

Two important
agile project management technologies:

Scrum and Planning Poker

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Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation


Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Scrum is an agile method used to control and manage software development work

THE CLAIMS

- Wraps existing (technical) methods
- Improves communication and maximise collaboration
- Maximise productivity
- Control the chaos caused by different stakeholder needs
- Scales from small projects to entire organizations
- Makes people feel happy about their work



*In rugby football a **scrummage** or **scrum** is a way of restarting the game, either after a minor infringement [...], or when the ball has gone onto the ground after a successful tackle [...].*



Stakeholders



ScrumMaster



Product Owner

Scrum Team

Stakeholders

- Sponsors
- Users
- Others that are influenced



ScrumMaster



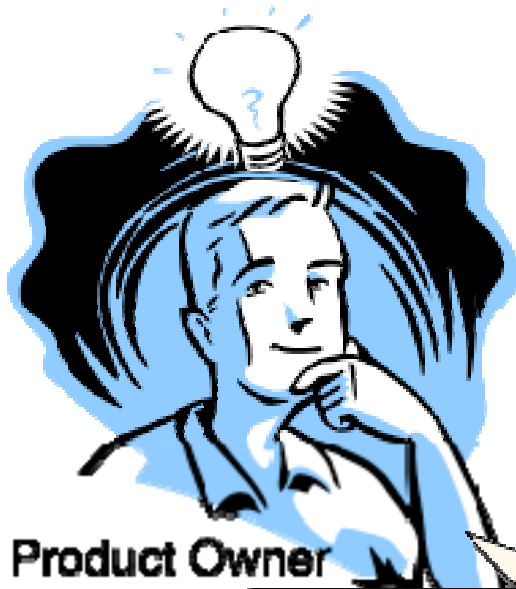
Product Owner

Scrum Team

Stakeholders



ScrumMaster



Product Owner

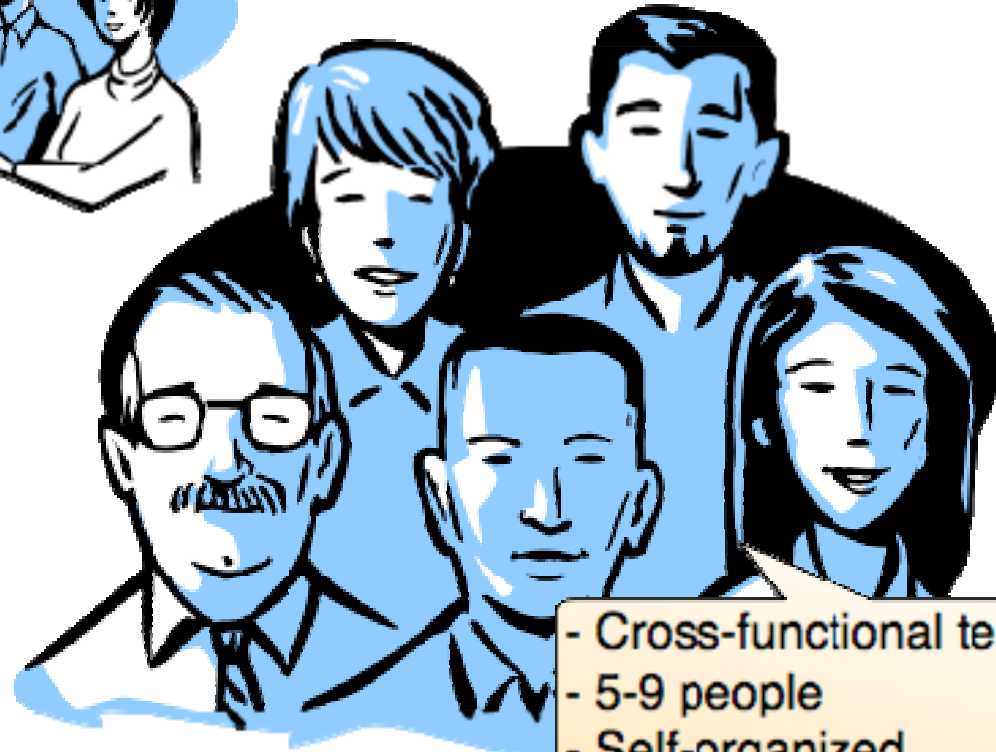
Scrum Team

- Has the vision
- Represent stakeholders
- Owns the product backlog

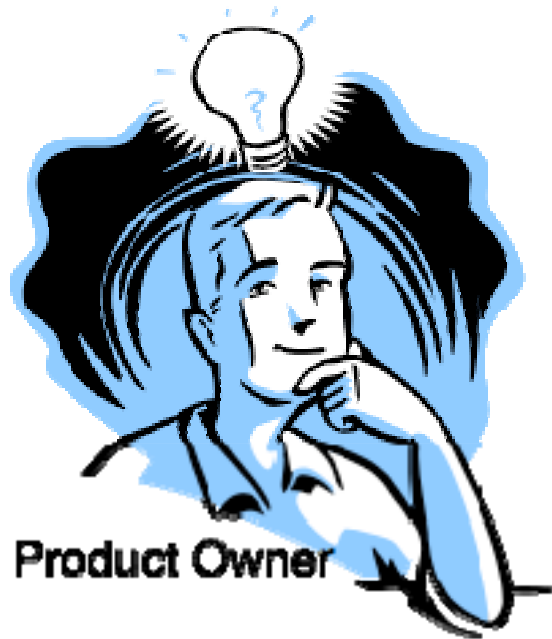
Stakeholders



ScrumMaster



- Cross-functional team
- 5-9 people
- Self-organized



Product Owner

Scrum Team

- Responsible for values and activities
- Responsible for removing of obstacles

Stakeholders

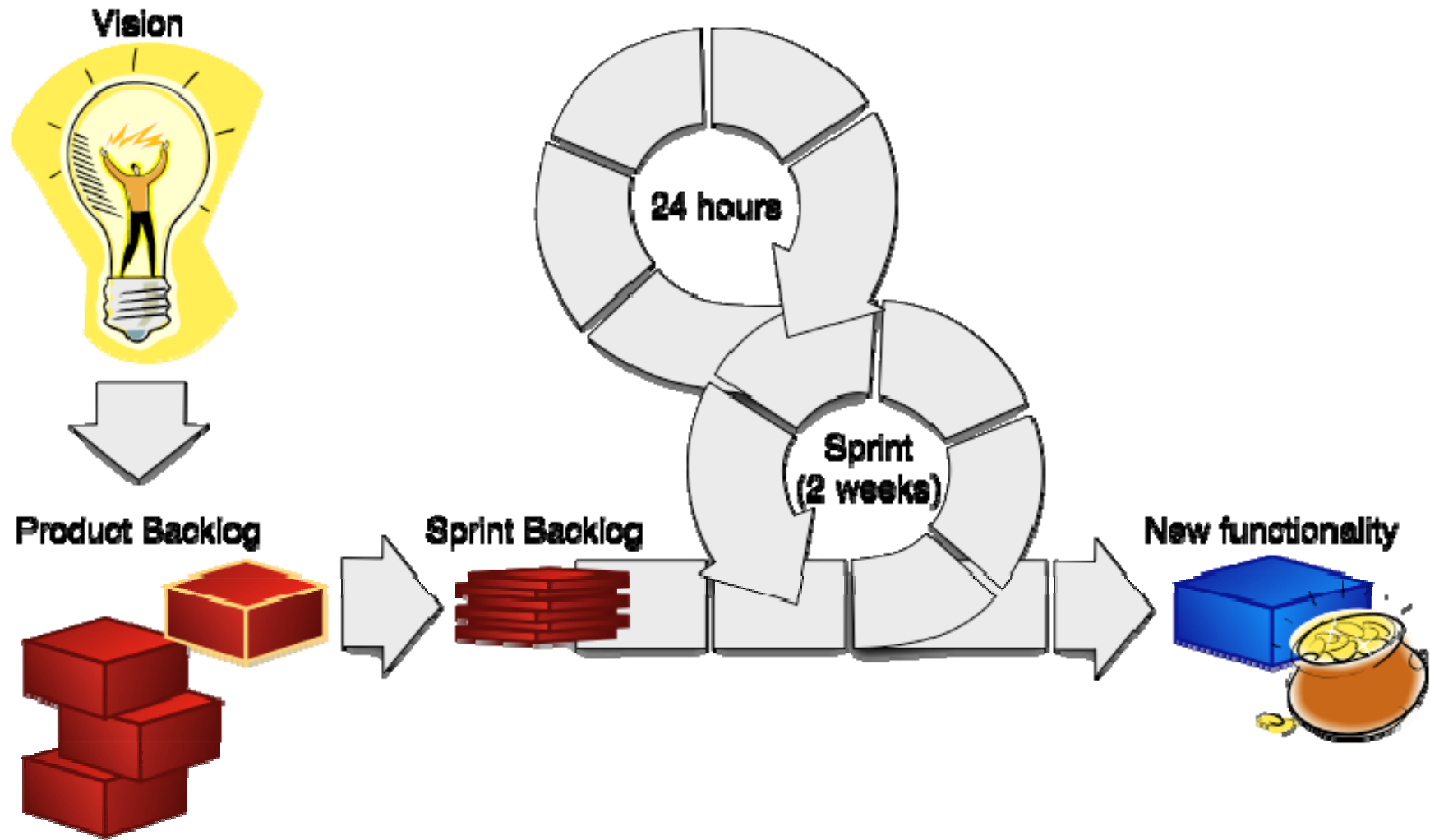


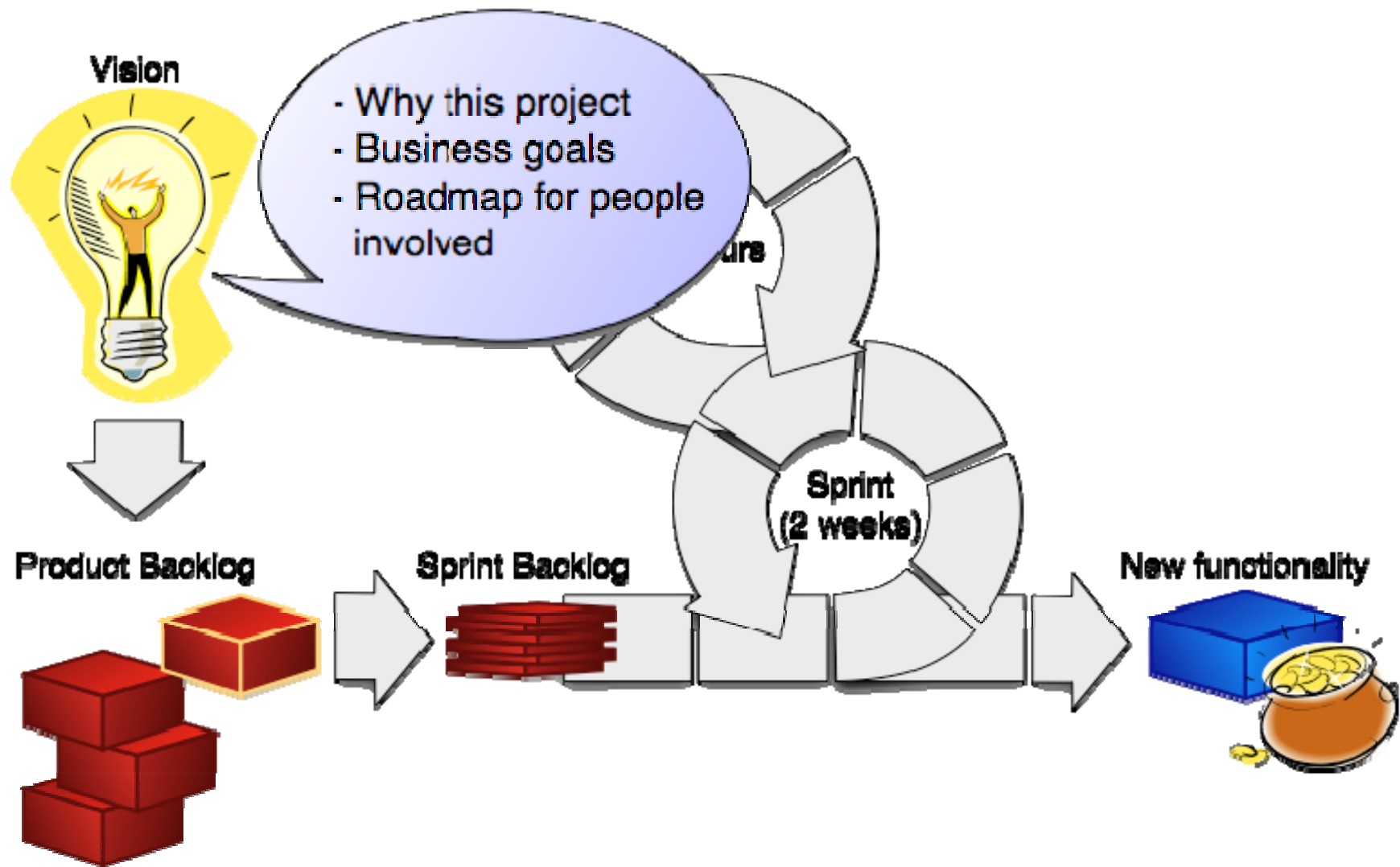
ScrumMaster



Product Owner

Scrum Team

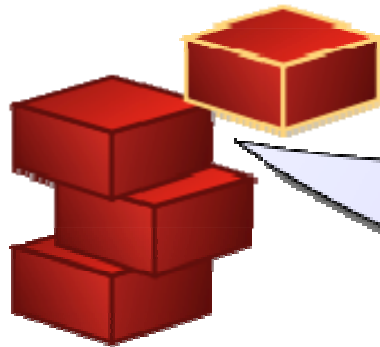




Vision



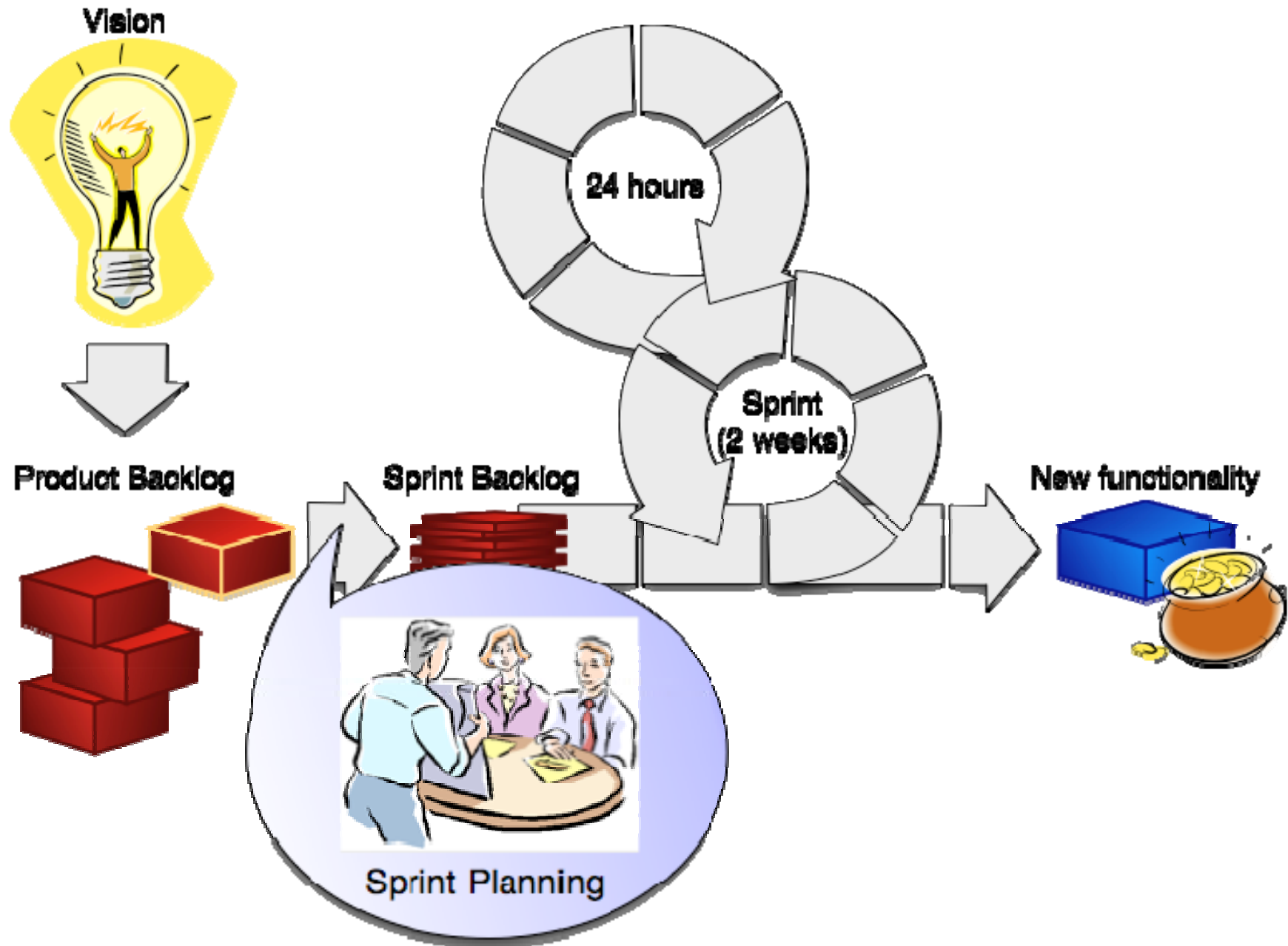
Product Backlog



	Item #	Description	Est	By
Very High				
	1	Finish database versioning	16	HH
	2	Get rid of unneeded shared Java in database	8	HH
		- Add licensing	-	-
	3	Concurrent user licensing	16	TD
	4	Demo / Eval licensing	16	TD
		Analysis Manager		
	5	File formats we support are out of date	160	TD
	6	Round-trip Analyses	250	NC
High				
		- Enforce unique names	-	-
	7	Trim application	24	HH
	8	Import	24	JM
		Admin Program		
	9	Delete users	4	JM
		Analysis Manager		
		When items are removed from an analysis, they should show up again in the pick list in lower 1/2 of the analysis tab	8	TD
		- Query	-	-
	11	Support for wildcards when searching	16	T&A
	12	Setting of number attributes to handle negative numbers	16	T&A
	13	Horizontal scrolling	12	T&A
		Population Genetics		
	14	Frequency Manager	400	T&M
	15	Query Tool	400	T&M
	16	Additional Editors (which ones)	240	T&M
	17	Study Variable Manager	240	T&M
	18	Haplotypes	320	T&M
	19	Add icons for v1.1 or 1.0	-	-
		Pedigree Manager		
	20	Validate Derived kinded	4	HH
Medium				
		- Espresso	-	-
	21	Launch tab synchronization (only show queries/analyses for logged in users)	8	T&A
	22	Delete settings (?)	4	T&A

