

# Team Project

```
$ echo "Data Sciences Institute"
```

# Yesterday

1. Team Project Guidelines
2. Developing a Project Plan
3. Git Review: Resolving Merge Conflicts

## Goal

*Develop a program that uses data creatively to solve a problem or provide insights that have a positive business impact.*

See **Team Project Part 1** for requirements.

# The Five Orders of Ignorance

A "meta-model of ignorance" that can help us put the unknowns of projects into context.

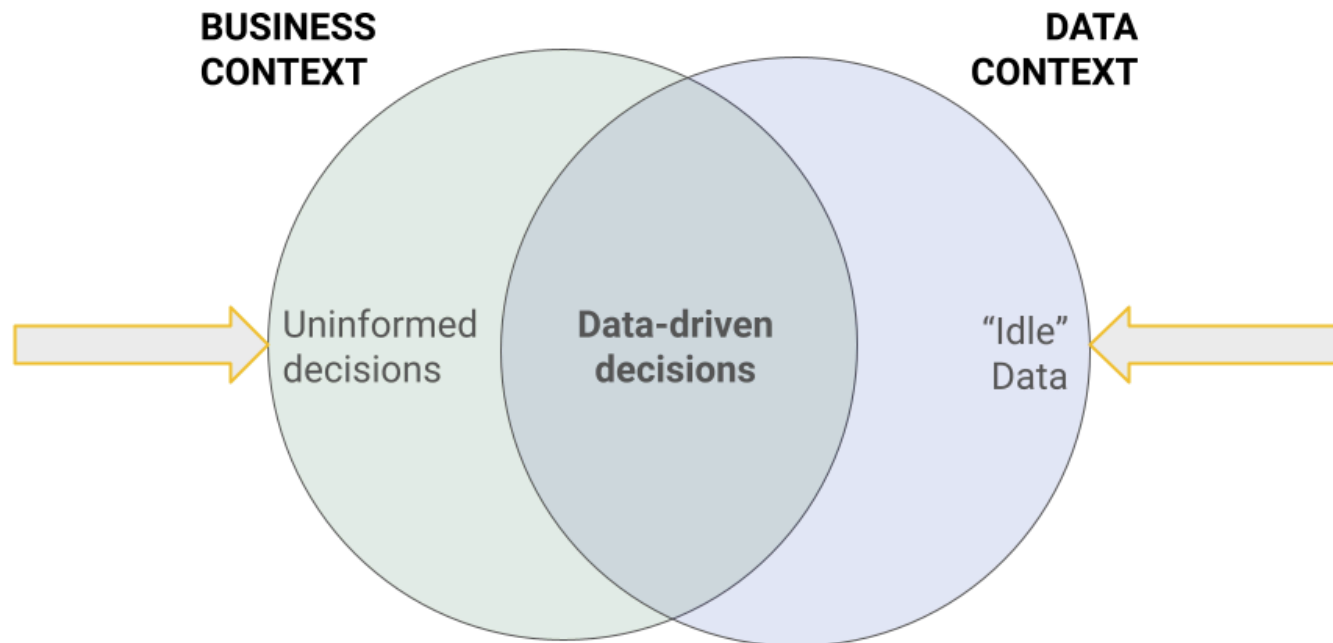
- The goal is to move down the ladder to 0OI.
- 2OI and 3OI is where we should be spending most of our production energy.

# Developing a project idea

# How do we create business value?

- We want to allocate our resources (eg. money, employees) in the way that generates the most value.
  - How do we enable the decision makers?

*Strategic decisions should be based on data!*



## Developing a project plan

1. Understand the business context.
2. Identify an opportunity.
3. Scope your analysis.
4. Develop your solution.
5. Present results and recommendations.



## Developing a project plan

**Check:** Are your insights *actionable*?

**Check:** How robust is your analysis? *Quantify!*

**Check:** What are the *risks/caveats/unknowns*?

## FAQs from yesterday:

- **How do you submit your videos?**
  - We will provide links to a Google Drive folder for each team. Each team member will upload their video to that folder. Make sure your name is in the file name that you upload!

## FAQs from yesterday:

- **We have an idea but someone else has already completed a similar analysis. Can we still use that idea?**
  - It may be difficult to find a problem that nobody has worked on already, but you should still bring something new to your solution to extend the analysis. This is also about being creative!
  - If your project is motivated by work that is already public, cite this in your README file.
  - If your goal is to improve on work that has already been done, state this explicitly in your README. Discuss how you want to improve the analysis.

