# Autodesk® AutoCAD® Utility Design: NV Energy's Agile Approach

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# Executive Summary

NV Energy recently completed our deployment of Autodesk® AutoCAD® Utility Design for the northern service territory.  By using the Agile development approach, we were able to deliver more features than initially anticipated while managing competing initiatives and business objectives.

… we even had a little fun along the way.

# Key learning objectives

At the end of this class, you will be able to:

- Identify why Autodesk AutoCAD Utility Design software provided the right tool to complement NV Energy's work management system
- Describe the fundamental methodology behind an agile approach
- List the keys factors that made the agile approach successful for NV Energy's implementation
- Apply the lessons learned in this class to your own implementation

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# Planning Board

| To Do | In Progress | Done |
|-------|-------------|------|
| **Why AUD?** <br><br> **What is Agile?** <br><br> **NV Energy's Experience** <br> **Apply Lesson's Learned** | | |

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# Planning Board

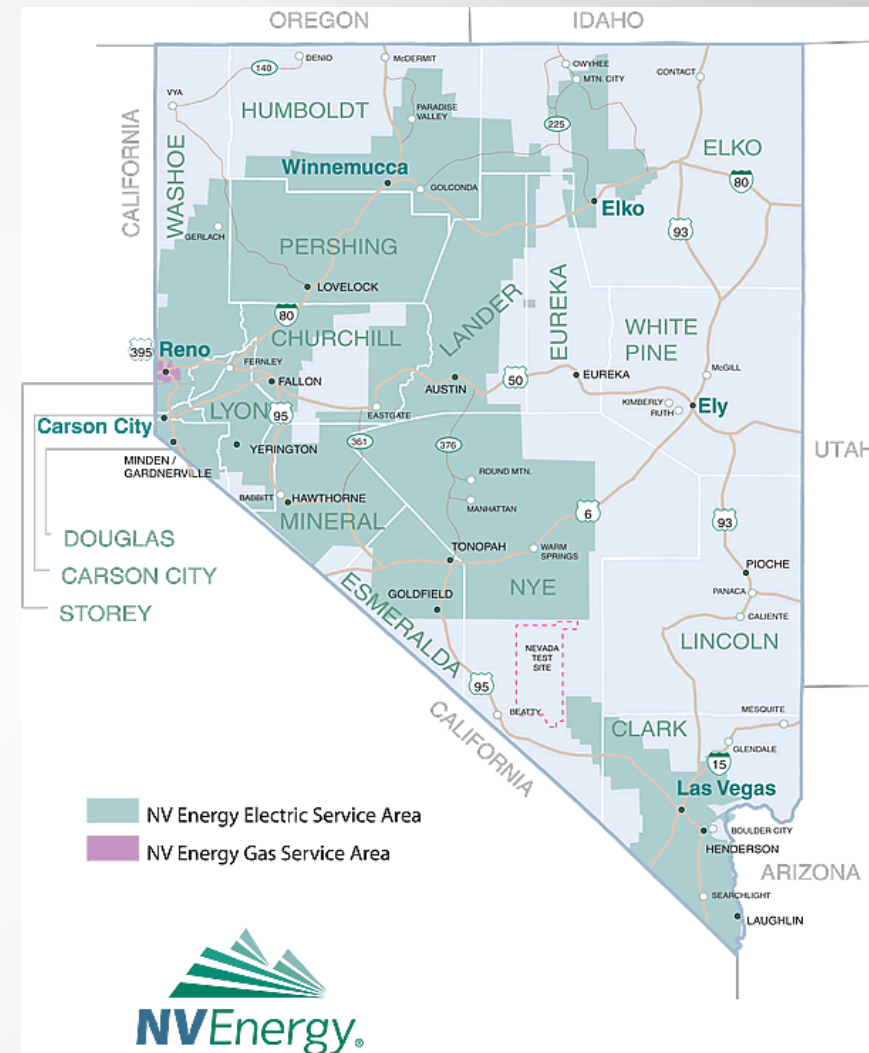| To Do | In Progress | Done |
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| **What is Agile?** <br><br> **NV Energy's Experience** <br><br> **Apply Lesson's Learned** | **Why AUD?** | |

# NV Energy

- Has served Nevada for over 150 years.
- Utilities merged in 1999 and began doing business as NV Energy in 2008.
- Service area covers 45,592 square miles including 2.4 million electric and 145,000 gas citizens.



NV Energy Electric Service Area
NV Energy Gas Service Area

NVEnergy.

