

# The Lifecycle of OR Solutions: From Rapid Prototypes to Market Deployment

Justine Broihan   Frederik Fiand

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# Introduction



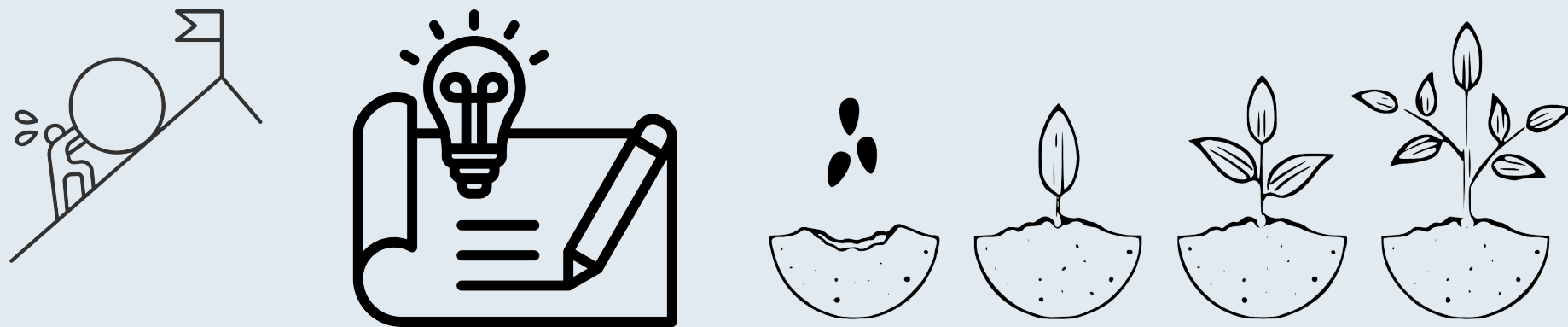
# GAMS Business





# Outline

- Common challenges in application development.
- Role of rapid prototyping.
- Transitioning from prototype to mature applications.



# Common Challenges

# The Problem with Communication



How the customer explained  
it



How the team designed it



What the customer really  
needed

# Scene: Initial Meeting



OR Specialist (**Sarah**): Specializes in mathematical optimization.