Quality

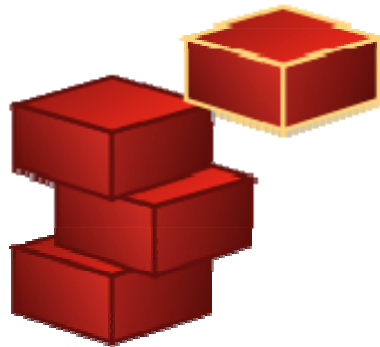




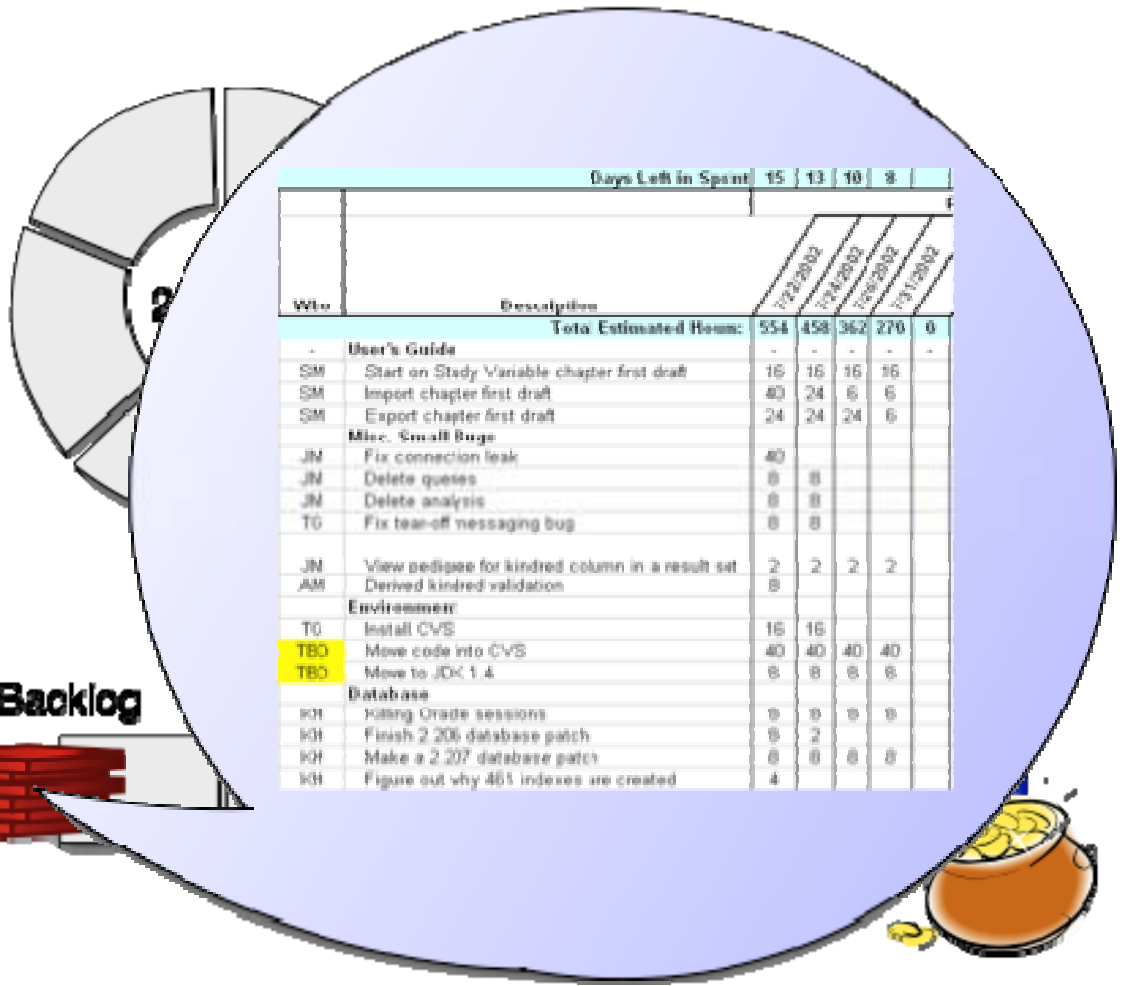
Vision

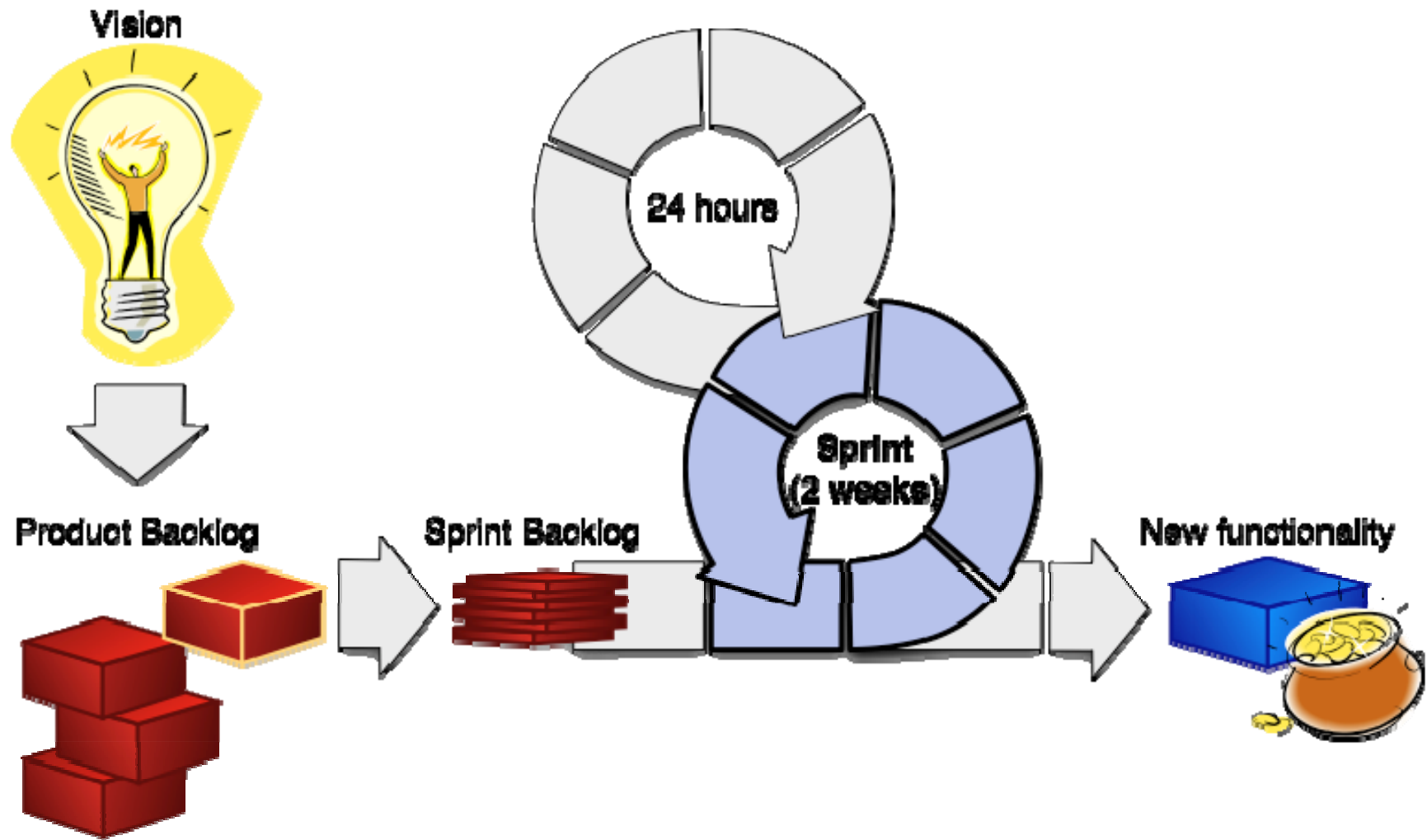


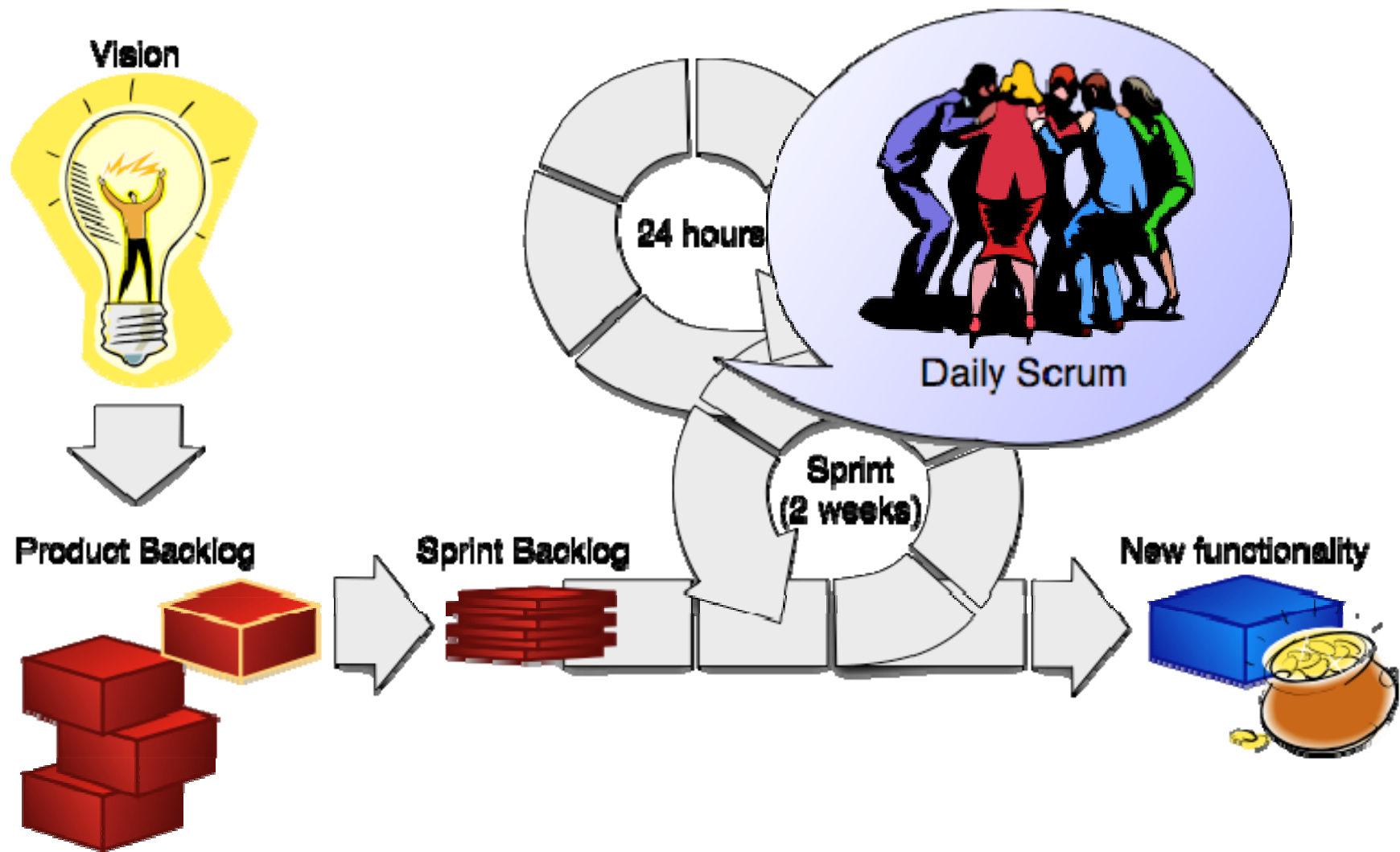