# AUD at NV Energy

- NV Energy has used AUD in it's southern territory for over 10 years
- It became a priority for our northern territory in 2010 with the implementation of Maximo
- In 2011 an assessment was commissioned with Autodesk Consulting Services to develop an implementation strategy for both territories

# AUD at NV Energy

Our primary objective was to build efficiencies on the foundation of the merger and enterprise work and asset management initiatives.

- Reduce the number of manual inputs.
- Reduce overall design time.
- Reduce the opportunity for error.
- Reduce project review time.
- Reduce AFUDC.
- Improve Customer Satisfaction within the Development Community.

# AUD at NV Energy

- The probability of success was high.

- The benefits were clear for the New Business Design Department, Supply Chain, Operations, and Customers.

- Multiple drivers, risks, and contingencies were evaluated throughout the project that required flexibility during the development process.

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# What is Agile?

Agile is a software development methodology that values:

- **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, the team values the items on the left more.*

Beck, Kent; et al. (2001). "Manifesto for Agile Software Development". Agile Alliance.

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# What is Agile?

Agile isn't a mechanism for success. It is a mechanism of making failure transparent so that you can adapt quickly.

Practically, an Agile project is characterized by:
- Incremental product development
- Iterative delivery
- Fast Feedback Loops
- Team Empowerment

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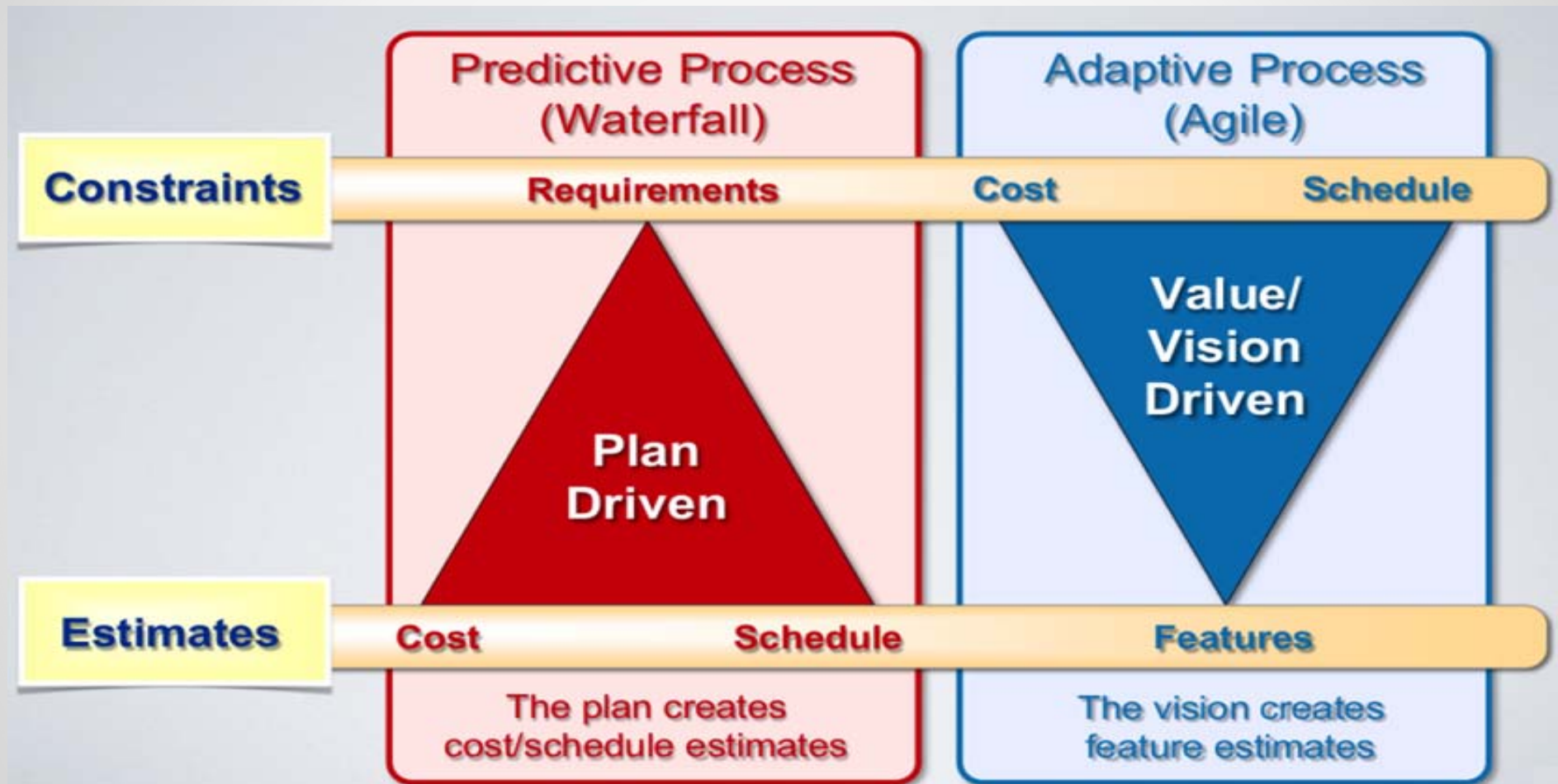
# What is Agile?

