CS 301
Software Engineering
Module - 38

Eswaran Narasimhan

At the end of the session, you will be able to:

- ❑ Understand Delphi Technique
- ❑ Understand Work Breakdown Structure (WBS)
- ❑ Apply Three Point Estimation method
- ❑ Understand Functional Point Method
- ❑ Differentiate various Agile Estimation methods
- ❑ Understand how estimation helps in improvement

Estimation Methods

- [x] Delphi Technique
- [ ] Work Breakdown Structure (WBS)
- [ ] Three Point Estimation
- [ ] Functional Point Method
- [ ] Agile Estimation

Estimation Methods

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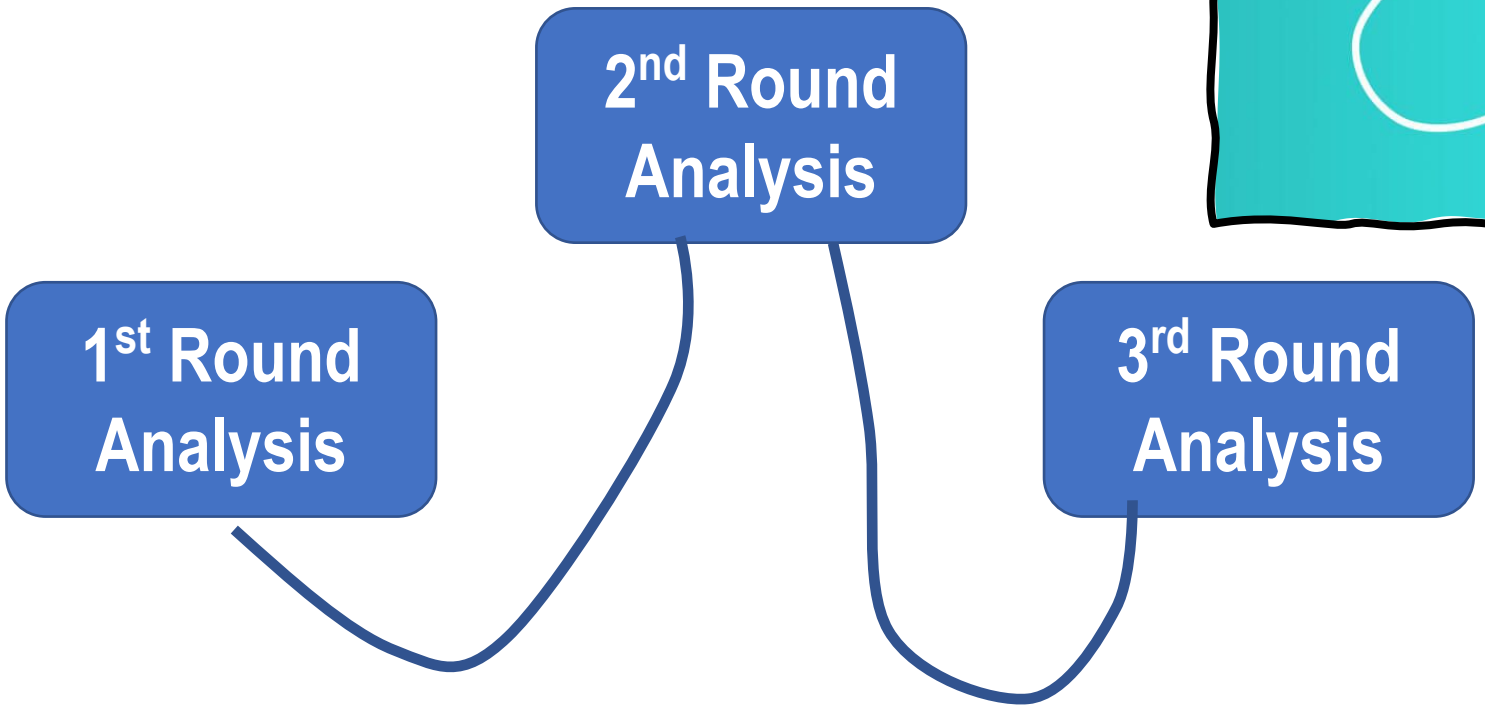
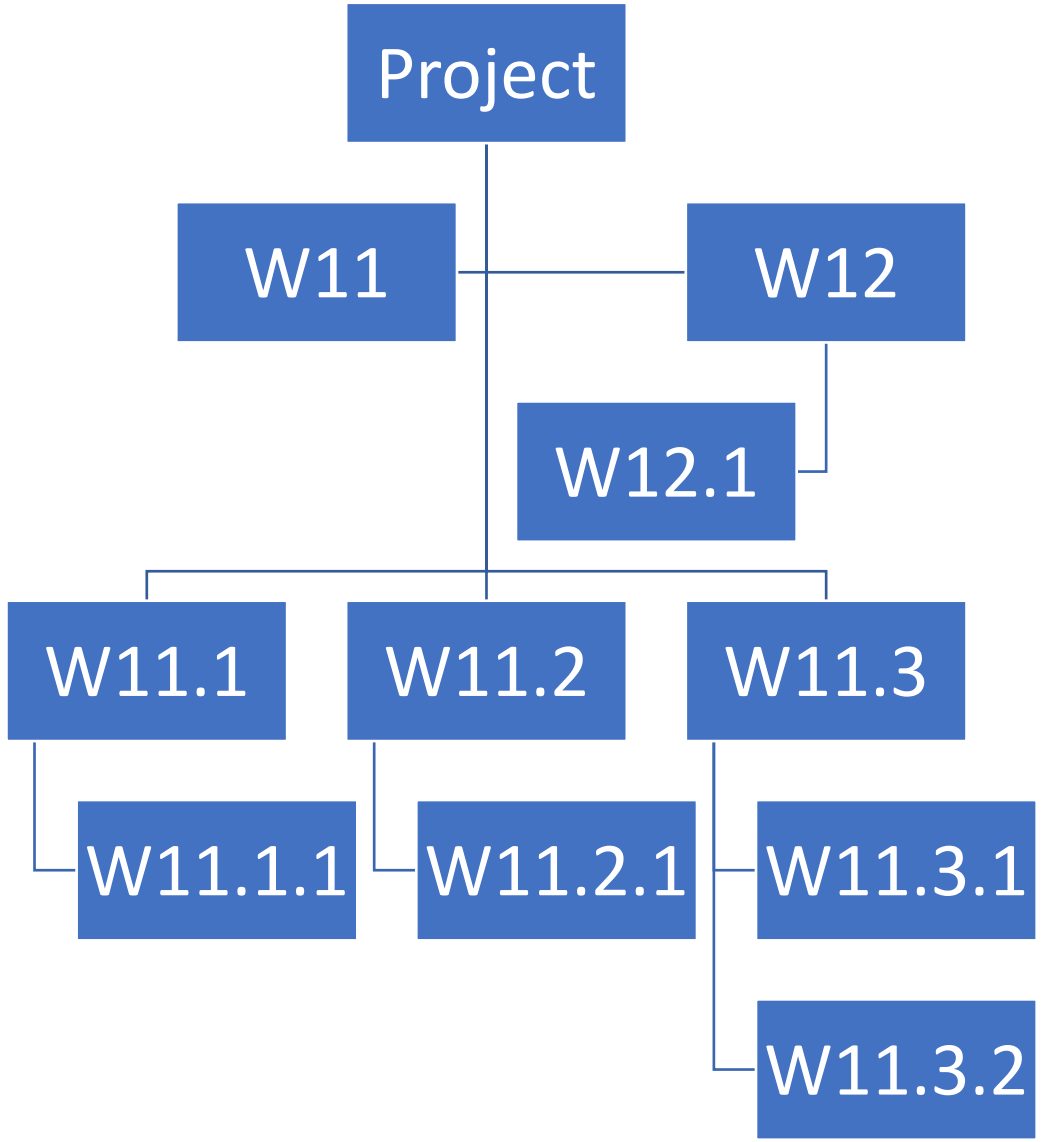


