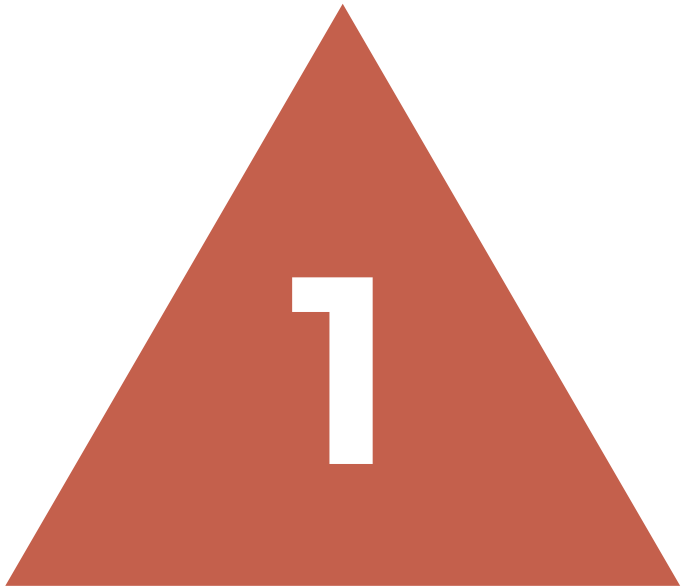
AGILE in DATA SCIENCE

khanh.tn @ citigo

1. Introduction to Data Science
2. Agile in Data science



Introduction to

DATA SCIENCE

“

“Data Science is a set of disciplines and practices that extracts meaningful insights from data in a scientific manner”

Data Science

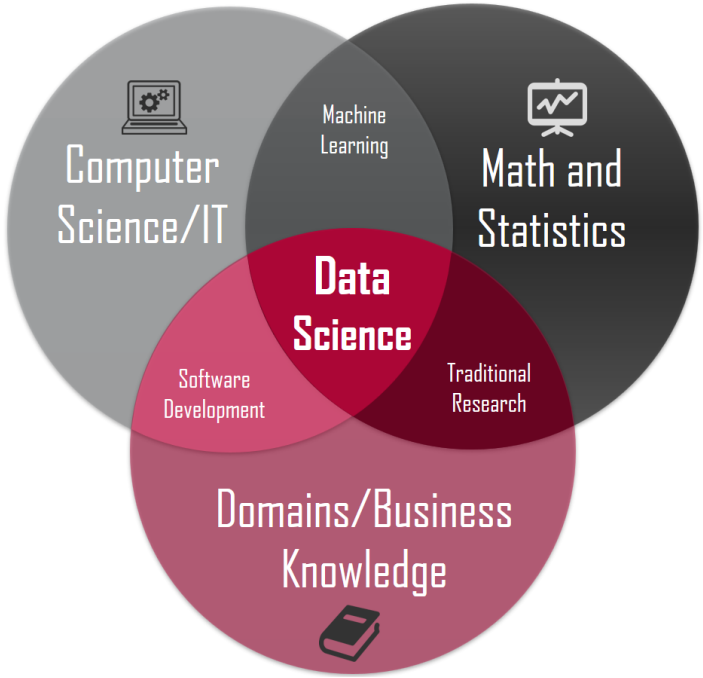
can help organizations

- Understand their situations/environments
- Analyze existing issues
- Reveal new knowledge and hidden opportunities

