# Lecture Outline

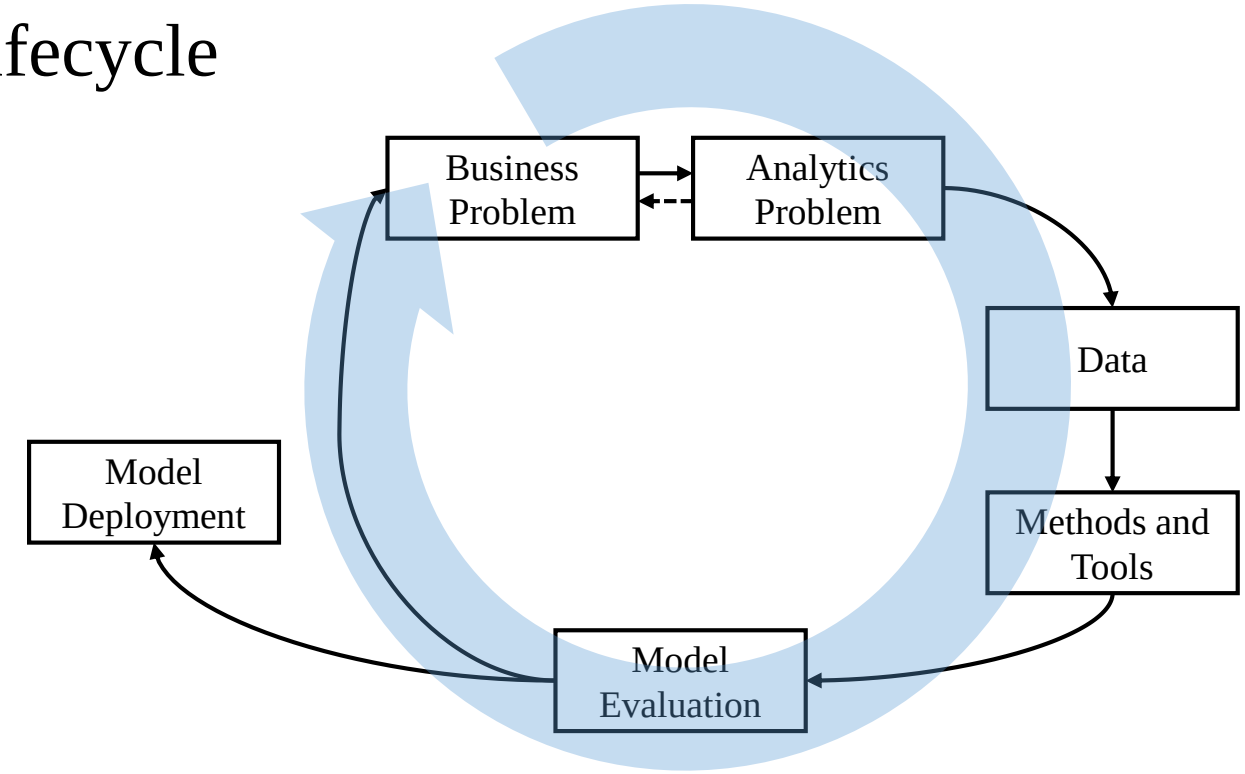
Thus, the lecture will contain:

1. Introduction
2. How to frame the business problem
3. How to transfer it to a problem which can be solved with analytics methods
4. Data identification and prioritisation, data collection and data harmonisation
5. Identification of problem solving approaches and appropriate tools (not only R even though this is important)
6. How to set up and validate models
7. The deployment of a model
8. **Model lifecycle**
9. Some words about soft skills needed by statistical and mathematical professionals

# Chapter 8
# Model lifecycle

# 8.1 Model Lifecycle

The model lifecycle



# 8.1 Model Lifecycle

- Models in the data analytics area go through a lifecycle from the business framing and thus, the conception through data requirements and preparation to the model building and deployment
- Such a lifecycle is important because
    - Data are changing over time (behavior of customers or processes are changing)
    - There is more data or maybe better quality of data
    - The environment is changing over time
    - Technical and methodological advancement
    - The company and the users of models and the results progress in data analytics
    - Business benefit of the model can change over time (advancements of competitors, new products and so on)

# 8.1 Model Lifecycle

- A good lifecycle process i.e. a proper lifecycle governance helps to keep this process orderly and is minimizing the cost and efforts of developing and maintaining the model
- The lifecycle process provides the users in a company i.e. user of results and the model with clear roles
- Defines the roles of the different departments involved
- Defines escalation processes and decision making processes

# 8.1 Model Lifecycle

Some hints from the practice:

- Do the documentation **during** the project, because
  - The reasons for assumptions or decisions made are quickly forgotten
  - Typically, there is no “time to document after the project” (because you are in the next one)
  - People may leave before the project end

# 8.1 Model Lifecycle

Some hints from the practice:

- Define the measure for model quality in advance in the context of the model and the business
- Define not only one measure but look at several, but one have to define a ranking of importance, and clear rules and constraints how to use which measure because data and business can change over time and it has be remain comparable
- Or have at least the old data available in a form such that one can easily recalculate the different measures
- Define also the frequency when a model should be evaluated

# 8.1 Model Lifecycle

Some hints from the practice:

- Not only train the users but also re-assess how they are using the model and the result and if necessary train the users again
- And finally, evaluate the business benefit on a regular basis as it can diminish because
  - Your data / business has changed significantly and the analysis gives no value added anymore
  - Your competitors also doing the same analyses and there is no advantage anymore to do that furthermore

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# Chapter 9
# Some words about soft skills needed by statistical and mathematical professionals

# 9.1 Soft Skills

- A data analytics professional needs the ability to convince, or explain the problem, problem solution, and implications
- Without doing this successfully, the whole project can fail
- Communication skills are required similar to mathematical, statistical or programming skills

# 9.1 Soft Skills

A data analytics professional thus needs the following:

1) The ability to communicate with a client/employer/stakeholder regarding the framing of a business and an analytics problem
2) The understanding the background of the client/employer/stakeholder regarding its organization and specific industry focus
3) The ability to explain the findings of the analytics process in sufficient detail to ensure clear understanding by the client/employer/stakeholder

# 9.1 Soft Skills

1) Communication: If a customer is calling you for performing a data analytics task e.g. “our revenues decrease, can you analyze that?” what is your answer?

☑ “Yes, of course I can do that!” **?** (because I have done that 10 times)

☑ “No, this cannot be done” **?** (because I never have done that)

or what would you answer?

# 9.1 Soft Skills

Example: Real start of a conversation:

CEO of an insurance company: “you know all these fancy methods of data analytics”

I: “well….”

CEO: “we have an issue with companies for construction drying”

I: “Construction drying?”

The CEO was smiling

I: “I have absolutely no clue about `construction drying´”

CEO: “Neither do I”

# 9.1 Soft Skills

- Your first response is to engage the client in a dialog to discover what they really want
- It is our job to find the deep underlying motives of any client engagement
- Question, question, question until it is clear what the problem is and how a solution can be attempted
- Do not come up with proposals or solutions too earlier
- Just listen and ask open questions
- For successful interactions in many cases, it may be helpful for us as analytics professional to unleash our inner four-year-old child and just keep asking “why?”

# 9.1 Soft Skills

2) One have to find out the background and position of the stakeholders:

- A org chart can help but is maybe not sufficient
- Observe the inter- and intra-office communications as they often follow an informal chain that is outside the organization chart
- Take note of the people in the project management meetings and about their presence and behaviors as this are indications of their status within the organization

# 9.1 Soft Skills

Stakeholder Matrix:

**STAKEHOLDER'S MATRIX**

**Name:** .....

**Company:** .....

**Position:** .....

| **Roles and Responsibilities** | **Strategies and Initiatives** | **Status Quo** |
|---|---|---|
| *What is he/she in charge of or expected to manage?* | *What likely strategies and initiatives are in place to help achieve his/her objectives?* | *What is his/her status quo relevant to the project?* |
| **Business Objectives and Metrics** | **Internal Issues** | **Change Drivers** |
| *What does he/she want to achieve?*<br>*How does he/she measure success?*<br>*How is he/she evaluated?* | *What likely issues does the organisation face that could prevent/hinder goal achievement?* | *What would cause him/her to change from what is currently being done?* |
| **External Challenges** | **Primary Interfaces** | **Change Inhibitors** |
| *What external factors or industry trends might make it more difficult to reach his/her objectives?* | *Who are peers, subordinates, superiors, and outsiders with whom he/she frequently interacts?* | *What would cause him/her to stay with status quo, even if they are not happy with it?* |

# 9.1 Soft Skills

3) Clarifying the analytics process

- You are at the heart of the analytics process and thus, you have an understanding of the entire process from beginning to lifecycle maintenance
- You have to ensure that your questions and comments are seen as necessary to the process, not as intrusive and time wasting
- Thus, be transparent and explain in simple words why you need certain information
- And finally, be a translator from all the technical jargon and acronyms to the less technical people where there is little or no familiarity with specific terminology related to the analytics process

# 9.1 Soft Skills

Thus, we are all data analytics professionals, translators, psychologists and salesmen in one to some degree