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BUILDING ANALYTICS TEAMS

PROF. DR. FLORIAN STAHL

The Vital Role of Analytics Teams in Today's Business World

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"The days of companies wondering whether they should jump on the data analytics bandwagon, or having a single data analyst on staff, are gone. For firms today, the focus has turned to building the right team to fully harness all that data has to offer."

Sarah Brown (MIT)

Source: MIT (2020)

Status Quo – Two Different Realities

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Create measurable value from data: **32%**

Produce actionable insights with data: **27%**

Confidence in data analysis abilities: **24%**

Global Big Data and Analytics Market

2020: ~ $200 billion

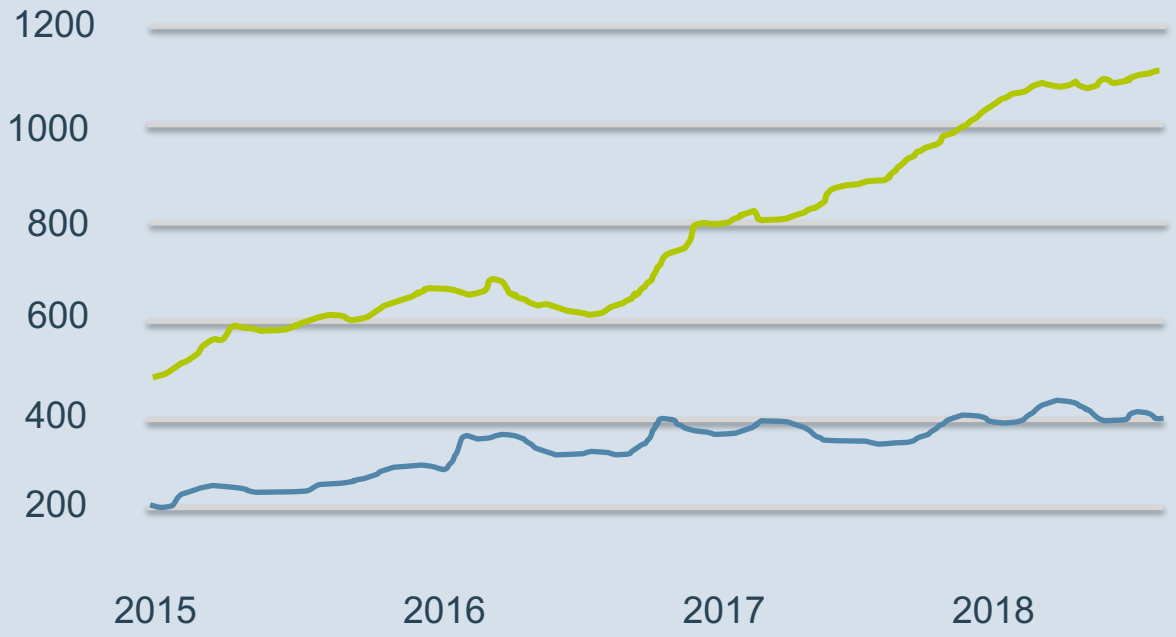
2030: ~ **$700 billion**

Many firms still struggle with the lack of capabilities and resources to use data and analytics while …

… the Global Big Data and Analytics Market keeps increasing.

https://www.alliedmarketresearch.com/big-data-and-business-analytics-market#:~:text=The%20global%20big%20data%20and,13.5%25%20from%202021%20to%202030

Growing Gap between Demand and Supply of Data Scientists



Postings per million (4-week moving average)

Searches per million (4-week moving average)

3x
job postings
versus job searches

What is a data science/analytics team?

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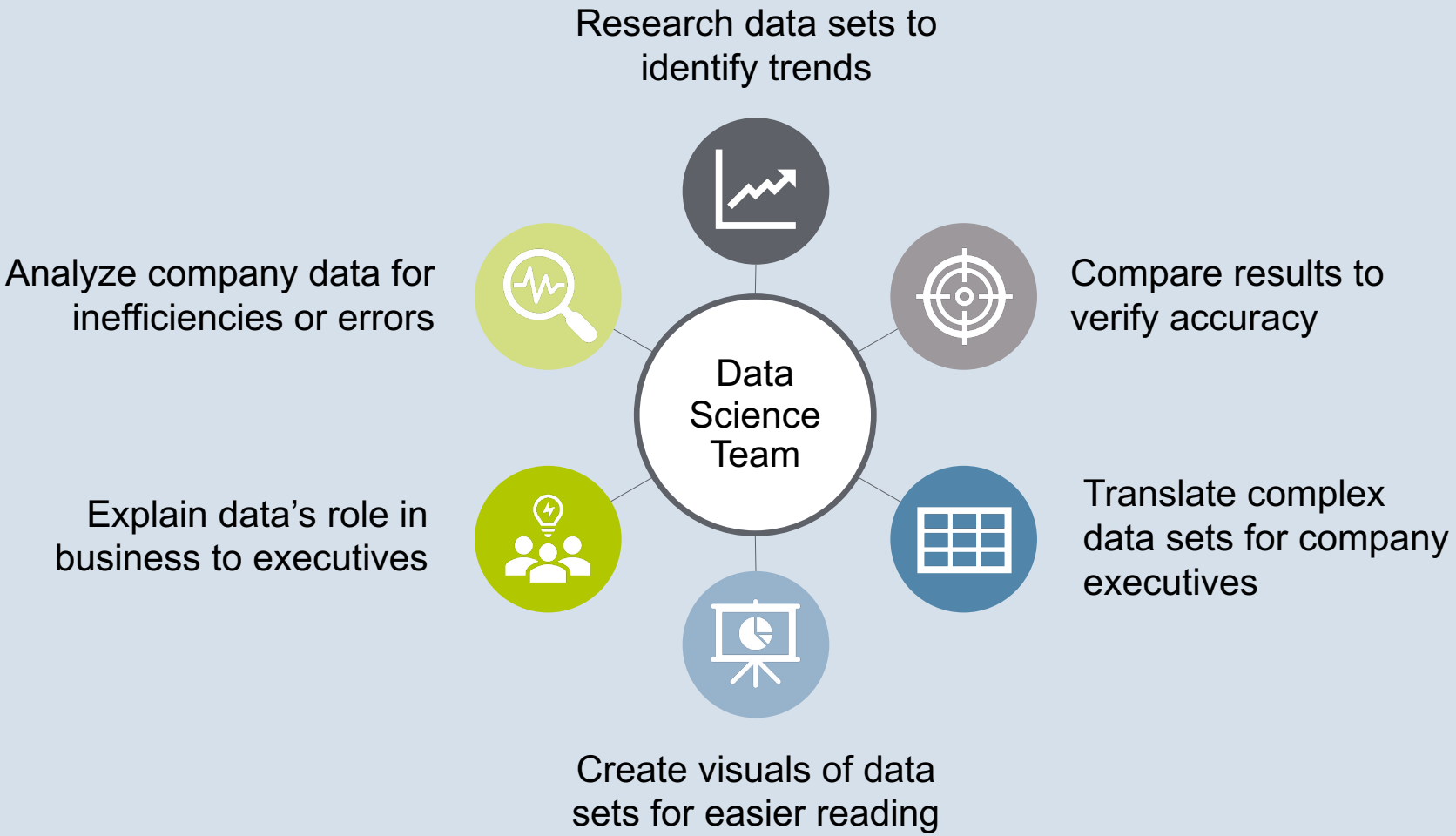

Data-Driven Organizations - Netflix

https://www.youtube.com/watch?v=m5hLUknli5c&t=139s

How Analytics Teams Are Built and Set Up for Success

1. Building blocks of a **successful analytical competence**
2. Transformation to **create successful analytical competence**
3. Develop key factors for **building analytics teams**
4. **Manage** and **lead analytical projects** successfully

Data Science Value Creation Model

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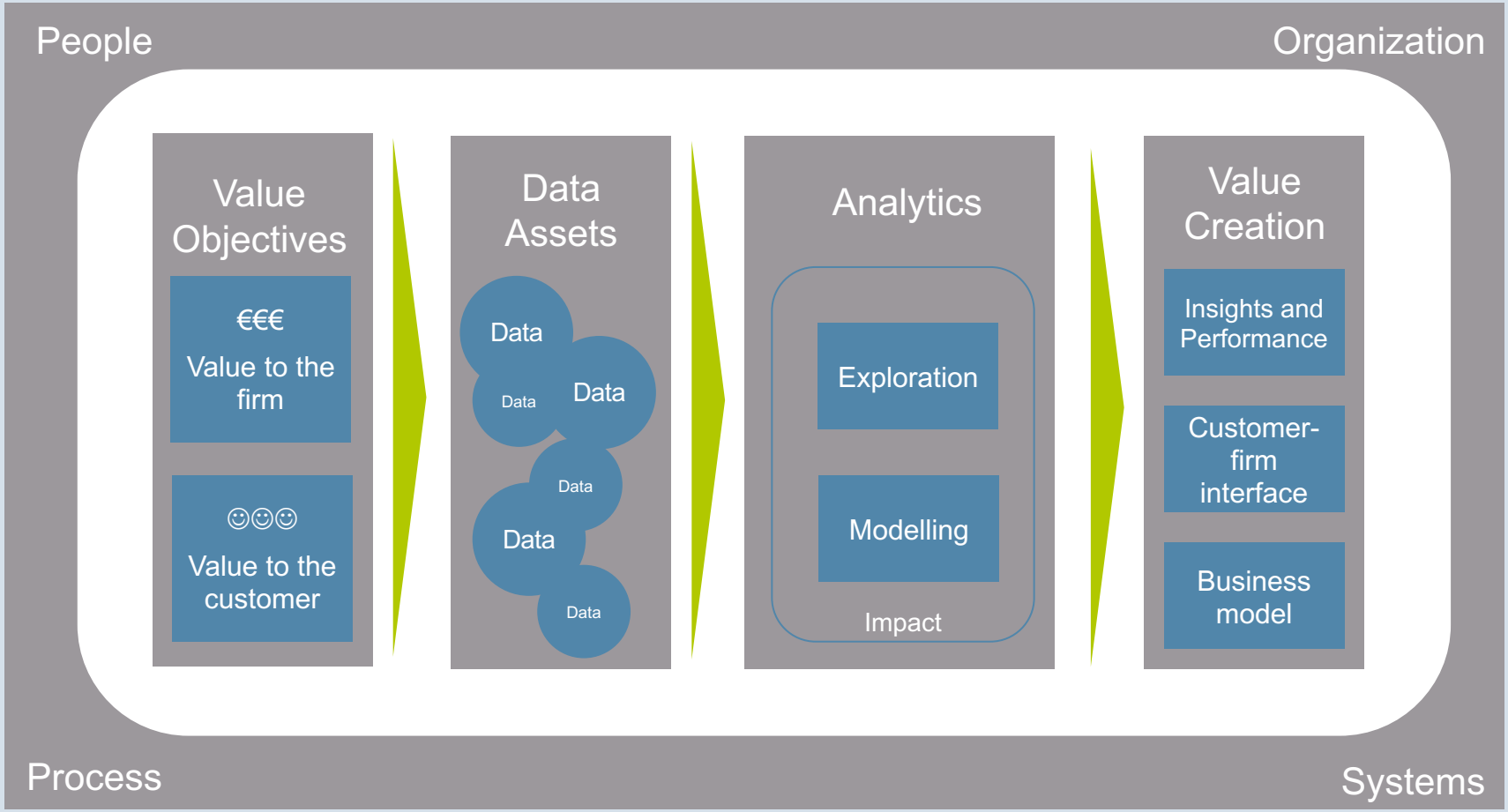
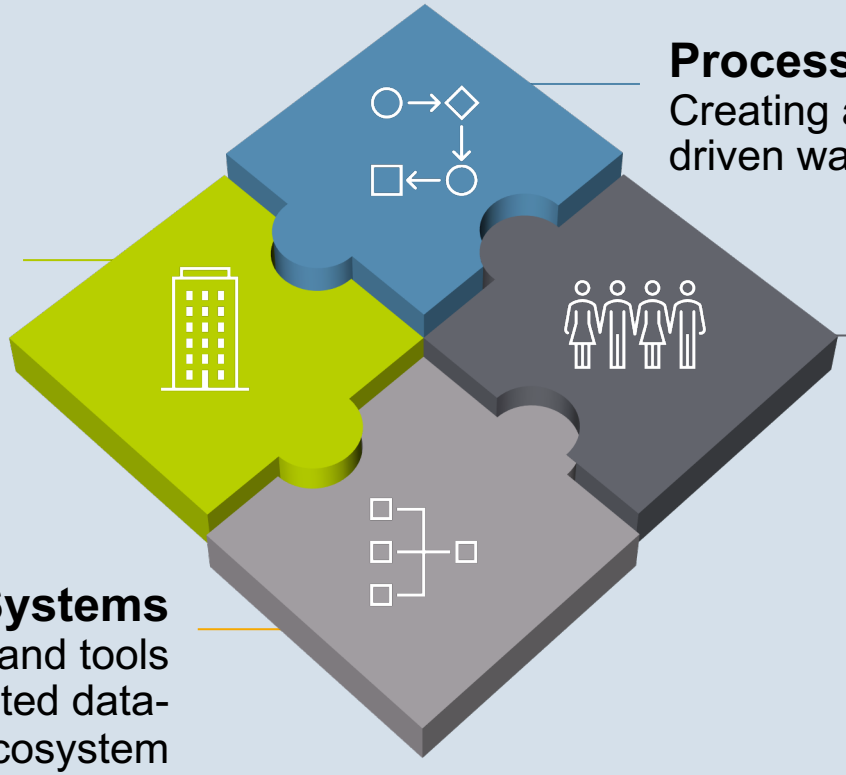


