

Scrum

It Depends on
Common Sense

<http://www.controlchaos.com>

<http://www.agilealliance.org>

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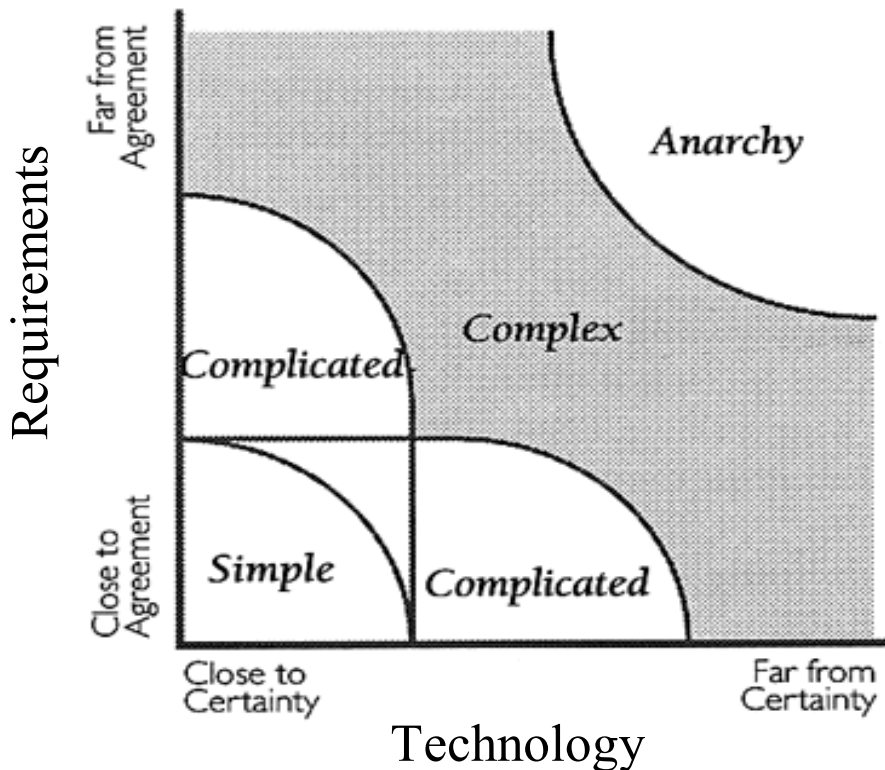


Scrum

1. Agile theory and framework
2. The Story of "Done"
3. Scrum Process
4. The Story of the 5th Variable
5. Scrum Meetings
6. The Story of the Predator
7. Scaling Agile projects - 30 min
8. Why Certified ScrumMasters?

Agile
Theory
And
Framework

Categorization of complexity in development projects



- People dimension adds another level of complexity
- Last simple project was in 1969