Delphi Technique

- Repeated surveys/questionnaires
- Useful when developer team is experienced
- The estimation elements are low to moderate

Work Breakdown Structure

- Delphi Technique
- **Work Breakdown Structure (WBS)**
- Three Point Estimation
- Functional Point Method
- Agile Estimation



Work Breakdown Structure

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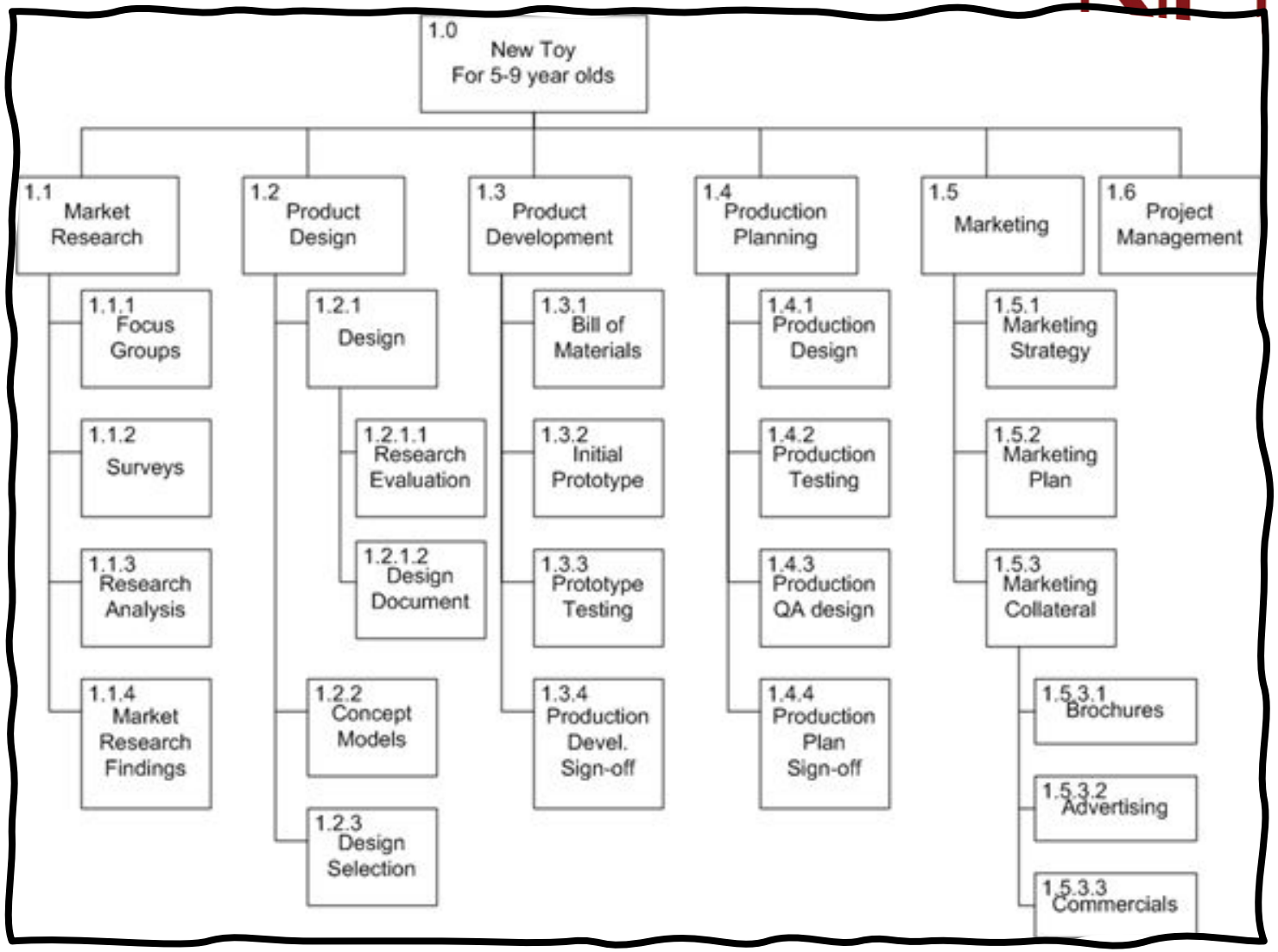


Work Breakdown Structure (WBS)

- Repeatedly breakdown the elements
- Since work size is small – estimation is easy
- Useful by-product is a trackable set of activities

Three Point Estimation

- Delphi Technique
- Work Breakdown Structure (WBS)
- **Three Point Estimation**
- Functional Point Method
- Agile Estimation

Three Point Estimation

- Delphi Technique
- Work Breakdown Structure (WBS)
- **Three Point Estimation**
- Functional Point Method
- Agile Estimation