Product Backlog



Sprint Backlog

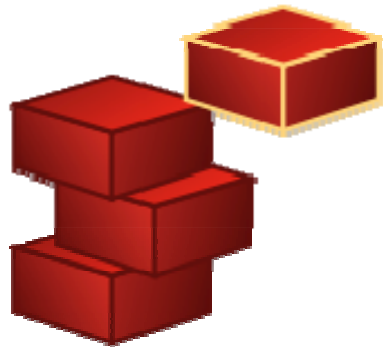




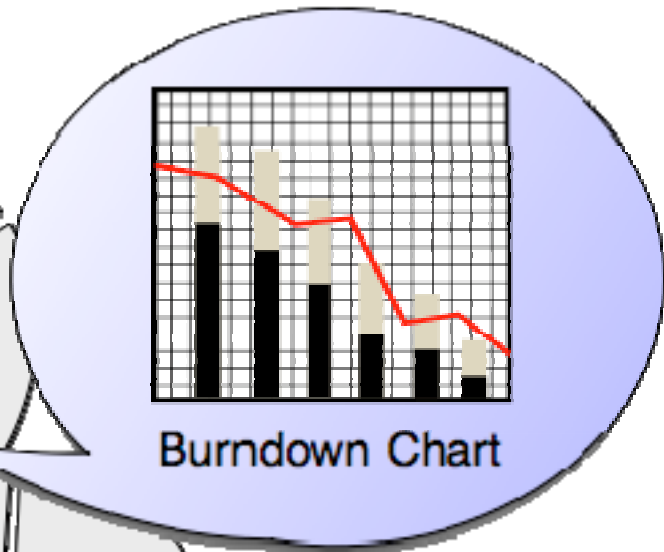
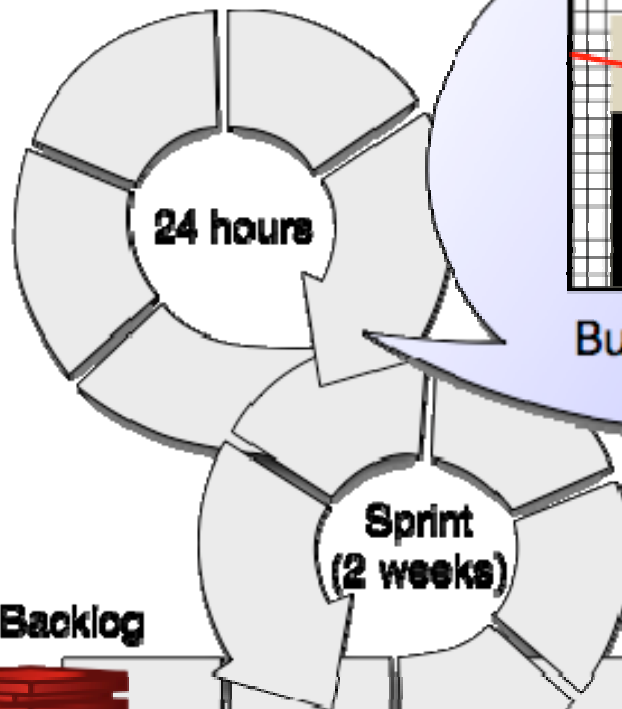




