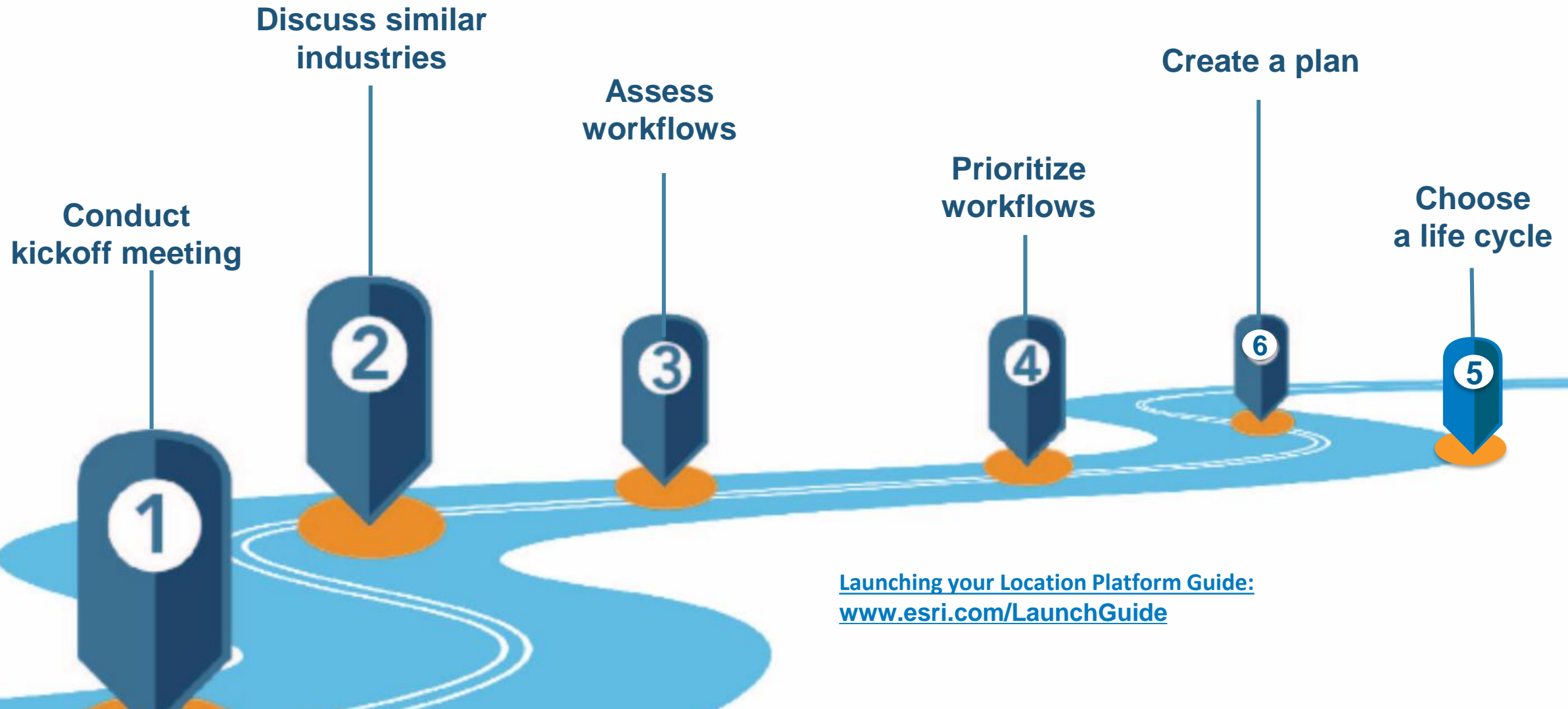


# How to Utilize Agile Project Management for GIS Projects

Presented By

Lana Tylka and Jennifer Prather

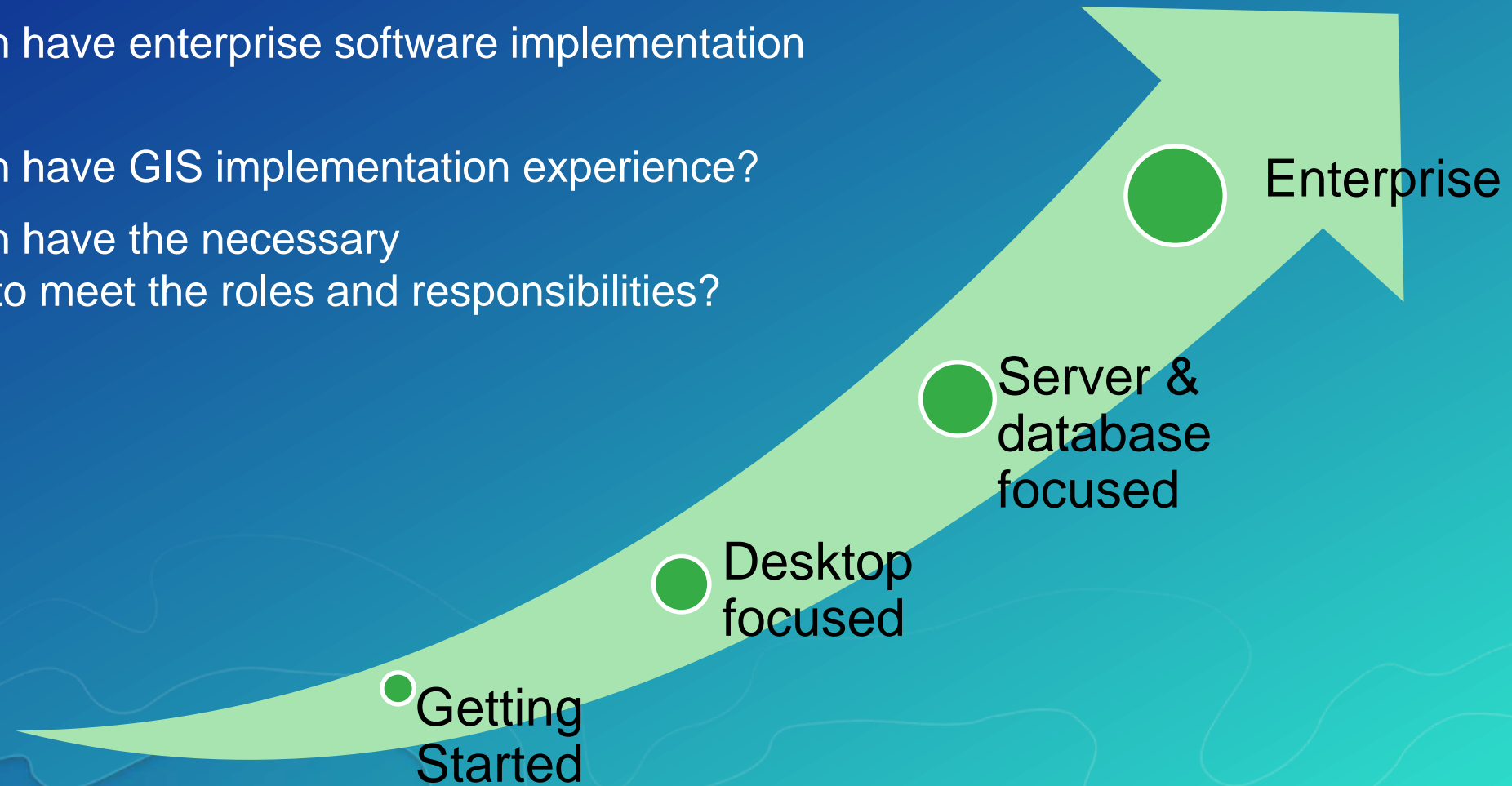
# How to Start...