Building Blocks of a Successful Analytical Competence



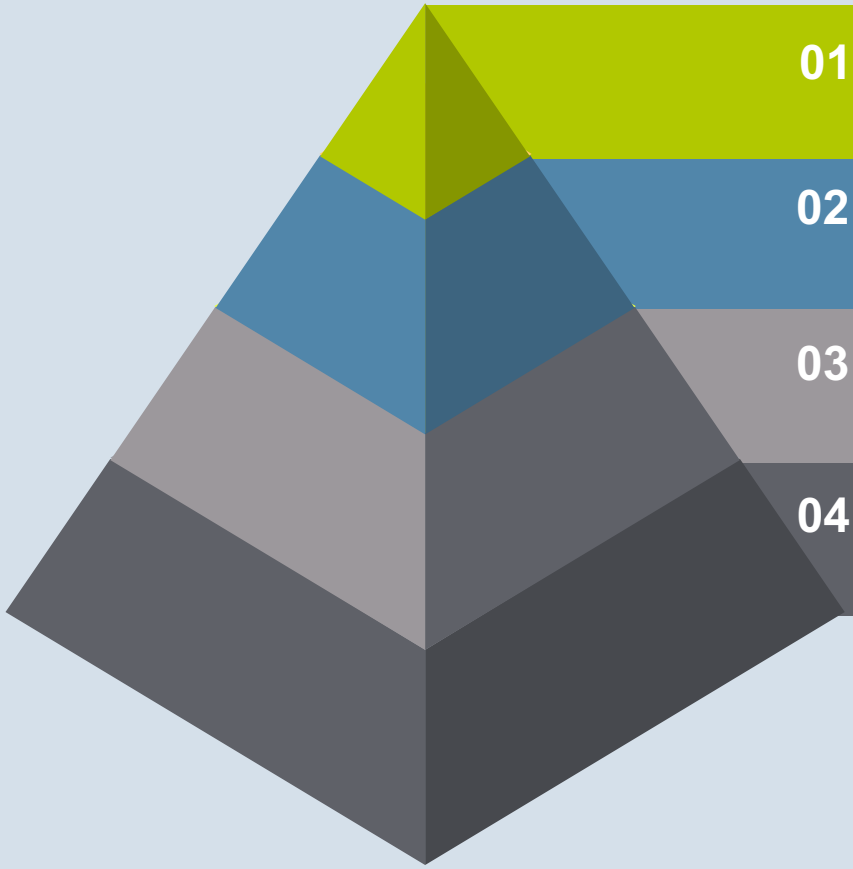
Process
Creating a common fact driven way of working

Organization
Establishing a data-driven culture for the highest impact

People
Recruiting, developing, and maintaining analytical talent

Systems
The platform and tools for an integrated data-ecosystem

The Four Dimensions of Analytics Capabilities



01 Strategy & leadership
- Alignment with business strategy
- Articulated forward-thinking vision

02 Culture & governance
- Cross-functional, data-driven decision-making & culture
- Clear organizational structure

03 Talent & skills
- Technical skills for analytics
- Talent management

04 Data ecosystem
- Data management & data quality
- Technology enablement via tools and systems

Source: Melbourne Business School; Kearney (2019)

Set Objectives and Ambition Levels for Data Analytics Capabilities and Outcomes

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Value-orientation

Define objectives and set ambitions
Which KPIs are to be addressed? What impact is to be achieved?

Access and understand relevant data
What data is needed to derive impact on KPIs? What interdependencies exist?

Create insights and derive actions
What recommendations are derived from data?

Make decisions and execute
How are data-based decisions made? What ensures execution?

Confirm impact and realign objectives
Was the intended impact achieved? What adaptions need to be made?

Impact evaluation

Objectives Are Derived From a List of Use Cases and Impact Assessments

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Objective definition & ambition setting

1 Use-case develop-ment

Develop long list of potential analytics team use cases, e.g. along organization units, including key activities

2 Use-case ranking

Rank long-list according to custom criteria, e.g. including ease of implementation, buy-in of stakeholder, data quality, required tools, etc.

3 Impact estimation

Estimate high-level impact for each use case on (financial) KPIs, e.g. including revenue, OPEX & CAPEX savings, profitability increase

4 Roadmap definition

Define a high-level implementation roadmap to plan execution of top use cases

Examples of guiding objectives expressed in KPIs

+15%	**Revenue impact** *as % of revenue*
-10%	**OPEX saving** *as % of OPEX*
-8%	**CAPEX savings** *as % of CAPEX*
+3%	**EBITDA impact** *as % of EBITDA*

Criteria for Selecting Top Use Cases Should Focus on Business Challenges

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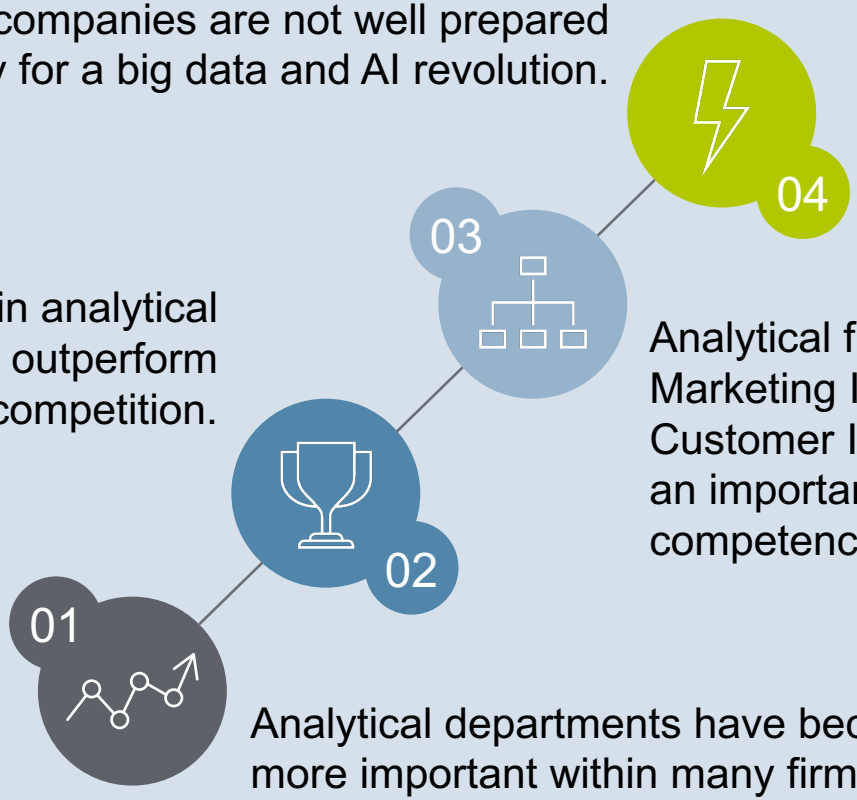
Transformation to Create Successful Analytical Competence

However, many companies are not well prepared internally for a big data and AI revolution.

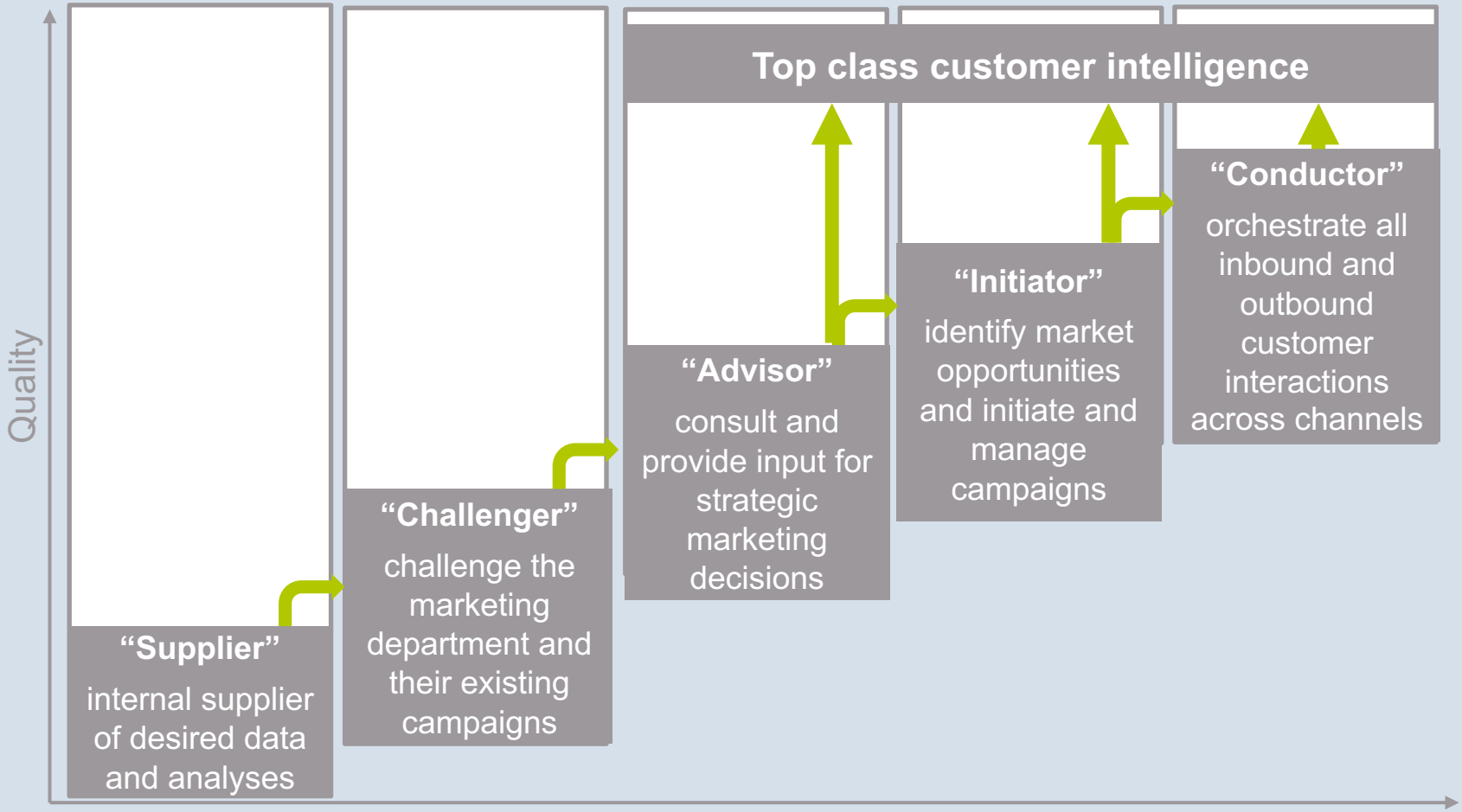
Firms investing in analytical competences can outperform their competition.



