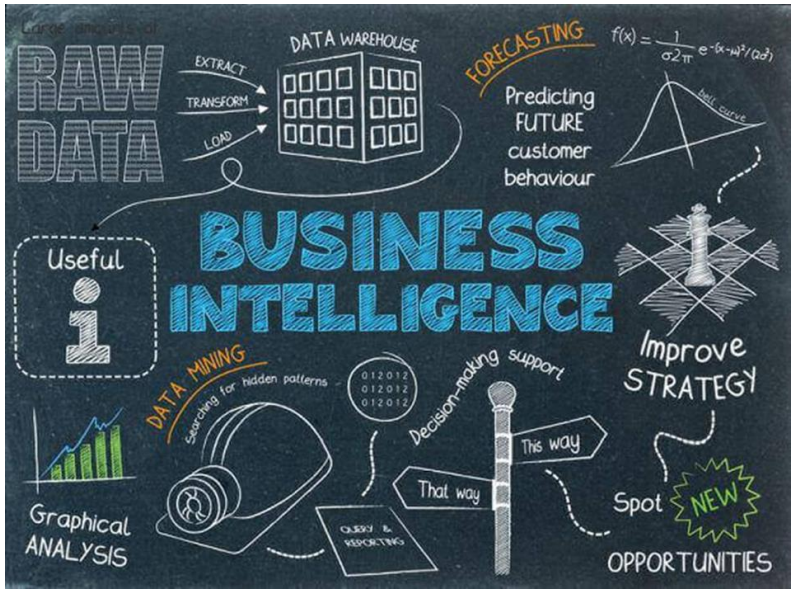
Power BI Desktop	Power BI Pro	Power BI Premium	Power BI Embedded
■ Creating and editing customized reports for every level of expertise. ■ Data ingestion from hundreds of supported data sources. ■ Data transformation, cleaning, data model creation with built-in Power Query Editor. ■ AI-driven analytics. ■ Interactive reporting with pre-built or custom visuals.	■ Self-service BI in the cloud. ■ Creating, editing and sharing reports and dashboards among users. ■ Collaboration in personal and team workspaces. ■ 10 GB of storage per user.	■ Enterprise BI both on-premises and in the cloud. ■ Dedicated storage (100 TB) and compute resources. ■ Consumption of Power BI content without individual licensing. ■ Maintaining BI assets on-premises with the Power BI Report server. ■ Paginated reporting. ■ Multi-geo capability.	■ Reports, dashboards and visual analytics embedded into applications. ■ An extensive library of data connectors, APIs, and fully documented SDKs.
Free	**$9.99** user/month	**$4,995** dedicated cloud storage and compute resources/month with an annual subscription	Pay-as-you-go: from **$1.0081/hour** to **$32.2506/hour**

Power BI languages



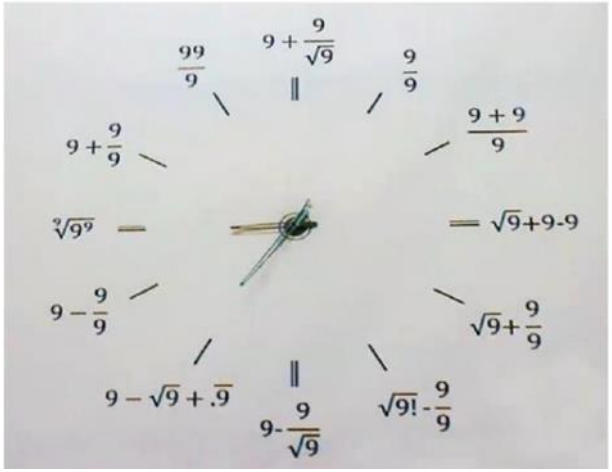
M-Language	• Query language • Used by Power Query • ETL functions
DAX language	• Data Analysis Expressions • A general calculation language to create columns and measures • Rich functions
R language	• The statistical language R support Using R for preparing data models, reports, data cleansing, advanced data shaping, dataset analytics, etc.
Python language	
Optimized with Azure and SQL	
Predictive analytics	• Through ML models created in Azure Machine Learning Studio.
Data modeling	• AI-powered data modeling with AutoML, Cognitive Services, Azure ML (Power BI Premium).