[Launching your Location Platform Guide:](http://www.esri.com/LaunchGuide)  
[www.esri.com/LaunchGuide](http://www.esri.com/LaunchGuide)

# Asses your experience...

- Does your organization have enterprise software implementation experience?
- Does your organization have GIS implementation experience?
- Does your organization have the necessary talent with knowledge to meet the roles and responsibilities?



# Assess your current IT/GIS Capacity

- Hardware is cheap, experience is expensive
- Servers are easy, network is hard
- Beware of key components that you don't control (NAS, firewalls, web accelerators...)
- Understand your vendor relationships
- Trust anecdotal information but verify





## Asses your organization's willingness to change

- Who will be impacted by Enterprise GIS changes?
- How will they be impacted and how will they respond?
- What mitigation options are available for negative impacts?
- Plan your strategies carefully & engage
- An Agile approach can be a massive transition
- An Agile approach can yield earlier successes

# Identify roles, resources, and their availability

- What roles are needed to implement the Enterprise GIS?
- What would be their responsibilities?
- Identify in-house or contractor resources to potentially support the project as overseers or implementers
- Document roles, their responsibilities and candidates



GIS analyst

Program manager

System architect

Legal expert

Technical lead

Field collection specialist

Project manager(s)

Contract specialists

Account specialists

Database specialist

Subject matter experts

Business Analyst

SOE programmer

# Formulate your capabilities and gaps

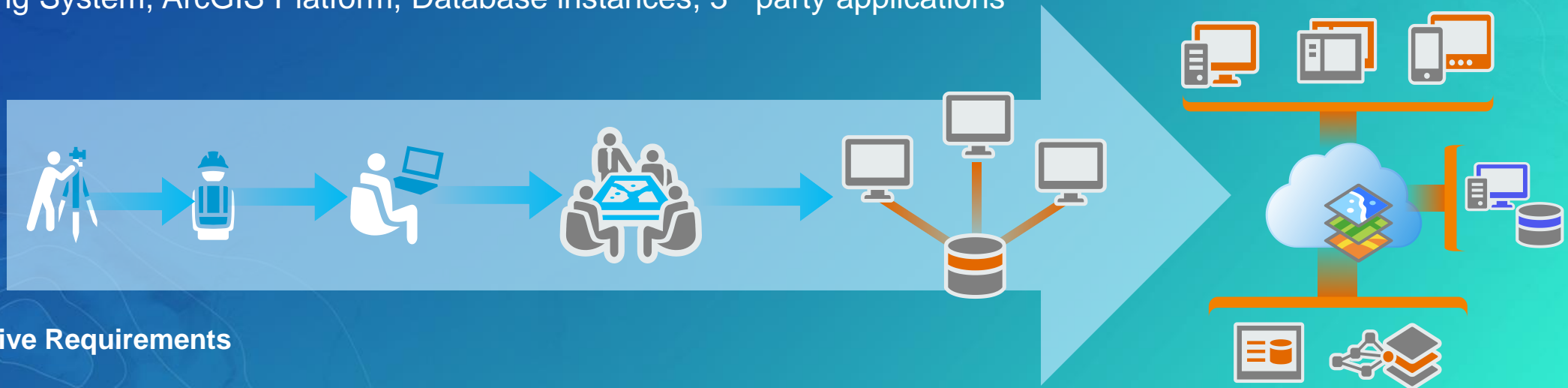
- List your assumptions
- List roles, responsibilities, potential resources and gaps
- List HW, SW and implementation gaps
- Identify mitigation options



Known Gaps Can Drive Requirements

# Test and Plan for Growth

- Test your GIS for performance
  - So you know when it's out of compliance
- Monitor system metrics and availability
  - So you know about problems before your customers do
- Create 1/3/5 year plans
  - To ease staff augmentation, hardware and software acquisition
- Stay current on software versions
  - Operating System, ArcGIS Platform, Database instances, 3<sup>rd</sup> party applications



Known Gaps Can Drive Requirements



# The Agile Approach



# Agile Manifesto

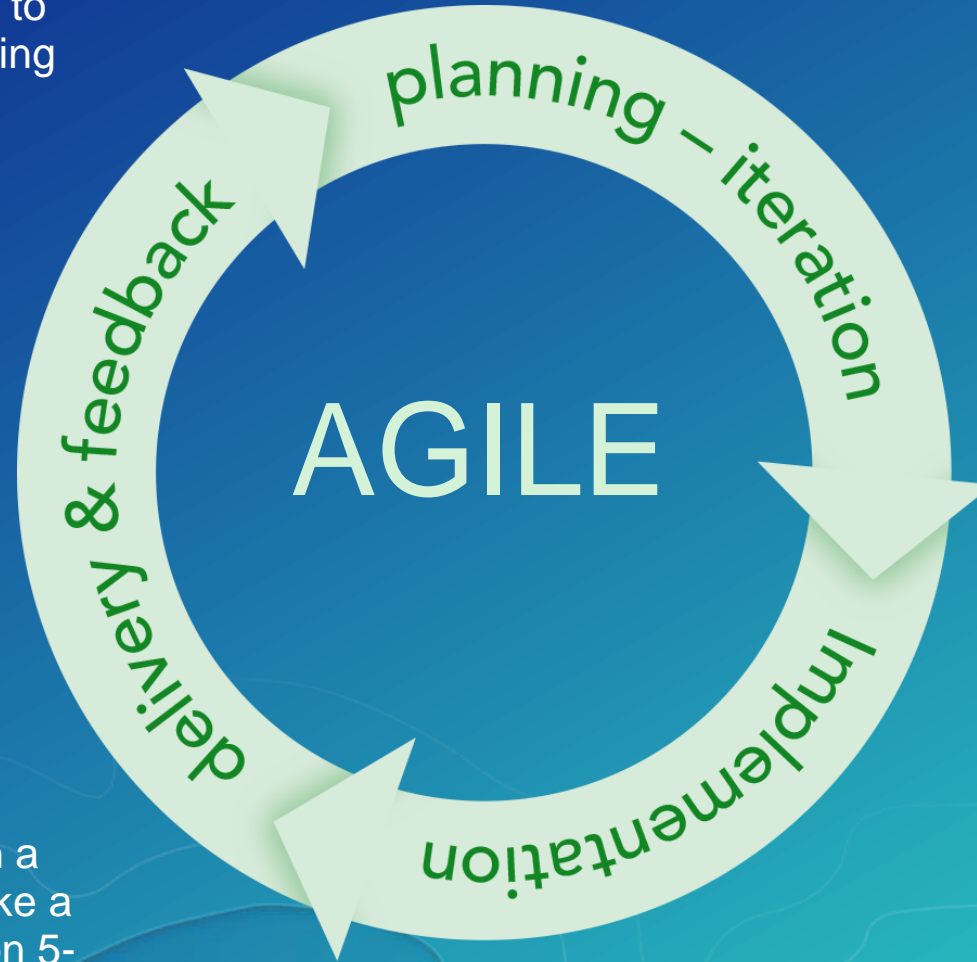
**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

**Agile:** Agile development is an alternative to traditional project management where emphasis is placed on empowering people to collaborate and make team decisions in addition to continuous planning, continuous testing and continuous integration.



**Epic:** An **Epic** can be **defined** as a work, which can not be completed in a week time, or any work which will take a full sprint to complete. By observation 5-10 user stories comprise of one **Epic in agile** methodology.

**User Story:** A **user story** is a very high-level **definition** of a requirement, containing just enough information so that the developers can produce a reasonable estimate of the effort to implement it.

**Sprint/Iteration:** In the **Scrum** method of **Agile** software development, work is confined to a regular, repeatable work cycle, known as a **sprint** or iteration. **Scrum** sprints used to be 30 days long, but today we advise one-week or two-week sprints.



