Why Business Intelligence Important ??

Great BI helps businesses and organizations ask and answer questions of their data.

Business intelligence can help companies make better decisions by showing present and historical data within their business context. Analysts can leverage BI to provide performance and competitor benchmarks to make the organization run smoother and more efficiently. Analysts can also more easily spot market trends to increase sales or revenue. Used effectively, the right data can help with anything from compliance to hiring efforts. **A few ways that business intelligence can help companies make smarter, data-driven decisions:**

- Identify ways to increase profit
- Analyze customer behavior
- Compare data with competitors
- Track performance
- Optimize operations
- Predict success
- Spot market trends
- Discover issues or problems

Business Intelligence vs Business Analytics

BASIS FOR COMPARISON	Business Intelligence	Business Analytics
Definition	Analyses past and present to drive current business needs	Analyses past data to drive current business
Usage	To run current business operations	To change business operations and improve productivity
Ease of Operations	For current business operations	For future business operations
Tools	SAP Business Objects, QlikSense, TIBCO, PowerBI etc.,	Word processing, Google docs, MS Visio, MS Office Tools etc.,
Applications	Apply to all large-scale companies to run current business operations	Applies to companies where future growth and productivity as its goal
Field	Comes under Business Analytics	Contains Data warehouse, information management etc.,

https://www.educba.com/business-intelligence-vs-business-analytics/

Traditional BI vs Modern BI

Historically, business intelligence tools were based on a traditional business intelligence model. This was a top-down approach where business intelligence was driven by the IT organization and most, if not all, analytics questions were answered through static reports. This meant that if someone had a follow-up question about the report they received, their request would go to the bottom of the reporting queue and they would have to start the process over again. This led to slow, frustrating reporting cycles and people weren't able to leverage current data to make decisions. Traditional business intelligence is still a common approach for regular reporting and answering static queries. However, modern business intelligence is interactive and approachable. While IT departments are still an important part of managing access to data, multiple levels of users can customize dashboards and create reports on little notice. With the proper software, users are empowered to visualize data and answer their own questions.

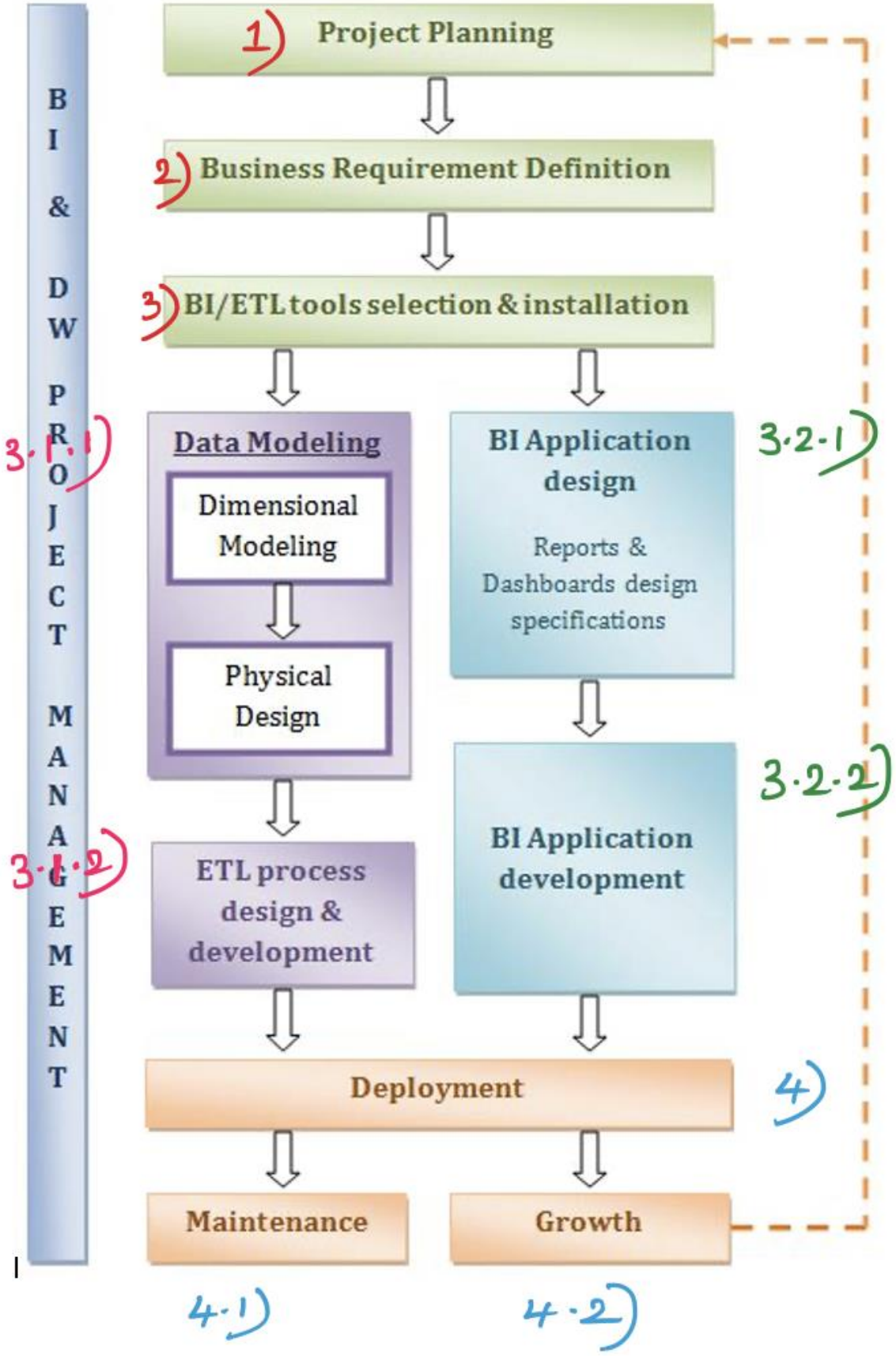
Primary objectives of Business Intelligence

