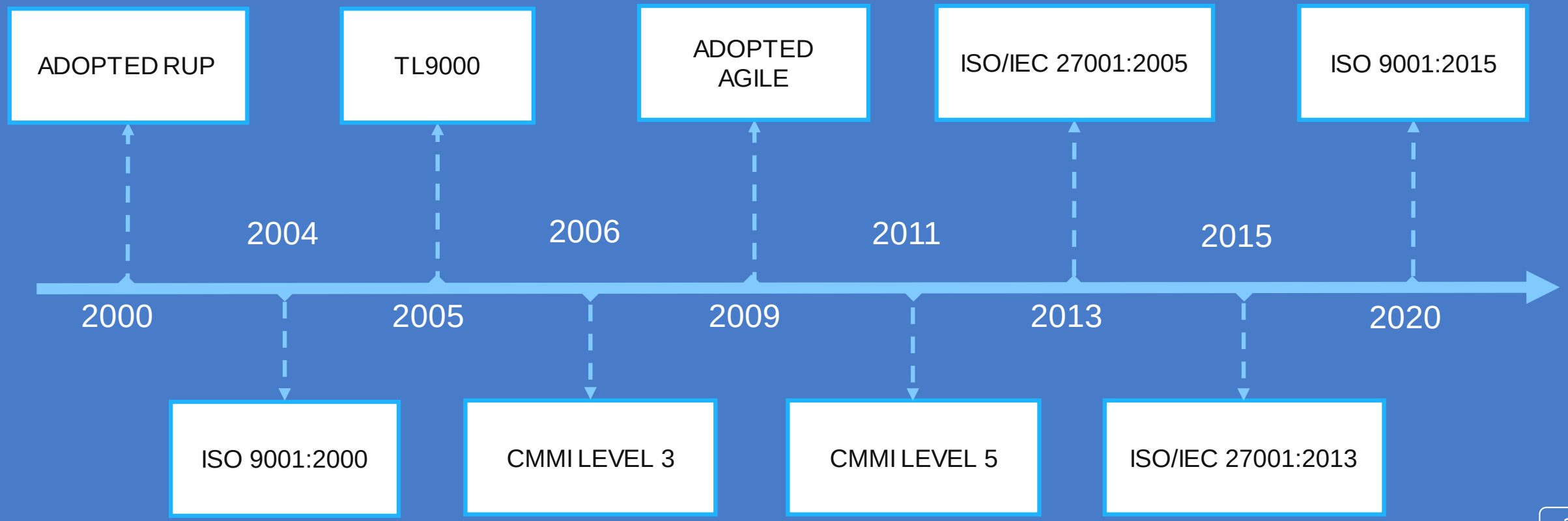
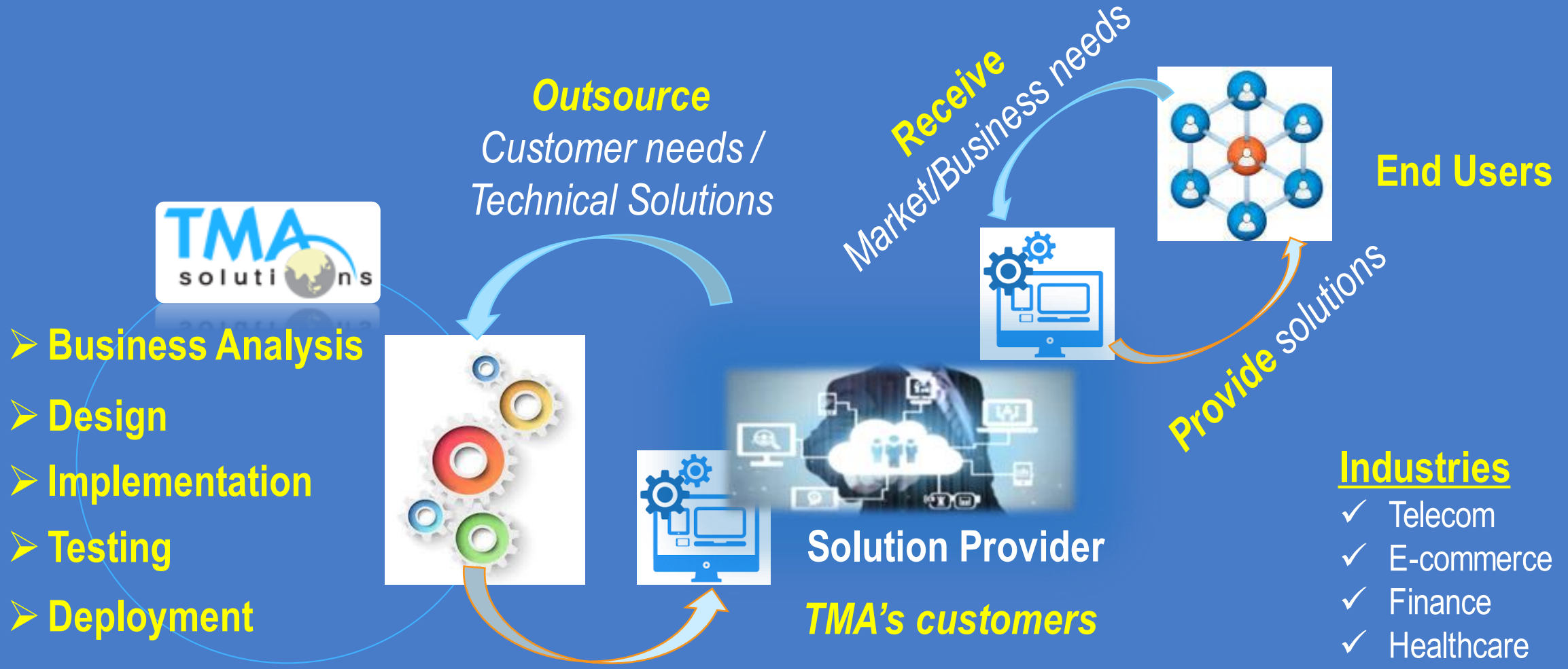
TMA
Software Development Process