# When would you use Agile?

	Agile	Staged Delivery	Waterfall
Scope, Technology, Contract	<ul style="list-style-type: none"><li>• Flexible scope, deliverables</li><li>• One or several applications</li></ul>	<ul style="list-style-type: none"><li>• Several applications</li><li>• Prototypes expected</li></ul>	<ul style="list-style-type: none"><li>• Clear requirements</li><li>• Fixed deliverables</li><li>• Single application</li></ul>
Size, Duration	<ul style="list-style-type: none"><li>• Any size or duration project</li></ul>	<ul style="list-style-type: none"><li>• Medium or large size, mid to long duration</li></ul>	<ul style="list-style-type: none"><li>• Small size, short duration project</li></ul>
Capacity, Capabilities, Environment	<ul style="list-style-type: none"><li>• Customer EXPECTS collaboration</li><li>• Stable, experienced project team</li></ul>	<ul style="list-style-type: none"><li>• Capacity, resources, and environment to support multiple releases</li></ul>	<ul style="list-style-type: none"><li>• Limited capacity, resources, and environment</li><li>• Frequent turnover on project team</li></ul>



# Proposing Agile



# Big Picture

## Epics



System  
Architecture

Database  
Design

Widget 1

**Story point** is an arbitrary measure used by Scrum teams. This is used to measure the effort required to implement a **story**. In simple terms it's a number that tells the team how hard the **story** is. Hard could be related to complexity, Unknowns and effort. In most cases a **story point** range is 1,2,3,5,8,13,21,34,45

## Story Points



21

34

34

45

21

## Story Points

21

34

34

45

21

**x 8**

## Hours

168

272

272

360

168

## Pricing Sheet

Activity	Scrum Master	Product Owner	Developer	Analyst	System Admin	Total
System Architecture	16	16	0	16	120	<b>168</b>
Geodatabase Design	24	24	0	184	40	<b>272</b>
Widget 1	24	24	176	48	0	<b>272</b>
Widget 2	20	20	240	80	0	<b>360</b>
Application Hardening	40	16	84	24	4	<b>168</b>



## Work Breakdown Structure

### Project

#### System Architecture

1.1 User Story

1.2 User Story

#### Database Design

2.1 User Story

2.2 User Story

2.3 User Story

#### Widget 1

3.1 User Story

3.2 User Story

3.3 User Story

3.4 User Story

#### Widget 2

4.1 User Story

4.2 User Story

4.3 User Story

4.4 User Story

4.5 User Story

#### Application Hardening

5.1 User Story

5.2 User Story

# Managing Agile

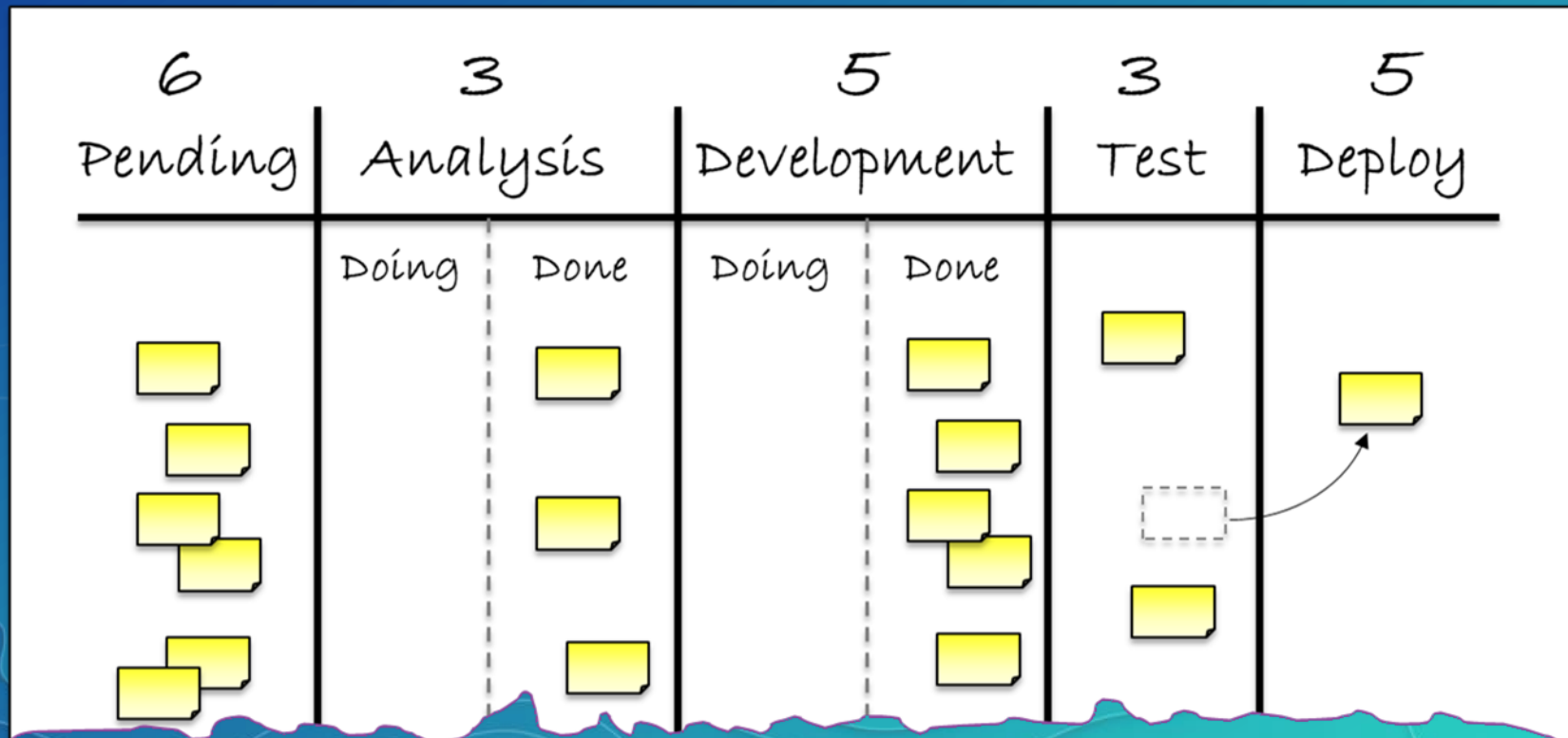


# Scrum Sprint Cycle



# KanBan Approach (Still Agile, just not Scrum)

- No defined iterations
- No defined roles
- Direct communication with customer
- Limit your work-in-progress
- Visualize your work
- Ever-changing backlog with on-the-fly prioritization





**As a [role], I can [feature] so that [benefit]**

**As a field representative,  
I want to collect information offline  
so that data can be collected  
in remote locations.**

# Product Backlog

<hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/>
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## Wish List

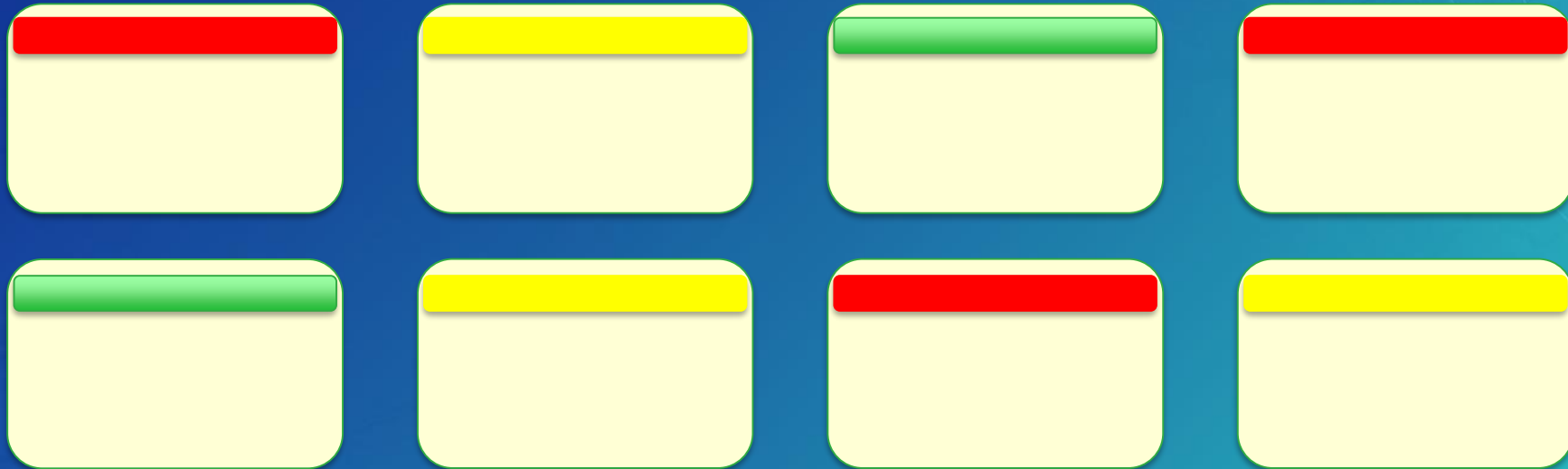
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## Sprint Backlog