1. Business Intelligence is leverage to make the following enterprise-level decisions.
2. Business Intelligence helps in identifying the wrong tracks and approaches of a business.
3. Business Intelligence can cluster the data for analysis and then compile them to monitor corrective actions.
4. Business Intelligence is also useful for determining whether a company is executing as per plan.
5. Identification and extraction of trends and insights from business are possible using Business Intelligence tools.

Characteristics of Data warehouse

1. A data warehouse is a separate database responsible for storing historical information records and is kept separate from an operational database.
2. Processed and analysed data from a data warehouse helps make top management strategic and tactical decisions based on the analysis.
3. Analysing data in the data warehouse helps the business analysts and users see the current business trends.
4. The data warehouse is also responsible for consolidating historical data analysis.

BI Project Life Cycle



Project Planning

Project life cycle begins with project planning. Obviously, we must have a basic understanding of the business's requirements to make appropriate scope decisions. Project planning then turns to resource staffing, coupled with project task identification, assignment, duration, and sequencing. The resulting integrated project plan identifies all tasks associated with the Lifecycle and the responsible parties.

Project Management

Project management ensures that the Project Lifecycle activities remain on track and in sync. Project management activities focus on monitoring project status, issue tracking, and change control to preserve scope boundaries. Ongoing management also includes the development of a comprehensive communication plan that addresses both the business and information technology (IT) constituencies. Continuing communication is critical to managing expectations; managing expectations is critical to achieving your DW/BI goals.

Business Requirement Definition

Business users and their requirements impact nearly every decision made throughout the design and implementation of a DW/BI system. From our perspective, business requirements sit at the centre of the universe, because they are so critical to successful data warehousing. Our understanding of the requirements influence most Lifecycle choices, from establishing the right scope, modeling the right data, picking the right tools, applying the right transformation rules, building the right analyses, and providing the right deployment support.

Product selection and installation

DW/BI environments require the integration of numerous technologies. Considering business requirements, technical environment, specific architectural components such as the hardware platform, database management system, extract-transformation-load (ETL) tool, or data access query and reporting tool must be evaluated and selected. Once the products have been selected, they are then installed and tested to ensure appropriate end-to-end integration within your DW/BI environment.

Data Modeling

The first parallel set of activities following the product selection is the data track, from the design of the target dimensional model, to the physical instantiation of the model, and finally the "heavy lifting" where source data is extracted, transformed, and loaded into the target models.

Dimensional Modeling

During the gathering of business requirements, the organization's data needs are determined and documented in a preliminary *enterprise data warehouse* representing the organization's key business processes and their associated dimensionality. This matrix serves as a data architecture blueprint to ensure that the DW/BI data can be integrated and extended across the organization over time.