Scrum Tutorial

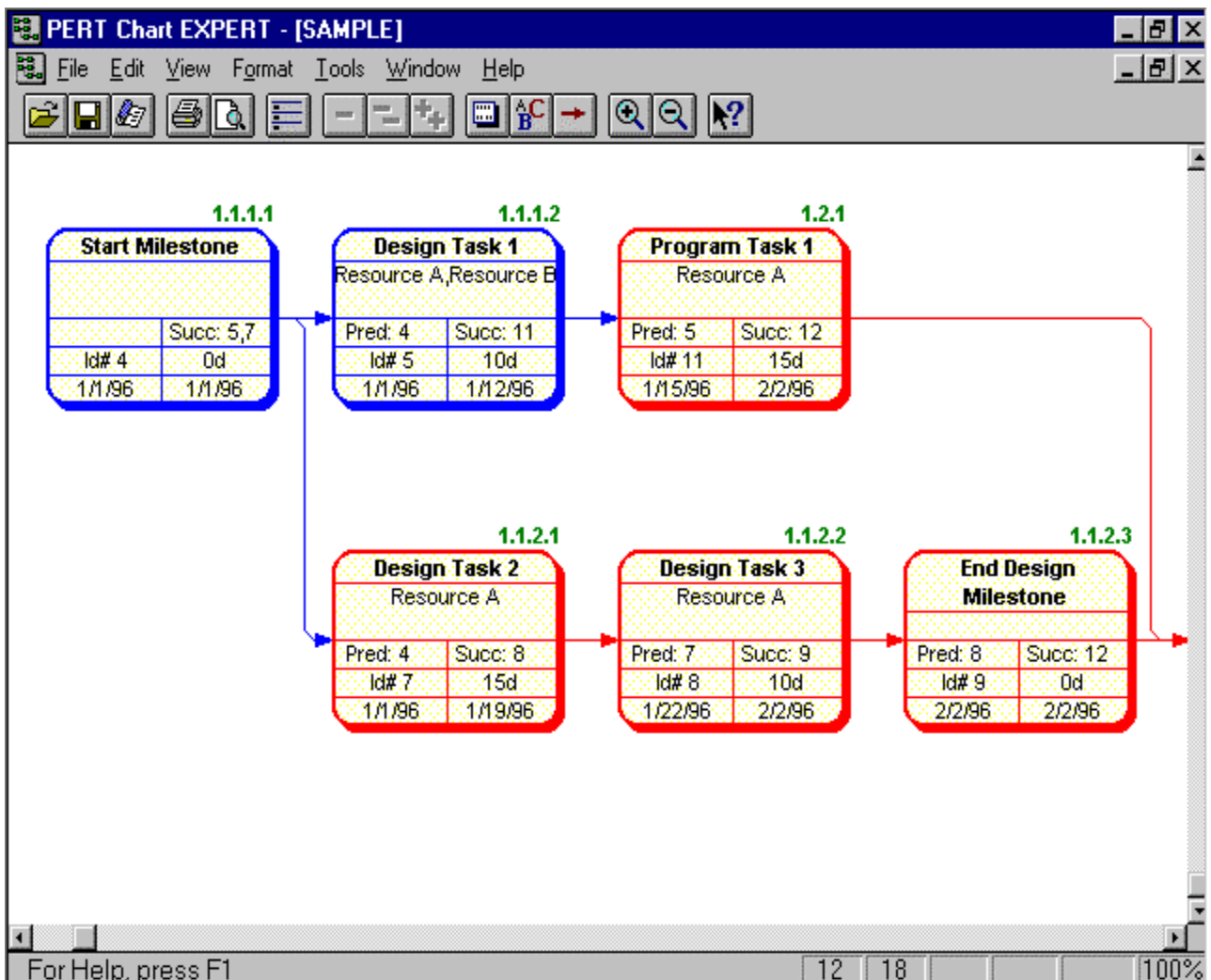
"It is typical to adopt the defined (theoretical) modeling approach when the underlying mechanisms by which a process operates are reasonably well understood. When the process is too complicated for the defined approach, the empirical approach is the appropriate choice."

Process Dynamics, Modeling, and Control,
Ogunnaike and Ray, Oxford University
Press, 1992