# Sprint Backlog



## Sprint Backlog

**4h**

**8h**

**3 days**

**2h**

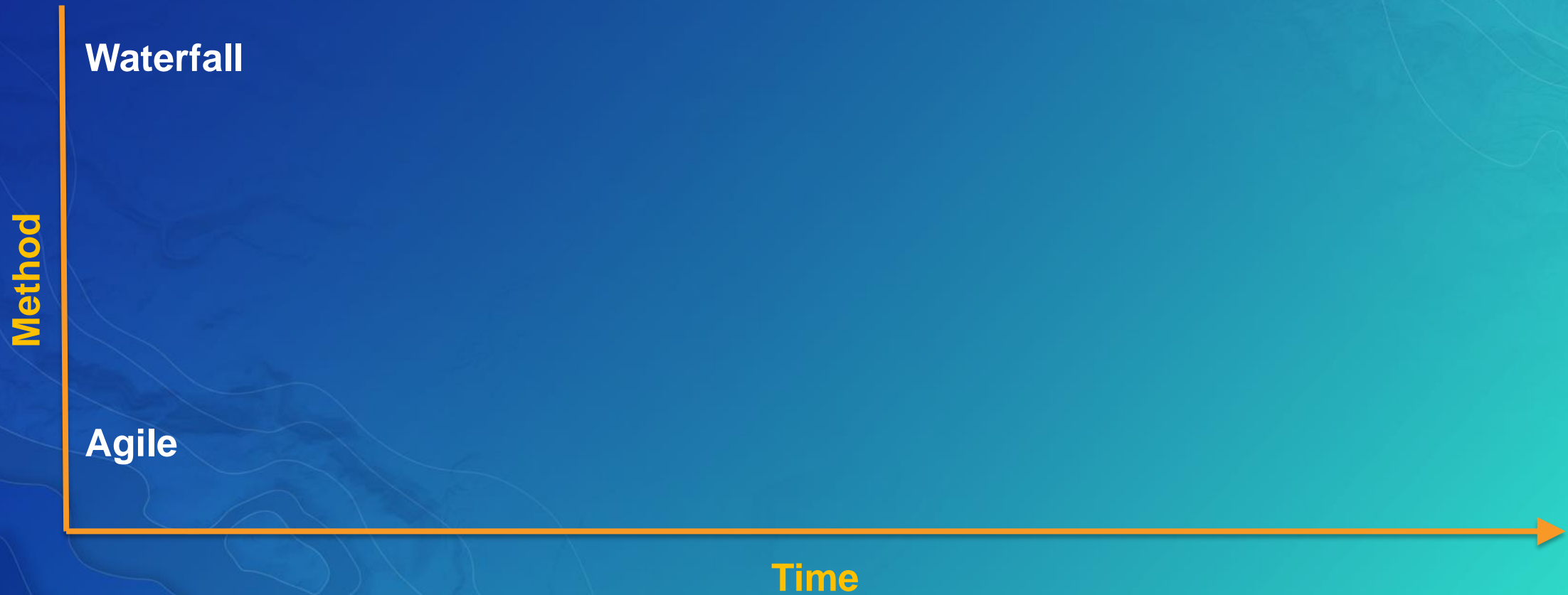
**1h**

**2 days**

**4h**

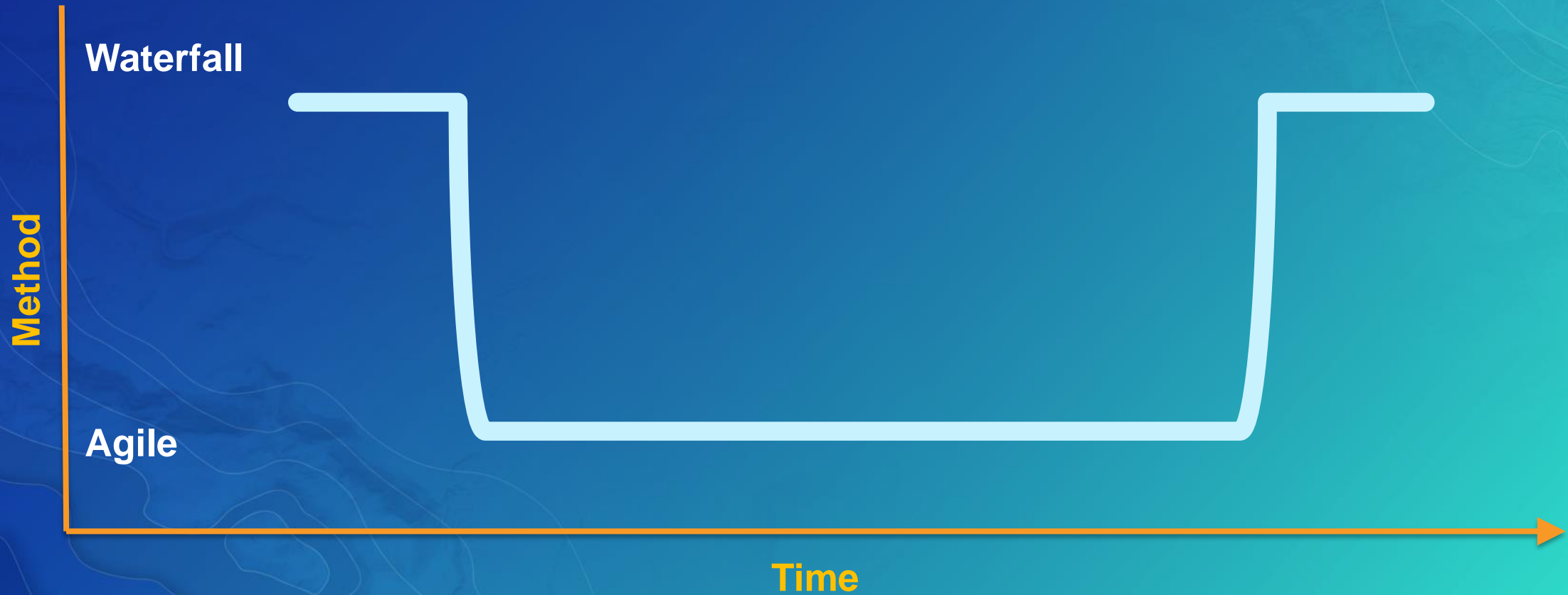
**8h**

# Using Agile in a Professional Services Project



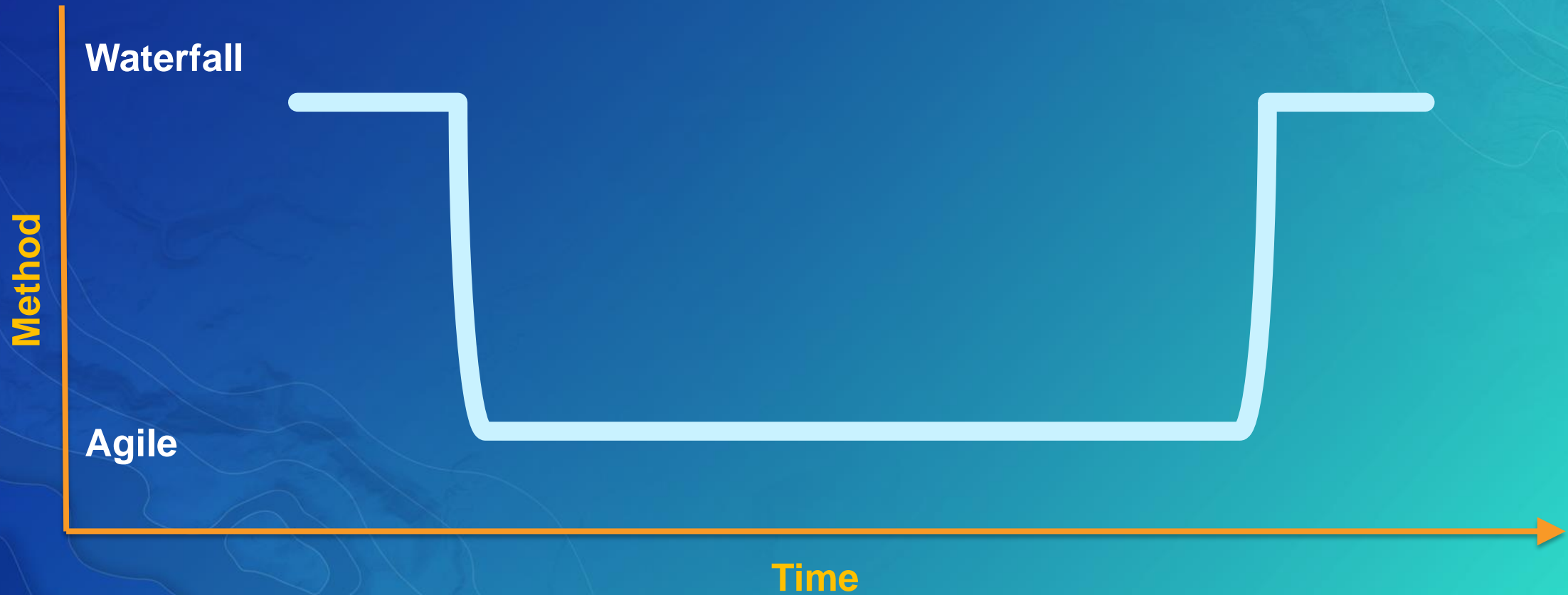


# Using Agile in a Consulting Project



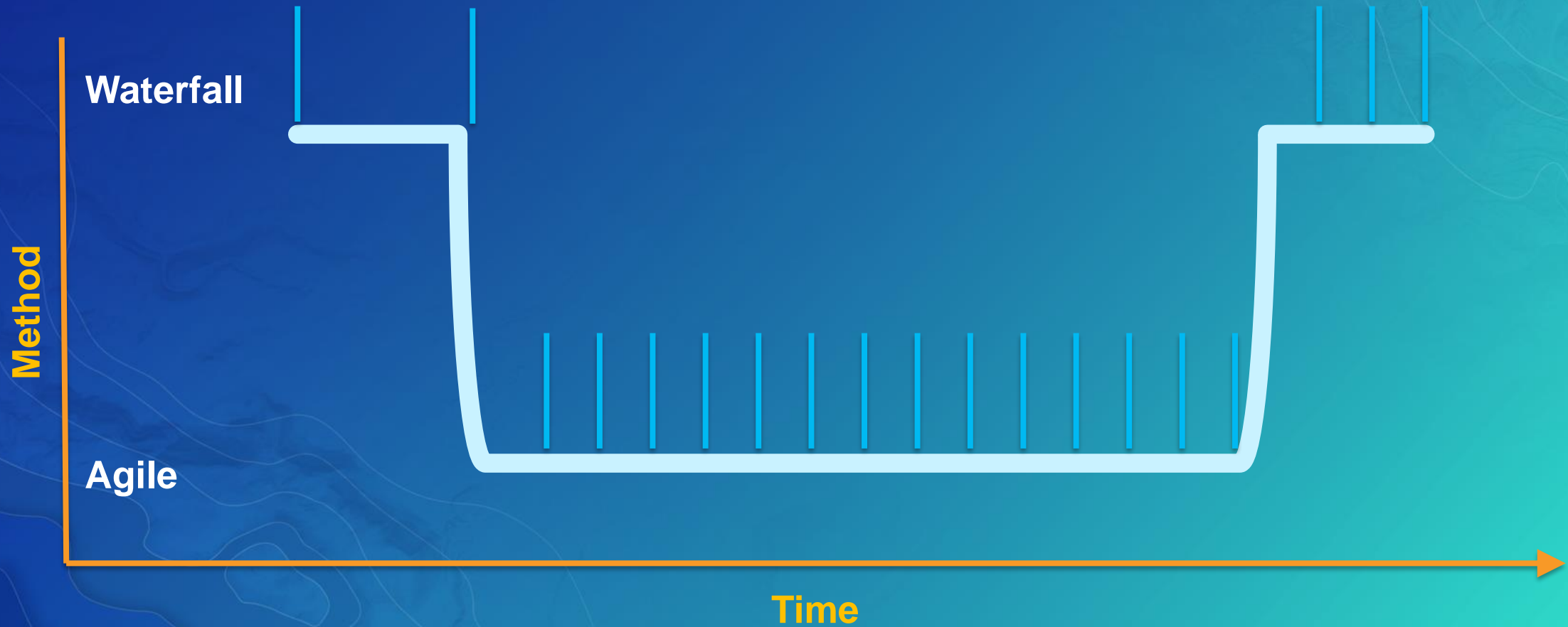


# Using Agile in a Consulting Project

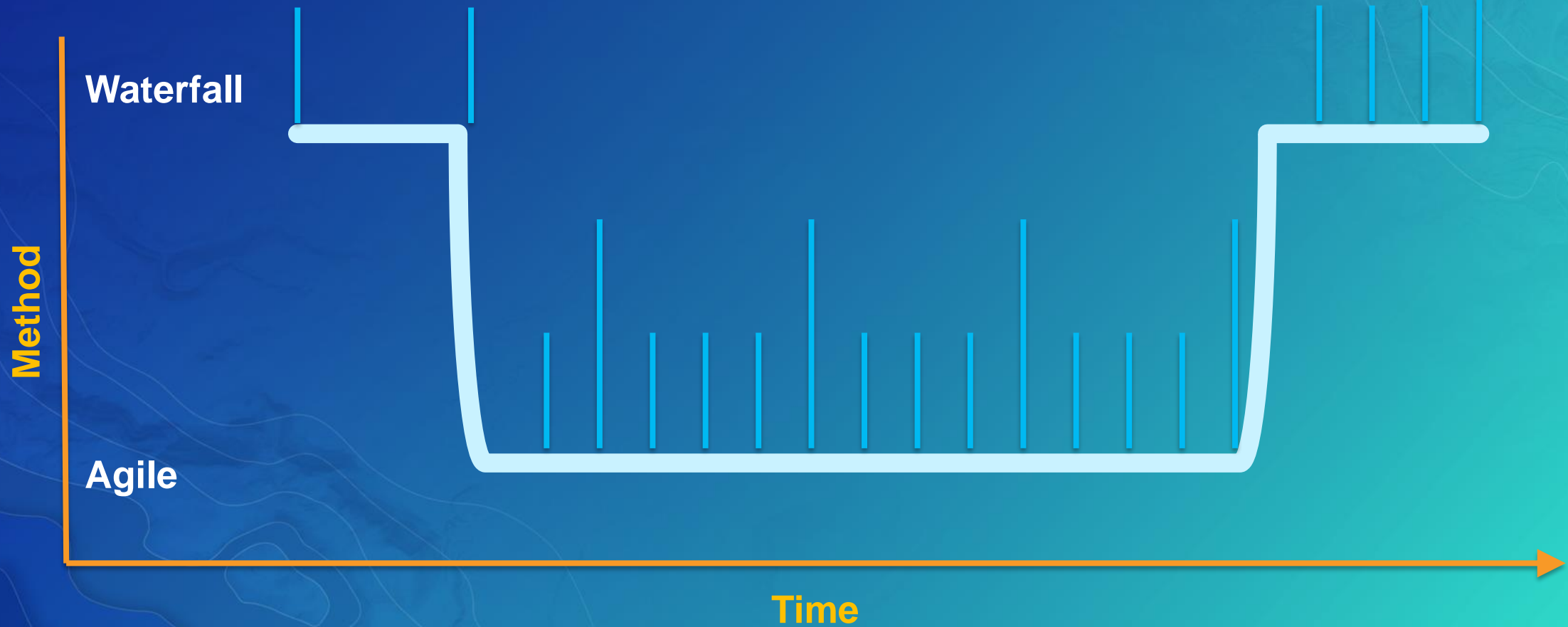




# Using Agile in a Consulting Project

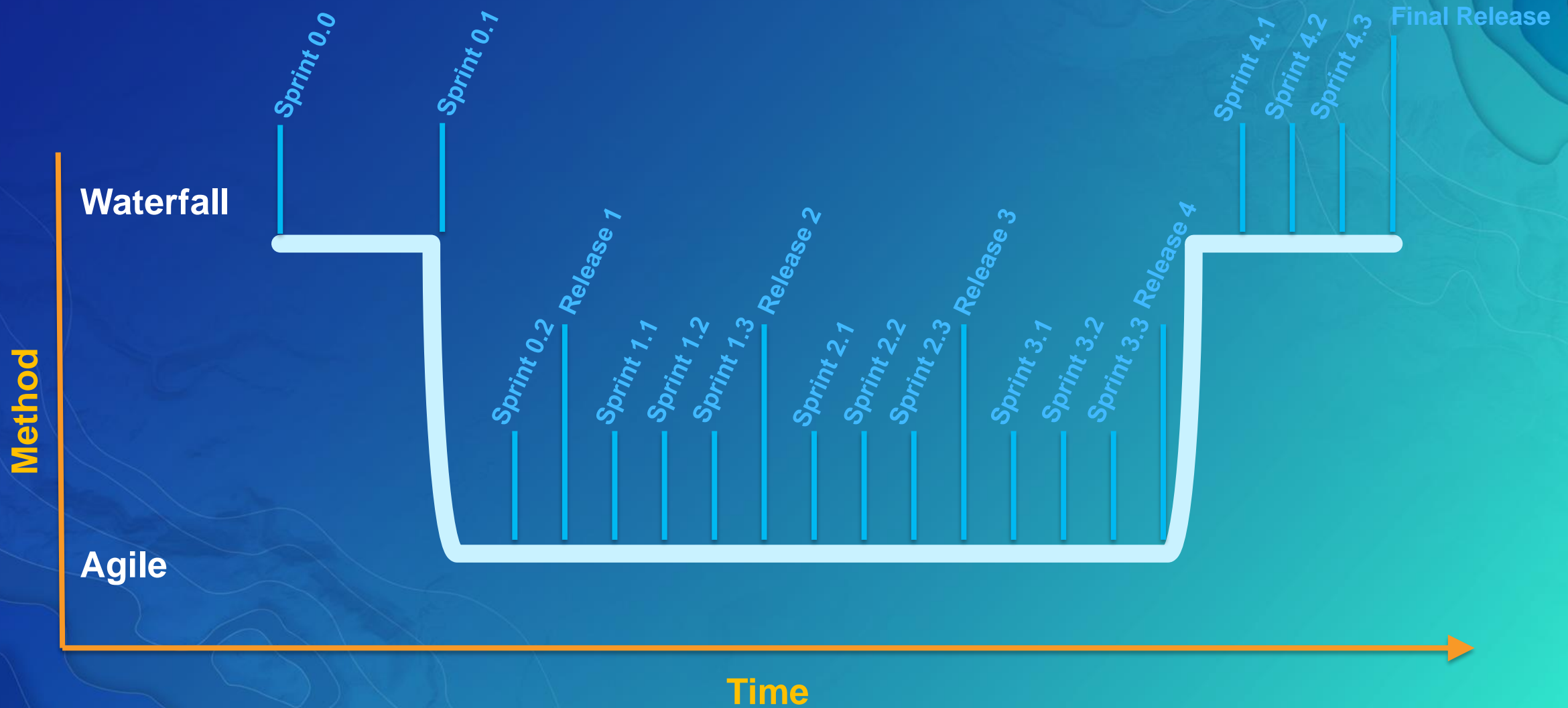


# Using Agile in a Consulting Project





# Using Agile in a Consulting Project



# Managing Resources

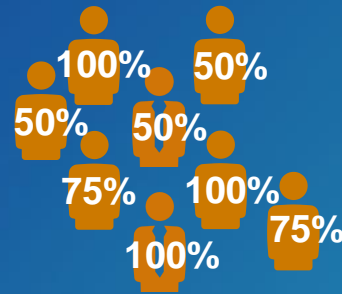
## Plan A

Your Project



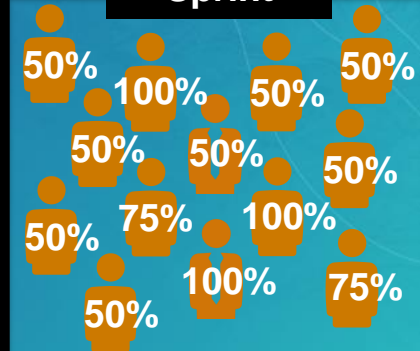
## Plan B

Sprint



## Plan Z

Sprint



# Keys to Successful Projects!

## Communication



## Trusted Partnerships

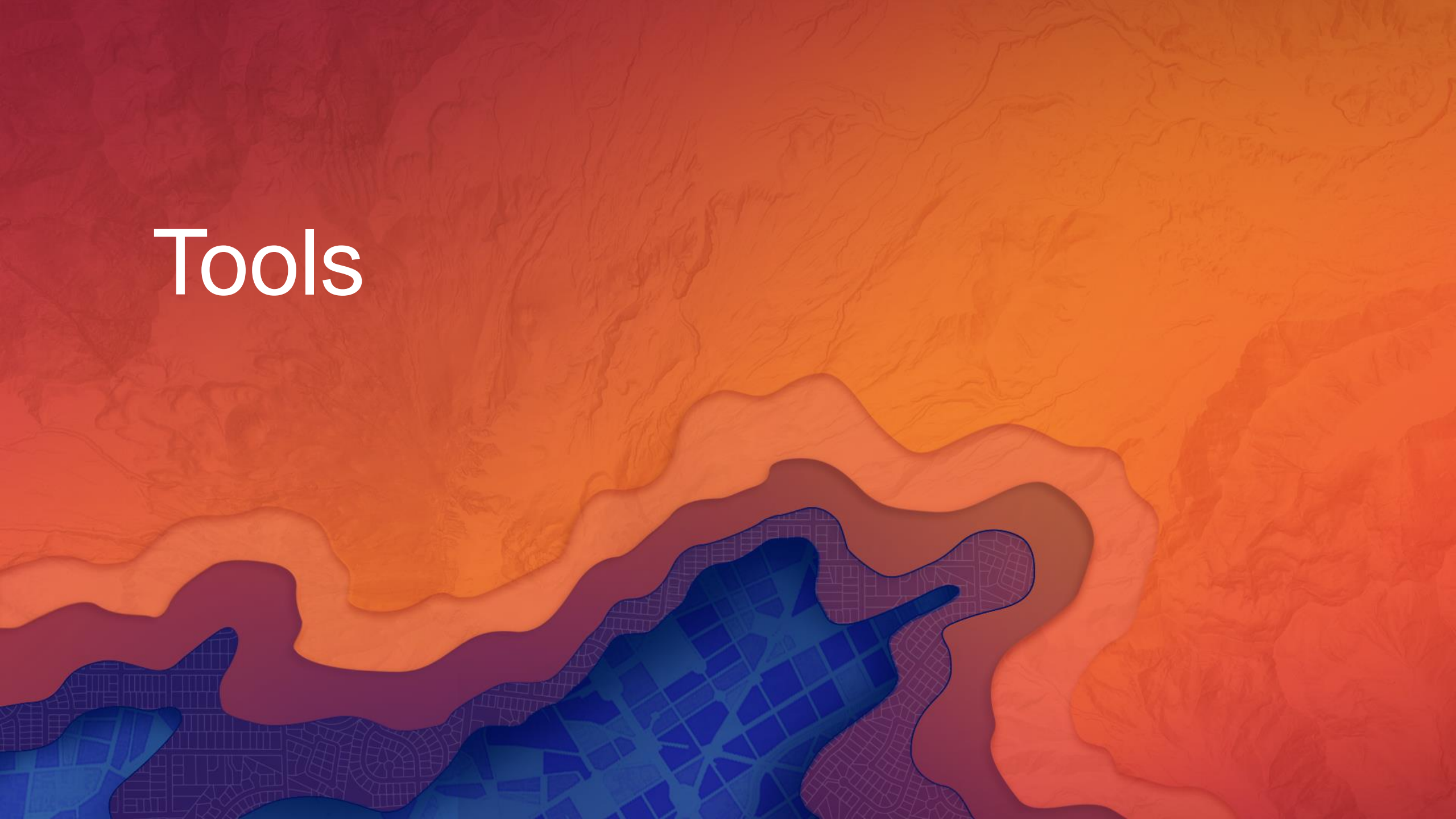


## Transparency



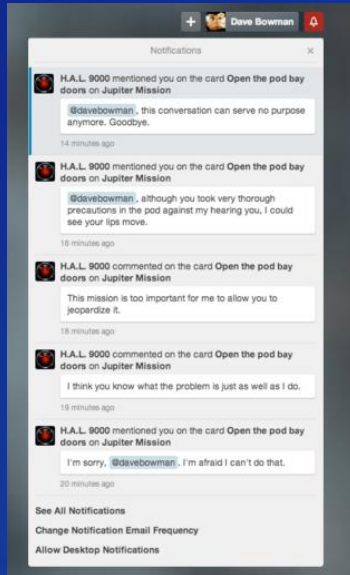
Utilize Available Tools...


# Tools






# Using Trello



 **Install pot rack over the island** in list [Ideas](#)

Members


 + [Installation](#) +

Description

[Edit](#)