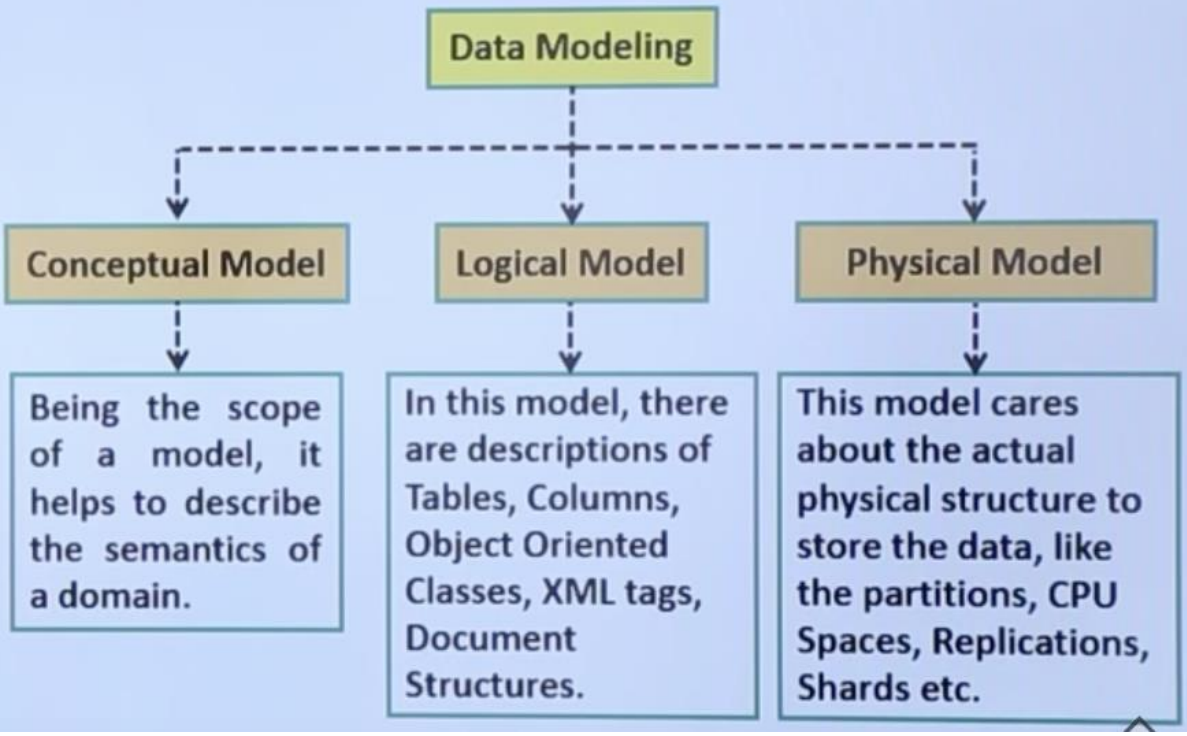
Designing dimensional models to support the business's reporting and analytic needs requires a different approach than that used for transaction processing design. Following a more detailed data analysis of a single business process matrix row, modelers identify the fact table granularity, associated dimensions and attributes, and numeric facts.

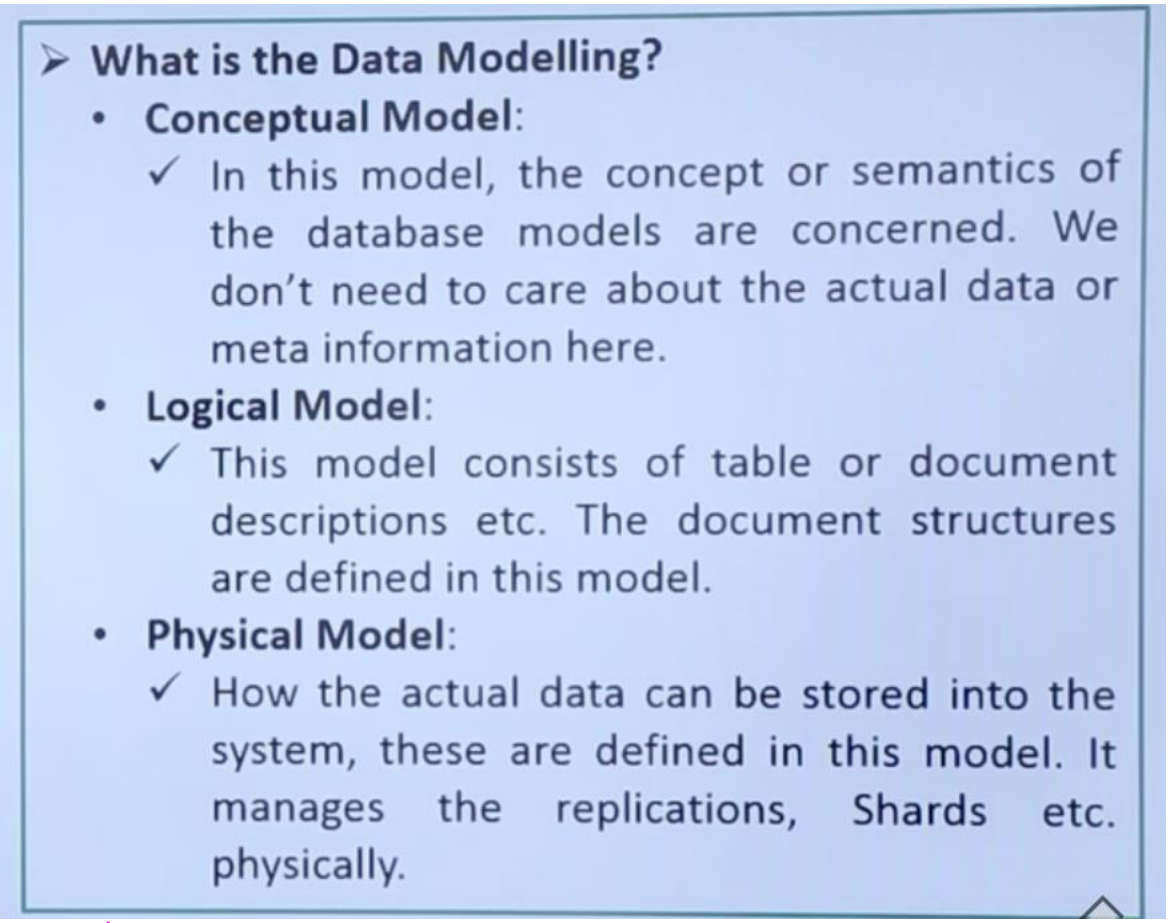
What is the Data Modelling?