BI implementation



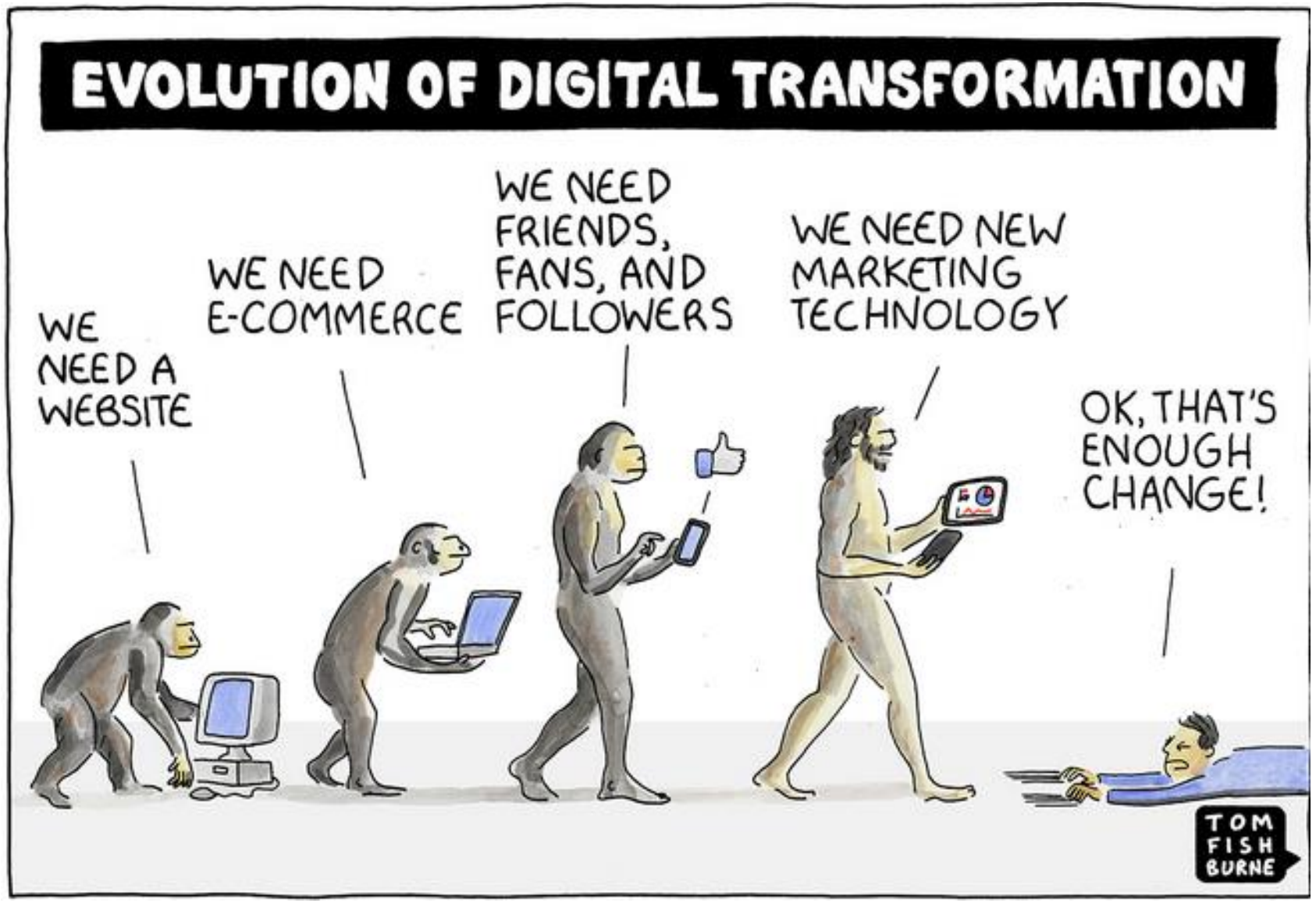
Steps for BI Implementation

- Establish a BI Vision, Mission and Strategy
- Assess current situation
- Develop a BI roadmap and prioritize initiatives
- Establish BI Governance and funding process
- Establish a BI Competency Center (BICC)
- Align Business and IT and BI teams
- Deploy a Data Dictionary/Master Data
- Measure and track ROI/Benefits from BI
- Identify KPIs, Metrics, Measures
- Choose your BI Tools, Technology, Infra, DWH
- Identify Data Sources, start ETL and Modeling
- Design and Implement BI Reports
- Onboard Stakeholders and End-users
- Build Trust in the system, Govern your Data
- Close the Cycle by Continuous Improvement