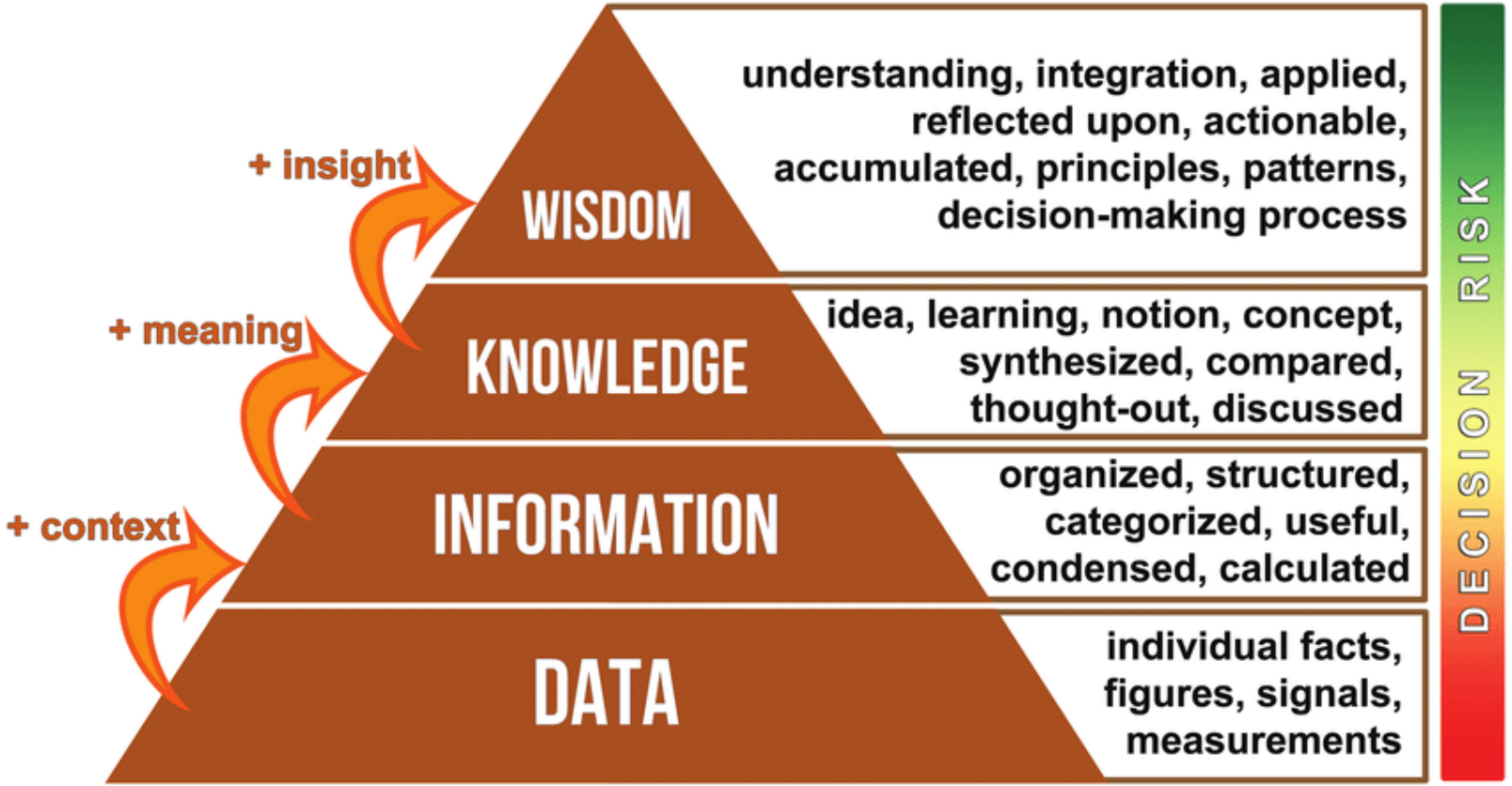
“Explore the best way to provide value to the business using data”