- The data modelling or data structuring represents the nature of data, and the business logic to control the data. It also organize the database.
- The structures of data are explicitly determines by the data model.
- Data model helps to communicate between business people, who requires the computer system, and the technical people, who can fulfil their requirements.

What is the Data Modelling?

- The Data modelling concept has three levels. These are like this:





3.1.2

ETL Design & Development

Design and development of the extract, transformation, and load (ETL) system remains one of the most vexing challenges confronted by a DW/BI project team; even when all the other tasks have been well planned and executed, 70% of the risk and effort in the DW/BI project comes from this step.

3.2.1

BI Application Track

The next concurrent activity track focuses on the business intelligence (BI) applications.

BI application design

Immediately following the product selection, while some DW/BI team members are working on the dimensional models, others should be working with the business to identify the candidate BI applications, along with appropriate navigation interfaces to address the users' needs and capabilities. For most business users, parameter driven BI applications are as ad hoc as they want or need. BI applications are the vehicle for delivering business value from the DW/BI solution, rather than just delivering the data.

3.2.2

BI application development

Following BI application specification, application development tasks include configuring the business metadata and tool infrastructure, and then constructing and validating the specified analytic and operational BI applications, along with the navigational portal.

Deployment

The 2 parallel tracks, focused on data and BI applications, converge at deployment. Extensive planning is required to ensure that these puzzle pieces are tested and fit together properly, in conjunction with the appropriate education and support infrastructure. It is critical that deployment be well orchestrated; deployment should be deferred if all the pieces, such as training, documentation, and validated data, are not ready for prime time release.

Maintenance

Once the DW/BI system is in production, technical operational tasks are necessary to keep the system performing optimally, including usage monitoring, performance tuning, index maintenance, and system backup. We must also continue focus on the business users with ongoing support, education, and communication.

Growth

If we have done your job well, the DW/BI system is bound to expand and evolve to deliver more value to the business. Prioritization processes must be established to deal with the ongoing business demand. We then go back to the beginning of the Lifecycle, leveraging and building upon the foundation that has already been established, while turning our attention to the new requirements.

Parallel Development Tracks

1. **The ETL Track**

The ETL track is often referred to as the back end. The purpose of this development track is to design and populate the BI target databases. The ETL track is the most complicated and important track of a BI decision-support project. The fanciest OLAP tools in the world will not provide major benefits if the BI target databases are not designed properly or if they are populated with dirty data. The team working on the ETL track is usually staffed with knowledgeable business analysts, experienced database administrators, and senior programmers.

2. The Application Track

The Application track is often referred to as the front end. The purpose of this development track is to design and build the access and analysis applications. After all, the key reasons for building a BI decision-support environment are to:

- Deliver value-added information
- Provide easy, spontaneous access to the business data

The team for the Application track is usually staffed with subject matter experts, "power users," and programmers who know Web languages, can effectively use OLAP tools, and have experience building client/server-based decision-support applications that incorporate graphical user interfaces.

3. The Meta Data Repository Track

Meta data is a mandatory deliverable with every BI application. It can no longer be shoved aside as documentation because it must serve the business community as a navigation tool for the BI decision-support environment. Therefore, the purpose of this development track is to design, build, and populate a meta data repository. The team members are responsible for designing and building the access interfaces as well as the reporting and querying capabilities for the meta data repository. The team working on the Meta Data Repository track is usually staffed with a meta data administrator and developers who have experience with building client/server-based interfaces and are knowledgeable about Web applications.

Each development track has specific deliverables that contribute to the overall BI project objectives.

- The ETL track delivers loaded BI target databases.
- The Application track delivers the BI reports and queries.
- The Meta Data Repository track delivers the meta data.

A Successful BI Strategy

A business intelligence strategy is your Blueprint for deciding how you will use data in your company. You need a strategy because merely choosing the right technology and implementing a software platform is not enough to realize a return on investment. To create a strategy, you must determine three things. How will you deploy the software platform? How will you manage the data for analysis? And how will you enable your people to make informed, data-driven decisions? A business intelligence strategy will help your company reap the rewards of having actionable insights. Examples include access to sales performance benchmarks, human resources salary forecasts, and ensuring your shipping department knows what to ship each day. Success occurs from systematically approaching the project with a defined BI strategy, including discovery, planning, and measured execution.