Product Backlog

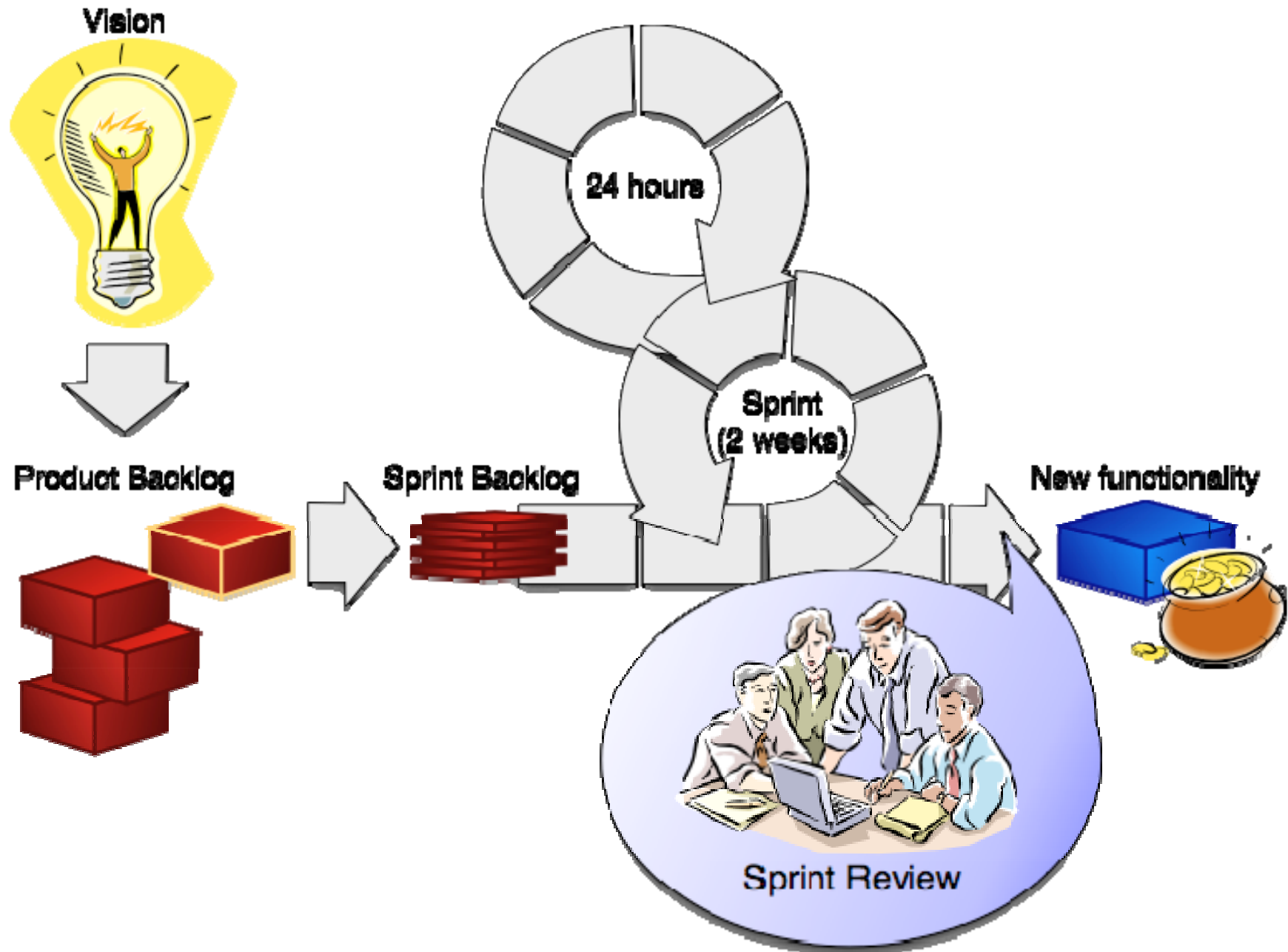


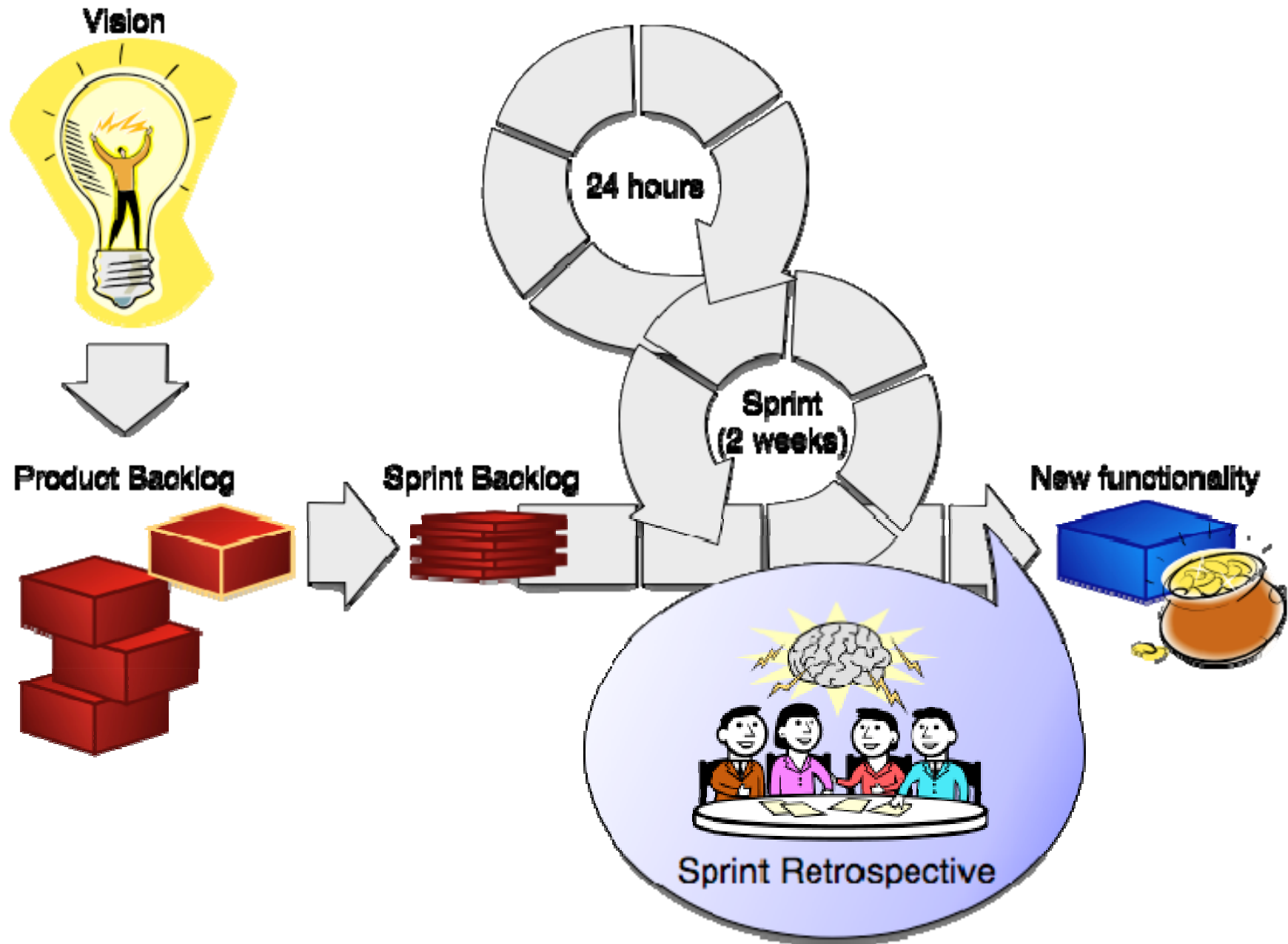
Sprint Backlog



New functionality







Release

- The product owner decide when the team has produced enough functionality to make a release
- Unless functionality is released in each sprint, it is common to have a release-sprint that focus on quality assurance and packaging of functionality
- The release Sprint can be shorter than an ordinary sprint

Summary – some Scrum-characteristics

- Functionality is prioritized according to business goals
- Incremental development
- Burndown Chart - focus on the progress
- Frequent observations/face-to-face communication
- Self-organizing teams of 5-9 committed persons
- Integrated process improvement
- Timeboxing (the possible, not the perfect)
- Reduction of complexity by task breakdown