Analytical functions such as Marketing Intelligence (MI) and Customer Intelligence (CI) perform an important role in these competences.

Analytical departments have become more important within many firms.

Example - Changing Role of the Customer Intelligence Department



Shifting Focus of the Analytical Function (1/2)

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Area	From	To
Strategic focus	Tactical and short-term focus on actions and campaigns	Strategic and long-term focus
Input marketing decision-making	Provider of charts and reports	Fact-based and actionable advice that meets the business planning
Analytical approach	Looking back and explanatory insights	Forward-looking insights and concrete proposals for change
Data sources	Scattered data, information and knowledge across multiple departments/silos	Integrated data, single view that is accessible for all parts of the organization

Shifting Focus of the Analytical Function (2/2)

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Area	From	To
Daily operations	Eliminating workload, which is filled by the daily operation (reactive)	Proactively setting own agenda and priorities in line with the business KPIs
Output	Supply of raw output in Excel type of program	Clear and strong visualized presentations with clear message
Attractiveness of function	Department with limited growth prospects	Department of new talent with attractive career paths

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Characteristics of a High-Performing Analytics Team

Source: Thompson (2020)

Staffing an Analytics Team: How to Win the War for Big Data Talent (1/3)

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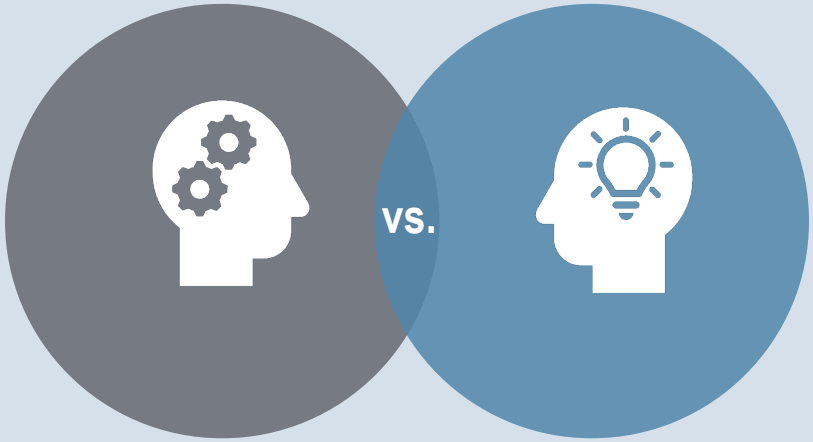
Simply collecting Big Data does not unpack its potential value – people do!

Experienced professionals



Bright and young talent

Source: Thompson (2020)

Staffing an Analytics Team: How to Win the War for Big Data Talent (2/3)

What should companies do to recruit, retain and inspire Big Data talent?

- **Recognize the value** of the professional
- Offer **competitive compensation level**
- Provide an **upward career path** or an attractive alternative
- Ensure an **environment of intellectual challenge**, collegiality, and extensive connection with other peers
- Allocate ≥ 20% of the work to **innovation, and creating "data-forward" insights**

Source: McKinsey (2014)

Staffing an Analytics Team: How to Win the War for Big Data Talent (3/3)

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Staffing an Analytics Team: Talent Retention

For talent retention, one of the most important factors is **personal development:**

Create opportunities for **personal development** and **freedom** to **innovate**

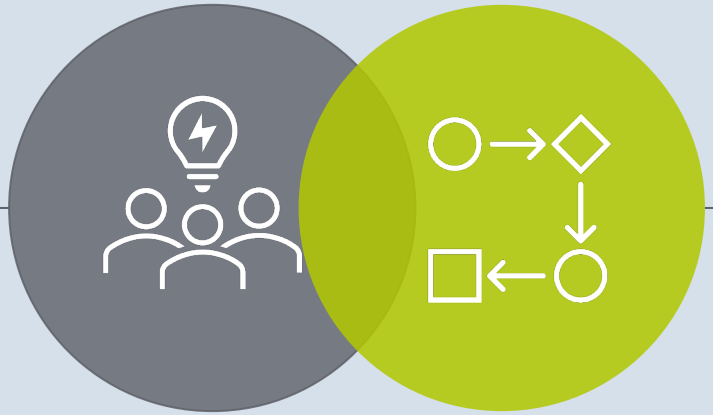
Corporate vision on **big data usage** and building up **analytical competence**

Develop attractive **career opportunities** inside and outside the analytical departments.

Scalable Analytics

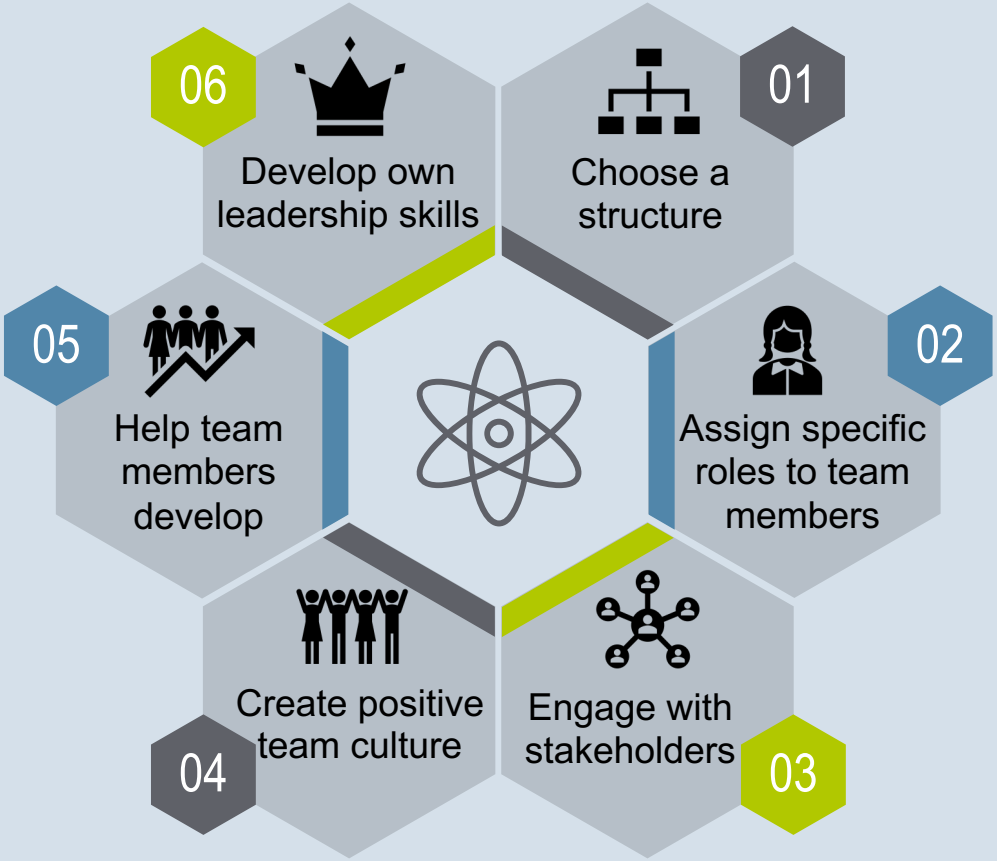
Options to work around the shortage of analytical talent:

Train existing employees in the field of traditional marketing research and database marketing



Ensure **effective work processes** within organizations and **automate specific processes**

How to manage data teams – 6 steps

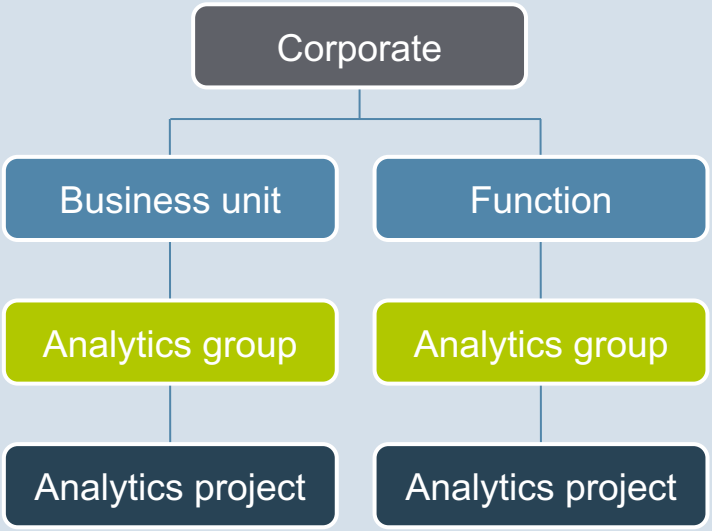


Step 1:
How to determine the best model?