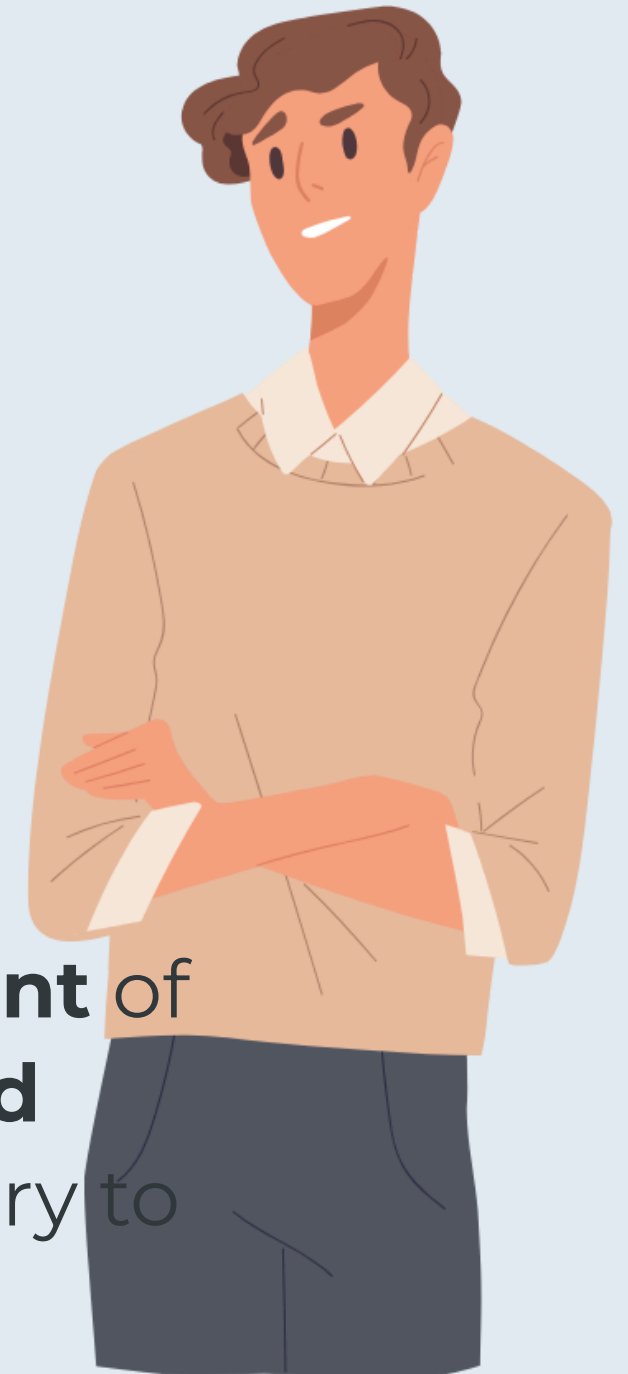


Client (**John**): A supply chain manager at a retail company unfamiliar with mathematical optimization.

# What is the Objective?



To get started, I'd like to ask a few questions to understand your needs better. First, can you tell me what your main **objective** is?



Sure, the objective is to have the **right amount** of inventory—just enough to **meet our demand** without overstocking. I just want the inventory to be balanced, not too much or too little.



# What are your Constraints?

What kind of **constraints** do we need to keep in mind when managing your inventory?



Well, one big constraint is that our **suppliers are often late with deliveries**. Sometimes they say they'll deliver in a week, but it ends up taking two or even three weeks. This really messes up our inventory plans.



# What are the Decisions?

What are the **key decisions** you need to make in your inventory management process?



Decisions? Well, we have to decide things like whether to go with **one supplier or another**, or if we should **have a promotion** to clear out inventory.



# Common Challenges

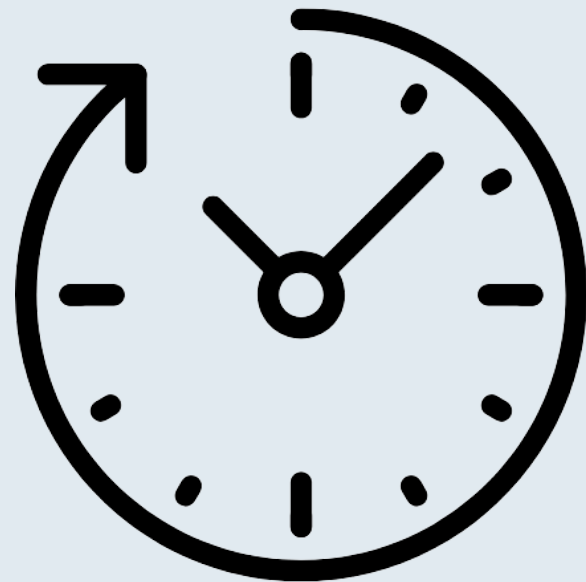


- Sarah and John speak different **languages**.
- John doesn't know what **optimization is capable of**.
- John doesn't know what is **relevant** for Sarah.
- John owns his *problem* and certain constraints seem second nature to him. He **forgets to mention** them.



# The Problem with the Quote

- 80 % of the work is done if you understand the clients *problem*.
- Understanding allows you to estimate the required time.
- Based on the required time you can quote a budget.