TMA Engineering Process History

- **Based on industry practices and standards (CMMI, Agile, RUP, ISO9001, ISO27001, TL9000)**
- **Meeting stringent requirements from leading companies**



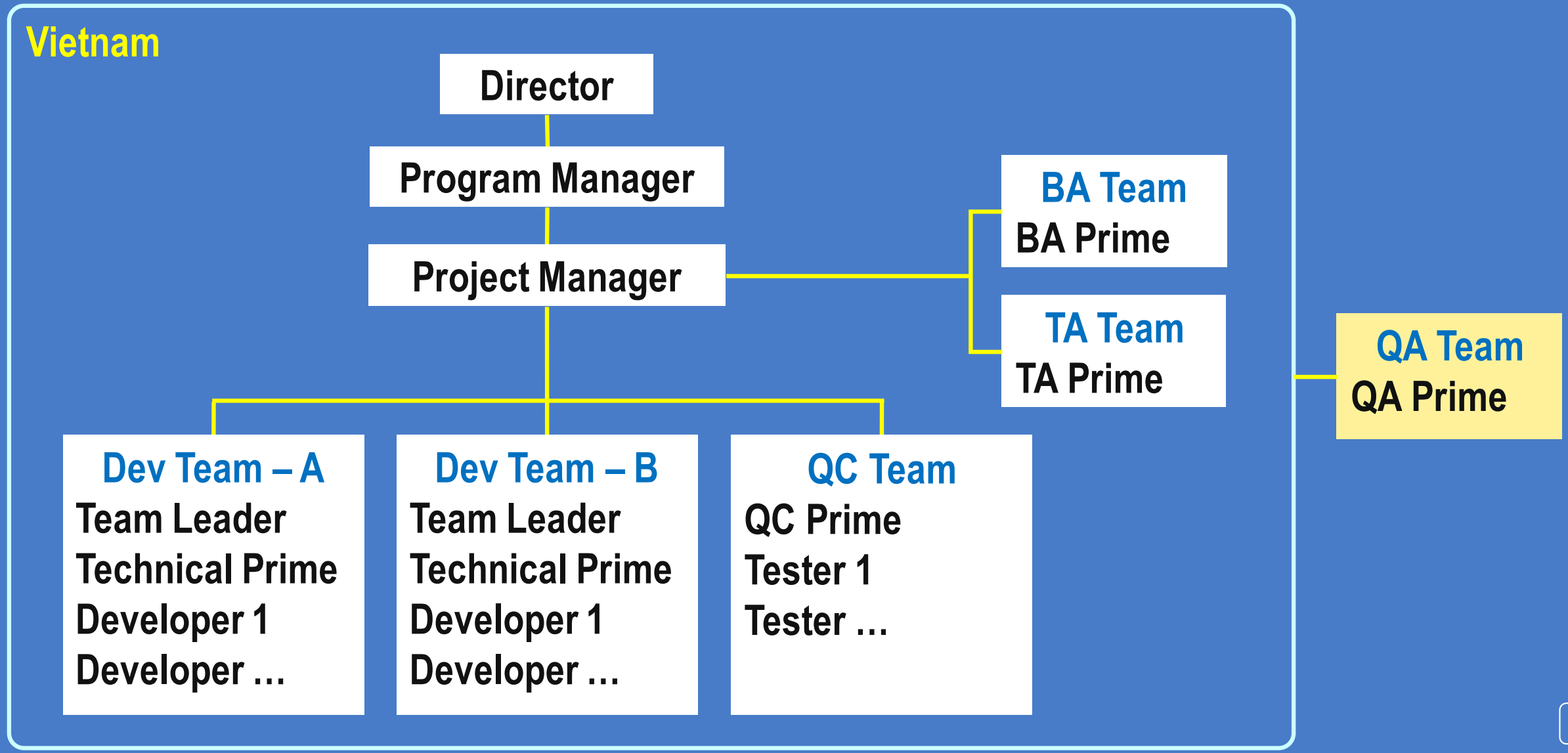
Software Outsourcing Life-Cycle at TMA



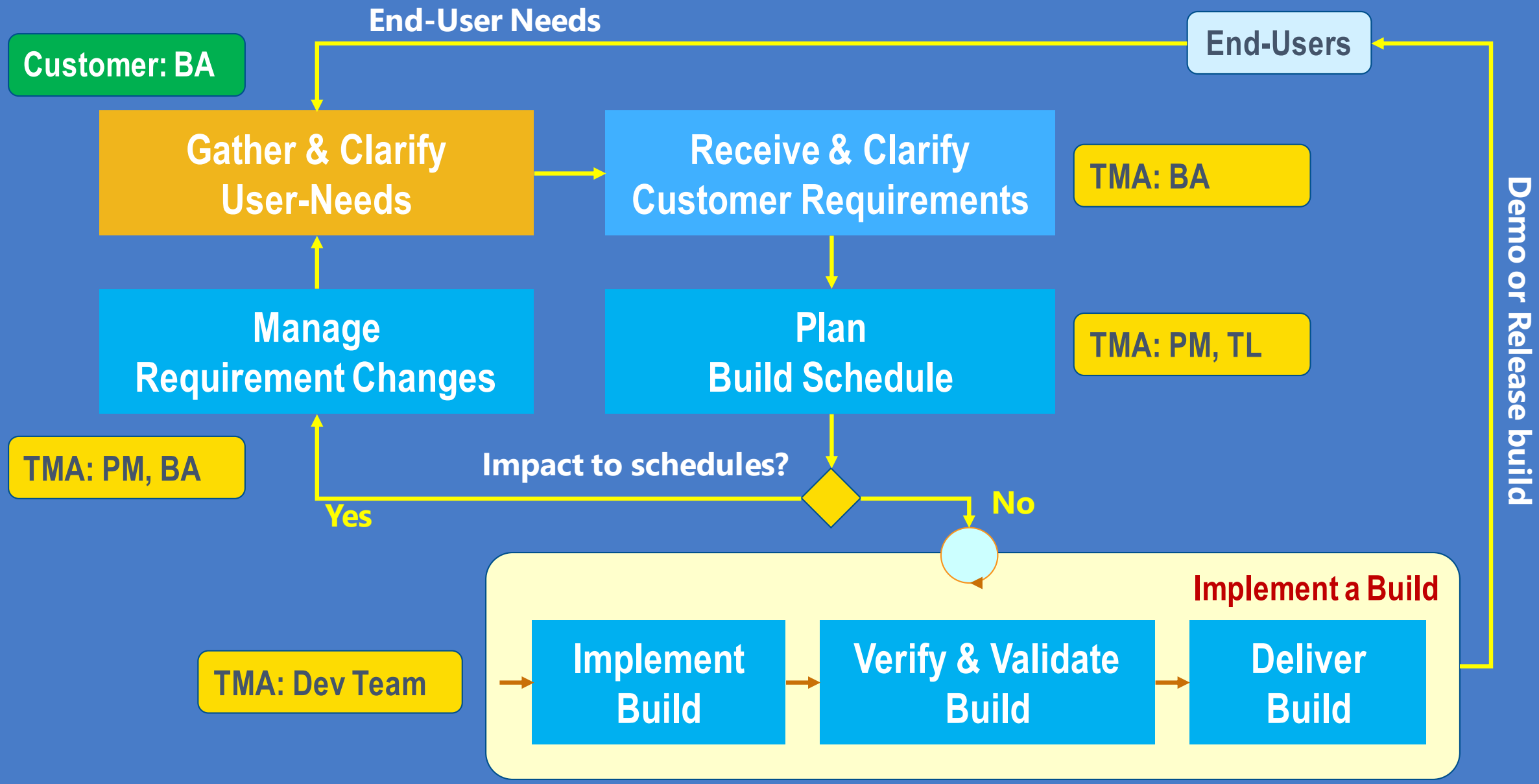
Industries

- ✓ Telecom
- ✓ E-commerce
- ✓ Finance
- ✓ Healthcare
- ✓ Factory
- ✓ Education
- ✓ …

Project Organizational Chart



TMA Engineering Process – Main Workflow

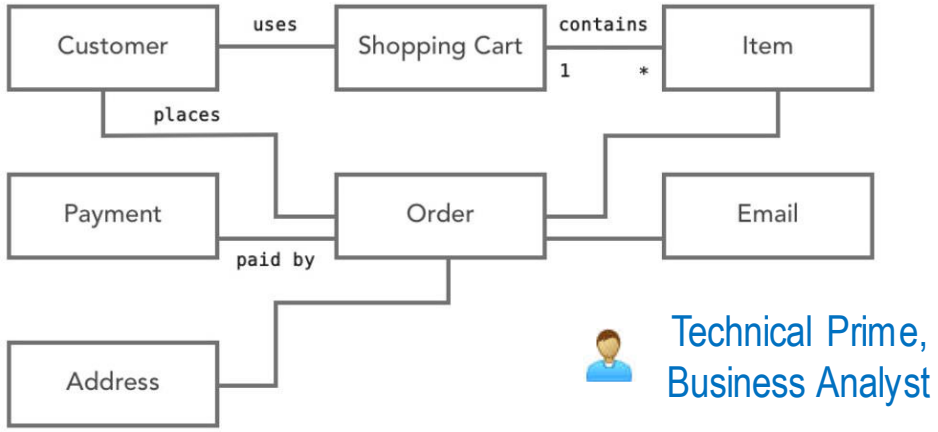


TMA Engineering Process – Best Practices

Customer

requirements

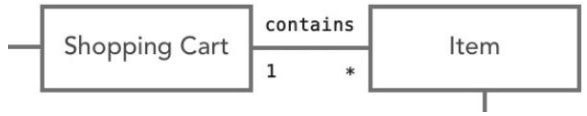
Develop an Overall Model



Technical Prime, Business Analyst

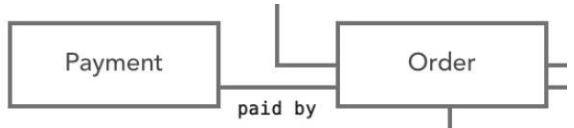
Figure 1 Example of an object model. This figure displays part of the problem domain for Feature Driven Development for a Sales Order System.

Develop a Sub-Model #k



Chief Developer

Develop a Sub-Model #k+1



Chief Developer

PM / TL

FEATURES LIST / BUILD SCHEDULE

Iteration No.	Iteration #1		…
Build No.	Build 1.1	Build 1.2	…
Feature A			
Task #A.1	✓		
Task #A.2		✓	
Feature B			
Task #B.1	✓		