DATA SCIENCE

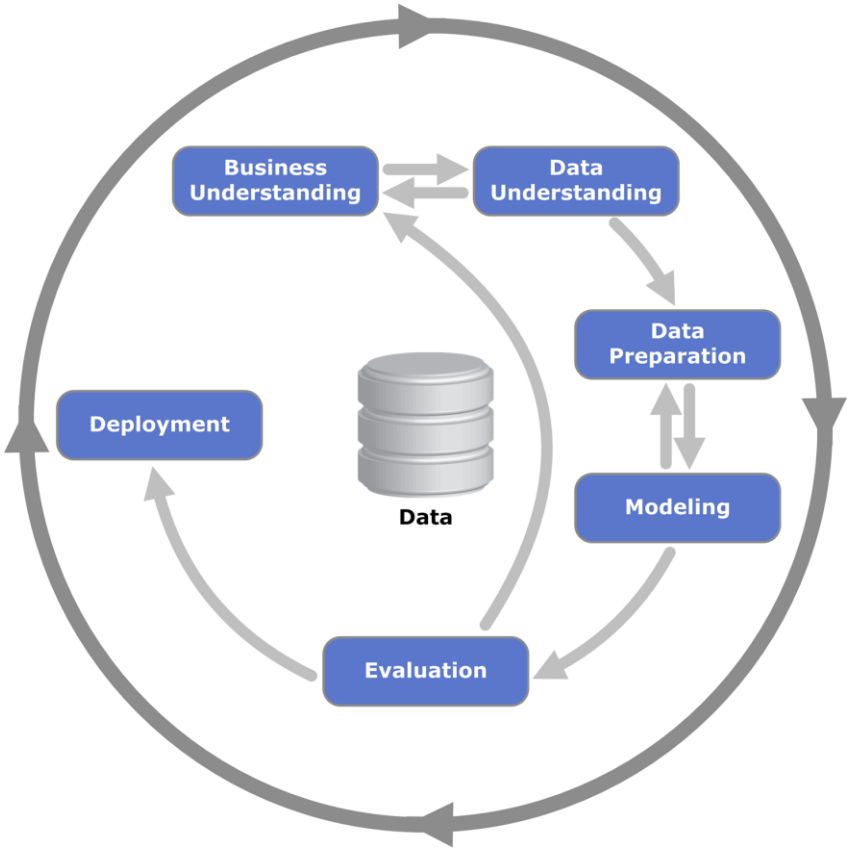
An **inter-disciplinary** field of study that combines domain expertise, mathematics, scientific methods and computing skills to leverage data for better decision-making



The ultimate objective of data science is to find potentially useful conclusions that can be acted upon by the users of the analysis


+ insight
+ meaning
+ context
WISDOM
KNOWLEDGE
INFORMATION
DATA
understanding, integration, applied, reflected upon, actionable, accumulated, principles, patterns, decision-making process
idea, learning, notion, concept, synthesized, compared, thought-out, discussed
organized, structured, categorized, useful, condensed, calculated
individual facts, figures, signals, measurements
DECISION RISK

Data Science Process (CRISP-DM)



The CRoss Industry Standard Process for Data Mining (CRISP-DM) is a process model with six phases that naturally describes the data science life cycle.

Business understanding

What does the business need?

Data understanding

What data do we have/need?
Is it clean?

Data preparation

How do we organize the data for modeling?

Modeling

What modeling techniques should we apply?

Evaluation

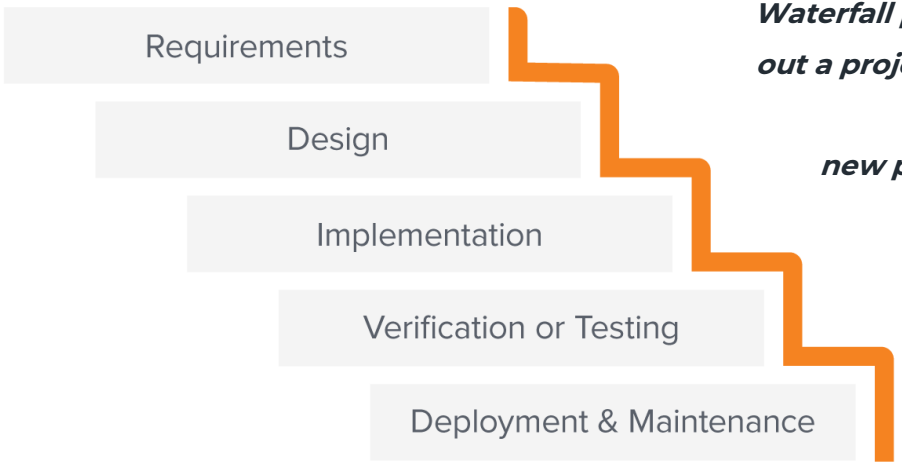
Which model best meets the business objectives?

Deployment

How do stakeholders access the results?

AGILE in DATA SCIENCE

The Waterfall Method



Waterfall project management maps out a project into distinct, sequential phases, with each new phase beginning only when the previous one has been completed.

