Neils Bohr says

“Prediction is very difficult, especially if it's about the future.”

\[
\Delta E = E_2 - E_1 = h\nu, \\
\nu = \frac{1}{T}, \\
L = n\frac{\hbar}{2\pi} = n\hbar
\]
Businesses Needs Estimates

More Time Spent Does Not Mean Better Estimates

![Graph showing the relationship between time spent estimating and quality of estimates. The graph indicates that initially, quality improves with time spent, but after a certain point, the rate of improvement slows down.](image)
When is the Schedule Certain?

Barry Boehm, 1995

Cost Uncertainty

1.6x
1.25x
1x
.8x
.6x

Schedule Uncertainty

.25x
.5x
1x
2x
4x

time

Initial Definition
Requirements Specification
Design
Project Complete

Estimates are Not Exact

November 5, 2012 at 2:35 PM
A Plan is Not a Promise

What is Planning Poker?
Planning Poker Hand
each developer has these cards

Players and Roles?

• Customer (or Product owner) read the story
  – They don’t estimate

• Developers
  – Do the estimates
Planning Poker Mechanics

- Each player (developer) has a hand of planning poker cards (or blank note cards).
- Until estimates converge
  – Developers discuss to make sure they understand the story, not how they would build it.
  – Each secretly chooses their estimate.
  – All expose their estimate simultaneously.
  – Discuss extremes, re-deal if needed.
- No need to discuss how, if all give the same estimate
  – Allows faster estimation.

Discussion Needed
Converging

Agreement
Planning Poker is Popular
- lots of give-away card decks -

iPhone and Android Apps
- here are a few -
What are the Units?
What do the Numbers Mean?

• The units are Story Points

• The values are proportional

• Three single point stories will, on average, take about the same time as the three point stories’ average
Where’s time?  
Why not use Ideal Days?

• What reaction does an programmer give when you ask how long something will take to complete?
Time Based Estimates

- We’re not too good at them
- We’re OK when the thing being estimated is small
- We’re awful when the thing is big
- We’re optimists
- Individuals have wildly different skills and abilities

We’re Better at Relative Measurements

- small, big, really big
Developers are Happy to Give Relative Estimates

Estimation and Planning

1. First determine relative sizes of stories in *Story Points*
2. Estimate team *velocity* (story points per iteration)
3. Derive duration
4. Lay out a *Release Plan*
5. Calibrate plan by doing the planned work
6. Adjust the plan with feedback from measured velocity
7. Regularly revise the plan as you learn more
Measure Development Velocity
Estimated work per Iteration

Estimated Size
 Derive Duration
Why Fibonacci?

Pedals on Flowers are Often One of the Fibonacci Numbers
Branching in Plants

Pine Cone Spirals

8 Clockwise

13 Counter-Clockwise
Sun Flower Spirals

Pine Apple Spirals

Set of 5 Spirals  Set of 8 Spirals  Set of 13 Spirals
Alas, There is no Fibonacci Law of Software Estimation Physics

• It’s just a sparse sequence, with more numbers in the lower range

Why don’t I use Fibonacci?

• Numbers like 13 and 21 give a false sense of accuracy
• Numbers like 13 and 21 are harder to add and multiply with than 10, 15, or 20
Planning Poker Numbering Principles

- Lower numbers have more resolution
- As estimates grow, so does uncertainty, so the gaps grow
- Each number represents the average guess-timate
- Realize to work on a story, the guess-timate better be under a 10, probably under a 5
- Numbers should be easy to add and multiply with in your head
- Don’t worry about the dogma

Currency Numbering
Small Enough and Probably Well Enough Understood to Work on

Budgetary Estimates Only
Stories with These Denominations Must be Split
Where Did Planning Poker Come From?

• Some say it’s derived from Wide-band Delphi
  – it’s not
  – though there is obvious similarity

Planning Poker Came from a Stalled Planning Meeting
The Mike Cohn Connection

- Planning Poker started as a small paper
- I taught it at Object Mentor
- Mike refined it and wrote about it in his book
- It became part of Scrum training
- It went viral

Why Do People Like Planning Poker?
Team’s Estimates
Rather Than Individuals’

• Creates a sense of team
• Leverage the collective knowledge and wisdom

Wisdom of the Crowds
[by Daren Brown]

• Teams do better than experts.
• Diversity within a group is needed.
• The more diverse the knowledge and opinions of the group, the smarter the group.
• A random group does better than an expert group.