The pots and pans are piling up on the ground and I'm always tripping over them. I would say we should get rid of a few, but I love every single pot and pan we own! We need a pot rack. It would go great over the island in the kitchen.

Attachments

 **pot-rack.jpg**  
Added Apr 16, 2014 at 9:38 pm  
[Download](#) [Remove Cover](#) [Delete](#)

[Add an attachment...](#)

Checklist

67%

☒ Buy the pot rack

☒ Drill some holes in the wall

☐ Measure...

Add

Members

Labels

Checklist

Due date

Attachment

Actions

→ Move

Copy

Subscribe ☒


Vote

Archive

[Share and more...](#)

Boards

Trello


+  Danny Schreiber

Show Menu

Best Trello Integrations


Public

Task management




Set up recurring cards

1






Duplicate cards

1



Turn emails into cards

1




  

Organize multiple to-do lists

1



Add a card...

Project Management



Create cards from new form submissions

1

Get alerts for board activity

1



Start tracking time

1

Record card activity


Add a card...

Marketing


Curate content ideas

1




Manage an editorial calendar

1



Promote content

1






Stay on top of social media

1



Add a card...

Development



Track product development progress

1




Kick off QA testing

1

Prioritize software issues

1



  

Act on customer feedback

1



Add a card...

Support

Manage help desk volume

1