“

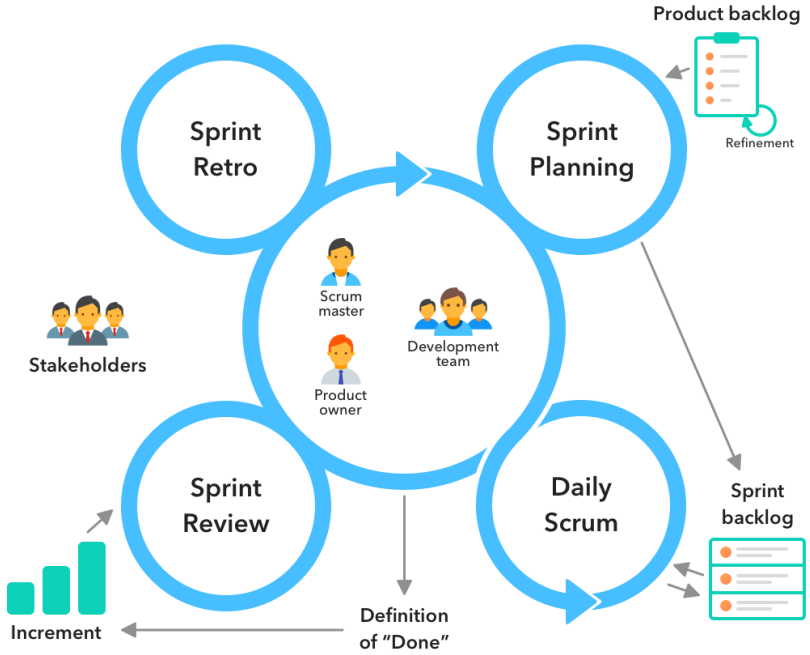
“Waterfall is linear and sequential, and does not encourage changing up the process once it’s started”

Agile methodology is an **iterative** approach to delivering a project throughout its life cycle.

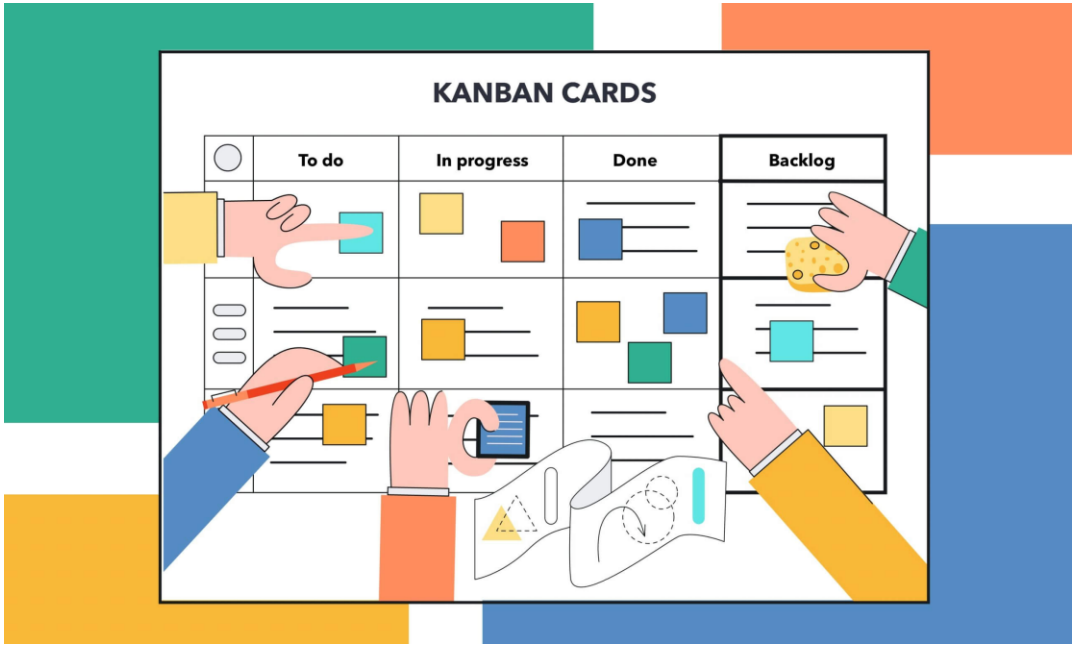
“

“Agile’s iterative approach enables a project to move quickly, as well as making it adaptive to change”

Scrum is a project management framework that is used to efficiently produce quality work while adapting quickly to change (rather than viewing Scrum as methodology, think of it as a framework for managing a process).