# Agile looks something like this…
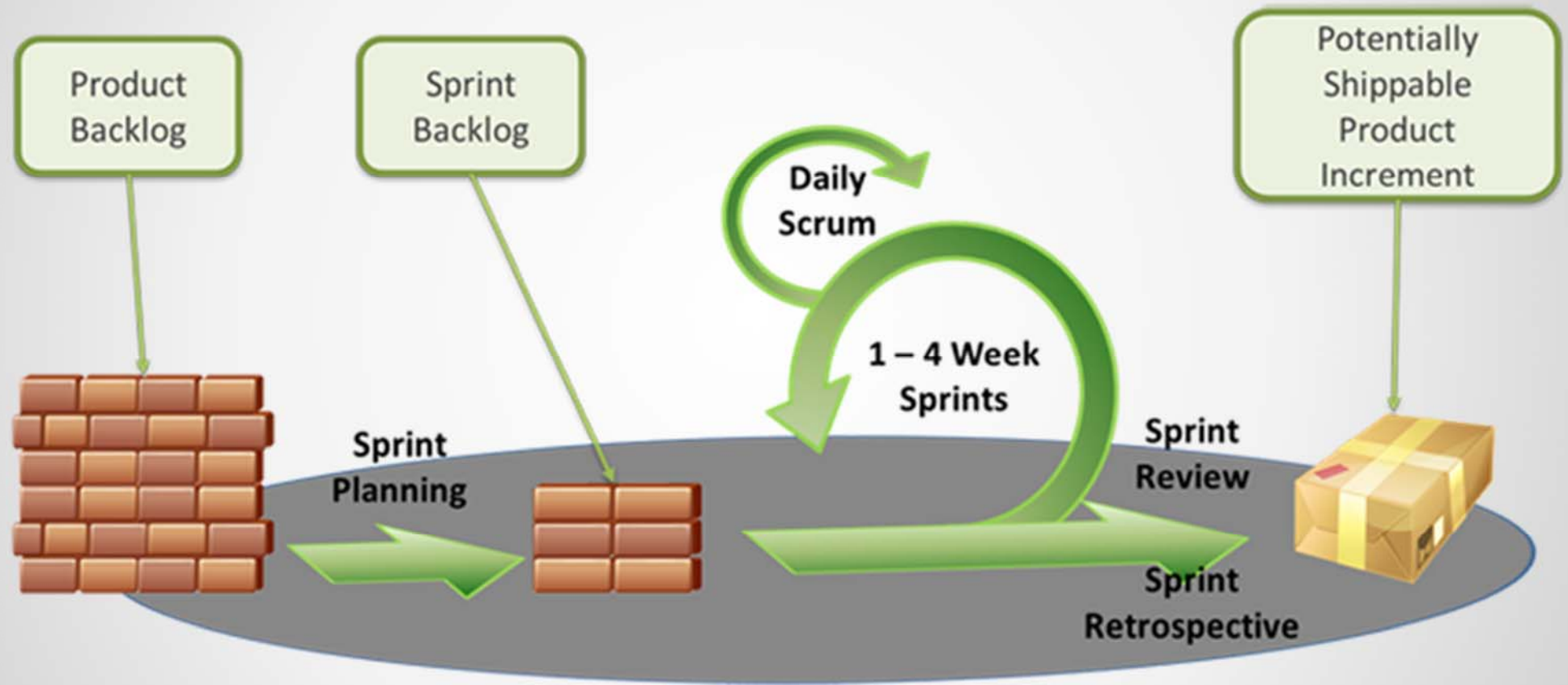
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How the customer explained it