# Client Expectations vs. Project Budget

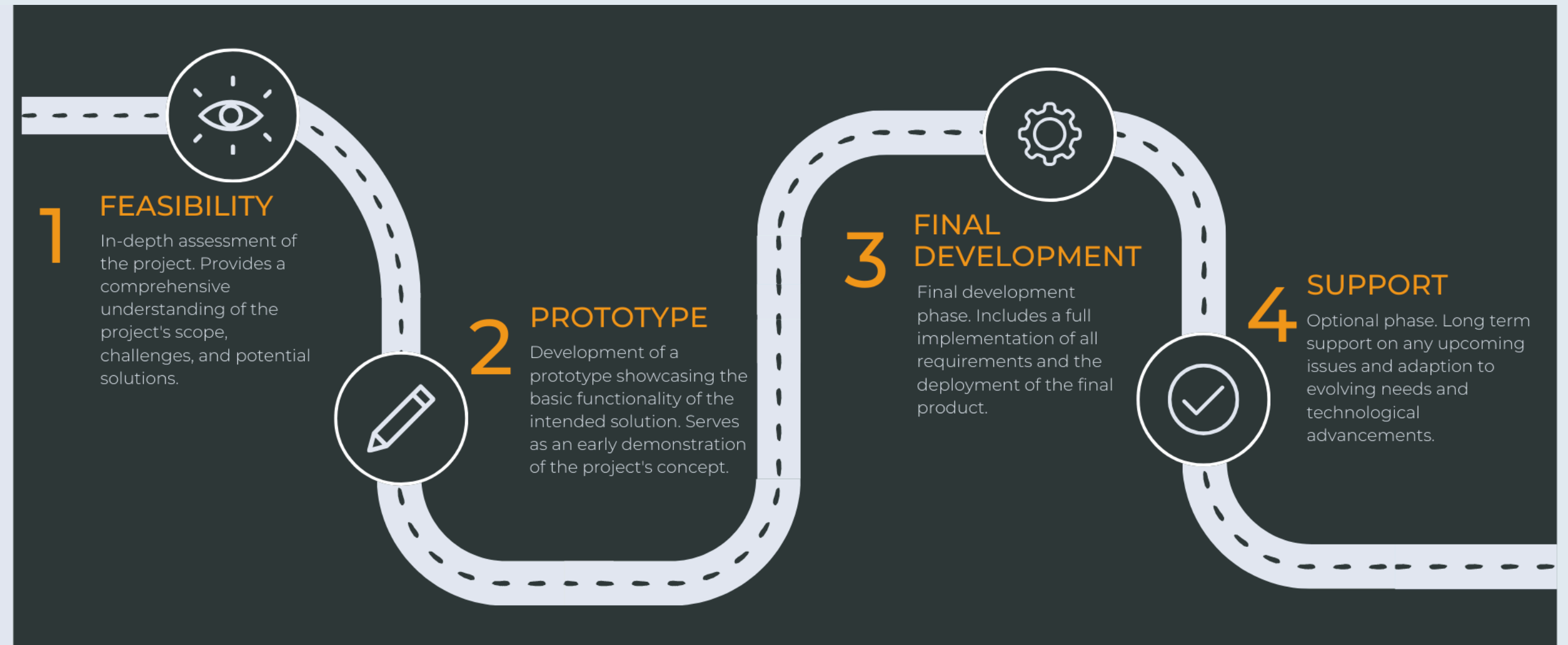




# The Relevance of Prototyping

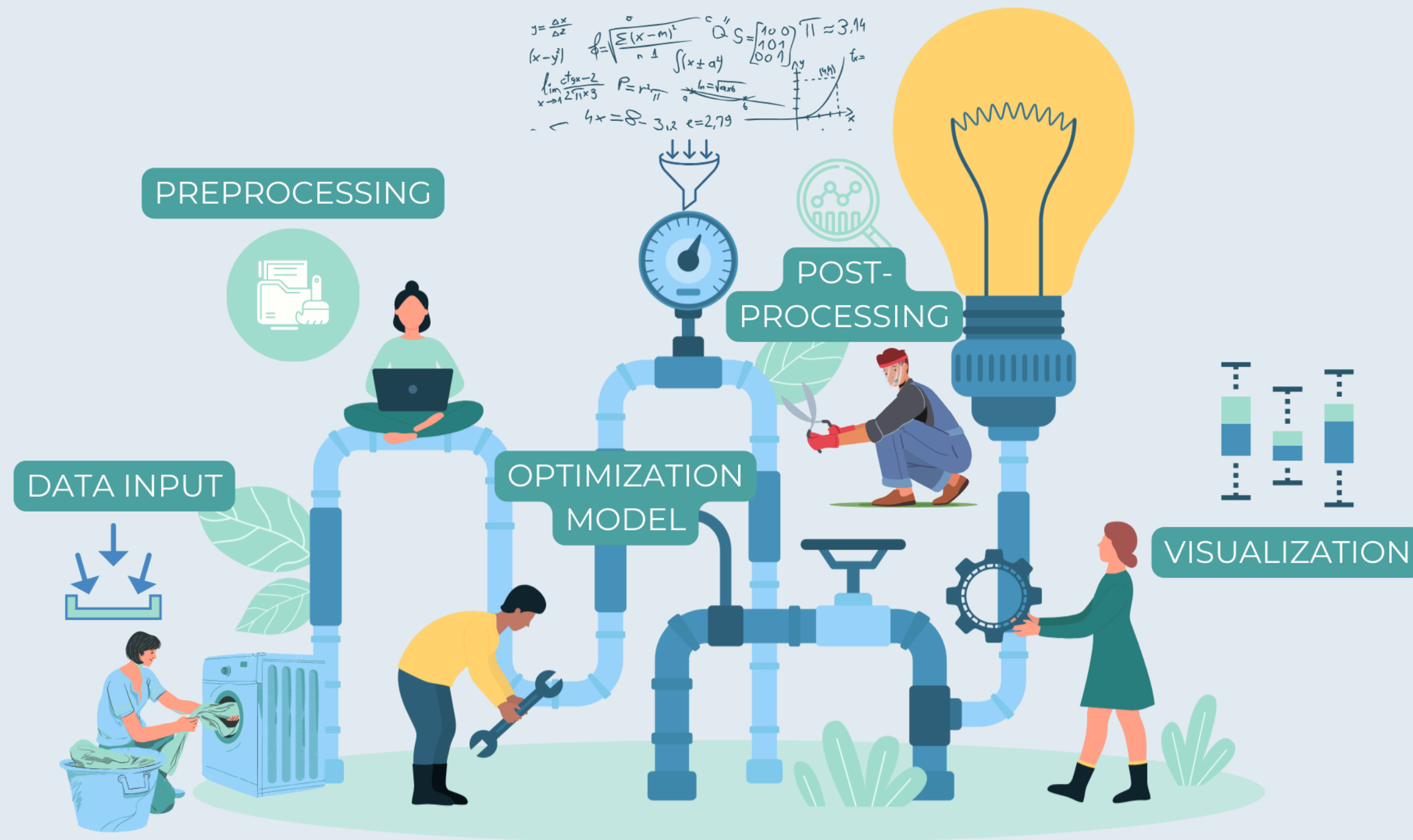
# Project Phases

## CONSULTING PROJECT PHASES



# The Power of Rapid Prototyping in OR

- **Rapid Prototyping:** Quick development of *solutions* to test concepts.