"A Data Science team isn't just the people, it is the process and the interaction of the team with the rest of the company"

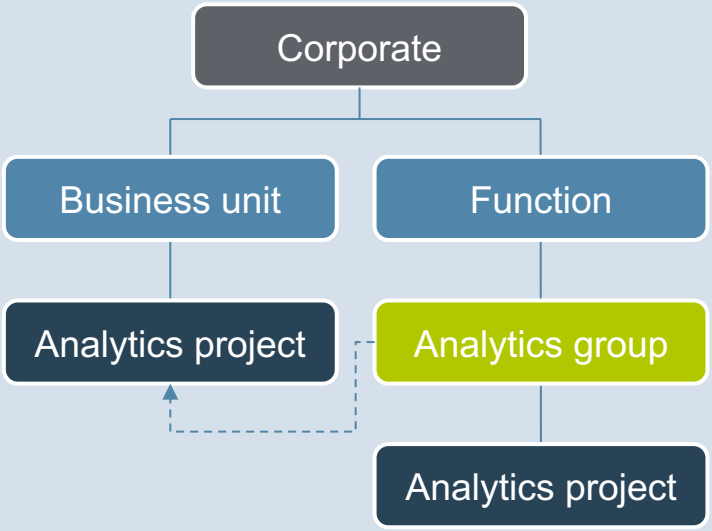
dj patil

Step 1:
The Decentralized / Embedded Model



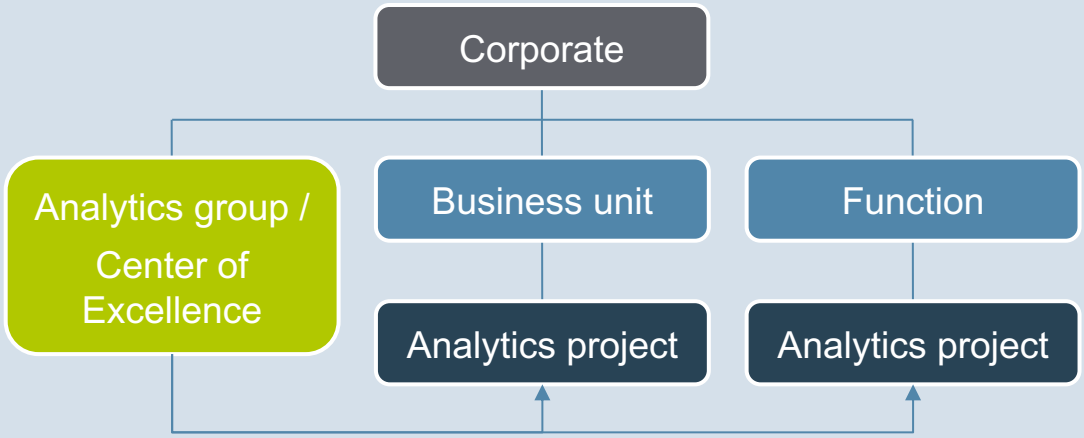
- \+ Independence
- \+ No ownership and motivation issues
- − Management complexity
- − Underutilizing technology and data science de-prioritization
- − Local rather than global optimization

Step 1:
The Functional Model



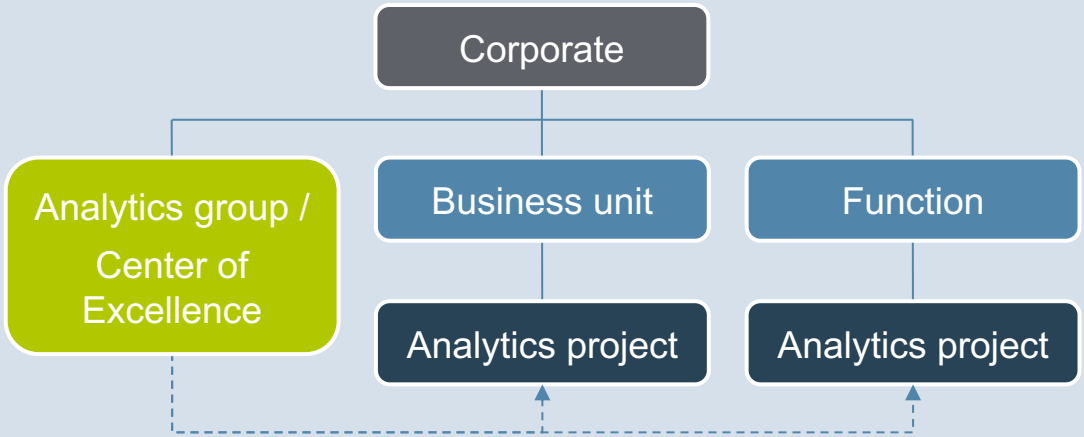
- \+ Startups
- \+ Few analytical processes
- − Keeping off from the global company's pain
- − Weak cohesion due to absence of data manager

Step 1:
The Centralized / Center-of-Excellence Model (CoE)



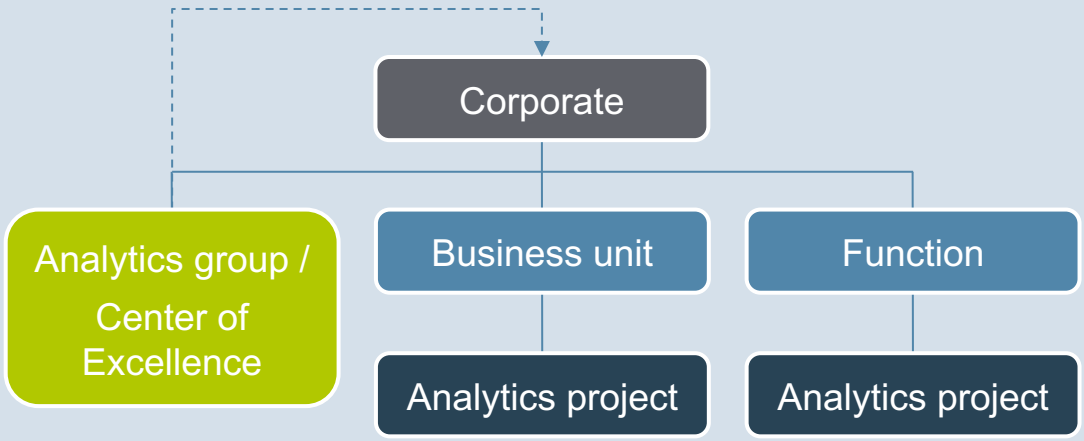
- \+ Increasing demand for analytics
- \+ Out-of-the-box thinking and real innovations.
- − Difficulty in closing the loop
- − Chance of becoming isolated

Step 1:
The Consulting Model



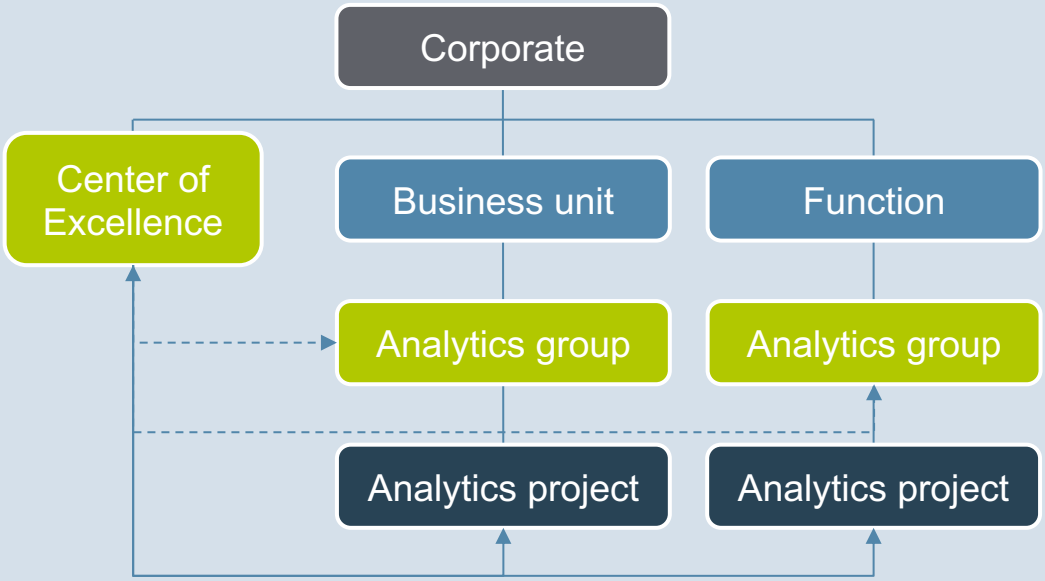
- \+ Easy and cheap
- \+ Suitable for small- to medium-scale data science tasks
- − Low-motivation trap
- − Uncertainty
- − No subject-matter experts

Step 1:
The Accounting Model



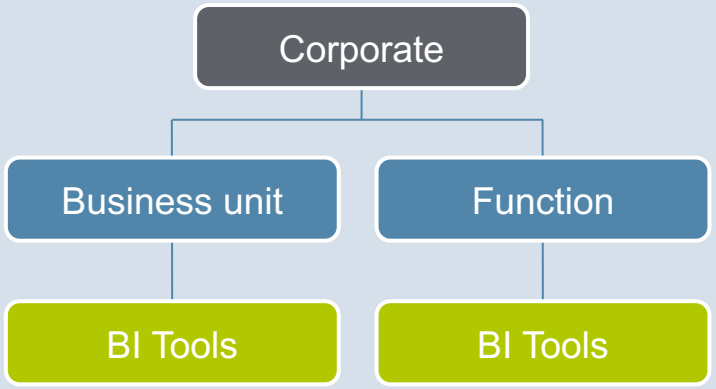
- \+ Constant measuring of KPIs
- \+ Business-wide focus
- − Missing the small stories
- − Underutilizing technology

The Hybrid / Federated Model (Product Data Science Model)



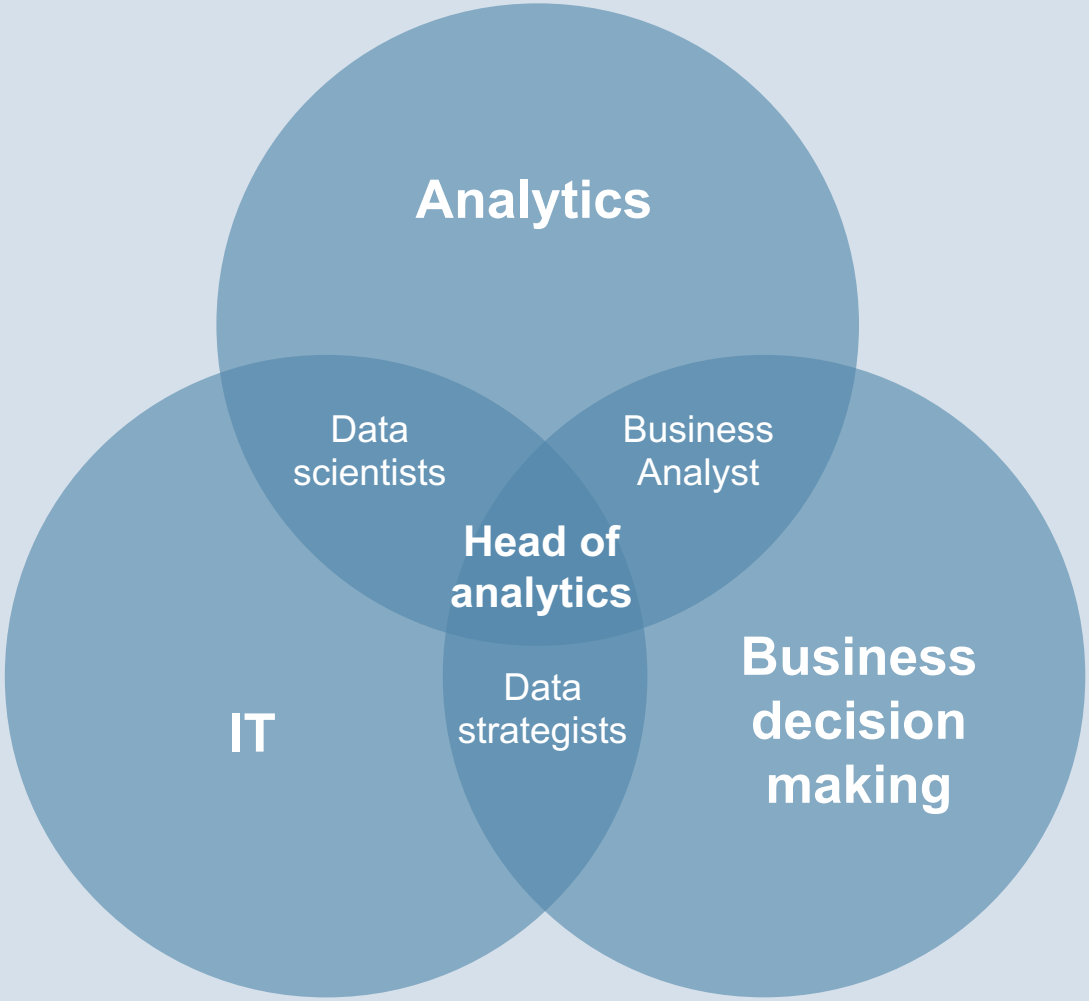
- \+ Clear ownership, actionable insights, and speed
- \+ Global optimization
- − Cost
- − Recurring conflicts due to lack of power parity