How the Project Leader understood it

How the Analyst designed it

How the Programmer wrote it

How the Business Consultant described it
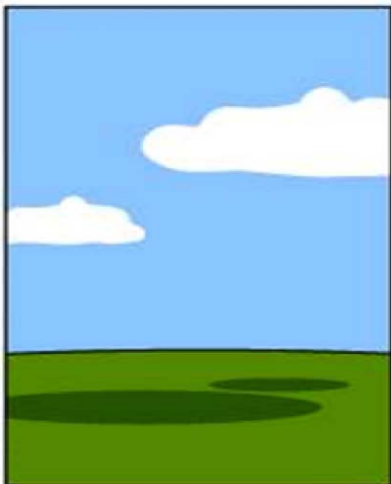
How the project was documented
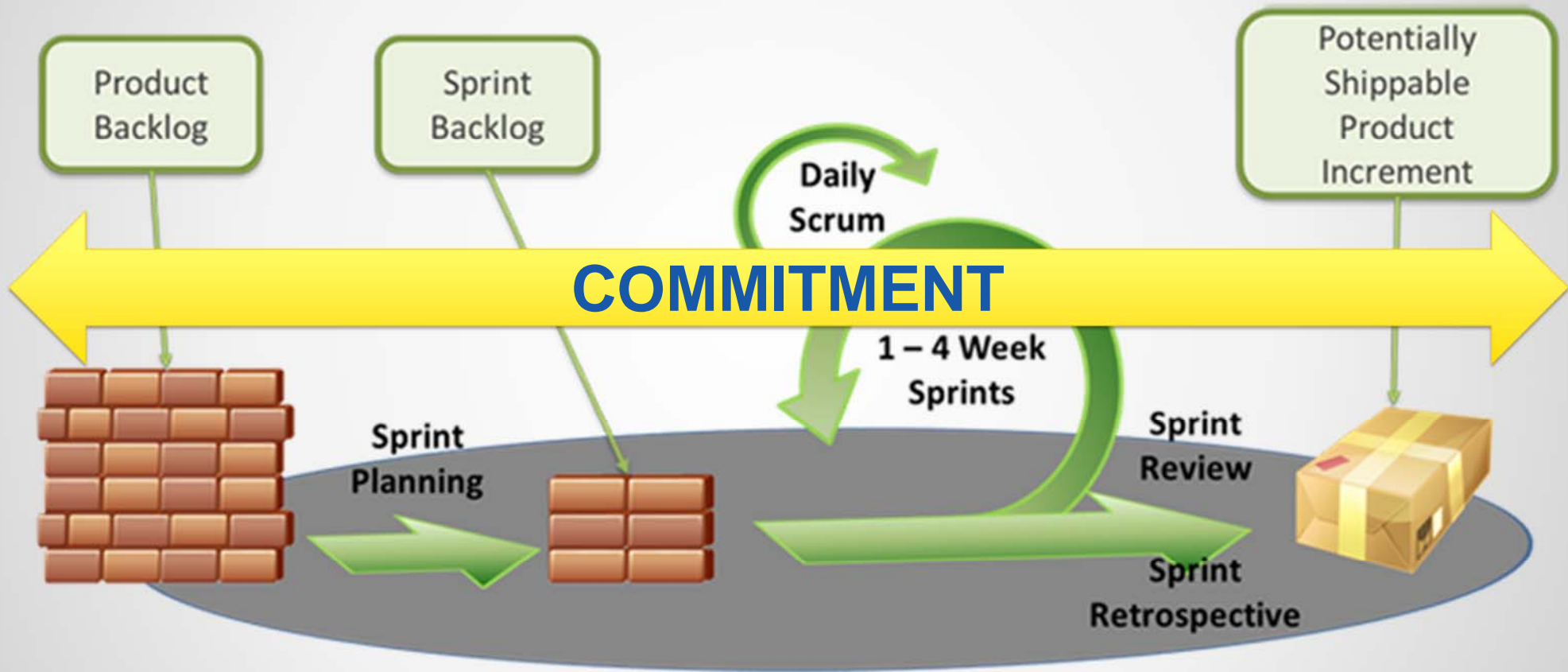
What operations installed

How the customer was billed
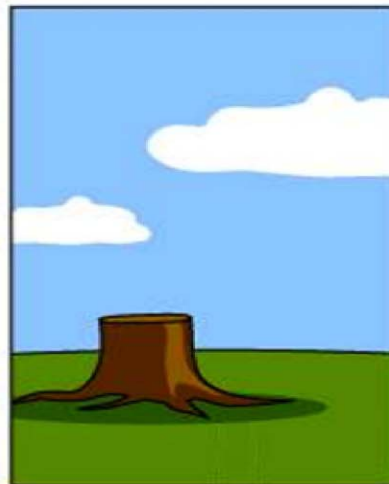
How it was supported