# The Power of Rapid Prototyping in OR



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# Typical Model Development



# Examples of Rapid Prototyping

## Scheduling Physicians in a Hospital



# Examples of Rapid Prototyping

## Scheduling Physicians in a Hospital

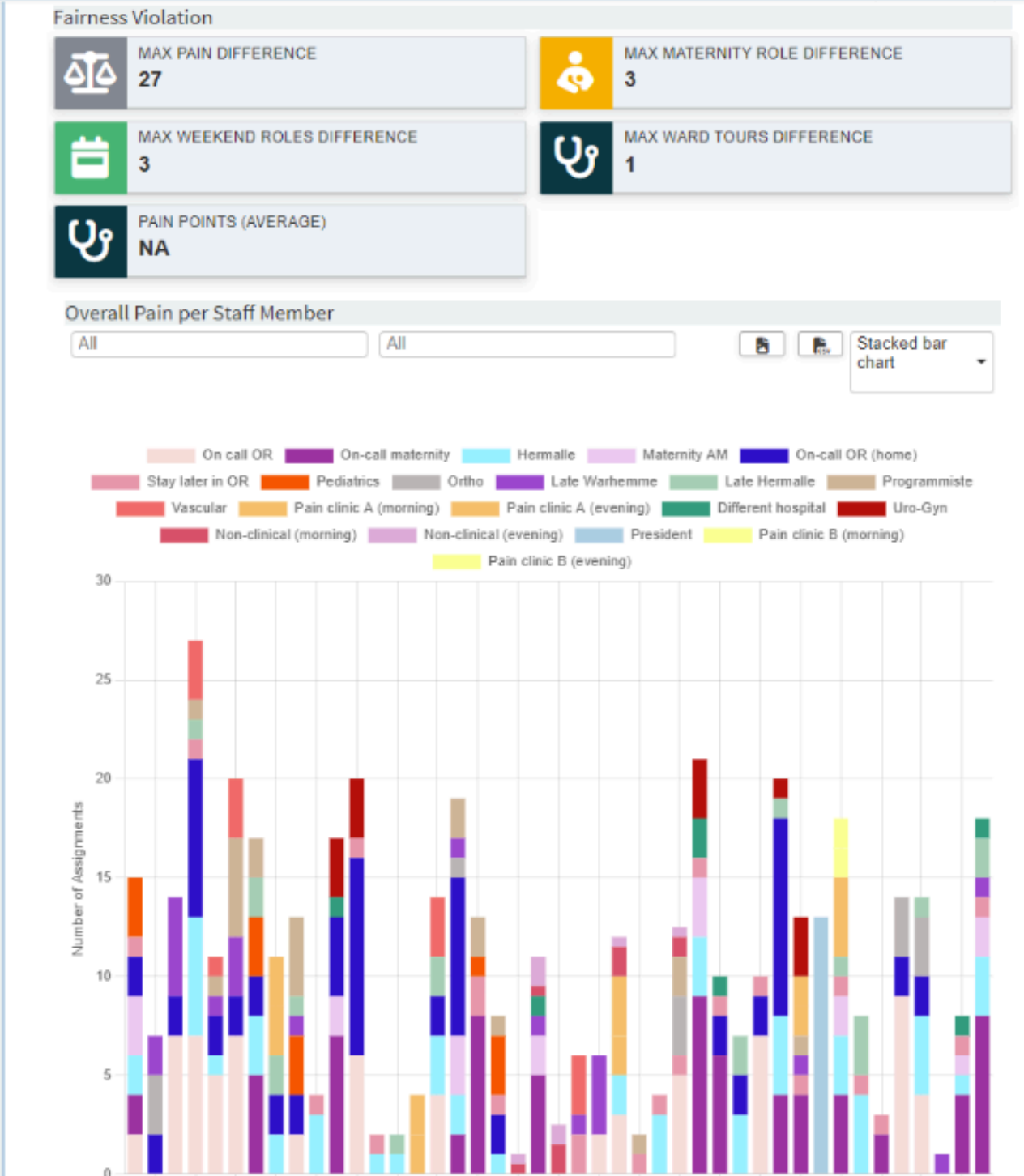
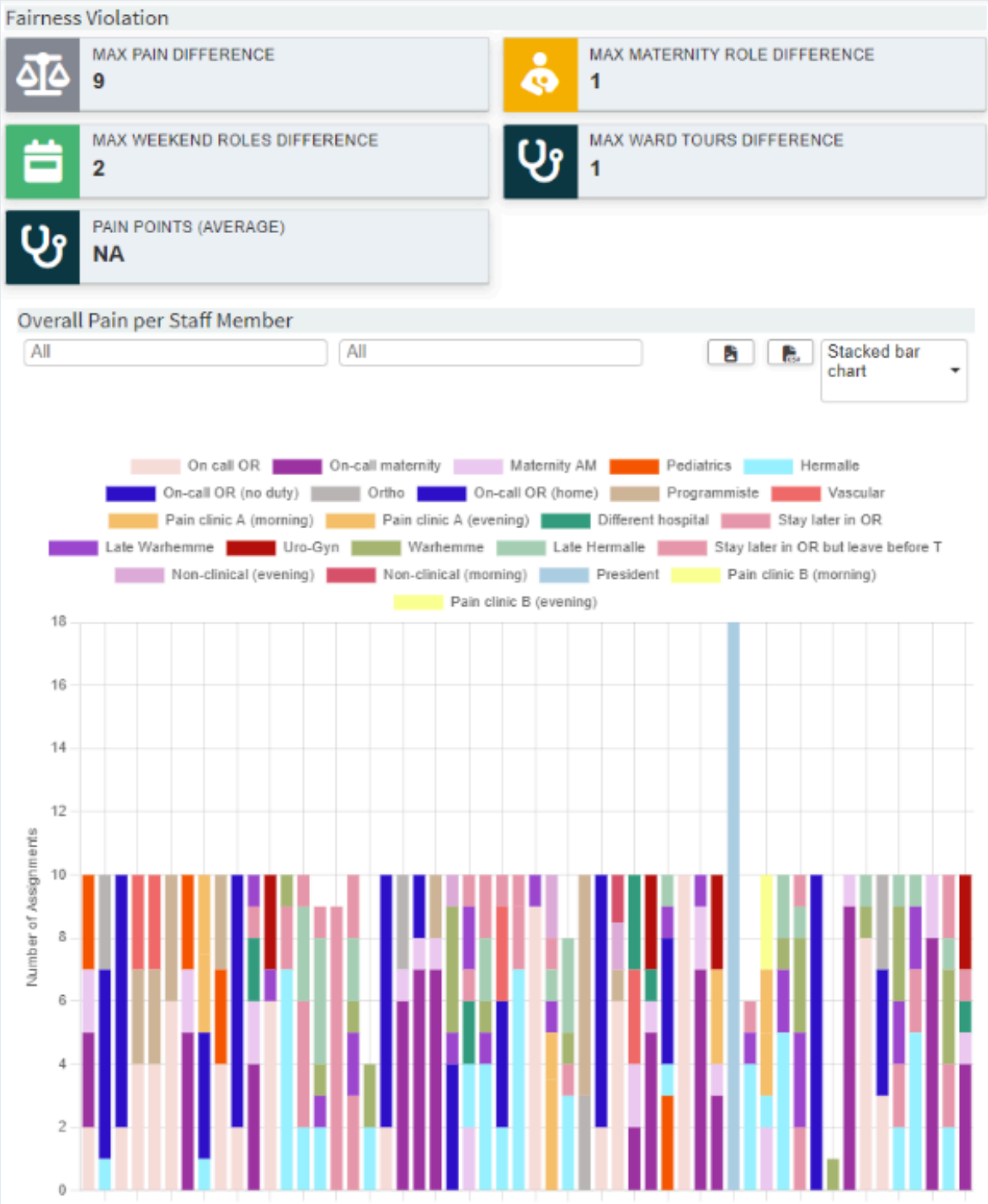