Oversee help doc creation

1

Add a card...

# Using GitHub

Code Issues 176 Pull requests 0 Wiki Pulse Graphs

Filters is:issue is:open Labels Milestones New issue

176 Open 1,244 Closed Author Labels Milestones Assignee Sort

- New pub for Survey123** 2 - In Progress A - Doc-Dev Priority=High  
#3355 opened 14 hours ago by marikavertzonis 2016-Upd 3 (April 20...)
- Question: Best version to be linking to from non-desktop help** SubGrp=Apps  
#3348 opened 5 days ago by kylliedonia
- Localization: Workforce initial release help** 0 - Backlog A - L10n Area=L10n SubGrp=Apps  
#3345 opened 5 days ago by kylliedonia
- Localization: Workforce initial release home** 0 - Backlog A - L10n Area=L10n SubGrp=Apps  
#3344 opened 5 days ago by kylliedonia
- Incorrect appearance of table in AppStudio doc** 1 - Planned A - Author Priority=Moderate  
#3339 opened 6 days ago by marikavertzonis 2016-Upd 3 (April 20...)

https://waffle.io/ArcGIS/BayerCropScience

ArcGIS/BayerCropScience Add Issue

gavinr updated #960.

Backlog 106 528 Sprint Backlog 30 244 In Progress 11 37 Needs Test 2 1

- 873** Create "Notifications list" page (20) 3
- 965** Spatial Query Feature: Download/Export 1
- 828** DB - Enable tracking of units for data layer attributes 4