What the customer really needed

# Getting started…



Product Backlog

Sprint Backlog

Daily Scrum

Potentially Shippable Product Increment

**COMMITMENT**

Sprint Planning

1 – 4 Week Sprints

Sprint Review

Sprint Retrospective

# Engaging the Project Team

Product Owner

Scrum Master

Delivery Team

Product Backlog

Sprint Backlog

Potentially Shippable Product Increment
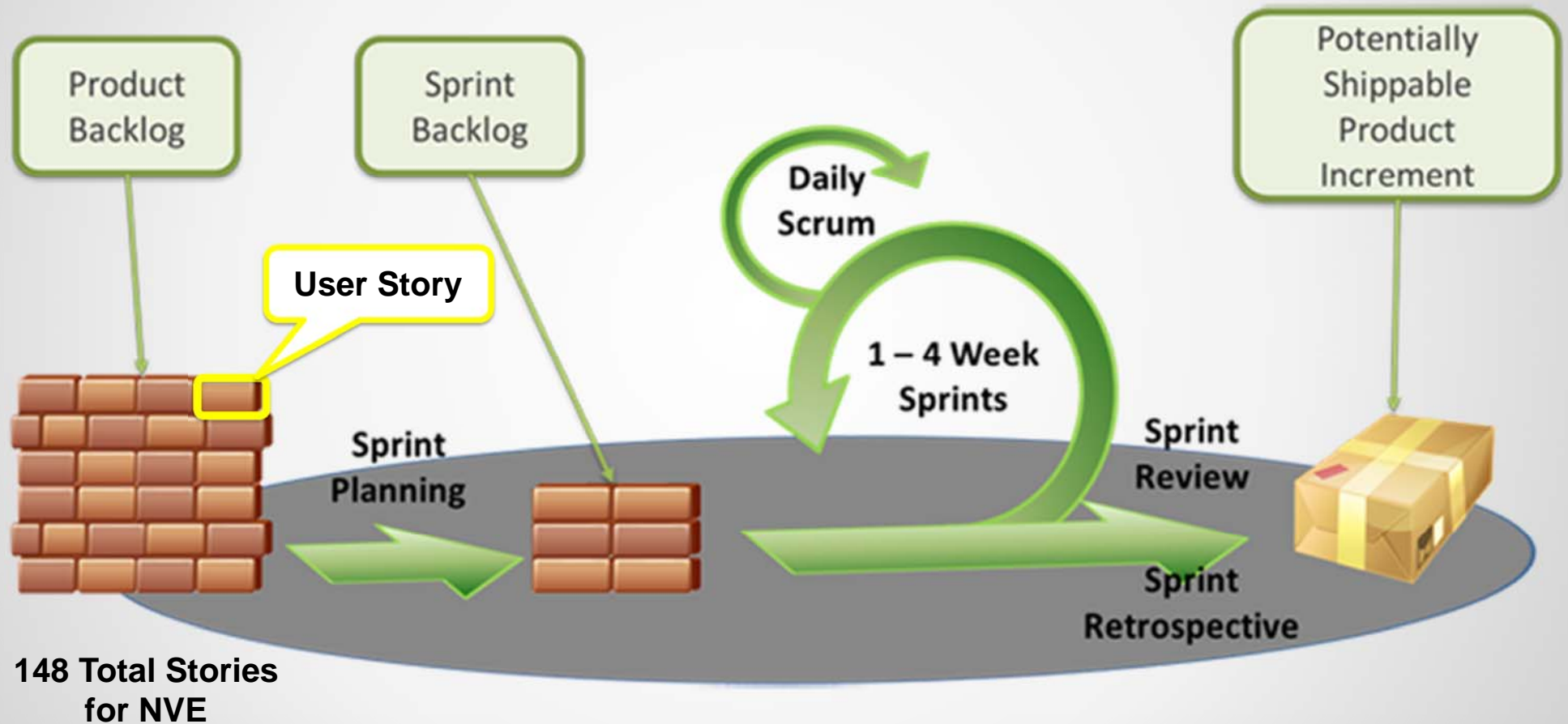
Coach