- Active (intelligent) management that eliminate problems
- A framework for technical methods



Planning Poker

Experiment: individual vs group estimation



- 20 software professionals from the same company individually estimated the work effort required to implement the same software development project [*]
 - The participants had different background and roles
 - The project had previously been implemented
- After that, they formed five groups. Each group agreed on one estimate
 - By discussions and combination of knowledge

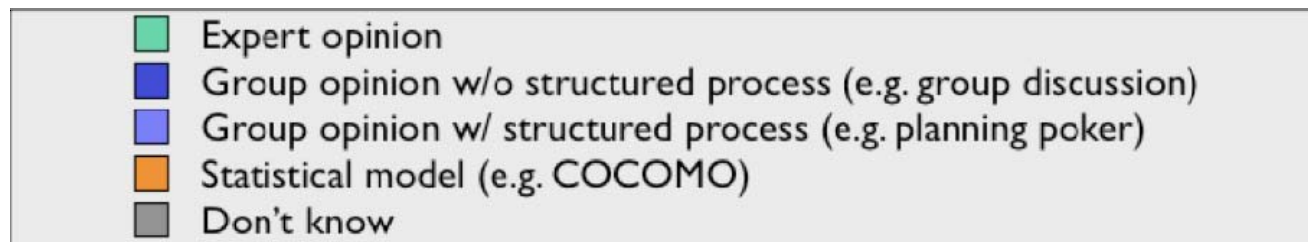
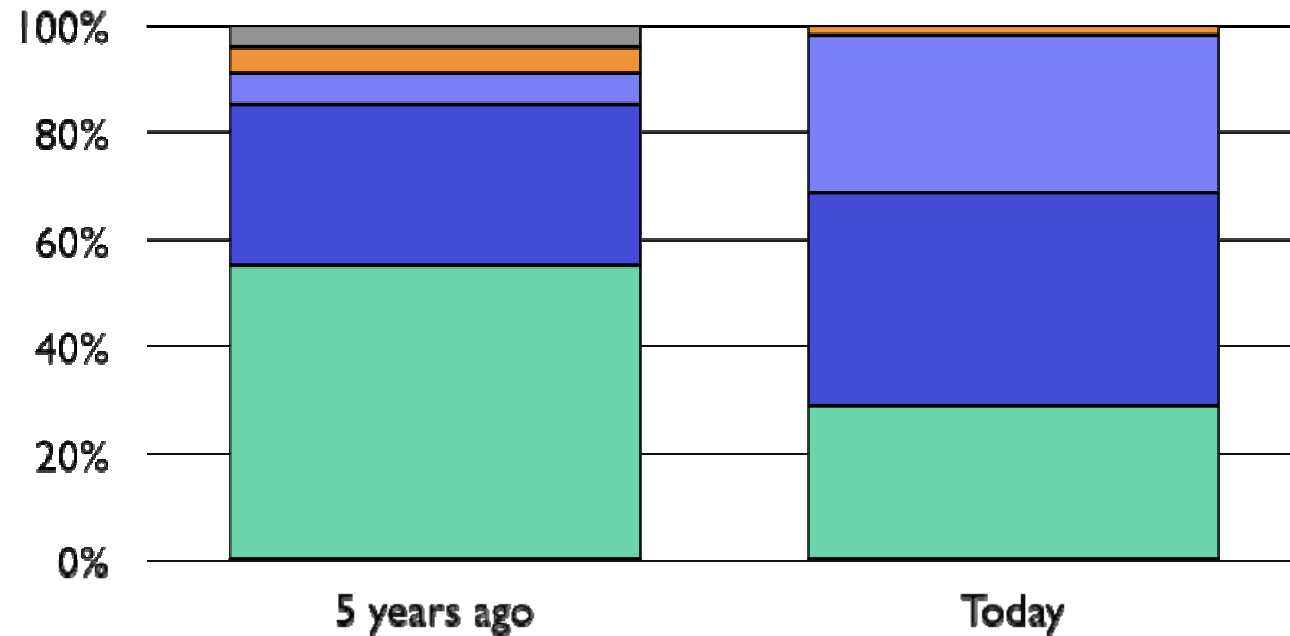
[*] Moløkken-Østvold and Jørgensen (2003): Software Effort Estimation: Unstructured Group Discussion as a Method to Reduce Individual Biases. In The 15th Annual Workshop of the Psychology of Programming Interest Group