Kanban is a workflow management method for defining, managing and improving services that deliver knowledge work. It aims to help you visualize your work, maximize efficiency, and improve continuously.



Is Agile for Data Science?

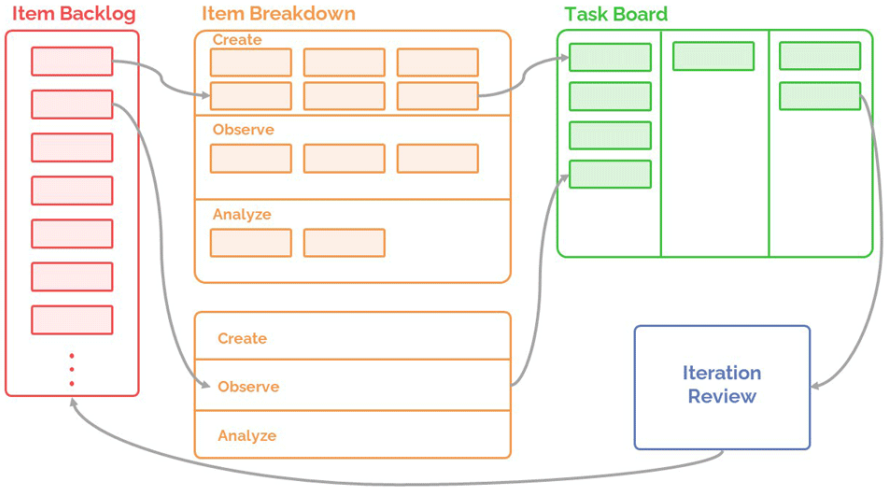
- More Relevant Deliverables
- Quicker Delivery of Customer Value
- Real Feedback
- Cut Losses Early
- Improved Communication

Challenges of Applying Agile to Data Science?

- Less Straight-forward
- Longer Time Horizons

Scrum-Kanban hybrid approach

- While Scrum requires all iterations (sprints) to be of equal length in time. In Scrum-Kanban, iterations vary in duration to allow a logical increment of work to be done in one iteration (rather than defining the amount of work that can be done in a specific unit of time).
- Scrum-Kanban employs Kanban principles (e.g., there is a Kanban board, DS teams need to limit WIP, and work items flow across the board).



Differences from Traditional Scrum

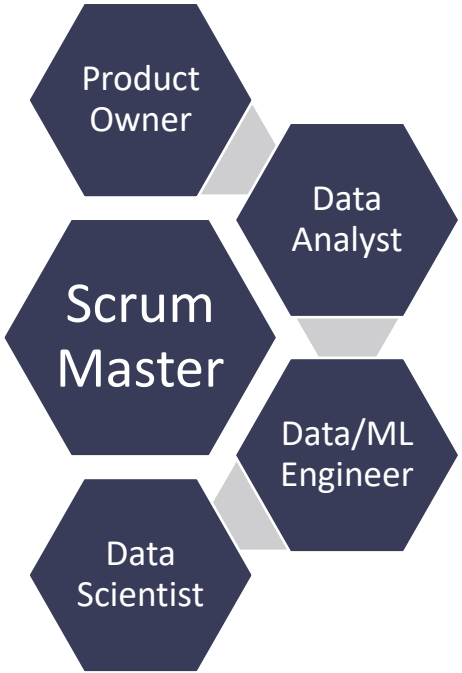
- Functional Iterations
- Uncertain Task Duration
- Collective Analysis
- Iteration-Independent Meetings