## FAQs from yesterday:

- **When is the project due?**
  - The project is due this upcoming Sunday (June 23).

## FAQs from yesterday:

- **Are there examples to refer to?**
  - We will not provide any specific examples since we want you to develop your idea on your own, and showcase your creativity.
  - Some example of how regression can be applied in business:
    - [simplilearn](#)
    - [datagran](#)
  - Some examples of analyses:
    - [Stock Price Prediction](#)
    - [Students Performance Analysis](#)
    - Many others on Kaggle!

## FAQs from yesterday:

- What are the exact steps to set up the GitHub repository for your team?
  - i. One team member forks the DSI `team_project` repository onto their personal account.
  - ii. Every other team member clones the repository.
  - iii. One team member creates the `team-project-1` branch and pushes it to GitHub. This will be the "working" branch for your project.
  - iv. Each team member should be developing in a feature branch that is branched off of `team-project-1`.
  - v. When features are completed, those branches should be merged back into `team-project-1` with a pull request.

## FAQs from yesterday:

- What are the exact steps to set up the GitHub repository for your team?
  - vi. Each team member must submit at least one of these PRs.
  - vii. Each PR must be reviewed by at least one other team member. We recommend assigning different reviewers to each PR, as one of the requirements is also that each team member review at least one PR.
  - viii. When the project is completed, the `team-project-1` branch should be the final working version.
  - ix. The project is submitted by submitting a PR to merge the `team-project-1` branch into the `main` branch of your **forked** repository. Any team member can submit this.

# Today

1. Presenting your work and sharing it with others.
2. Rules of engagement and strategies for effective teamwork.



# Presenting your work

# 1. Understand your target audience

- What knowledge do they have about your project?
- Provide the necessary context.
- Reinforce the insights that **they** can act on.

# 1. Understand your target audience

**Example:** We are presenting our analysis of office space usage to the department heads who assign seating. They are not technical, but understand the problem and are looking for a solution. Furthermore, they have their own prior perspectives on office space utilization.

## 2. Clearly articulate the takeaways

- Make sure your audience understands the most important information.
- Don't add unnecessary detail, but be prepared to speak in depth if asked.

## 2. Clearly articulate the takeaways

### Tips for Amazon Writers:

1. Make sentences clear and concise (less than 30 words).
  - "Due to the fact that..." -> "because".
2. Replace adjectives with data.
  - "We improved performance" -> "we reduced latency from 10ms to 1ms."
3. Eliminate weasel words.
  - "Nearly all customers." -> "87% of Amazon Prime members."
4. Reply to questions with one of four "Amazon answers":
  - Yes / No / a number / I don't know (and will follow up when I do)

## 2. Clearly articulate the takeaways

**Example:** Our company could reduce real estate overhead, while maintaining productivity and employee comfort, if we removed the assigned seating for 10% of teams but updated 25% of our office space to be flexible seating.

### **3. Highlight the value added**

- Quantify as much as possible.
- Indicate how your work improves over previous work or the status quo.

### 3. Highlight the value added

**Example:** Updating the office spaces would add 5% to our real estate costs over the next year, but would save 10% per year once the new seating is implemented.



# **Rules of engagement and strategies for effective teamwork**

**Think about: how did yesterday go?**

Do you think your team functioned well?

What could be improved?

Would the others on your team agree with you?