1. Choose a sponsor

Ideally, your choice to sponsor the project and get buy-in from other high-level employees should be an executive-level leader. Before you begin, you need participation and alignment on the vision of BI in the company. Organizations who value data in every department appoint a Chief Data Officer to sponsor the BI initiative. The CDO or other executive sponsor needs to consider the support and training required for deployment and consider how to scale this platform to the entire enterprise. Keep your sponsor up to date on your progress. When you have launched your BI platform, and it's working as expected, generate some valuable, visible reports to share with your sponsor. Prove to your sponsor, and therefore the company, that your strategy is working. For more information, see Executive Sponsor Roles and Responsibilities in Tableau Blueprint.

2. Choose your BI platform

A BI software platform can do a lot, but it isn't your entire BI strategy. Now that you have chosen a sponsor for this initiative, you can evaluate BI platforms to find a good fit for your plan. Many platforms share common functionalities, and you should rank on a scale of importance to the following features:

1. Data access and view of relevant content
2. Interactivity with data within a visual interface
3. Ability to dive deeper into data and discover new insights on your own
4. Promote new insight discoveries to a governed environment in a bottom-up approach
5. Collaborate with others on data analysis and sharing visualized analytics

For more information, see Evaluating a Modern BI Platform. Once you have decided who will be your BI sponsor and what platform to use for analysis, the next step is to identify and involve your key stakeholders.

3. Identify the key stakeholders and get them involved

Business intelligence may include software, but that doesn't mean it's only an IT project. BI also requires financial data, but that doesn't mean it's only the finance department's concern. You should bring in a representative from every team affected by your BI plan. Get them involved early and interview them. Ask them how they use data in their work, what is working for them, and what isn't working for them. Use those insights to tailor your BI scope. For more information, see Tableau Content Consumer Roles in Tableau Blueprint.

4. Assemble your BI team

Your BI team will be responsible for implementing your strategy. You can hire new people or have people fulfill multiple functions if your organization is small. BI platforms ensure that reports and dashboards are accessible and approachable to non-analysts (known as self-service business intelligence). However, to get the platform up and running correctly, you will need this cross-functional team to implement the BI plan. These are some of the roles and responsibilities for the BI project team:

- An IT service owner or analytics director to manage the software platform
- An enterprise architect who integrates the platform with the existing data architecture
- A site administrator to organize the content, and create user groups and permissions
- A data steward to put the data in context and document processes and procedures for using the platform

But these aren't all the people involved in the project. You will also need a steering committee and executive sponsor to ensure the project is meeting its deadlines. For more information, see Tableau Project Team Roles and Responsibilities in Tableau Blueprint.

What is a Cross Functional Team?

Cross functional teams are groups consisting of people from different functional areas of the company – for example, marketing, product, sales, and customer success. These can be working groups, where each member belongs to their functional team as well as the cross functional team, or they can be the primary structure of your organization.

5. Define the scope of BI

Before you deploy business intelligence software, you need to decide what BI means to your organization. Business intelligence means using data to make business decisions. But you need to determine how that will work in the day-to-day operations of your company and which departments will use BI. For example, Coca-Cola created customized dashboards for customer service specialists. Chipotle created a unified view of their restaurant locations to compare performance between them. HelloFresh created automated reporting of campaign results, saving hundreds of hours of analysis time. There are many examples of companies using business intelligence in innovative ways. Decide how you want to integrate BI to support your company objectives. After you define your operational definition of business intelligence, you should decide which divisions of your company to include first. Are you using business intelligence to understand and predict financial performance, human resources, supply chain, or inventory changes? Will you be analyzing a combination of these or something else entirely? The scope of analysis within the business needs to be clear before you move on to the next steps. Once the scope of analysis is clear, you need to choose what you want to measure within that data. Identify which metrics and reports would be the highest priority for your company's leadership. These reports should include your key performance indicators (KPIs) that align with overall company goals to measure success. These can be internal metrics compared to past performance benchmarks, as well as external metrics. What KPIs indicate success in your industry? Competitive analysis is becoming a crucial part of business intelligence. BI tools are allowing organizations to monitor competitors' performance, changes in the market, and customer behavior changes. You can do this by analyzing competitors' case studies, blogs, articles, videos, etc. After defining your scope of business intelligence, you will probably realize just how big of a project it will be to implement BI. Now you must identify your people resources to implement your strategy. For more information, see Tableau Monitoring in Tableau Blueprint.

6. Prepare your data infrastructure

Business intelligence must have clear data sources to perform an accurate analysis. Traditionally, BI platforms import data from a data warehouse. With modern BI, you can analyze data from multiple sources. We differentiate between two types of data: trusted and untrusted. Trusted data is stored in databases or easily imported into databases such as spreadsheets, customer relationship management (CRM) data, financial data, etc. This is the data you probably have used in previous business analytics. Untrusted data is information such as emails, conversations with customers, business processes, images, news items, trade journals, etc. With modern BI, you can bring untrusted data into a governed and secure environment for analysis. The BI team needs to survey stakeholders and information consumers to see what data sources they will need for analysis before deploying the BI platform. For more information, see Tableau Use Cases and Data Sources in Tableau Blueprint.