Step 1:
The Democratic Model



- \+ Makes work with data simpler
- \+ Frees up data analysts
- − High investment
- − Difficulty in mastering everything

Step 2: Highly Qualified Teams Require a Mix of Skills and Expertise



Source: McKinsey (2014)

Multi-disciplinary Skills of a Modern Data Analyst

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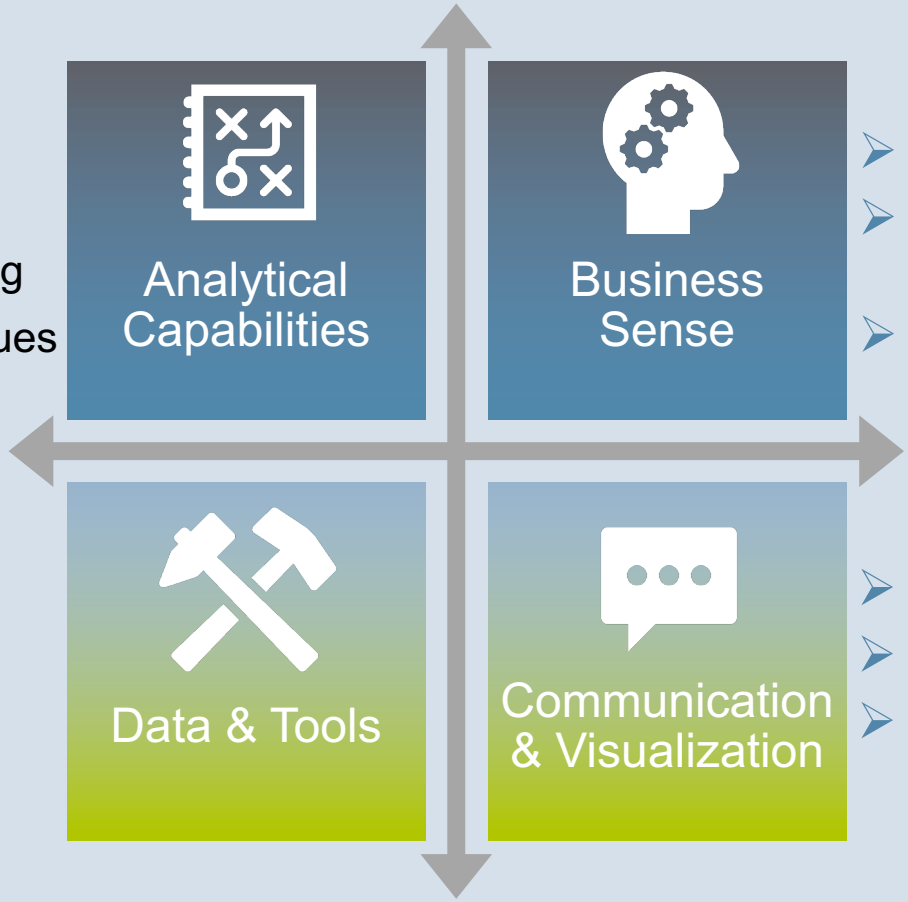


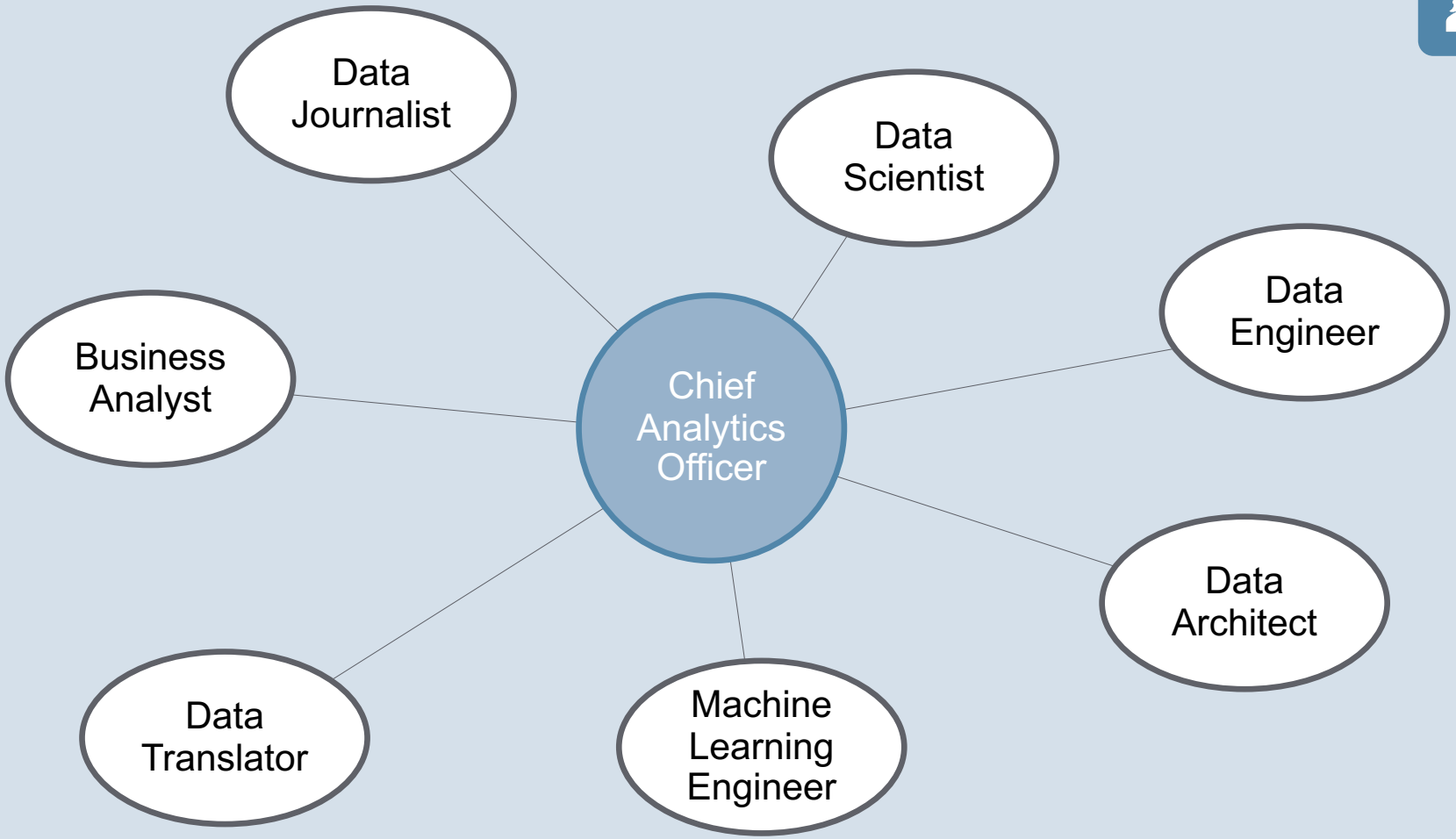
- Statistical modelling
- Supervised and unsupervised learning
- Applying ML techniques

- Understand KPIs
- Industry-specific knowledge
- Organization sensitivity

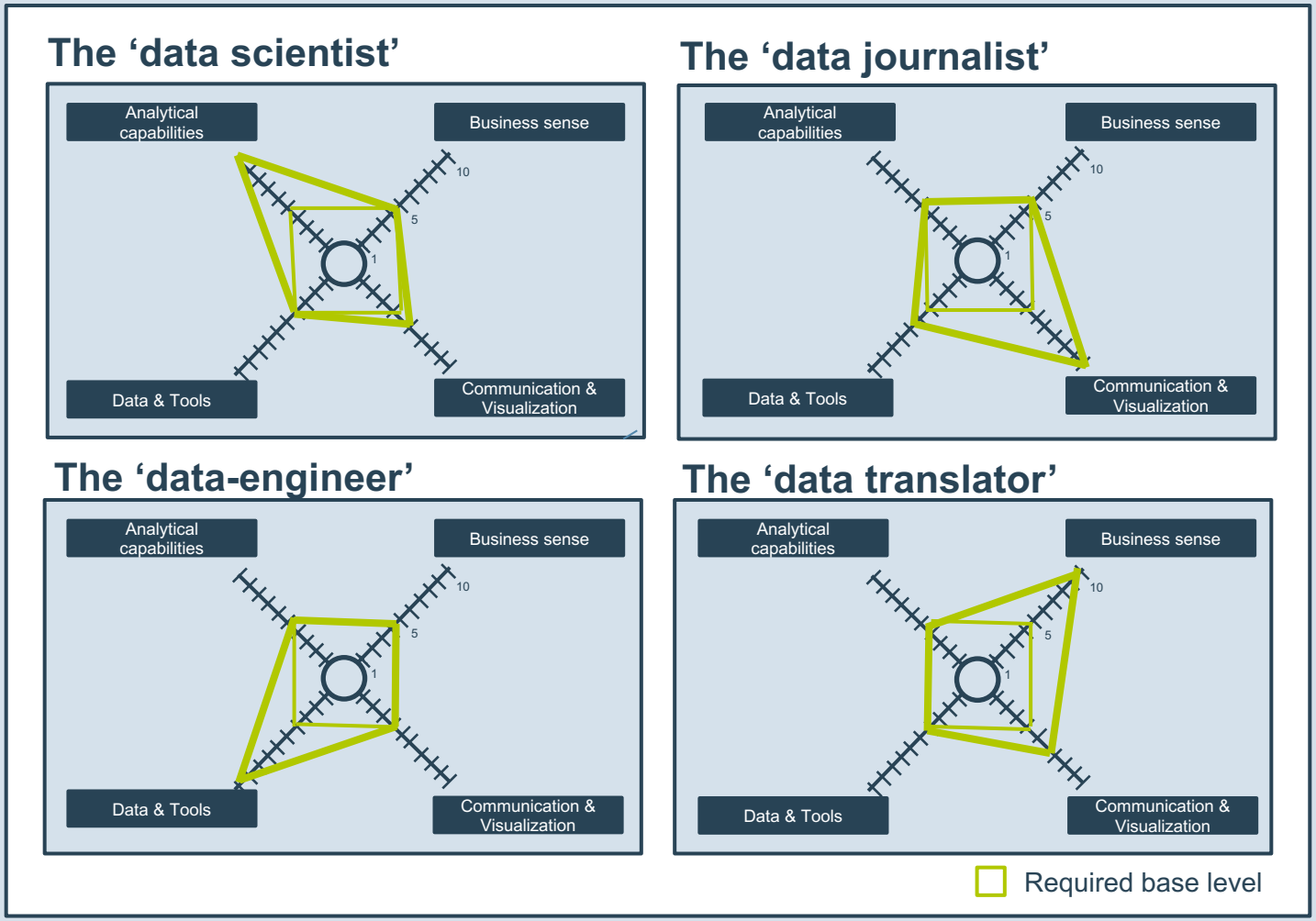
- Computer science fundamentals
- R, Python, SQL, …

- Story-telling skills
- Advisory skills
- Visual art design

What roles should a data analytics team have?