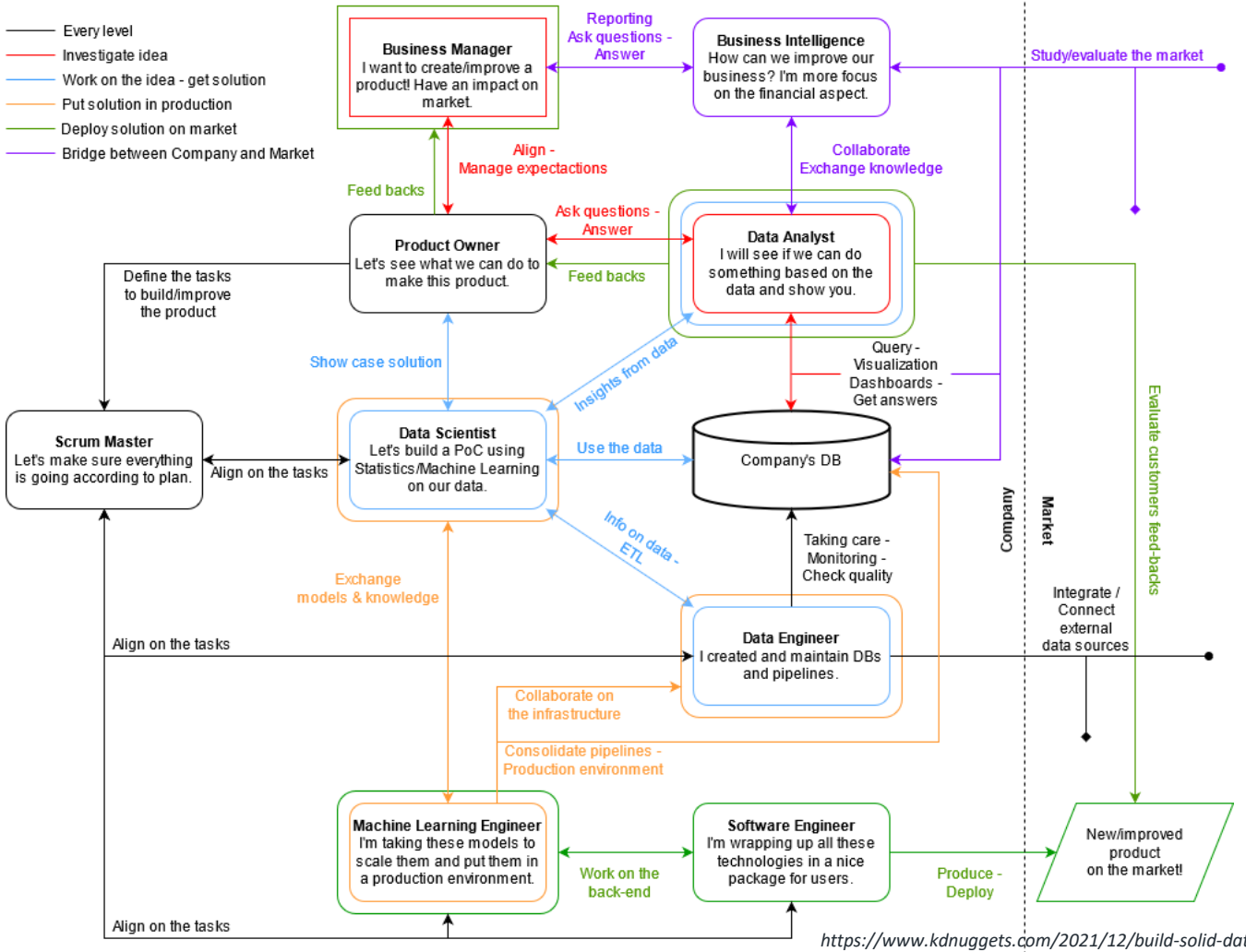
An Agile-oriented Data Science team

- Have Fully-Functional Teams
- Allow Teams to Self-Manage
- Start Simple and Iterate Quickly
- Measure Effectively
- Frequently Collaborate
- Have Flexible Plans

An Agile-oriented Data Science team

- **Product owner** decides which features and functionality to build, the order in which to build them, and what aspects of them to observe and analyze. The product owner owns the Item Backlog and is responsible for prioritizing its BItems, ensuring that each BItem is clearly defined, and that the upcoming work and priorities of the team are visible and transparent.
- **Scrum master** serves as the process master and acts as a coach, facilitator, impediment remover as well as helping everyone involved understand and embrace the values, principles, and practices to aid the organization obtain exceptional results from applying Agile in Data Science.





https://www.kdnuggets.com/2021/12/build-solid-data-team.html

Thanks!

Q&A