7. Develop a business intelligence roadmap

The BI team should develop a roadmap for the implementation of your strategy. Here are things you should consider when creating a BI roadmap:

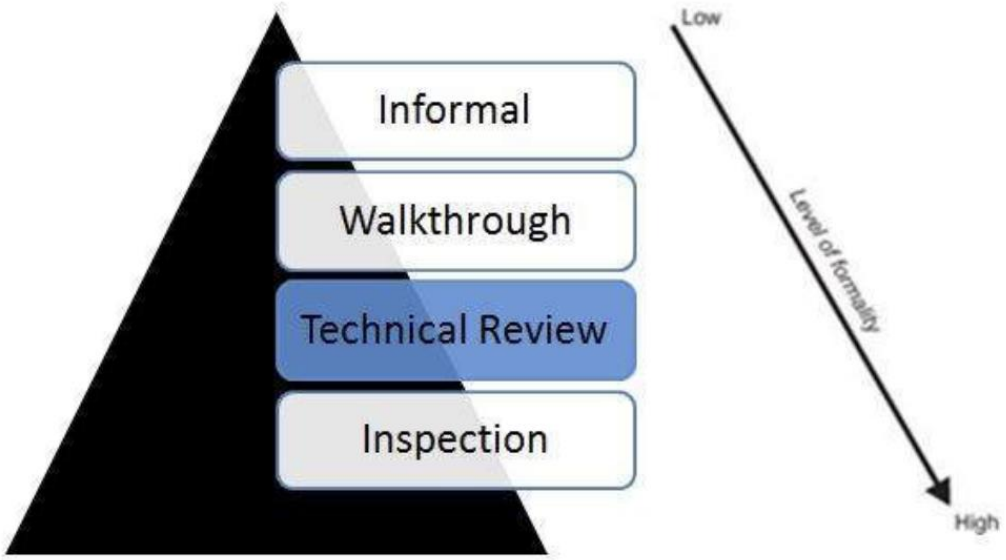
1. Keep track of milestones and dependencies such as when your data warehouse will be ready
2. Keep your eye on the future and adapt your roadmap when needed
3. Be proactive, not reactive

Decide when your platform will launch and when your data warehouse will be ready for your BI initiative. Be prepared to adapt your BI roadmap when needed. Business intelligence is beneficial when it's proactive. If your BI strategy focuses on reacting to ad hoc reporting requests, you won't use business intelligence to its full potential. Mark on your roadmap when new events happen such as new business, new initiatives, changes in the market, or changes in customer behavior.

Technical Review

A Technical review is a static white-box testing technique which is conducted to spot the defects early in the life cycle that cannot be detected by black box testing techniques.

Technical Review - Static Testing:



Technical Review Characteristics:

- Technical Reviews are documented and uses a defect detection process that has peers and technical specialist as part of the review process.
- The Review process doesn't involve management participation.
- It is usually led by trained moderator who is NOT the author.
- The report is prepared with the list of issues that needs to be addressed.

Terminologies

KPI → Key Performance Indicator

Key Performance Indicators (KPIs) are the critical (key) indicators of progress toward an intended result. KPIs provides a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most. As Peter Drucker famously said, "What gets measured gets done."

Managing with the use of KPIs includes setting **targets** (the desired level of performance) and tracking progress against that target. Managing with KPIs often means working to improve **leading indicators** that will later drive lagging benefits.

Leading indicators are precursors of future success;
Lagging indicators show how successful the organization was at achieving results in the past.
From 250 lbs / 113 kg to 185 lbs / 84 kg, the entire process in achieving the goal.

Good KPIs:

- Provide objective evidence of progress towards achieving a desired result
- Measure what is intended to be measured to help inform better decision making
- Offer a comparison that gauges the degree of performance change over time
- Can track efficiency, effectiveness, quality, timeliness, governance, compliance, behaviors, economics, project performance, personnel performance or resource utilization
- Are balanced between leading and lagging indicators

Terminology Example: Let's say someone wants to use KPIs to help them lose weight. Their actual weight is a **lagging indicator**, as it indicates past success, and the number of calories they eat per day is a **leading indicator**, as it predicts future success. If the person weighs 250 lbs / 113 kg (a historical trend is called a **baseline**), and a person they would like to emulate is 185 lbs / 84 kg (comparison research is called **benchmarking**), they might set an 1,700 calorie-per-day **target** (desired level of performance) for the leading KPI in order to reach their lagging KPI target of 185 lbs / 84 kg by the end of a year.

Meta Data

https://www.youtube.com/watch?v=fZWg0ClQkYQ

Advantages and Disadvantages of BI

Advantages of using BI systems are:

1. It helps boost productivity and makes it possible to create a business report with just a single click.
2. It also helps increase the visibility of the data analysis and possibly identify those areas that demand attention.
3. As per the organization's goals, the BI system sets the accountability.
4. BI systems automate several tasks by offering predictive analysis, benchmarking, modelling figures, and statistical calculations using different methodologies.