- 5 TASK A
- 2 TASK B
- 3 TASK C
- 1 TASK D



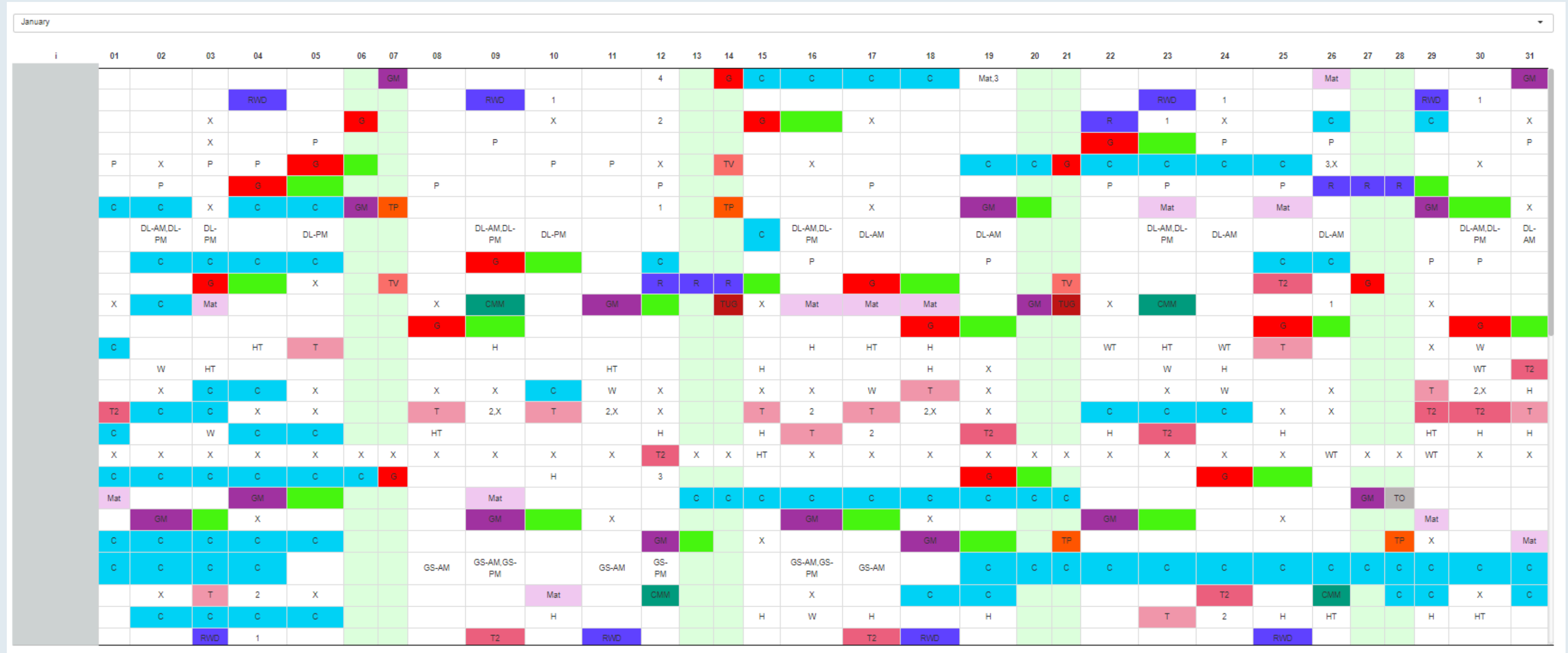
# Examples of Rapid Prototyping

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# Examples of Rapid Prototyping