Implement a Build

DEV Team

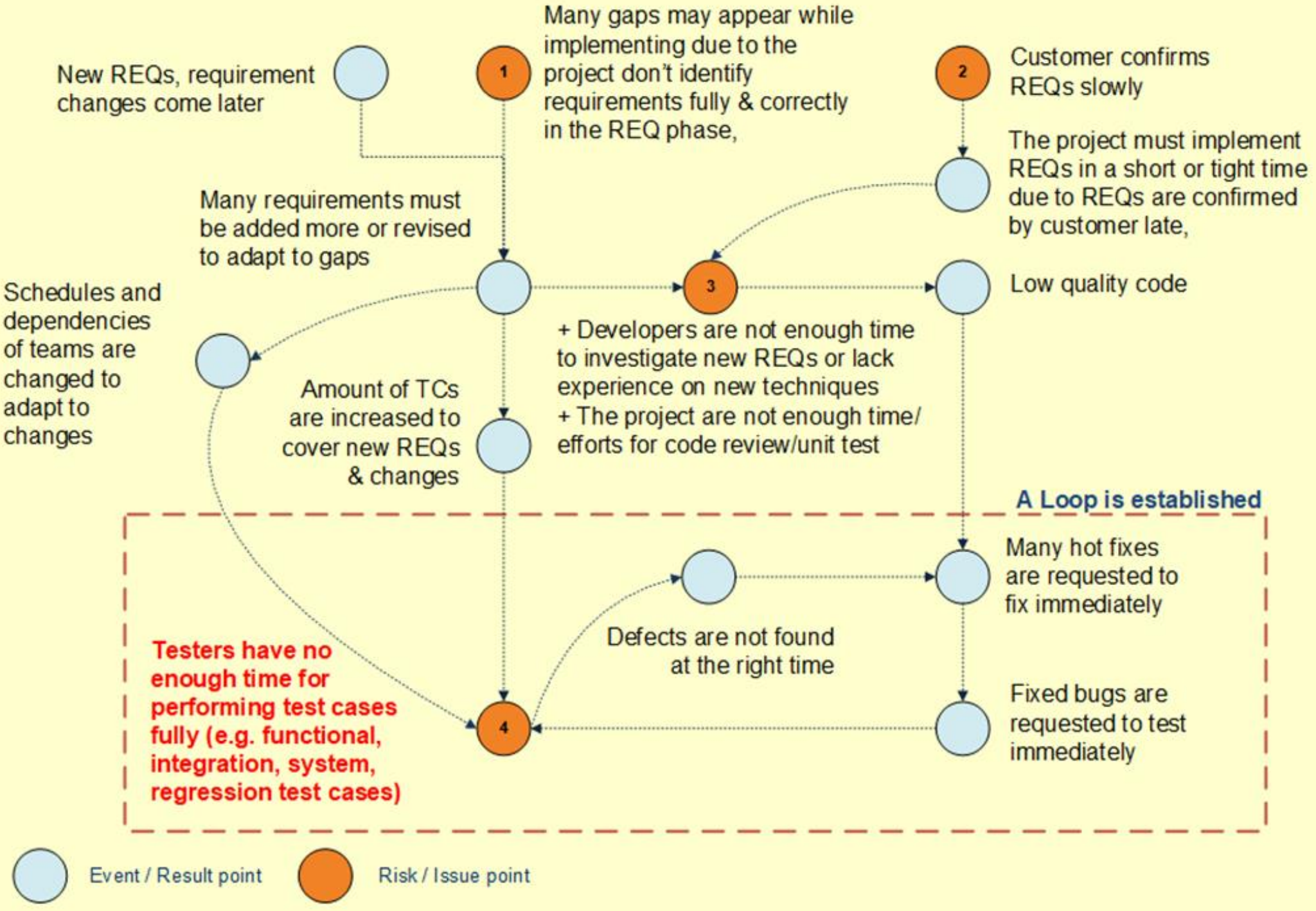
- DEV Lead
- Chief Developer
- Team members