Daily Scrum

1 – 4 Week Sprints

Sprint Planning

Sprint Review

Sprint Retrospective

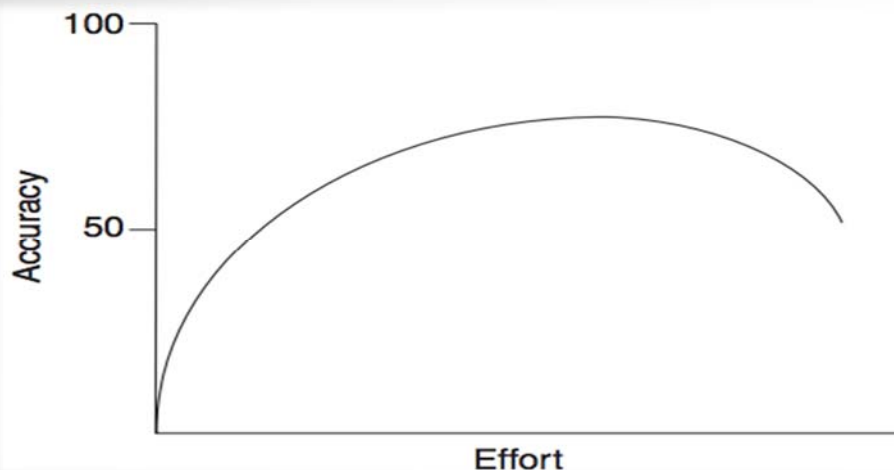# Selecting the right tools
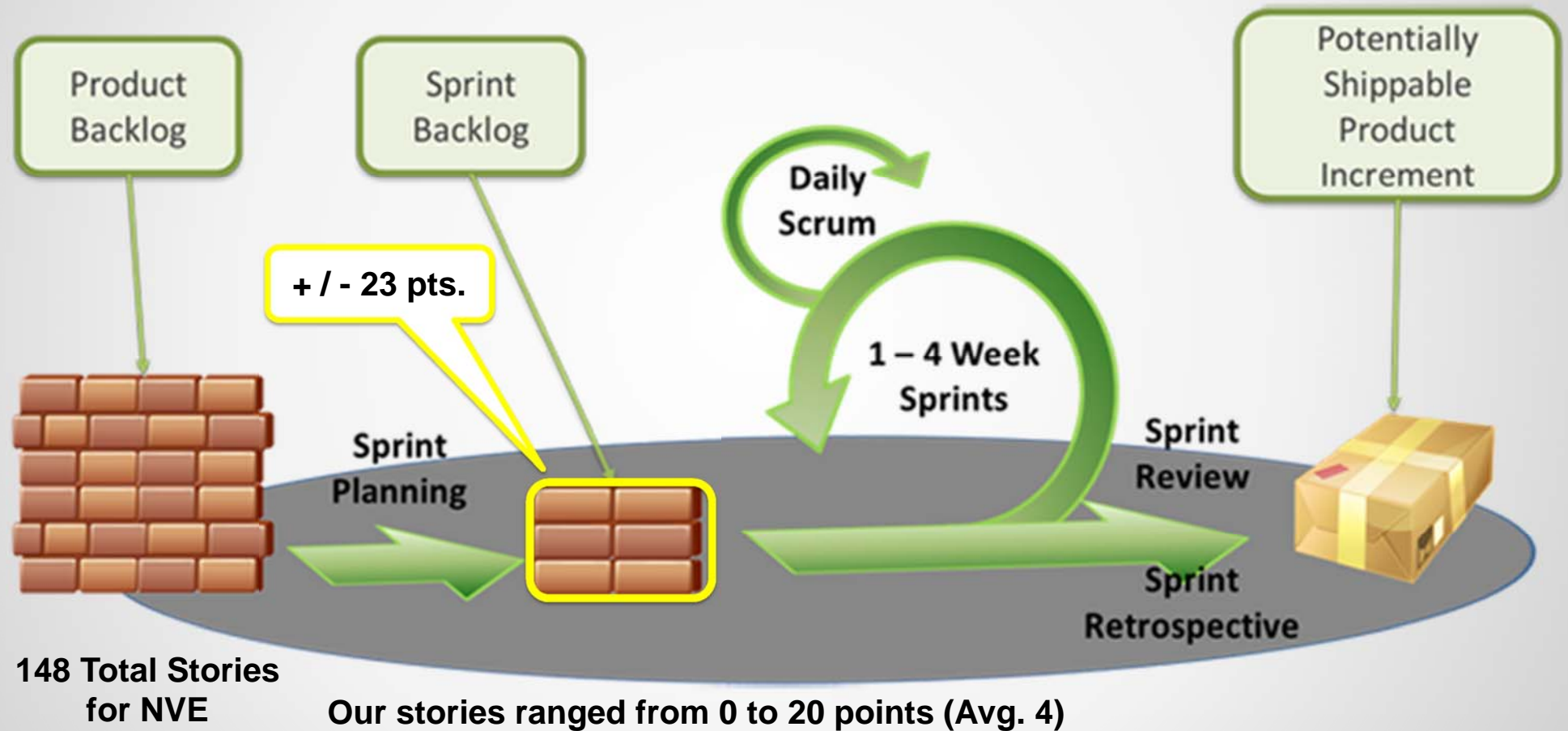
# Creating User Stories

# Estimating Story Points

Story Points are a relative measure of effort taking into account complexity, uncertainty, and risk.