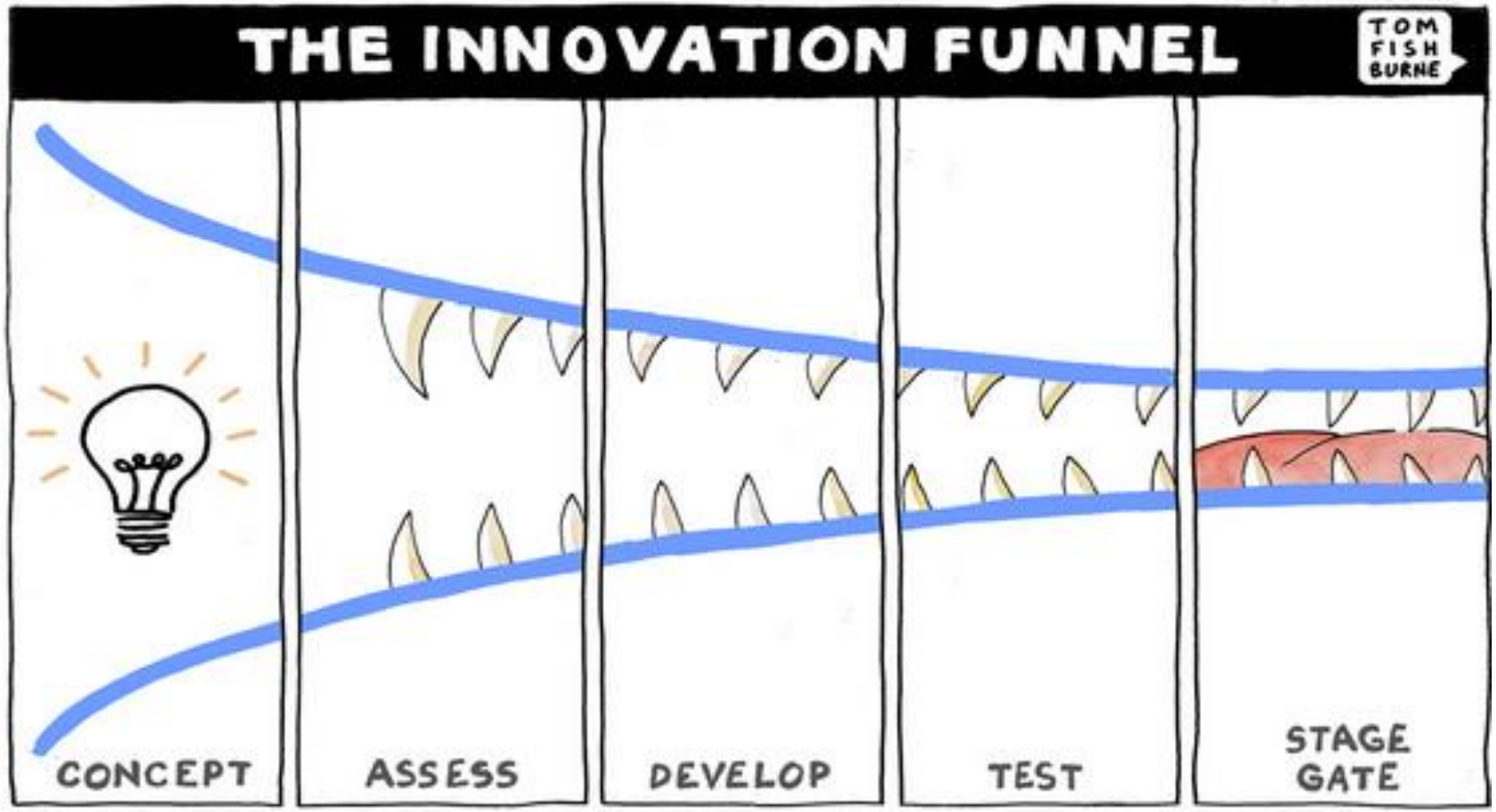
Thank You for taking your time!