Ask the audience?
(95% of the time correct.)
See blog article:
http://www.renaissancesoftware.net/blog/archives/20
Faster Than Traditional Approaches, with Good Results

Helps Avoid Analysis Paralysis
Shows Premature Stories and Requirements

Avoids Anchoring or Telegraphing
Not Dominated by the Most Dominating

Two points!

You’re wrong!

Not Just the Opinion of the Authorities
Most Cited Benefit:
Creates an Open Discussion of the Stories

- My main objective

It’s Fun
It Keeps Everyone Engaged

Over-looked Benefit

• To quickly get through where we already agree.
Critics Say

- Planning poker is not about planning…
  – it's about estimation
- Planning poker is not about planning…
  – it's about sizing
- It takes too long

Do These Names Help

- Estimation Euchre
- Sizing Slapjack
In Many Areas of Software Development...

- The slow and careful way is the fast way

- For estimation, it means deriving guesses from other guesses

Planning Poker is too Slow

- When you have a big batch of stories to estimate
Planning Poker is Too Slow

My Advice for Planning Poker

Using Planning Poker
Planning Poker is Popular
- but it’s not the only game in town -

• Use the ideas that make Planning Poker successful
  – involve the whole group
  – give all participants a voice
    – not just the loudest
  – avoid anchoring
  – reduce need to debate on areas of agreement
    – debate only when there are differing opinions
  – Fun

• Could there be another way?

Planning Poker Party

• Based in Effort-Affinity Grouping
  – Thanks to Lowell Lindstrom for introducing the idea to me at Object Mentor
• The games that make up the party
  – High-Low Showdown
  – Deal and Slide
  – Planning Poker (by Affinity Group)
  – Developer Guts
  – Customer Guts
• Described here
  – http://www.renaissancesoftware.net/blog/archives/36
High-Low Showdown

• Quickly try to get stories into relative effort groupings
  – Low effort
  – Medium effort
  – High effort
  – More information

• Don’t worry about exact placement
• Deal and slide (the next step) can override
• Timing: Fast - 15 minutes for a couple hundred stories
Deal and Slide - Affinity Grouping

- Group by similar effort
- Use high-med-low stacks where there are many stories, then use affinity on the low stack first
  - Less stories on the table at the beginning
- Bring in medium and high stacks as previous stacks are placed.
- Once on the table, don’t worry about high-med-low boundaries
Deal and Slide

- Less effort needed
- More effort needed

Groups of similar effort
Deal and Slide

• Silent Grouping
  – Play without a lot of discussion
• It’s OK to move a card someone has placed
• If the card can’t settle down, set it aside or have a brief discussion

Use Planning Poker to Put Estimates on Groups of Similar Effort

• The easiest column of similar value is assigned “1”
• Other columns are multiples of the easiest stories
• There should be gaps in estimates as the estimates get bigger.
• Don’t sweat minor differences in larger estimation groups
  – law of averages evens things out
• Numbers bigger than 5 or 10 probably are too big to work on before splitting further
Assign Relative Effort to Each Column

Developer Guts

• Developers estimate (guess) team velocity
  – Velocity = points completed in one iteration

• One technique
  – Let developers choose the first couple iterations of work
  – Only choose single digit stories
  – Add up the points for each iteration to see if guessed velocities are similar
Velocity

\[ V = \text{story points completed per iteration} \]

- Initially estimated
- Later measured as estimated points completed
- Never dictated or “stretched”
- Never compared between groups
- Valuable to project working stories by date

Customer Guts

- Lay out the release plan as a series of iterations.
- Total story points per iteration cannot exceed estimated velocity.
- Near-term iterations are usually are higher value or risk.
- Further out plan is more vague, less resolution.
You Don’t Have to Completely Give Up Planning Poker

• Planning poker works well when there are fewer stories and an established baseline
• The Planning Poker Party is better when there are many stories, and/or a baseline needs to be developed

There are Other Games Out There

• Steve Brockman - Team Estimation Game
• Boris Gloger - Magic Estimation
Plan to Re-plan

• The plan is wrong, it’s an educated guess.
• Re-plan every few iterations, or as needed
• Do another Planning Poker Party
• When small batches of stories are brought in by the *customer*, use Planning Poker

More Information

• Iteration Zero - Paper written for the Embedded Systems Conference
  – www.renaissancesoftware.net --> Papers and Presentations
• Various articles on my blog
  – www.renaissancesoftware.net/blog
• Mike Cohn’s Agile Estimation and Planning