*Quick can be just as accurate*

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# Sprint Planning



**Product Backlog**

**Sprint Backlog**

**+ / - 23 pts.**

**Potentially Shippable Product Increment**

Daily Scrum

Sprint Planning

1 – 4 Week Sprints

Sprint Review

Sprint Retrospective

**148 Total Stories for NVE**

**Our stories ranged from 0 to 20 points (Avg. 4)**
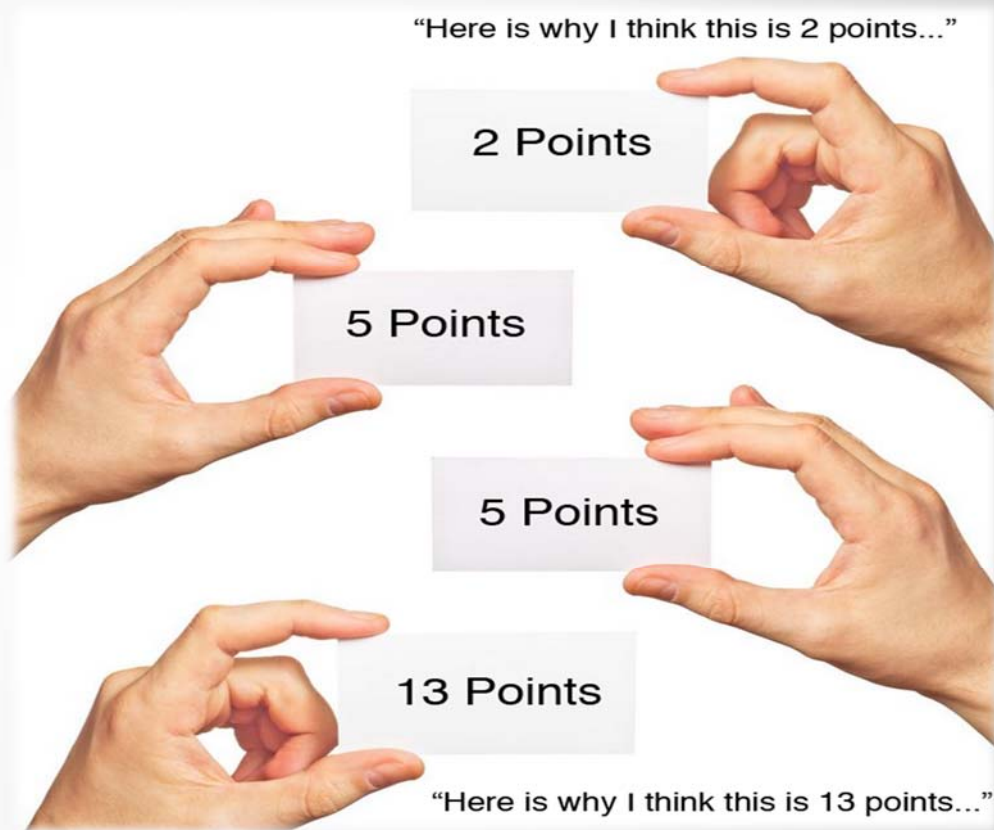
# Capacity Planning

Capacity Planning provides an estimate of the "Stories" that can be completed in the upcoming Sprint.

| Story (Descending Priority) | Points | Cumulative Points Total | Cumulative Hours Total |
|---|---|---|---|
| Story A | 2 | 2 | 12 |
| Story B | 3 | 5 | 32 |
| Story C | 8 | 13 | 72 |
| Story D | 5 | 18 | 106 |
| Story E | 2 | 20 | 120 |
| Story F | 5 | 25 | 152 |
| Story G | 2 | 27 | 156 |
| Story H | 3 | 30 | 178 |
| Story I | 2 | 32 | 196 |

- Leverage historical data when possible
- Throw out extreme high and low data points
- Determine best case, most likely, and worst scenarios
- Commitments will be Risk / Based