DX Journey



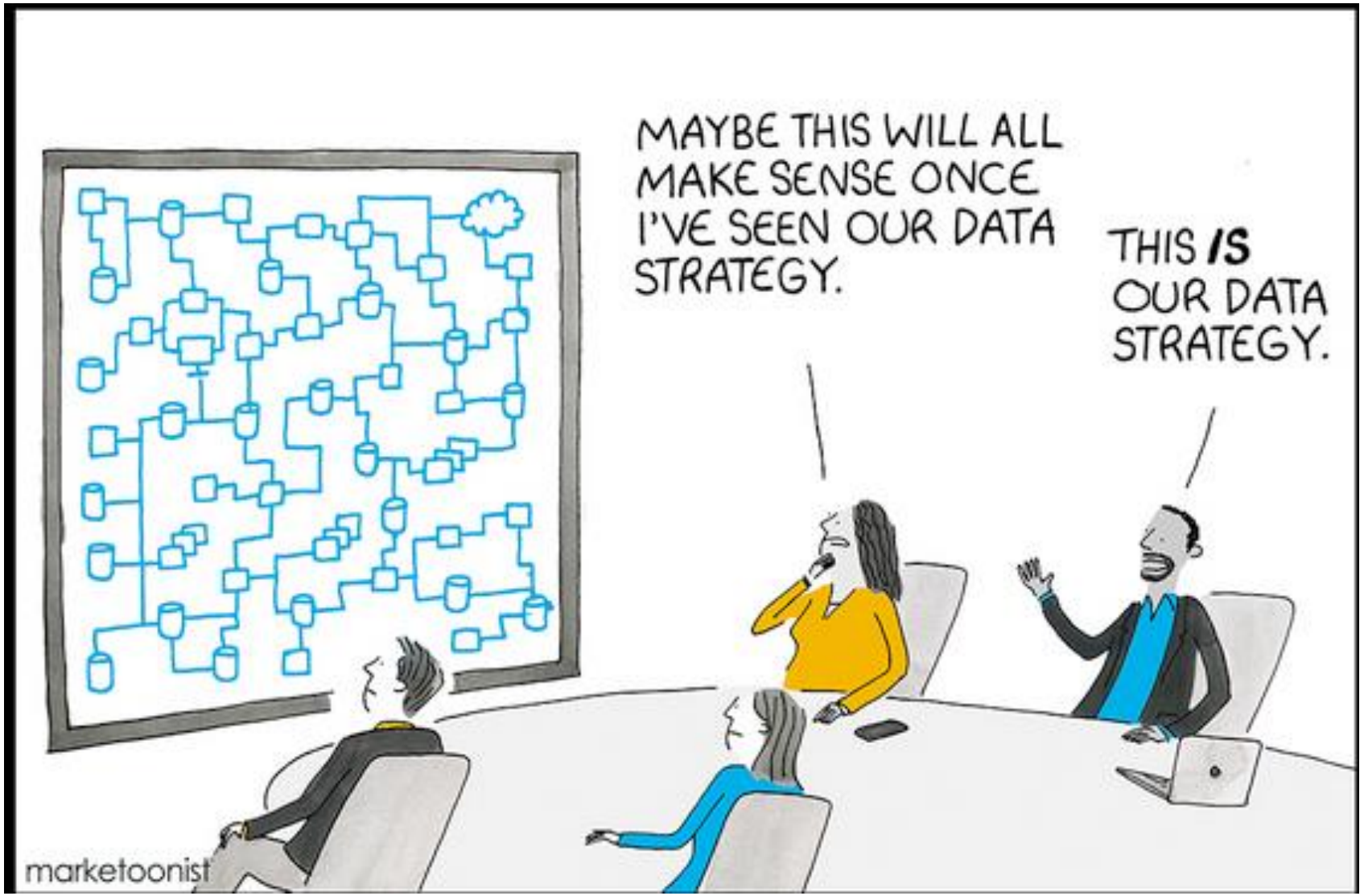
Chief “Something” Officer -- CDO?!