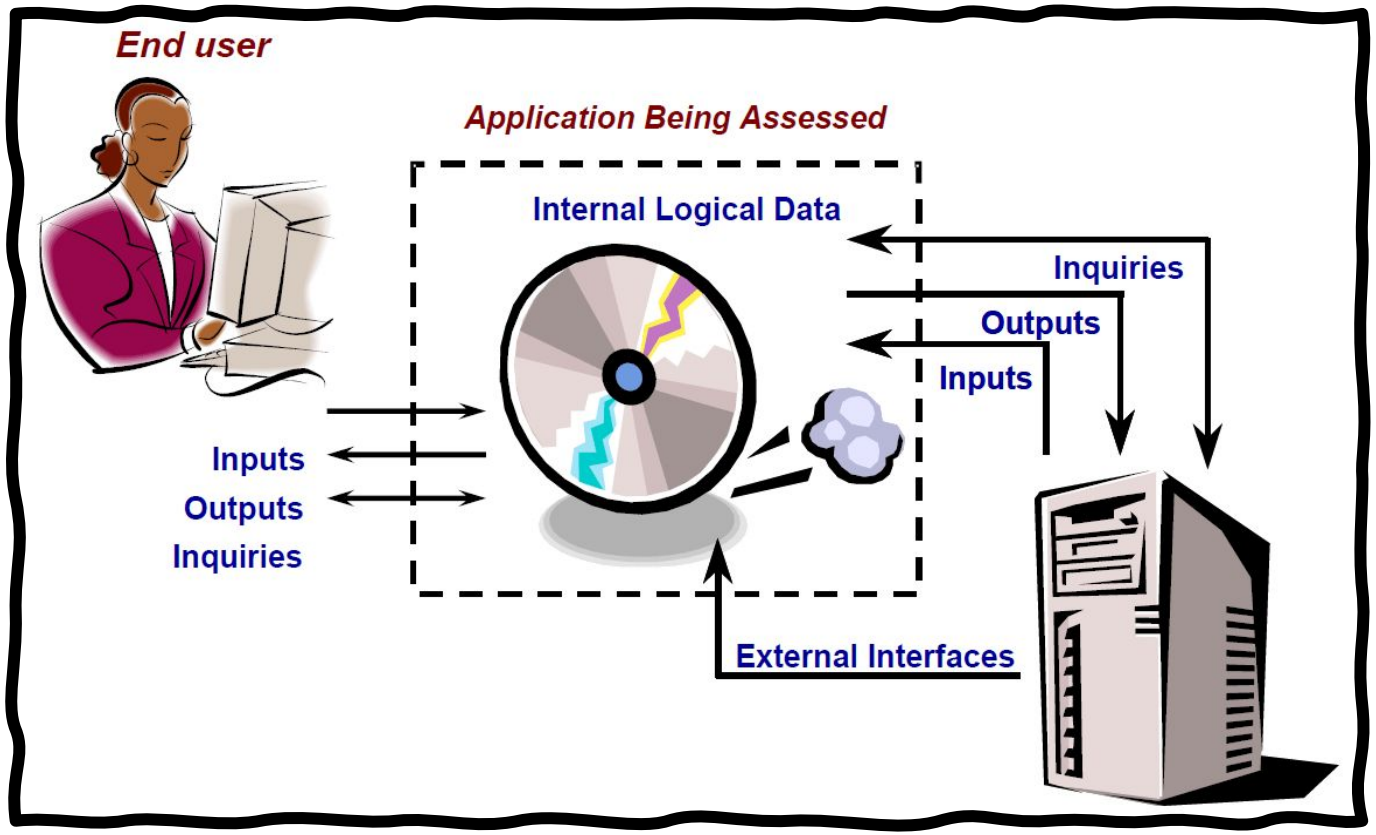
$$E=(E_o+4*(E_m)+E_p)/6$$

Three Point Estimation

- Estimate pessimistic effort (E_p)
- Estimate optimistic effort (E_o)
- Estimate most likely estimate (E_m)
- Compute the estimate
- Depends of the experience of estimators and the threat perception
- Combines risk perception into the estimates

Function Point Method

- A method that is independent of the development strategy
- Looks at it from the user point of view
- Breakdown software requirements into
  - Internal logical files
  - External interface files
  - External inputs
  - External Outputs
  - External inquires
  - Record Element Type
  - Data Element Type
  - File Type Referenced