Typical Profiles in Working Fields of Analytics



Step 3: Engage with stakeholders

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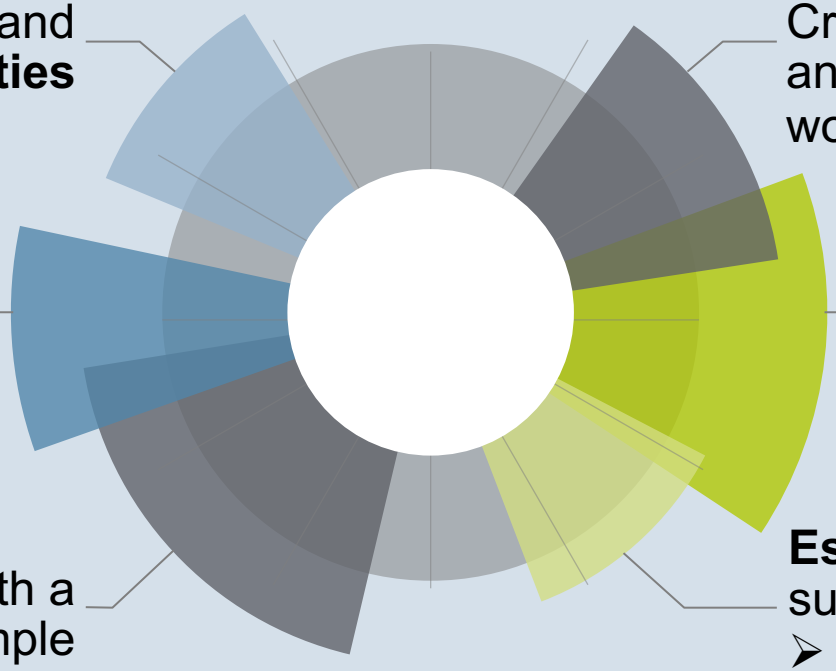
*"The goal of work is some output—a strategy, product, marketing plan, budget, account plan, sale, feature, etc. Communication is a way of incorporating stakeholders into a plan *before* it is too far along to change or the cost is too high (or coworkers too angry!)"*

Steven Sinofsky

Step 4: Create a positive team culture and work environment



Offer **promotions** and **career opportunities**

Create **professional** and **supportive** workforce

Listen to needs and concern

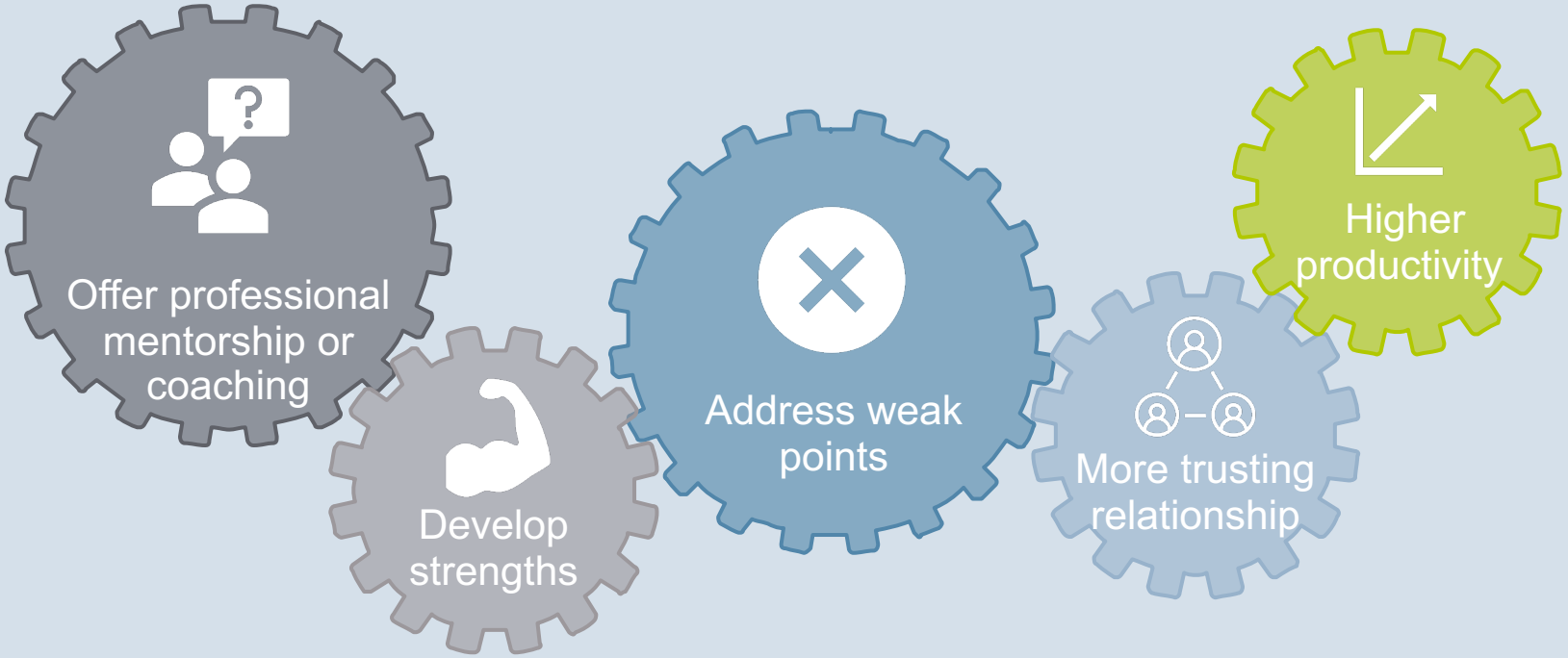
Be **supportive** yourself

Lead with a good example

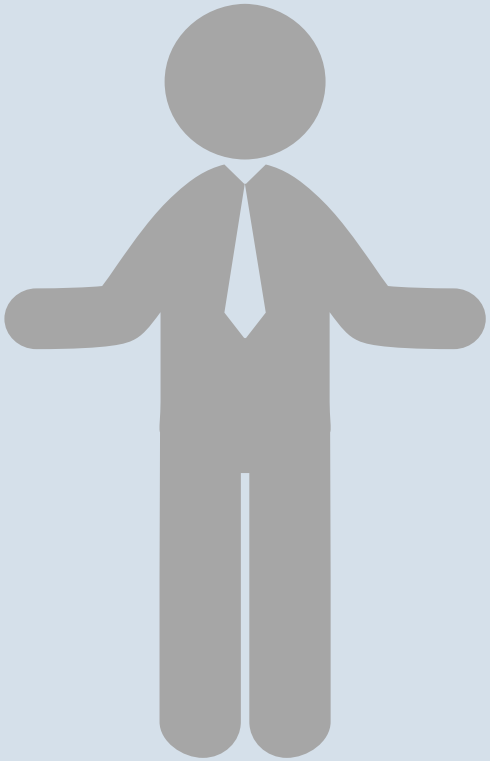
Establish Values such as:

- Honesty
- Integrity
- Punctuality
- Professionalism

Step 5: Help team members develop their skills



Step 6: Leadership in Analytics Teams



Leadership is key for an analytical vision, data-based decision-making and continuous improvement

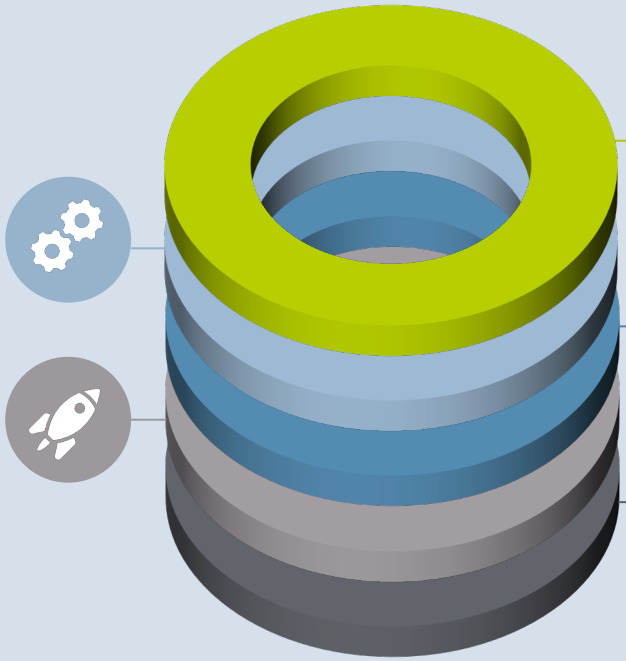
Analytics leaders are people who attract, evaluate, hire, manage, fire, lead, and direct and encourage all aspects of the daily operations of advanced analytics teams

Source: Thompson (2020)

Leadership in Analytics Teams

Undertake activities related to vision, direction, etc. of analytics projects

Have general mastery of analytical techniques



Possess business expertise

Communicate the best path forward

Understand, synthesize and communicate the value of work streams to a wide range of people

Source: Thompson (2020)

Key Traits of Leaders in the Field of Business and Analytics

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Consistency

- Manifestation of ethics, values, and core principles
- Enables trust in the leader

Passion

- Passion and emotions can be motivating forces
- Extreme emotions should only be embraced internally

Curiosity

- Curiosity sparks passion and better collaboration
- Drives engagement and happiness in team

Ownership

- Every action has an impact and can redirect situations
- Builds role-models for responsibility

Variety

- Breadth of understanding and expertise are valuable
- Enables anticipation of issues and great problem solving

Source: Thompson (2020)