BI Funnel



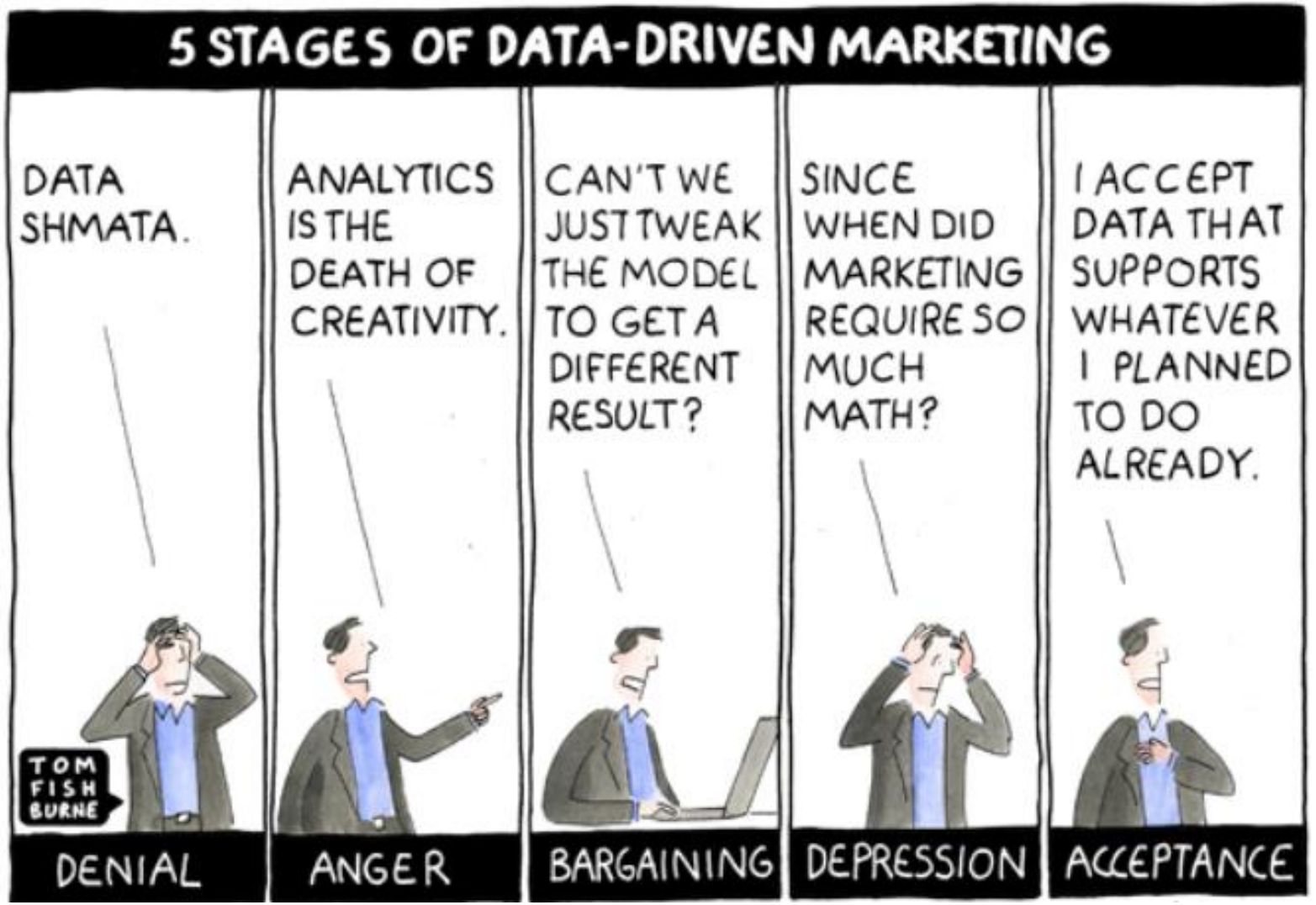
Data Quality

Data Strategy!



BI Budget

Data-Driven Organization



And BI Journey
Does not

End!

Send your Comments and questions to

amorshed@yahoo.com