Disadvantages of Business Intelligence Systems are:

1. The BI systems are costly, so using them for small and medium scale enterprises will prove expensive.
2. Implementing BI systems for the data warehouse is complicated. Hence, the complexity of using it is another drawback of it.

Case-Studies

How do we handle a Business Intelligence solution in IoT data?

1) Start by thinking about what you want to do with the data ideally - what is/are the improvement(s) you would like to achieve (irrespective of the tech).
2) Then get to know the BI tool and the data sets...what might be possible?
3) finally look at the area of overlap between the two. Otherwise you will be get sucked into a 'big data' projects with massive time wasted in reports that look fancy but don't actually improve things

All business intelligence applications require a data warehouse.

The above statement is false. BI applications use data gathered from a data warehouse (DW) or from a data mart, and the concepts of BI and DW sometimes combine as "BI/DW" or as "BIDW". A data warehouse contains a copy of analytical data that facilitates decision support. However, not all data warehouses serve for business intelligence, nor do all business intelligence applications require a data warehouse.

What is the effectiveness of online advertising campaigns run by commercial banks?

Yes. Internet advertisements are used more and more often in advertising campaigns also by financial institutions, including commercial banks presenting their offers of banking products and financial services as well as internet mobile banking offer. During the SARS-CoV-2 (Covid-19) coronavirus pandemic, the development of electronic internet banking, including mobile banking, accelerated. Therefore, commercial banks have recently been developing mainly online mobile banking for citizens, individual clients and business entities. Recently, many banks have been conducting advertising campaigns using new online media, including social media portals, to promote their online banking offers, also offered to companies and enterprises. Banks offer the opening of an online banking account primarily for business entities from the SME sector that do not yet have a mobile banking account, do not have their own website, are start-ups, etc. In promotional online banking offers for companies and enterprises from the SME sector, commercial banks offer additional incentives and incentives. auxiliary services creating a website for the

company, creating an online platform for selling products and / or services of the client's enterprise, creating an online store, they also offer tax advisory services, financial advisory services, etc. Banks more and more often offer their financial services through social media portals, because of the research conducted market know that their customers are increasingly actively using these new online media and that these online marketing communication channels can be the most effective.

BI strategy:

Without a BI strategy	With a BI strategy
Multiple versions of the truth; people refer to different data when making decisions	The single version of the truth that leads to effective business decisions
Unclear names and definitions that get everyone guessing	Consistent definitions
Personnel overhead with different departments having their own BI	BI specialists and analysts maintaining the BI ecosystem
Data quality is an afterthought	Data quality is a priority

Your BI strategy has three main elements:

Vision. Why are you building the BI practice in your company and what do you want to achieve?

People and processes. Who will define and run the BI strategy? And how?

Tools and architecture. Which dashboards and solutions do we want to build? For which areas? And how will they impact those areas?

Step 0. Assess your current BI ecosystem

So, the first thing to do is **talk to all players of the current BI processes**: users and the IT team, department managers and stakeholders. As a result, you should have answers to the following questions:

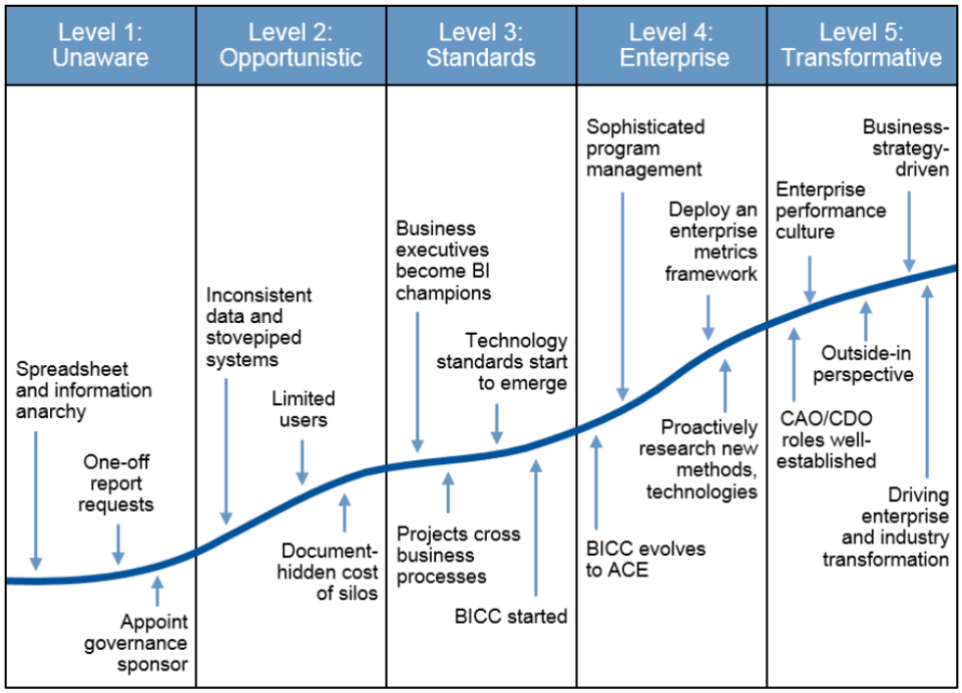
- What's your BI vision and or do you have any? How is that vision aligned with your IT and corporate strategy?
- Who are your BI players and how coordinated are they? Is there function overlap?
- How do you handle data management and data governance? How do you support BI users?
- What solutions are you using and how? Which of them bring value?
- Is your architecture aligned with corporate strategy? Are you sure that your licensing model works best?