Implement → Test & Integrate

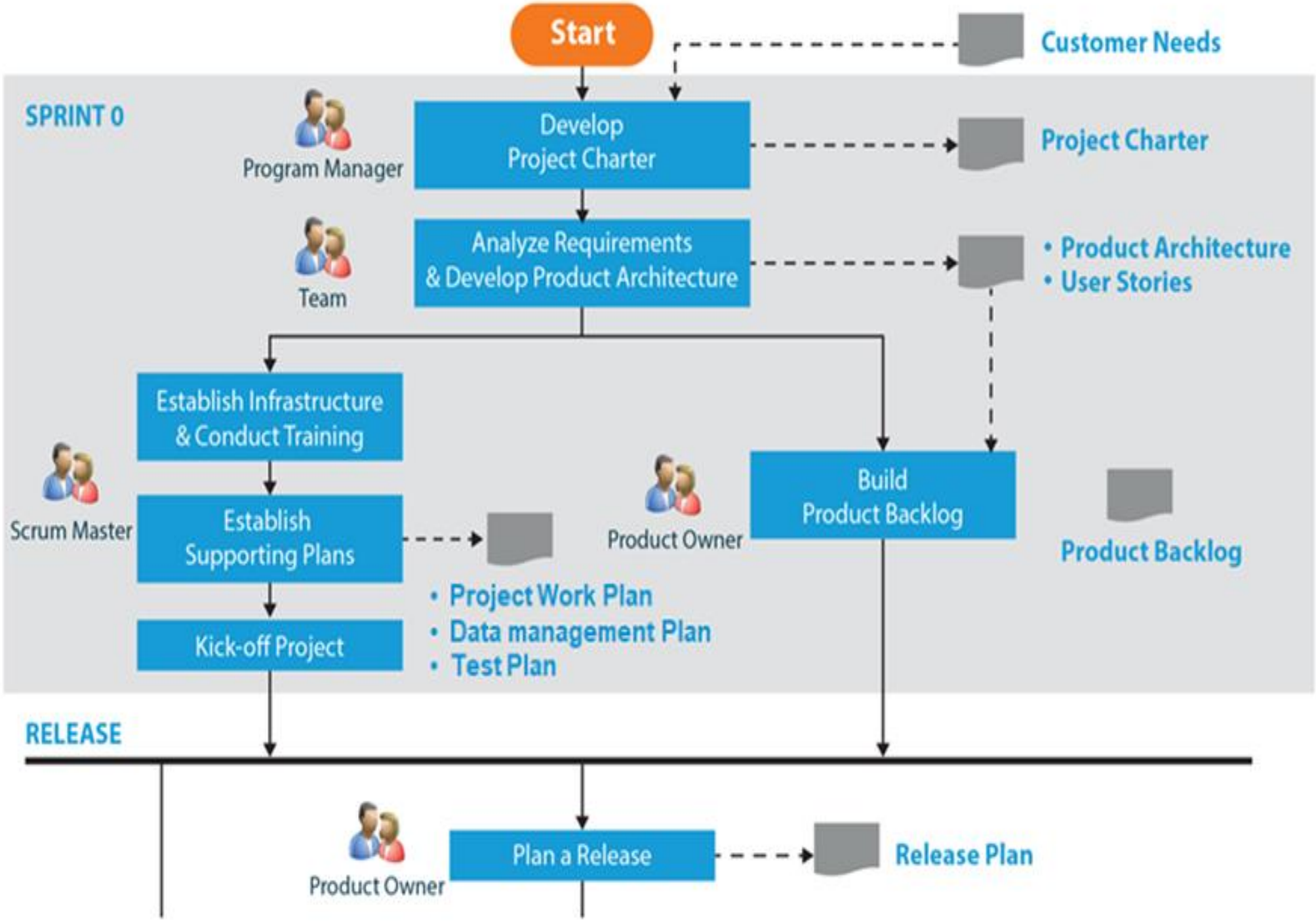
A Build Package

Final Product

Common Mistakes

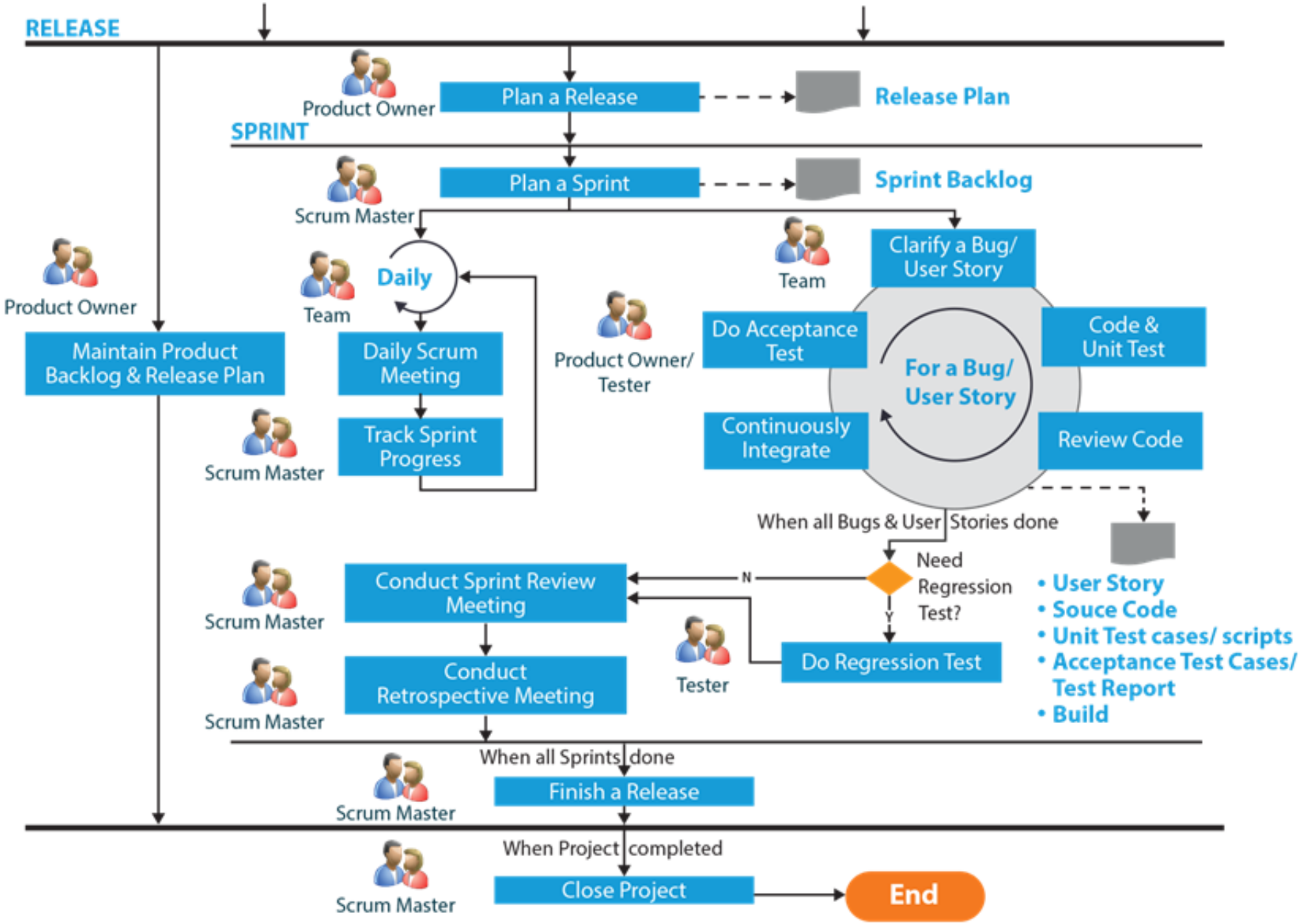


TMA Agile Process

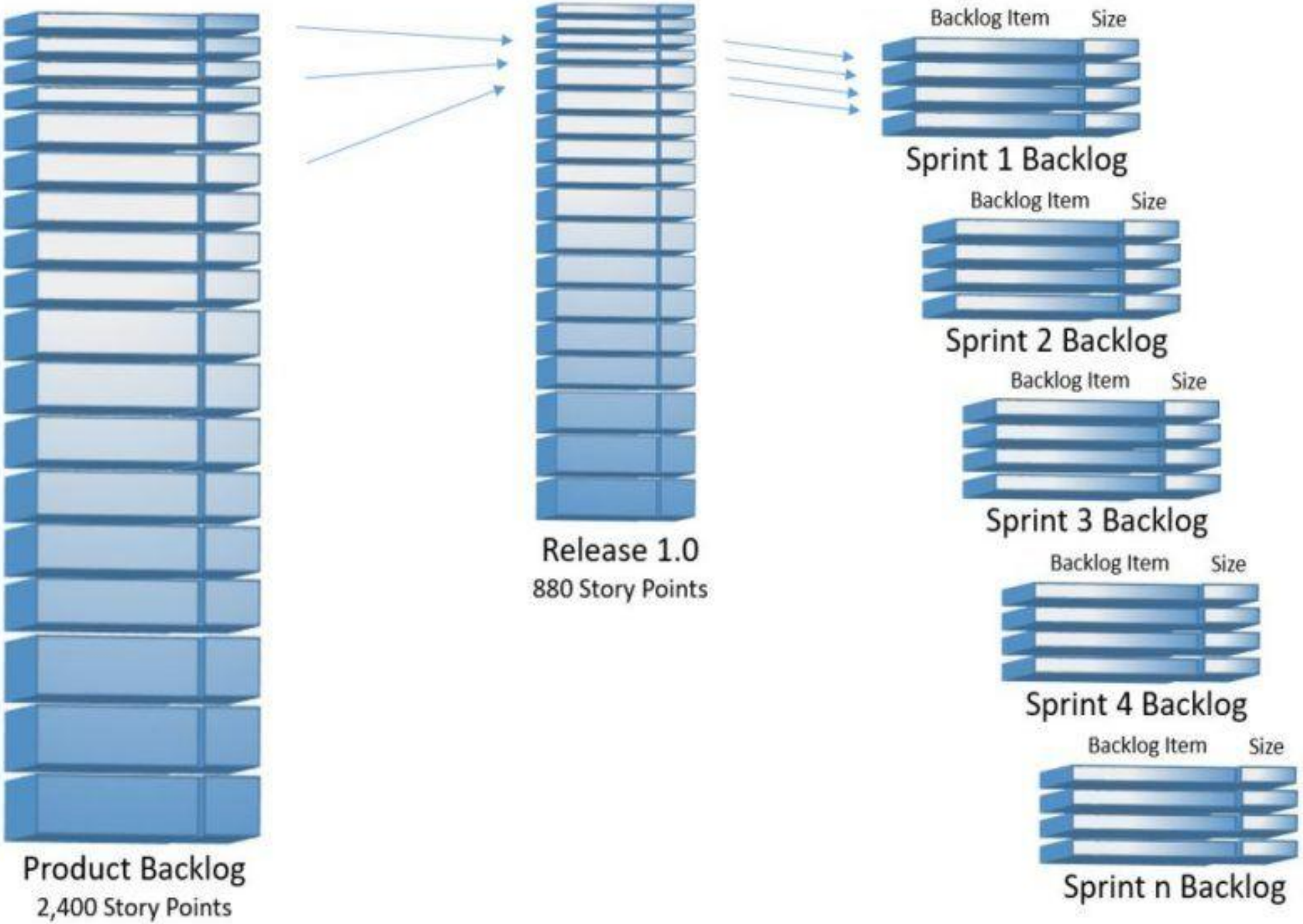


TMA Agile process (1/2)

TMA Agile process (2/2)

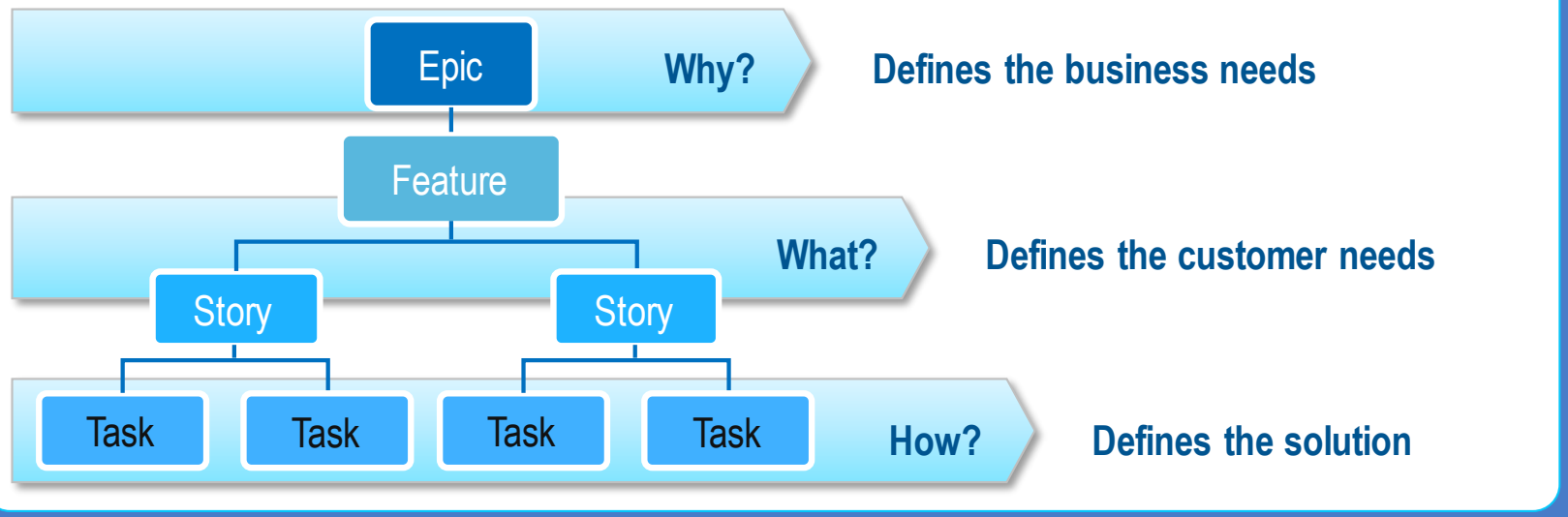


Release Planning



Overall Work Products

Epic – Feature – Story – Task Relationship



RELEASE PLAN (Sprint 2 weeks)																
Release No.	Release 1						Release 2				…		Release X			
Week No.	1	2	3	4	5	6	7	8	9	10	…	…	n-2	n-1	n	n+1
Sprint No.	Sprint 1		Sprint 2		Sprint 3		Sprint 4		Sprint 5		…		Sprint k-1		Sprint k	
Sprint Goal	…		…		…		…		…		…		…		…	