How to Lead a Successful Data Analytics Team

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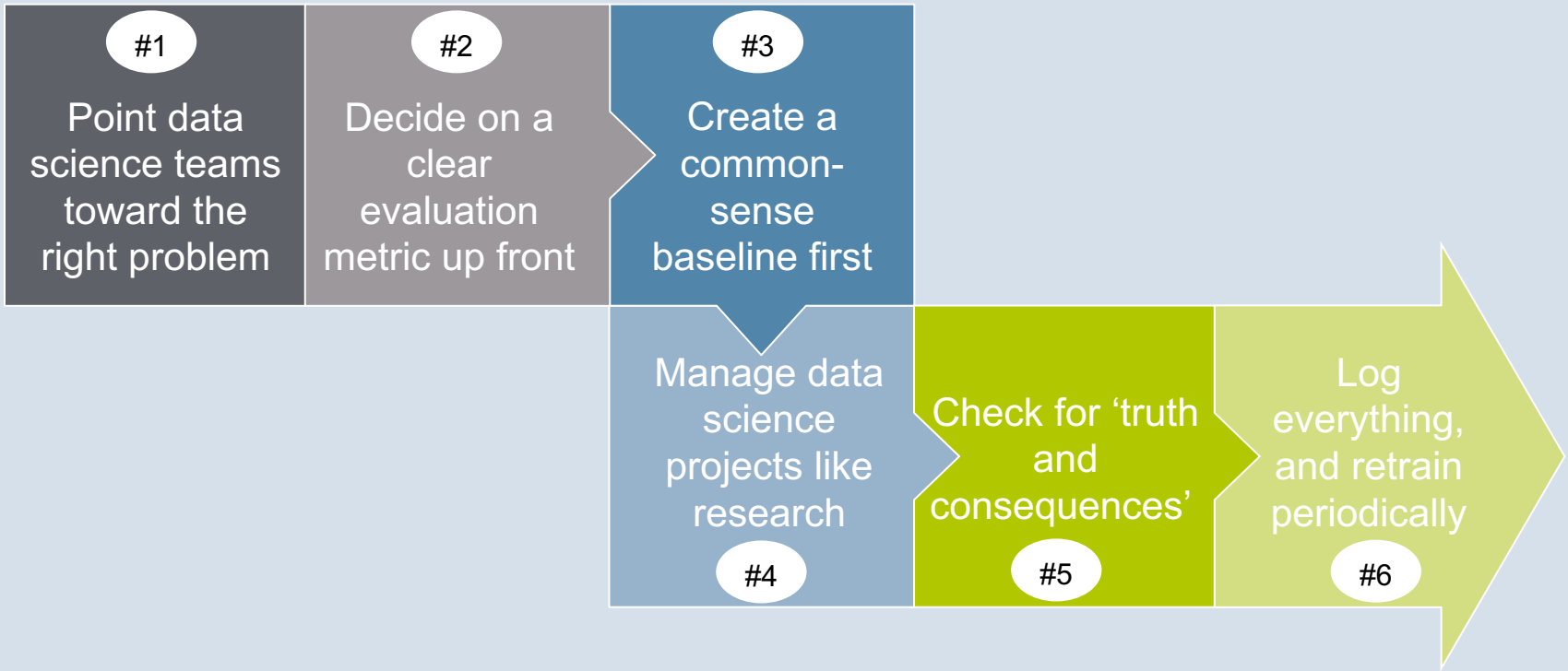

Source: MIT (2021)

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Excel by Focusing on Projects That Deliver Value and Support Strategic Goals

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Winning projects

Stakeholder support

Projects need to be widely understood across the organization

Strategic rationale

Projects are chosen as areas of strategic and tactical importance to the company

Value focus

Projects must deliver value to the company

Source: Thompson (2020)

Various Factors Need to Be Anticipated to Deliver Projects Successfully

Data and technology factors for winning projects

Data availability and usability
- Need for relevant and usable data
- Essential to be able to improve processes, operations or area (respectively)

Alternatives and workarounds
- Try to find alternatives if somehow you run into problems

Ethics
- Align with all relevant legislation and ethical guidelines
- Try not to use sensitive data
- Purpose should be ethical, moral, legal and for the benefit of all involved

Internal or external data sources
- Internal data will provide insights and value of existing projects
- External data is needed to build models to predict the future, find new customers, etc.

Harmonizing the relevant data elements
- Integrate and harmonize disparate datasets

Hardware, software & cloud technology
- Assess what serves you best in the long run and be aware of the relative costs

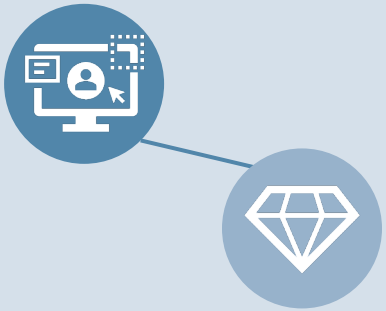
Source: Thompson (2020)

Various Factors Need to Be Anticipated to Deliver Projects Successfully

Organizational factors for winning projects

End-user care

- End user = everyone who utilizes the analytical model and application
- Listen to them and discuss their ideas to find great solutions



Strict value focus

- Only follow projects that have business impact and organizational value
- Analytics teams are built for results and compelling ROI

Source: Thompson (2020)

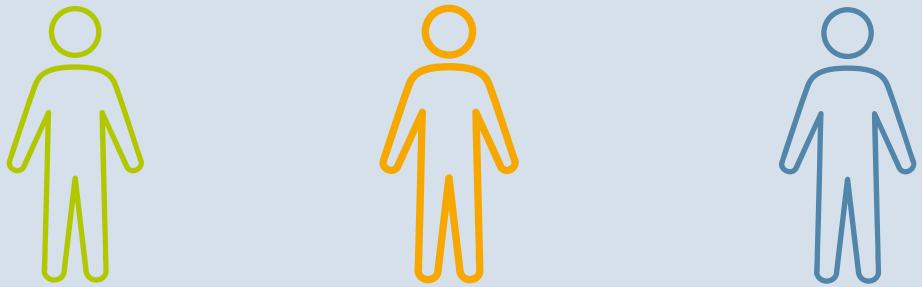
Clarifying Analytic Value Supports Sustainable Appreciation and Effort

Communicating the value of analytics

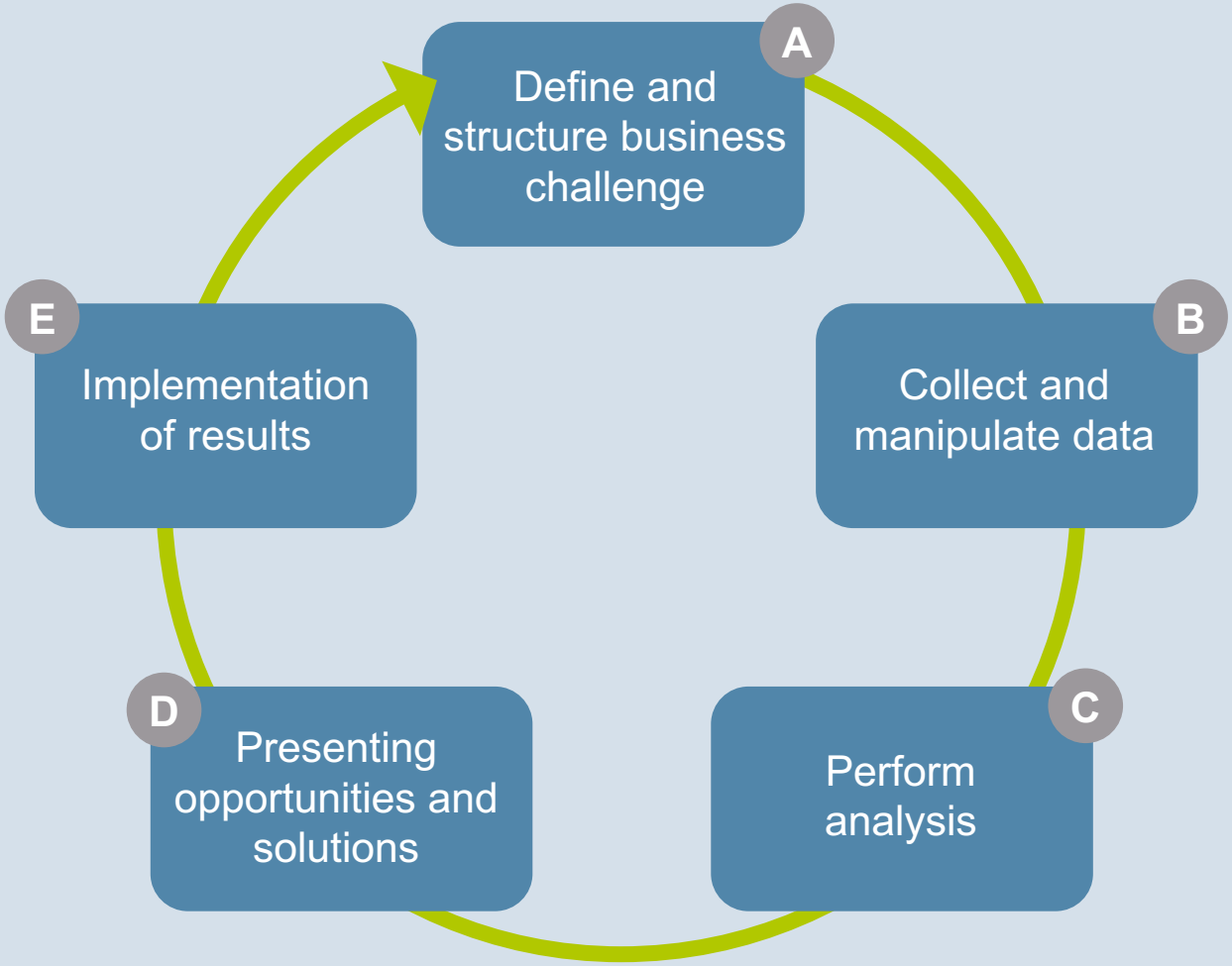
Make scope, scale, time frame, resources, potential, possible range of returns, and long- and short-term value understandable

Decompose analytics projects to a level where they can be compared with competing projects and priorities

Describe, discuss and sell a vision while breaking down all relevant aspects into manageable projects

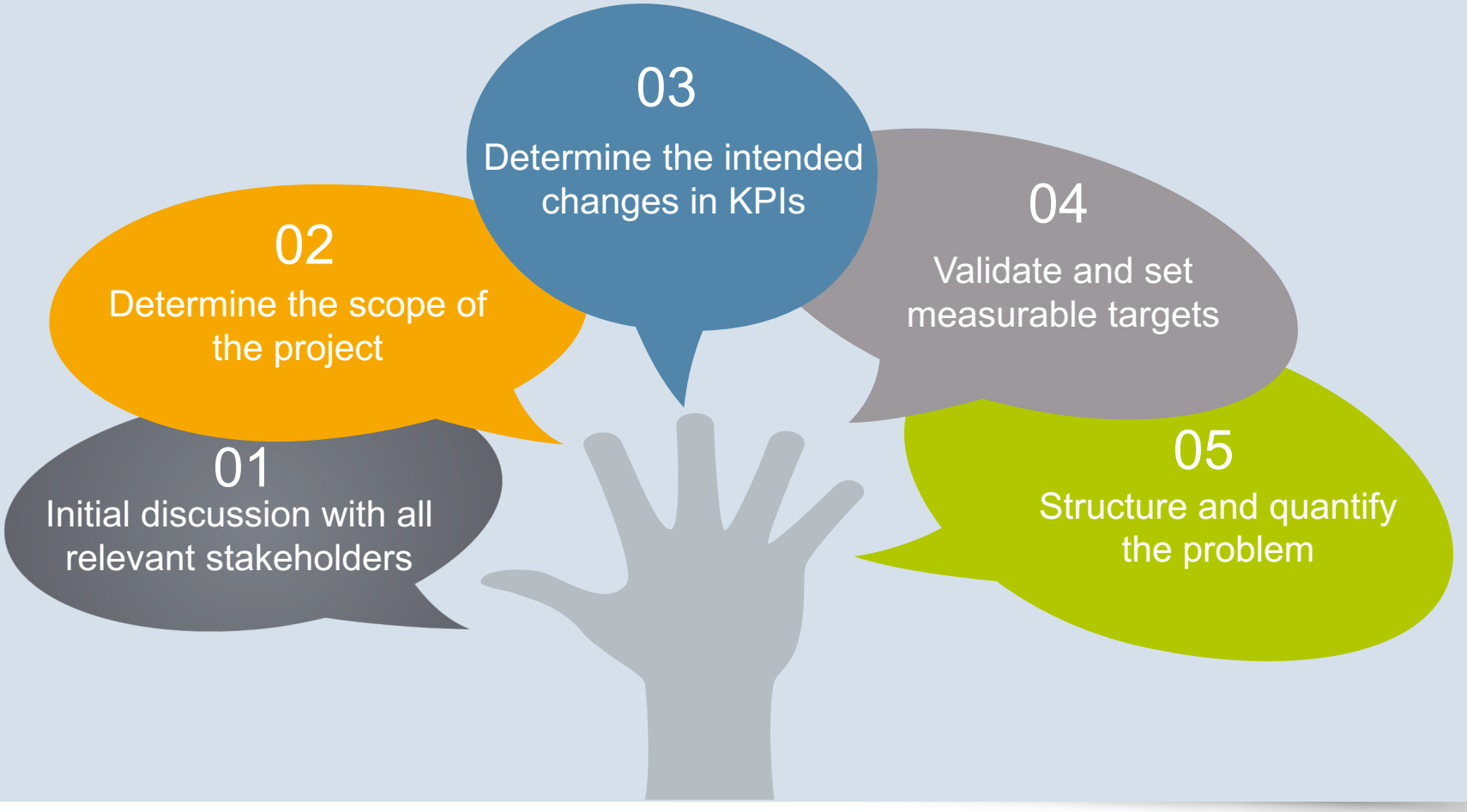


Phases of the Analytical Cycle



Phases of the Analytical Cycle: Define and Structure the Business Challenge

The starting point of the analysis should be related to a **clear business challenge:**



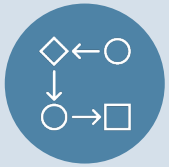
Phases of the Analytical Cycle: Collect and Manipulate Data

Be **creative** in considering which data sources can be used to gain new insights.