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Login Screen

Password File
Username File

Username
Password
Submit

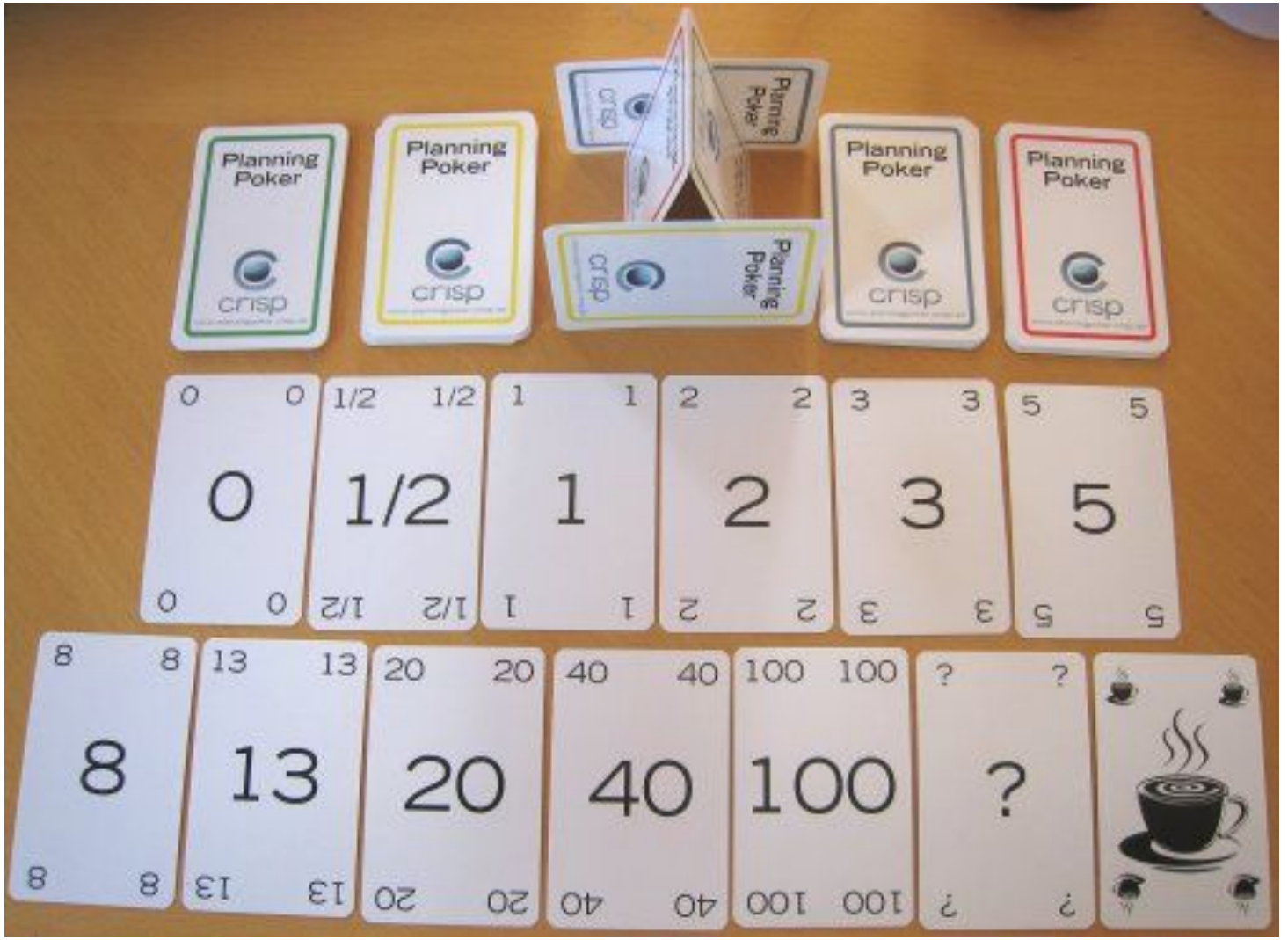
Database

Agile Estimation

- Planning Poker
- T-Shirt Sizes
- Dot Voting
- The Bucket System
- Ordering method

Agile Estimation

- ❑ **Planning Poker**
- ❑ T-Shirt Sizes
- ❑ Dot Voting
- ❑ The Bucket System
- ❑ Ordering method



https://commons.wikimedia.org/wiki/File:CrispPlanningPokerDeck.jpg

Agile Estimation

- ❑ Planning Poker
- ❑ **T-Shirt Sizes**
- ❑ Dot Voting
- ❑ The Bucket System
- ❑ Ordering method

https://medium.com/radius-engineering/project-estimation-through-t-shirt-size-ea496c631428