User Story

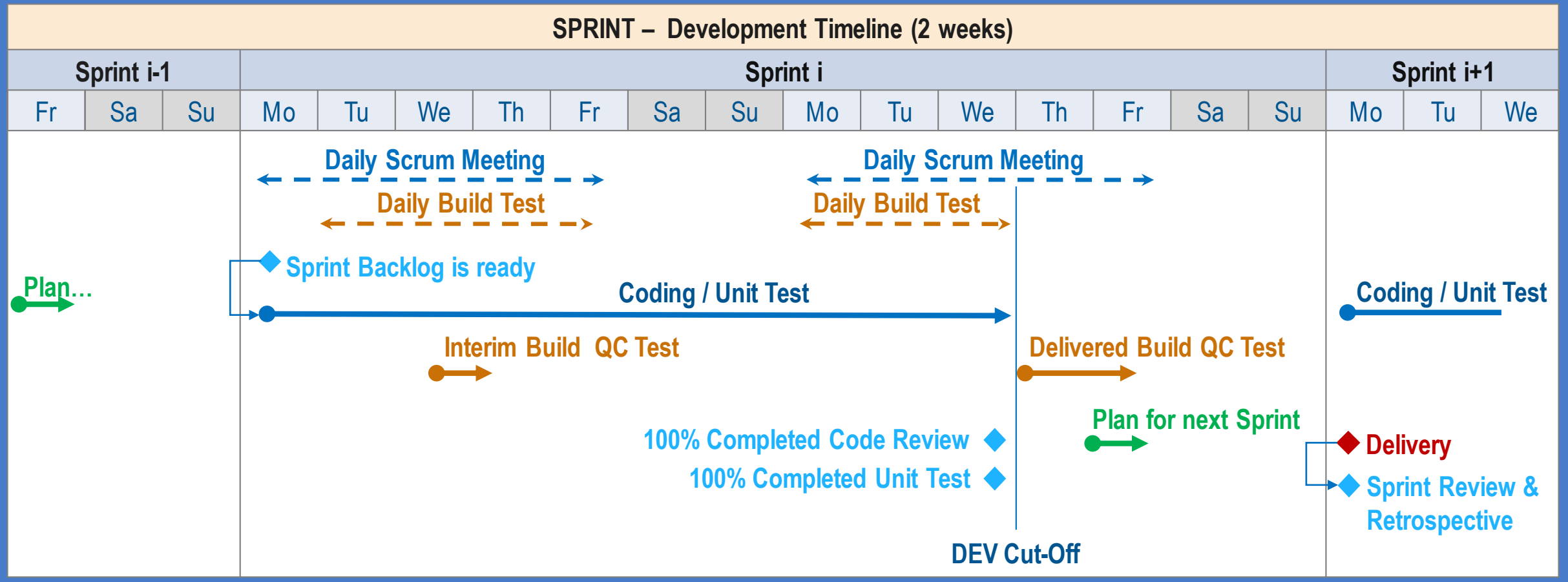
- **Format**: As a < type of user >,
  I want < some goal >
  so that < some reason >
- **Description**: supporting info and more details about the requirements of the user story
- **Acceptance Criteria**: how to demonstrate the user story is completed correctly
- **Estimate**: estimated size of the user story
- **Priority**: to be ranked among the other user stories

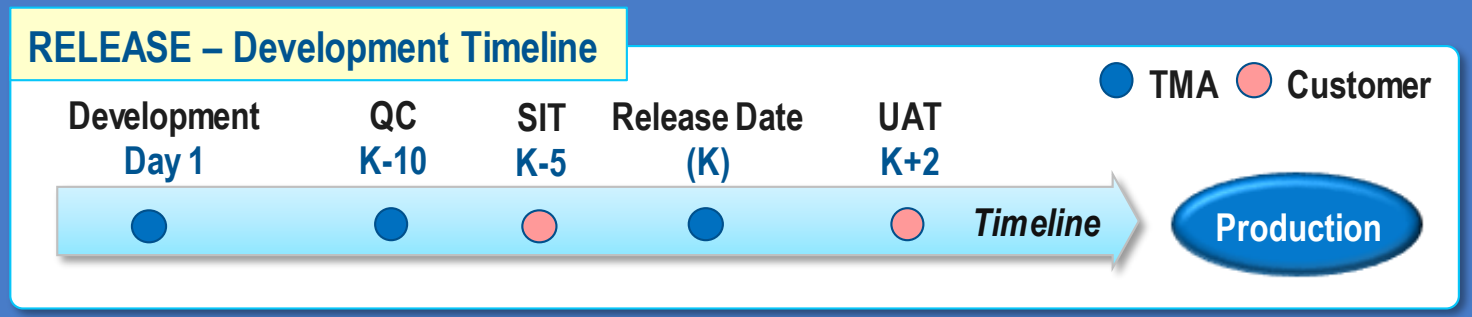
Product Backlog can be any work item:

- Epics / Features
- User stories
- Tasks
- Bugs
- Improvements

Sprint Backlog is a list of the product backlog items pulled into a sprint and an associated plan for how to achieve them.