# Rules of engagement

## Successful teams:

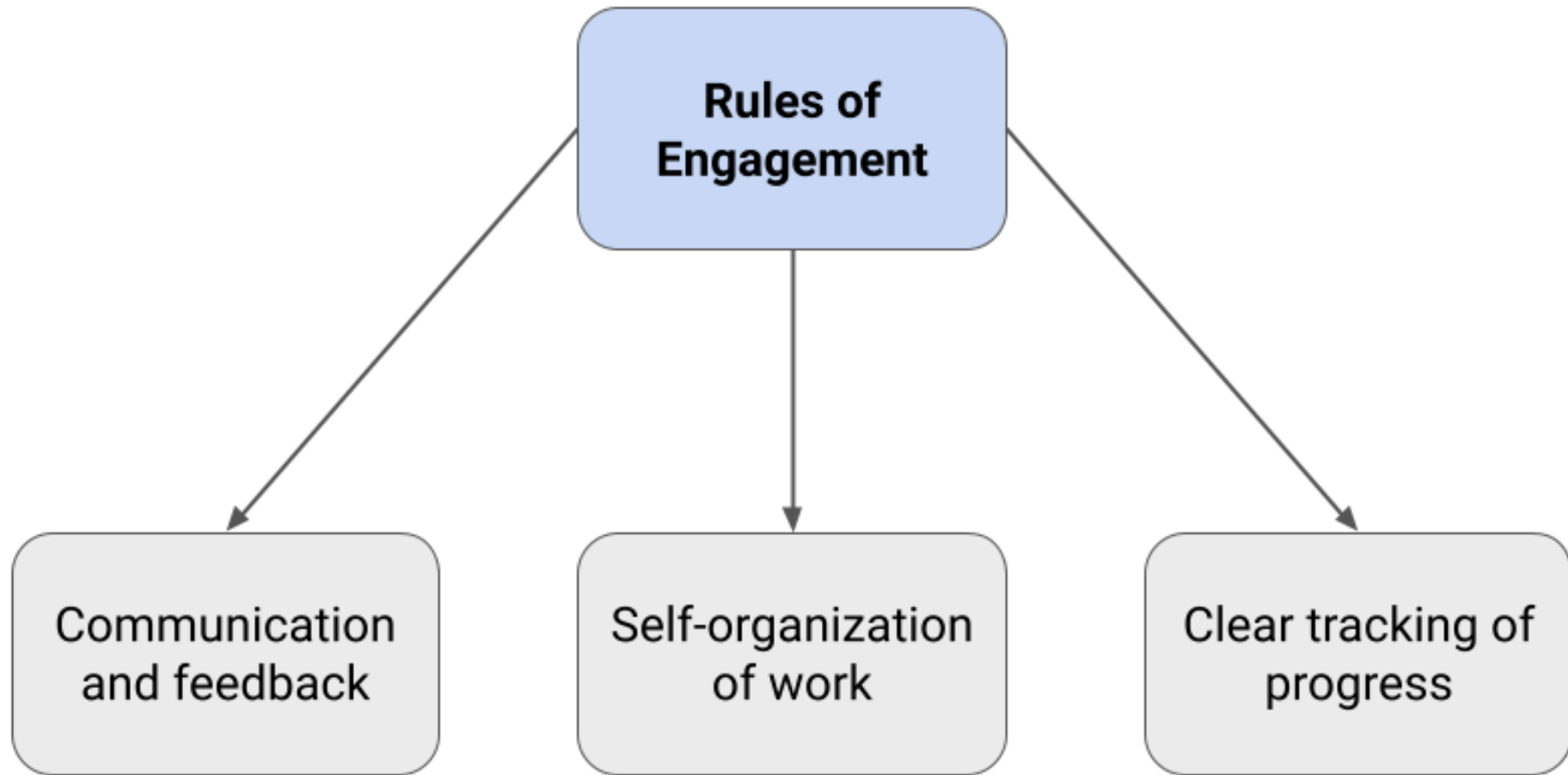
1. Have strong communication.
2. Have a clear understanding of everyone's role on the team.
3. Work collaboratively towards a common goal.

## Rules of engagement

- Every time will land on slight different rules of engagement!
- The key is to be aware of what works and what doesn't, and adjust accordingly.

## Rules of engagement

- However, **rules must be explicit.**
- Miscommunication happens when rules are left up to individual interpretation.



# Communication and feedback

1. **Feedback as a habit.** A feedback framework helps teams focus on improving processes instead of laying blame.
2. **Respectful and honest communication.** For discussions to be productive, team members must feel able to both speak their minds and discuss their mistakes without judgement.

## A self-organizing team

1. **Clear accountability and ownership of tasks.** Every action item should have someone assigned. Of course, the assigned person can change if workloads become unbalanced.
2. **Be solution-oriented.** Instead of only presenting problems, try to always suggest a possible solution along with a problem.