90% Confidence

50% Confidence

10% Confidence
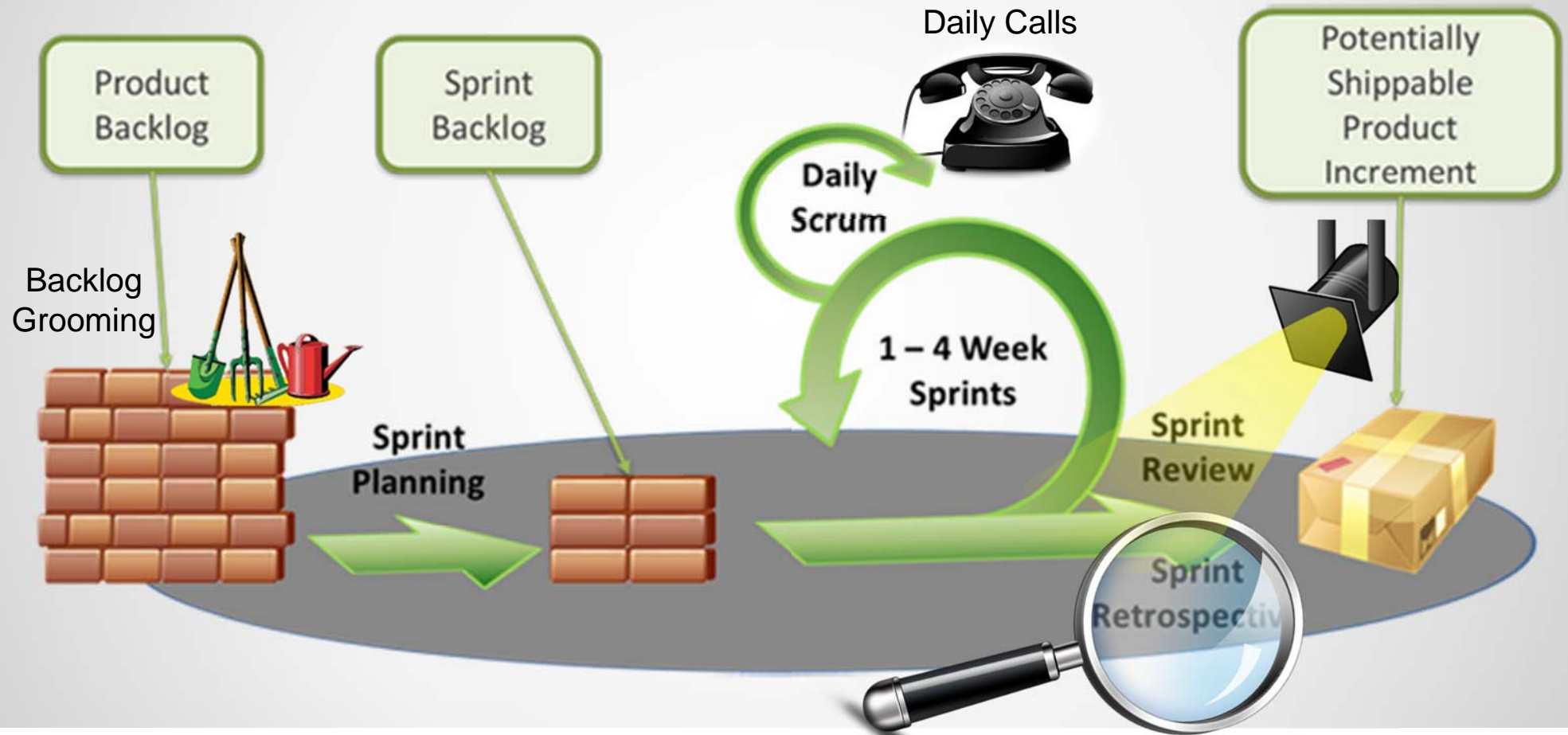
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# Execution



Product Backlog

Sprint Backlog

Backlog Grooming

Daily Calls

Daily Scrum

1 – 4 Week Sprints

Sprint Planning

Sprint Review

Sprint Retrospective

Potentially Shippable Product Increment

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# Apply Lessons Learned

Invest in an assessment
Evaluate compatible units
Seek feedback from others
Hold a project kickoff
Bring in an Agile coach
Include stakeholders throughout
Consider Agile tools
Plan capacity
Escalate issues quickly
"Stair step" stories within a sprint

Plan requirements meetings
Accept a rocky start
Ensure everyone has an assignment
Work the backlog, don't wait around
Use Online Meetings
Develop an Agile mindset
Leverage historical data
Soften scope changes

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