Agile Estimation

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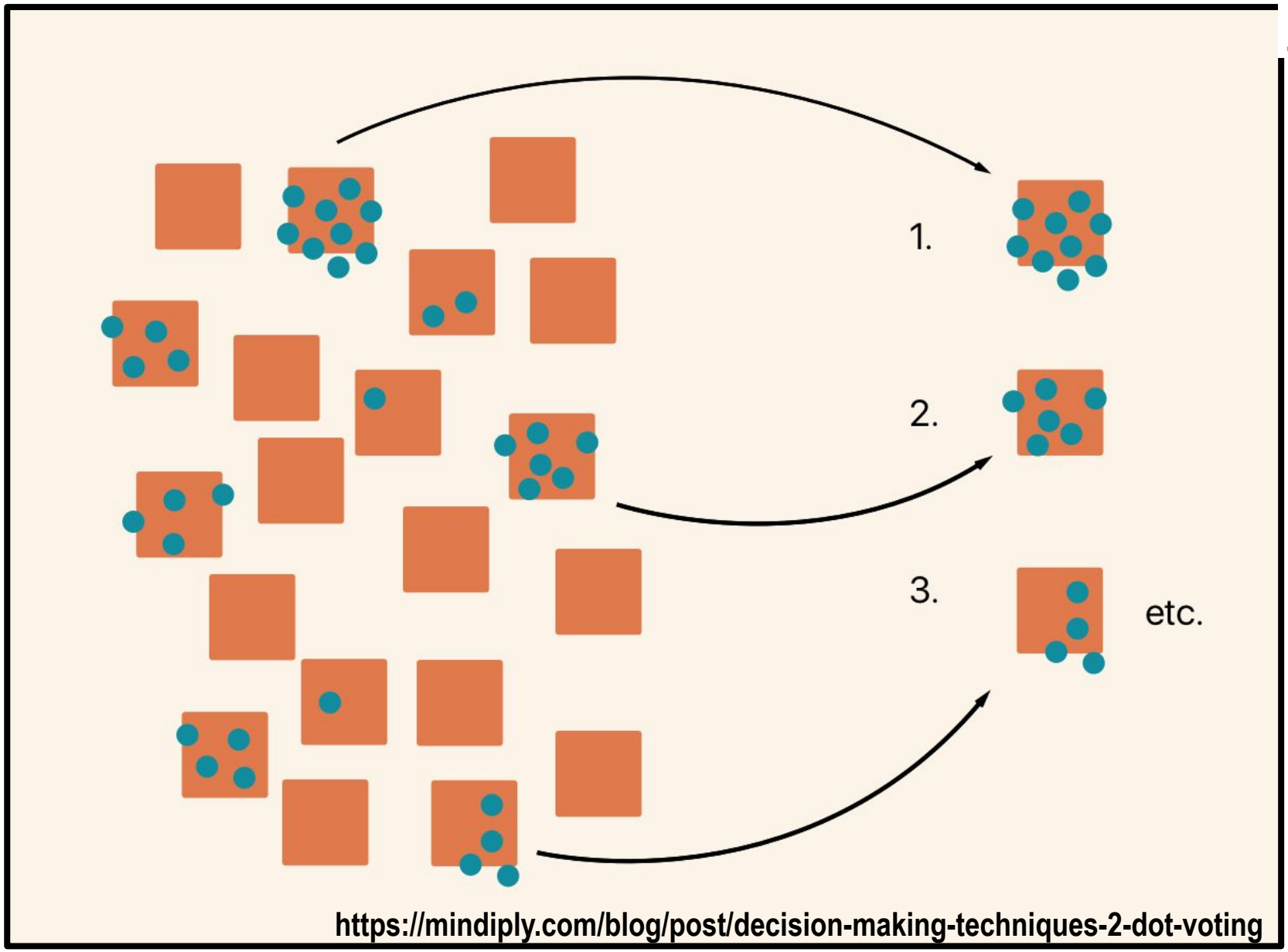

Agile Estimation

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Agile Estimation

- Planning Poker
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- **Ordering method**

https://www.therussianstore.com/media/wysiwyg/Traditional_Russian_Matryoshka.jpg

Estimation for improvement

- Ploughing back metrics into the next project
- Assessing the productivity of the team and team members
- Establishing language-based metrics for future use
- Improved ability to bid for new projects

We have covered the following

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