Step 1. Create the vision

A **vision** is a combination of purpose and direction. There's no strategy without a vision. It manifests itself in the form of many crucial decisions, like what data we will be sourcing or who will get access to the insights.

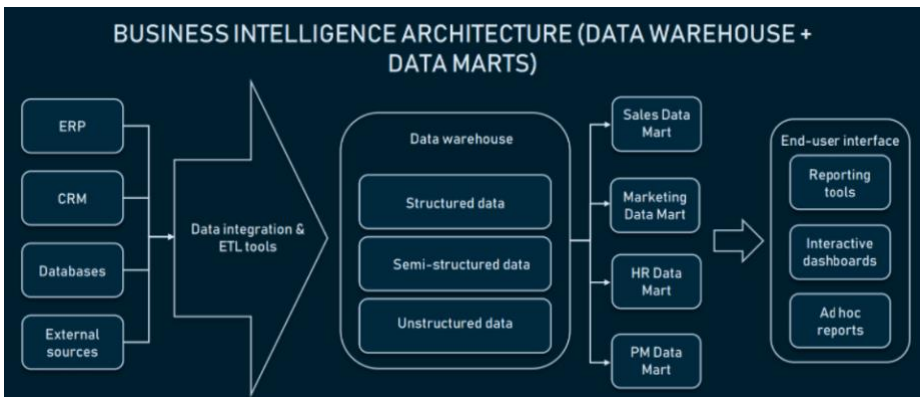
A vision also has a very mundane purpose: explaining to people in your organization — who already have their favourite tools and processes — why they need new ones, and how the transformation will happen.

BI Maturity model – the scale that tells you how mature your strategy is.



Step 2. Establish BI governance processes

- A **BI governance team** or people who will be responsible for governance processes
- **BI tools and lifecycle management** or the design and development of BI architecture
- **User support** from technical, functional, and data standpoints



Choosing BI tools, Drafting the data integration process, Ensuring data presentation, Performing user acceptance tests, Performing training.

User Support: Data education support(Metadata, data purpose, metrics, Data source), Tool support, Business support.

Step 3. Build a BI roadmap

Here, a roadmap is a visual document demonstrating deliverables at different stages of implementation within the timeline. By this step, you already have all the data you need to organize and schedule on the map, you only need to set up time frames and deliverables for every task.

Step 4. Document a BI strategy

The logic behind a strategy document is that it will be a point of reference for the whole organization and will be used for the strategy presentation. What sections should go into this document?

1. **Executive summary**. Written last but included in the very beginning, the summary gives an overview of steps and advancements you're planning to make to reach your strategic goals. Why you're starting this process, what your vision is, the timeframe, and deliverables.
2. **BI strategy alignment with corporate strategy.** Go into detail about the value BI will bring to the organization, what problems it will solve, and how new processes will support the existing ones.
3. **Project scope and requirements**. This is the place for your roadmap and BI architecture schema, where you go into detail about best vendors, architecture design, required staff and budget. Basically, explain the next steps after the strategy document is shared/presented.
4. **BI governance team**. Let the audience meet the group responsible for the effort and communicate to end users who their immediate managers are.
5. **Alternatives**. Here, review the options you've considered but chose to pass on and explain why they didn't work. This will reduce the audience's doubt and highlight the benefits of the final decisions.
6. **Assessment**. Explain deliverables and the metrics of success you will be calculating. For example, end users must know why you're reaching out for feedback or tracking their activity in the system.
7. **Appendices**. Lastly, provide additional information like the list of picked vendors, organization charts, a glossary of terms, and even a corporate strategy document to revisit and compare.

Step 5. Review your BI strategy every year

- How will you measure the success of your BI strategy? Quantitative metrics alone won't do – you want to know how much better you understand your business or even how strong end users' relationships have become.

- You can **revisit your BI Maturity model** to determine whether you're going in the right direction and establish metrics. The main one would be ROI, which describes if BI actually brought expected value.

- **Qualitative metrics** would include things like the number of data access requests made by end users, increased productivity, or that deadlines are met more often.

- You should also measure the **effectiveness of the BI governance group** – whether all goals were met and if the priorities haven't shifted.