## Clear tracking of progress

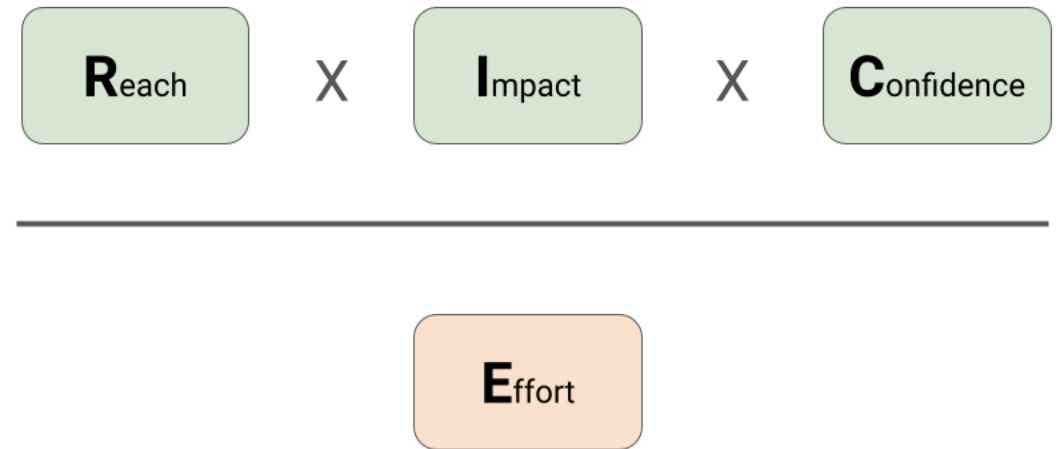
1. **Communication of roadblocks.** It is just as important to communicate roadblocks and failures as successes. The faster problems are identified, the faster they can be addressed.
2. **Track all of your tasks.** Tracking is necessary to objectively assess your progress as a team. The data-driven mindset applies here too!
3. **Documentation of work.** The level and type of documentation should be agree upon as a team, and included in the rules of engagement. Team members should be able to understand and continue each others' work.

# Prioritization

Many different frameworks exist.

The **RICE** prioritization framework is an example, in which we try to quantify the:

1. Reach of a project (how many people it will affect).
2. The impact that it will have.
3. The confidence that we have in our ability to deliver.
4. The effort that it will take.

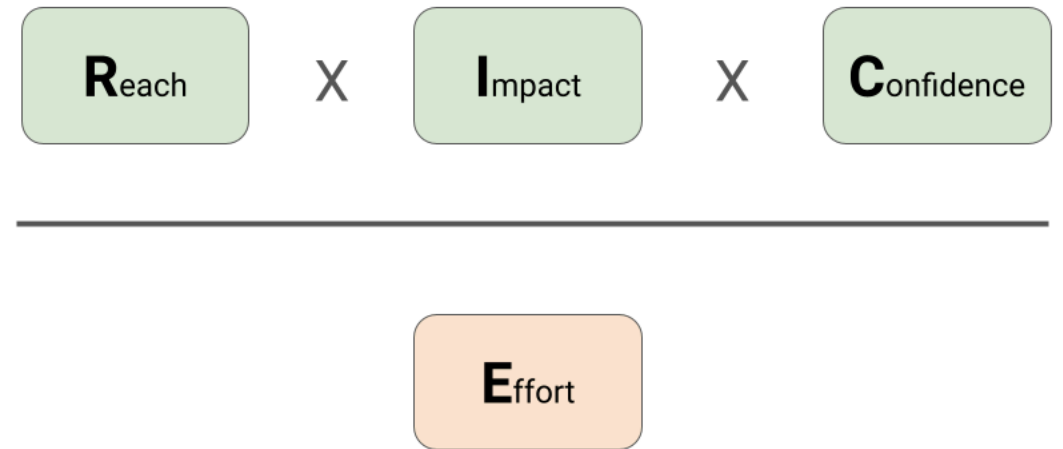


# Prioritization

## Example

**Reach:** Our project will affect the real estate costs of the entire company, however real estate costs are only 5% of the company's overhead costs. 3/5.

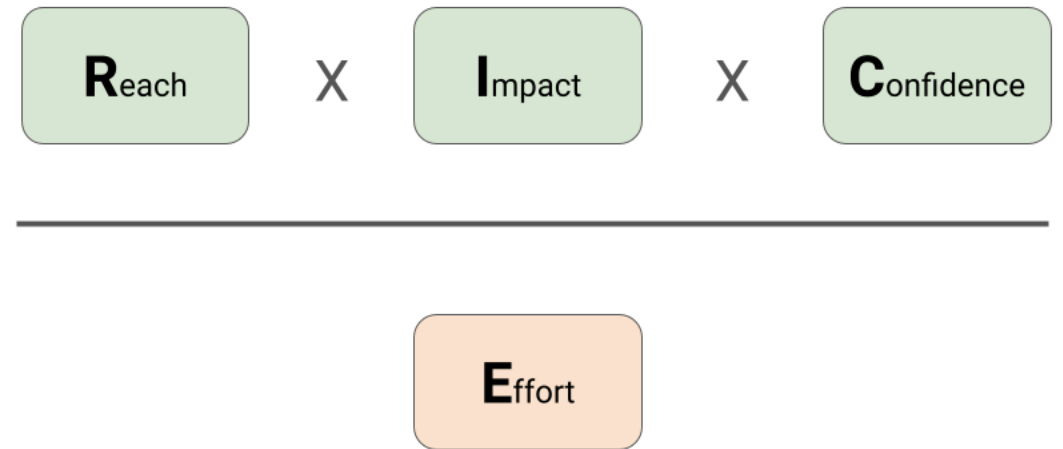
**Impact:** This project has the potential to reduce real estate costs by a significant fraction. 4/5.