Results

- The estimates that were based on group discussions were more accurate than the individual estimates
 - Possible explanation: The group managed to identify more project tasks
 - Possible explanation: Justification increased realism
- Similar results were obtained in an experiment on uncertainty intervals [*]
 - Group discussions lead to more realistic uncertainty intervals

[*] Combination of software development effort prediction intervals: Why, when and how? Jørgensen and Moløkken, SEKE 2002

Group estimation is gaining ground (survey conducted at JavaZone 2007 in Norway)



Structured group estimation's impact on perceived estimation accuracy (JavaZone 2007)

- 50% perceive that estimation accuracy is improved
- 30% perceive that estimation accuracy is unchanged
- 10% perceive that estimation accuracy is worse
- 10% did not know

Structured grouped estimation methods

- Planning Poker
- Wide-band Delphi



Planning Poker

- Agile estimation method
- Described by Grenning [1] and Cohn [2]
- The customer explains the “user story”
- The team discuss the work that has to be done
- Everybody choose a card that represent their estimate
- Everybody reveal their estimate at the same time
- The lowest and the highest estimator justifies
- The team discuss the estimates
- Go back to step 3 until the estimates converge
- The team decide on a collective estimate

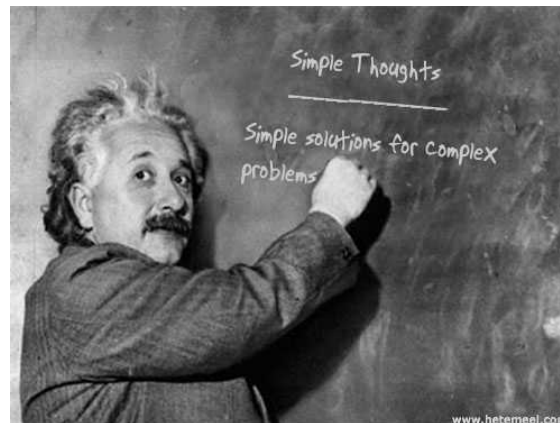
[1] J. W. Grenning, *Planning Poker*, 2002

[2] M. Cohn, *Agile Estimating and Planning*, 2005

- **Planning Poker:**
- "The whole team take part in estimation"
- **Research:**
- "Combining estimates can improve the quality of the estimates"



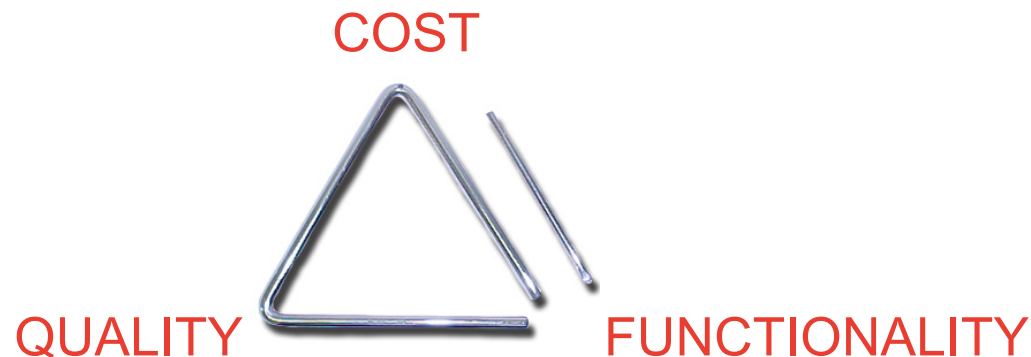
- **Planning Poker:**
- "Discuss first, then estimate"
- **Research:**
- "For complex tasks, it is often best to start working alone and then discuss"



- **Planning Poker:**
- “The lowest and highest estimator justifies”
- **Research:**
- “The lack of anonymity can increase *group think* (e.g. juniors agree with seniors)”



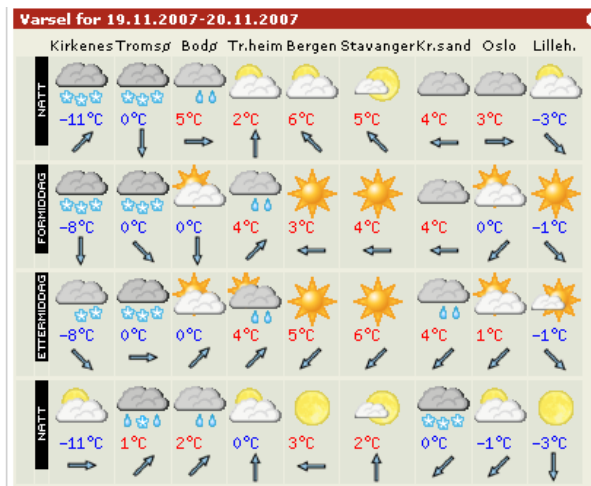
- **Planning Poker:**
- "The team discuss the implementation, i.e. they agree on functionality and quality"
- **Research:**
- "This reduce flexibility and can lead to more inaccurate estimates in the short run. However! High-quality historical data enable efficient learning!"



- **Planning Poker:**
- "Continue until the estimates converge"
- **Research:**
- "Stop when there are no new information.
If there is still disagreement, use the average"



- **Planning Poker:**
- "Yesterday's weather"
- **Research:**
- "Software estimates are usually too optimistic. Historical data can increase realism"



- **Planning Poker:**
- "Planning Poker is fun"
- **Research:**
- "Motivation is an important, often forgotten, success factor in SPI"





- NB! There are few studies that investigate Planning Poker. The results from other domains are not necessarily transferable

Industrial studies

	Planning poker vs. unstructured group	Planning poker vs. individual expert
Planning scale	Release planning (2-3 months)	Sprint planning (2 weeks)
Team	8-12 developers	4-6 developers
Automated acceptance tests	Yes	No
Pair programming	Yes	No
Progress visibility	Story cards on wall	Jira
Customer view in session	Business analyst	Developers

Common factors

- Fun! Both teams continued using Planning Poker!
- Increased efficiency in estimation
- Increased ownership of estimates
- Increased ownership of progress

- However, accuracy did not improve (yet)