- 977** Protocol Report - Grayscale Version UI/UX Help (5) 1
- 842** Confirm SST agX data ingest for a job step - wireframe 5
- 919** Production Build 1.7 (1.8) (3) 1
- 740** Clarify Protocol Status & Job Status widgets (dev task) (1.8) (3) 1
- 899** Author cannot make edits to protocol that they copied (1.8 bug) (5) 2
- 889** Transparency slider will not change back to 0% (1.8 bug) (3) 5
- 970** Protocol Report Modal (1.8) (5)
- 978** 882 develop 2 1
- 971** Remove the halo effect on the text symbol 1
- 966** 832 save confirm modal 1
- 905** AgXPOC 1
- 900** 843 develop 1
- 843** SST data loader 3
- 955** Change "Home" button to "Map View" (1.7) 1
- 916** Number of notifications does not change upon deleting a notification (1.8 bug)

ArcGIS / arcgis-doc-website PRIVATE

Code Issues 176 Pull requests 0 Wiki Pulse Graphs

## Home

Marika Vertzonis edited this page 21 days ago · 88 revisions

This wiki is about the <http://doc.arcgis.com/>... sub-domain. It includes info on how content on this sub-domain is produced and edited.

## What content goes on doc.arcgis.com?

- Home pages and help systems for the [ArcGIS Online](#) platform & its connected apps and data, etc. These pages are presented in the same UI as ArcGIS.com.