## Scheduling Physicians in a Hospital



# Transitioning from Prototype to Mature OR Applications



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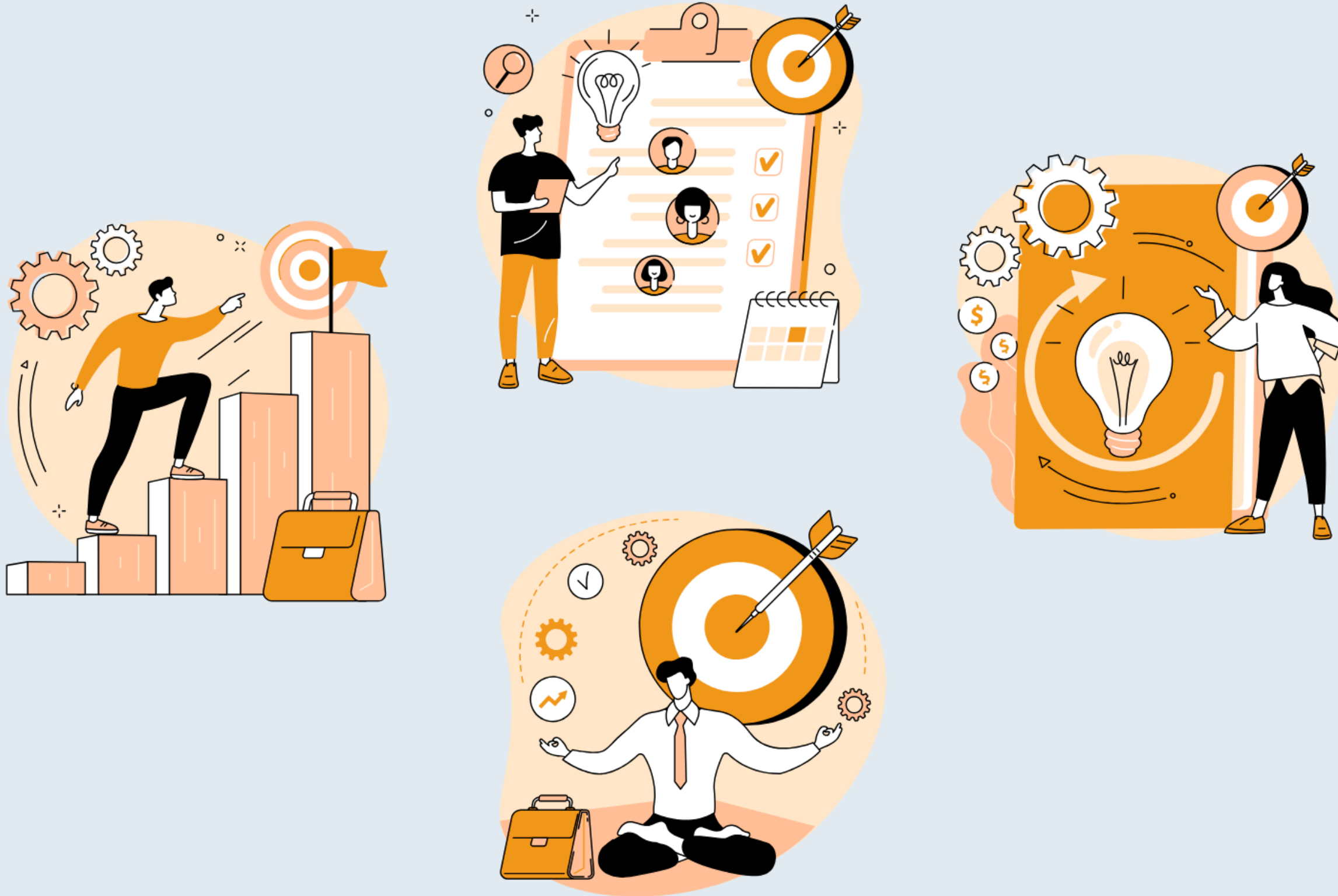
## Key Steps in the Transition

- **User Interface Enhancement:** Developing intuitive GUIs.
- **Streamlining the Workflow:** Smooth and integrated handling.
- **Deployment Strategies:** On-premise, cloud, hybrid — choosing the right one.
- **Computational Performance:** Optimizing for scalability and efficiency.

## Common Challenges

- Integration with existing systems.
- Managing data consistency and quality.
- Preventing user errors.

# Insights and GAMS Product Development



# Conclusion

# Conclusion and Strategic Takeaways

- Communicating OR solutions ! = selling a car.
- **Rapid** and early prototyping is key.
- Tight feedbacks loops are crucial.

# Contact Us

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 [www.gams.com](http://www.gams.com)

 GamsSoftware

 GAMS Development Corporation

 [jbroihan@gams.com](mailto:jbroihan@gams.com)