Request budget, capacity, and **priority** for crucial data sources that are difficult to access.

Start with data that is **available**.

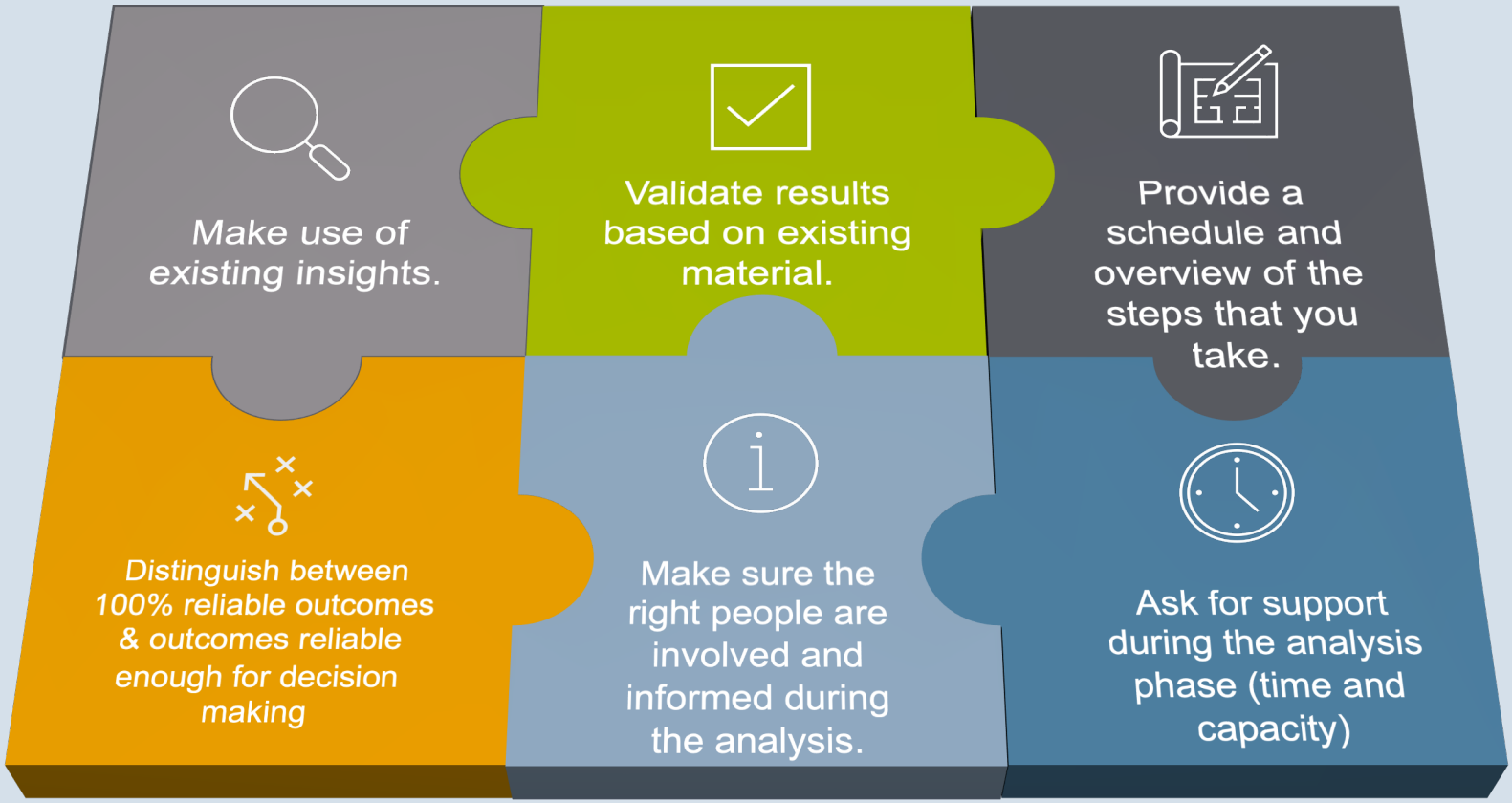
Consult the **legal department** about restrictions regarding privacy-sensitive data.



Do not let **data quality concerns** paralyze the process.

Manage expectations of stakeholders about what can be achieved

Phases of the Analytical Cycle: Perform Analysis

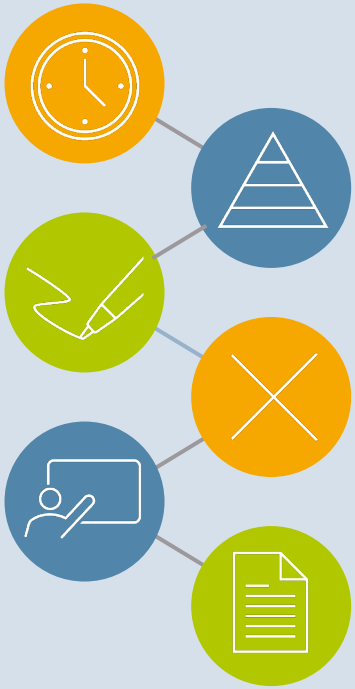


Phases of the Analytical Cycle: Presenting Opportunities and Solutions

Do not underestimate the **time** it takes to translate analysis results into powerful advice.

Always **write down** the **storyline** on paper first.

When presenting your advice, **be clear about your pitch**.

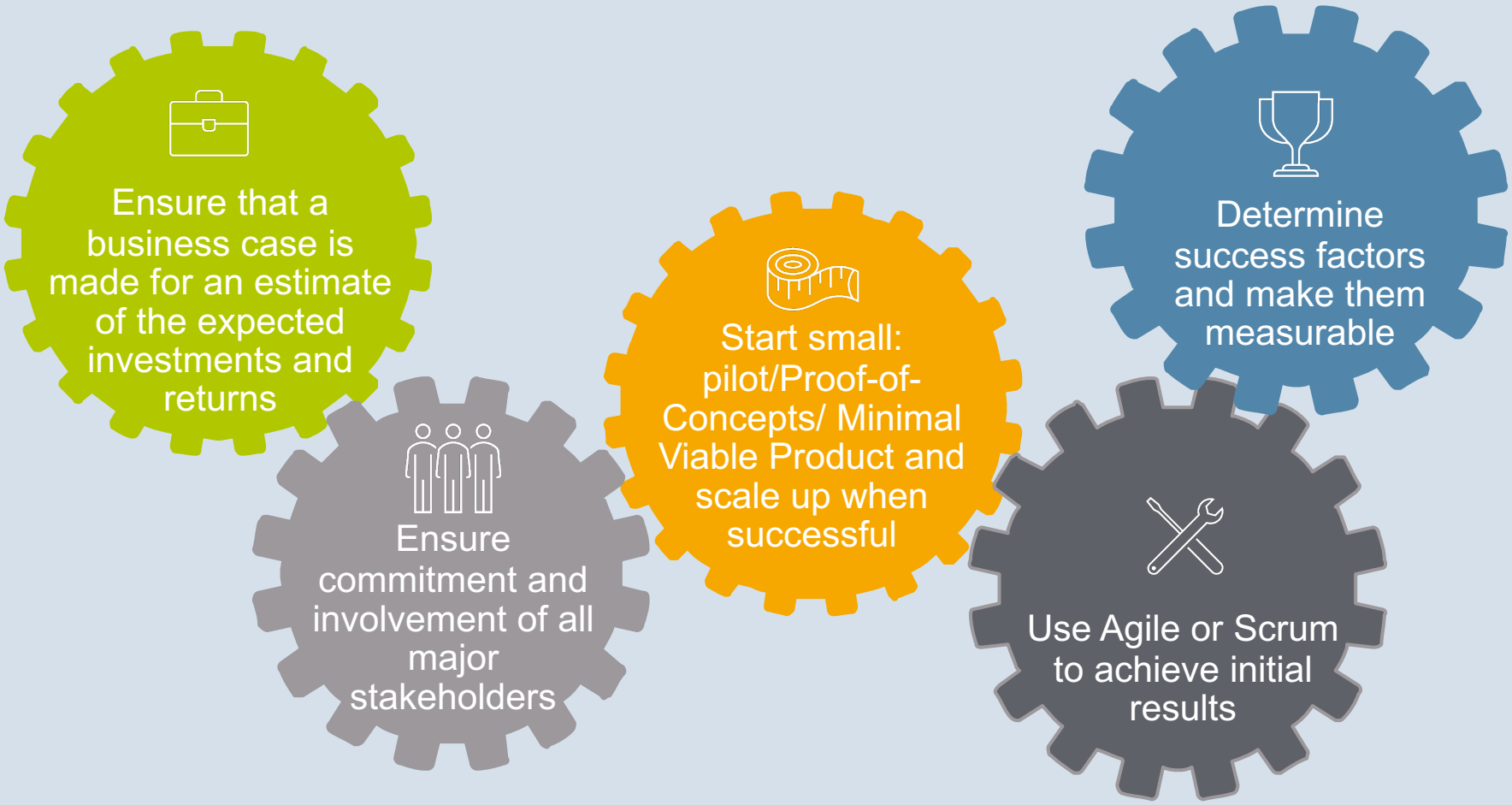


Use a **top-down approach** to structure and present results and conclusions.

Do **not** make the presentation of results **unnecessarily complex** or detailed.

When **distributing documents**, make sure that they are **self-evident.**

Phases of the Analytical Cycle: Implementation of Results



Key takeaways

1. Adjust the four building blocks to successfully build analytical competence (processes, organization, people, systems).
2. Transform the role of the analytics team(s) in your organization to have more impact.
3. Use the right structure model for your organization to embed the analytics team(s) in the best way.
4. Make sure all important data analytics team roles are assigned in your analytics team.
5. Choose projects that deliver value and support strategic goals.
6. Follow the five phases of the analytical circle when working on data projects.

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