*Note: The links below go to the content under development, not the current released version.*

- AppStudio for ArcGIS
- ArcGIS.com Help
- ArcGIS for Smartphones & Tablets
- BAO
- Collector for ArcGIS
- Community Analyst
- Community Maps

# Using TFS

## Backlog items to Features

Backlog Board Mapping Off In progress items Show View Backlog items to Features

Title	State	Effort	Tags
Acquisition and core workflow	In Progress		
Add, Edit, Remove from shopping cart	Approved	5	Mobile
Edit existing users	Committed	5	Web
Direct link to an item in the catalog	Committed	8	Mobile
Welcome mails that include a "Getting Started" v...	New	3	Mobile

Title	State	Remaining Work	Work By: Assigned To
Editing items already added to the cart	Done	9	Christina Kelly (8 of 14 h)
Cancelling a submitted order	Committed	22	Lowell Steel (17 of 14 h)
Notification to the user	To Do	6	Noah Munger (6 of 7 h)
Design work on the cancel dialog	To Do	4	
Credit card refund	To Do	4	
Order history updated styling	To Do	4	
End-to-end testing	To Do	2	
New route to view a cancelled order	To Do	2	

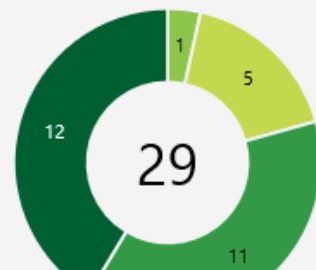
## Tasks Needing Attention

To Do In Progress



## Backlog Distribution

Committed Approved New Done






























Type of query Flat list of work items Work items and direct links Tree of work items

	And/Or	Field	Operator	Value
+ X	<input type="checkbox"/>	Team Project	=	@Project
+ X	<input type="checkbox"/> And	Assigned To	=	Christina Kelly
+ X	<input type="checkbox"/> And	Work Item Type	x =	Task
+ Add new clause				
Backlog Priority				
Blocked				
Business Value				
Called By				

Save query

# Making a Decision

Project Considerations	Trello	GitHub	TFS
Requirements are Proprietary			
Mobile App			
Easy to setup			
Estimation tools			
Scheduling tools			
Automated Burndown chart			
Easily integrated with Visual Studio for Code Repository			
Capacity Planning			
Exports to MPP and Excel			



# Case Studies



# Small Scale

Contract Type	\$\$ Value
T&M	\$110K



# Case Study – Small Scale

- **Why Agile?**

- Requirements (User Stories) are not clearly defined at the time of contract award.

- **Key Challenges / Lessons Learned**

- Stakeholders (customer) was an active participant with respects to the grooming of the product backlog including prioritization.
  - Standard sprints do not work with the customer's schedule as the work comes in waves rather than a steady pace.
  - Finding resources to staff a project like this can be difficult since the work is not planned out well in advance.

# Case Study – Medium Scale

Contract Type	\$\$ Value
T&M	\$4M





# Case Study – Medium Scale

- **Why Agile?**

- Customer was familiar with Agile and believed iterations was the best method to get to realize their end goal

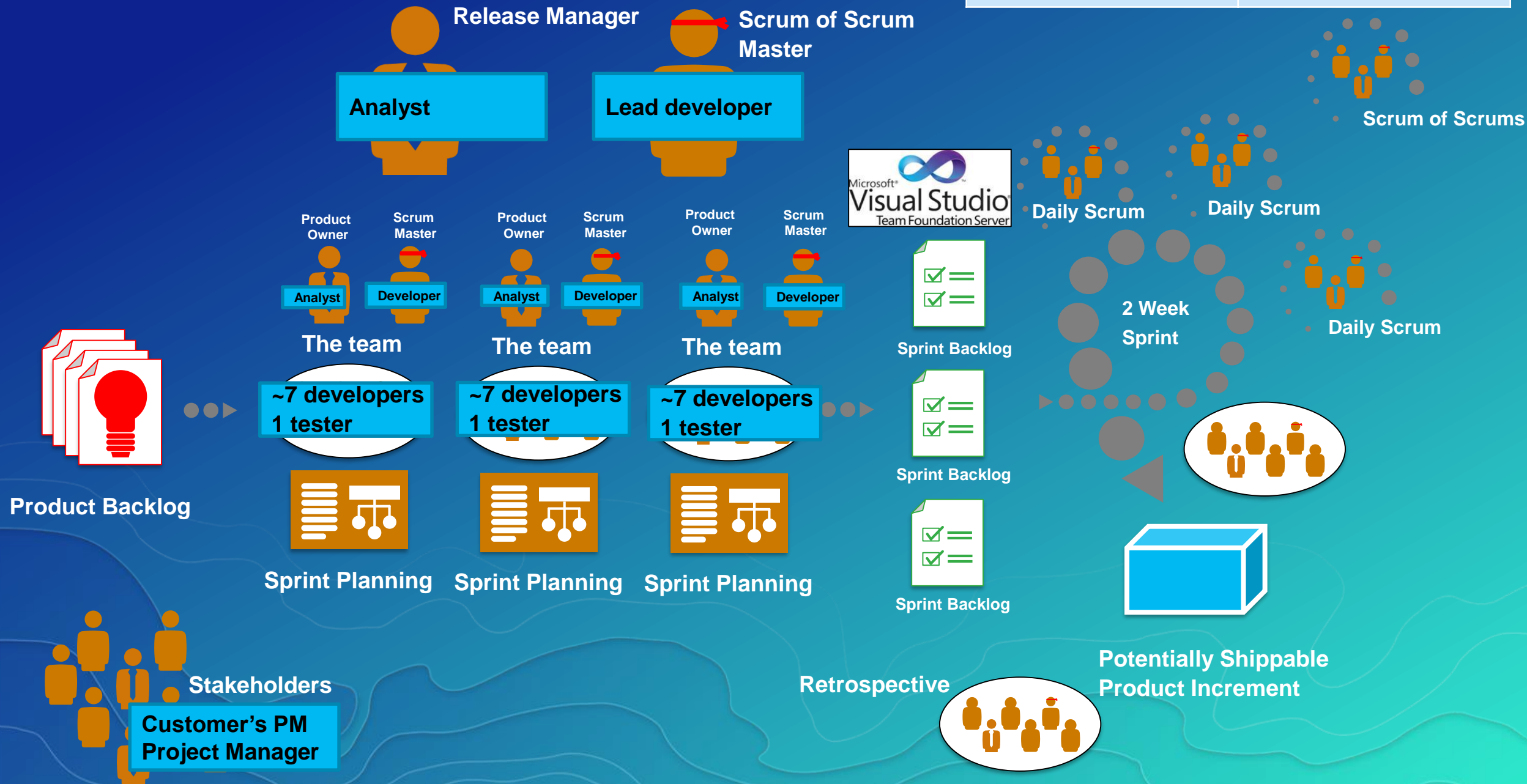
- **Key Challenges / Lessons Learned**

- Stakeholders (customer) was an active participant with respects to the grooming of the product backlog and sprint planning events.
- Team consisted of contractors from multiple companies who were all using their own version of Scrum
- Utilization of multiple contractors created dependencies that had to be accounted for in Sprint Planning.
- Hours were used for estimates to avoid an inconsistent Points experience
- Monthly iterations, then bi-weekly, then weekly, then back to bi-weekly in order to get the right amount of feedback



# Case Study - Large Scale

Contract Type	\$\$ Value
FFP-LOE	\$9M



# Case Study – Large Scale

- **Why Agile?**

- Project was contractually required to follow the SAFe Agile Methodology.
- Requirements were vague and customer recognized the benefit in iterative development to achieve the best results.

- **Key Challenges / Lessons Learned**

- Deployment into the customer's footprint occurs at the end of the Release.
- Large project team to manage.
- Each Scrum Team was responsible for individual features.
- Dependencies existed between scrum teams.
- Stakeholders (customers) were only present during Stakeholder Reviews and were not active participants during the release planning events.
- Disconnected environment meant that the customer could not test the features until the end of a release.
- Bi-weekly demonstrations to “sell off” features and to show progress.

Questions?





# Please Take Our Survey on the Esri Events App!

**Download the Esri Events app and find your event**



**Select the session you attended**



**Scroll down to find the survey**



**Complete Answers and Select "Submit"**





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SCIENCE  
OF  
WHERE