# Prioritization

## Example

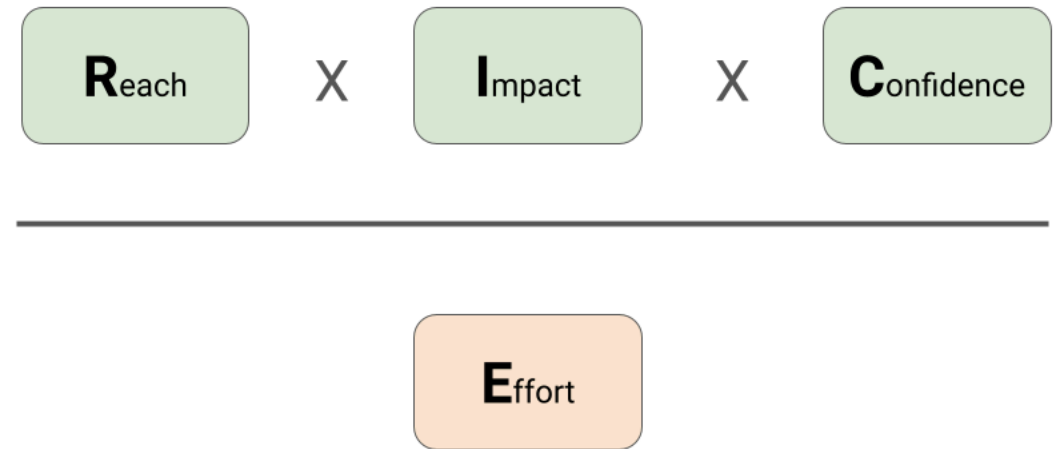
**Confidence:** Prior to starting this project, we have anecdotally seen how office space is used, however we are unsure of the specific usage metrics. We're also unsure whether we can accurately get the data on how frequently individuals or teams use office space. 2/5.



# Prioritization

## Example

**Effort:** Integrating internal company data will be challenging, but the number of datasets and systems should not be large. Analyzing against standard office costs, renovation costs, and floor capacities will be more complex. 4/5.

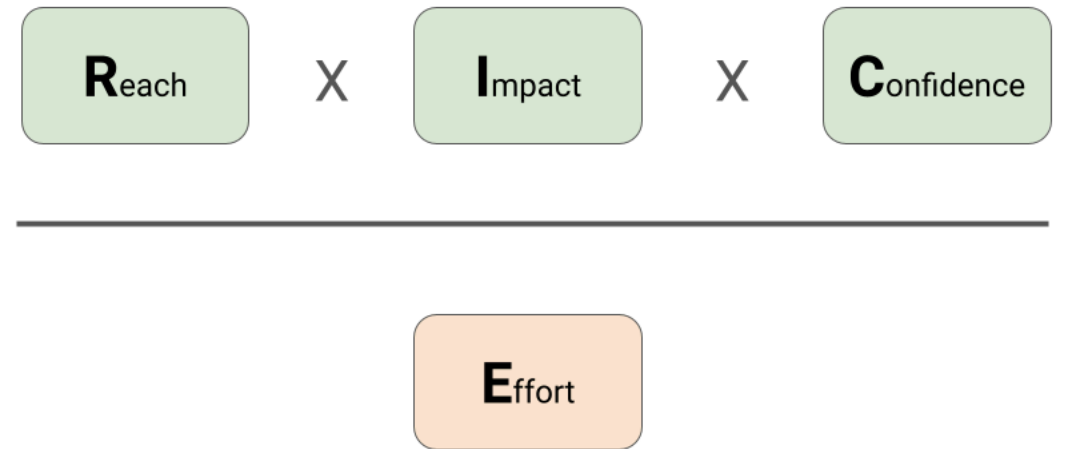


# Prioritization

## Example

**TOTAL SCORE:**  $3 \times 4 \times 2 / 4 = 6$

*It is important to set a relative scale for these numbers.*



# Prioritization

It is important to limit unimportant "busy work"; we want to be working on projects that will deliver the most long-term value.