Quality Assurance Criteria



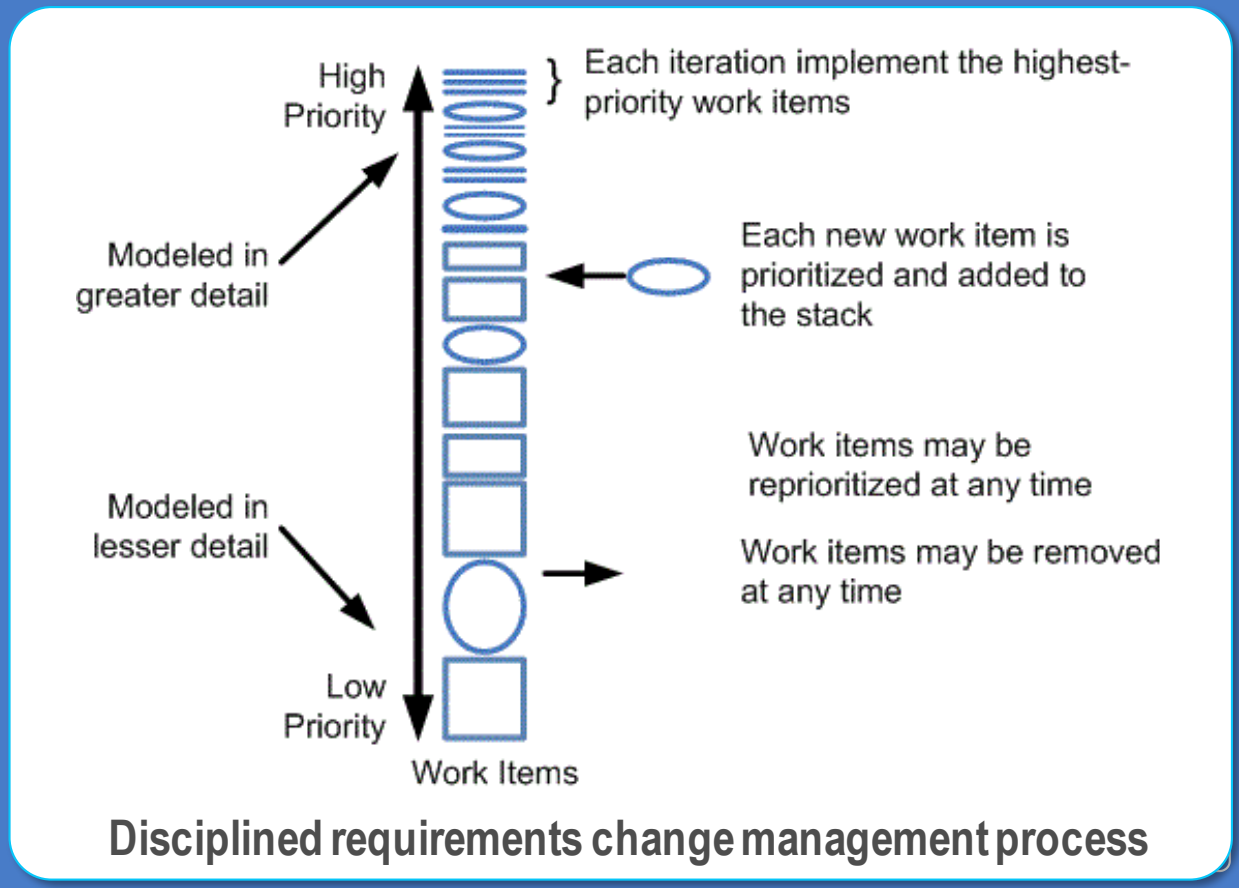


Requirements Change Management

1) The first question DEV Team poses to the Customer is "**Can it wait until the next Iteration?**"
2) If Customer responds with "**Yes, it can wait**", there are no issues at all
3) If Customer says "**NO, it can't until the next Iteration** " → the DEV Team may ask another tough question – "**If this change is important, what would you like to take any work items out from the Iteration scope?**"

a) If the Customer is not willing to take anything out, → the DEV Team need to discuss each of the requirements which is added to the stack so that the DEV Team can plan how it will proceed during the iteration. This may lead to a conflict situation that will possibly escalate.

b) If the Customer is more compromising and is willing to move an item out of Iteration scope, → the DEV Team need to discuss each of the requirements which is pulled off the stack so that the DEV Team can plan how it will proceed during the Iteration.



Disciplined requirements change management process

TMA Agile best practices

Early and continuously deliver

- Short time-box sprint, done each user story, deliver working software

Shorten feedback loop

- Wire-frames, prototypes, daily stand-up meeting, sprint review, retrospective

Continuous integration

- Auto build and test for any code change, readiness of potential deliverables

Delivering unit tests together with the code

- Code review, TDD, Unit test coverage match quality objectives

Divide to many small teams

- Each team has specific skill set and focus on specific release targets

Clear exit criteria

- Approved and committed

Face-to-face conversation

- Onsite, phone or instant messaging for offshore members

Sample communication model

Meetings	Participants	Purposes	Duration	Frequency	Location/Tool
Daily standup	Project team members	Checking status to see if any impediment prevent team to meet Sprint Goal	15 minutes	Every morning working day	Face to face in working room, Skype for Business
Sprints planning meeting	Development Team, Scrum Master, Product Owner	Select work in product backlog and plan for a sprint	4-8 hours	Beginning of each sprint	Offshore team gather in meeting room and use Skype to communicate with onshore team
Sprint review	Project team members	Review and demo completed work and plan for incomplete work	4 hours	Feature completed	Skype for Business
Sprint Retrospective	Project team members	Make continuous process improvements Combine all improvements items from all sprint teams to broadcast	2 hours	End of each sprint	Face to face in working room, Skype for Business
Requirements clarification	BA, Scrum master and related developers, testers	Clarify requirements	1 hour normally, depending on complexity	Ad hoc	Skype for Business
Quarterly high management	TMA Account Director, TMA Director, Senior Managers and CTO, Managers	Review quality achievements (based on quality, productivity standard), discuss issue/risk and preventive actions, review resources plan	2 hours	Quarterly	Skype for Business

Q & A