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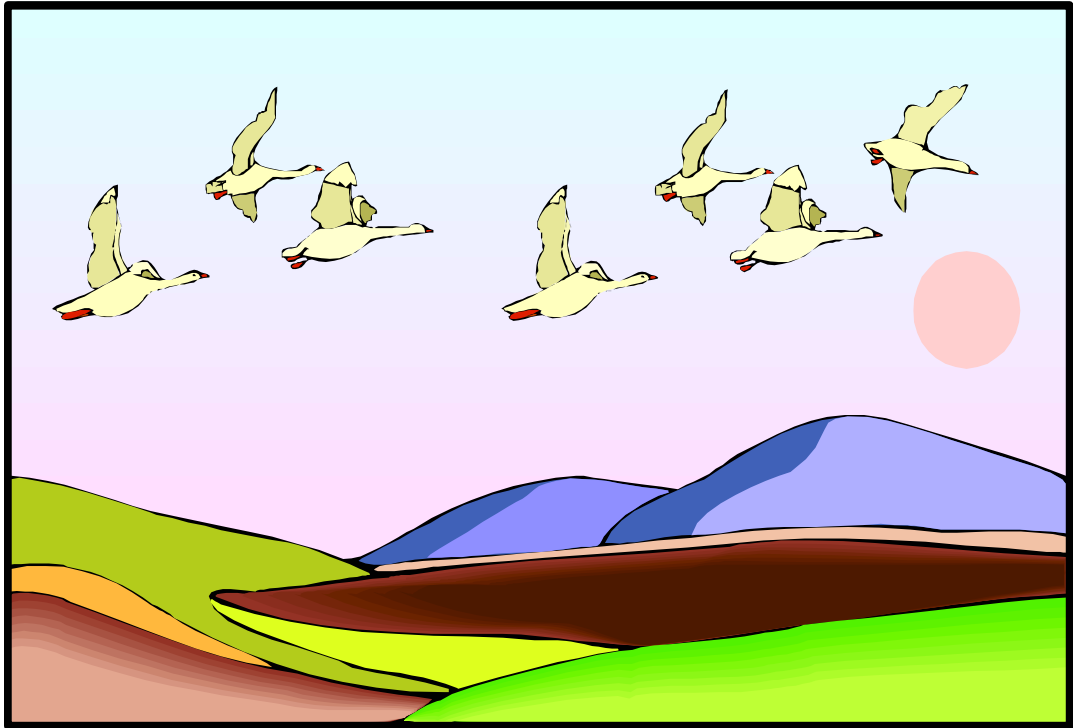
Defined Processes



- Command and Control for simple projects
- Plan what you expect to happen
- Enforce that what happens is the same as what is planned
- Use change control to manage change

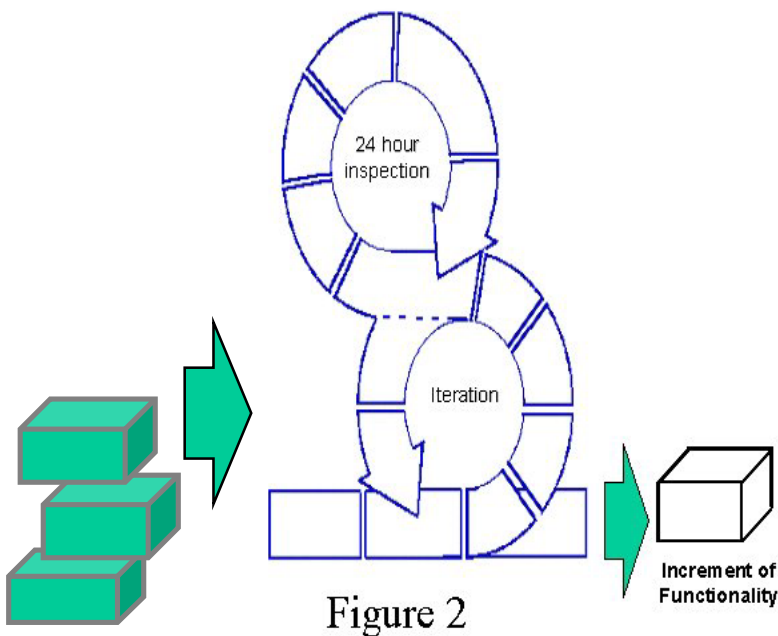
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Empirical Processes



- When you can't define things enough so that they run unattended and produce repeatable, acceptable quality output;
- Empirical models are used when the activities are not predictable, are non-linear, and are too complex to define in repeatable detail; and
- Control is through inspection and adaptation.

Agile Skeleton



Product Backlog:

Figure 2

Increment of Functionality

Doing the Right Thing

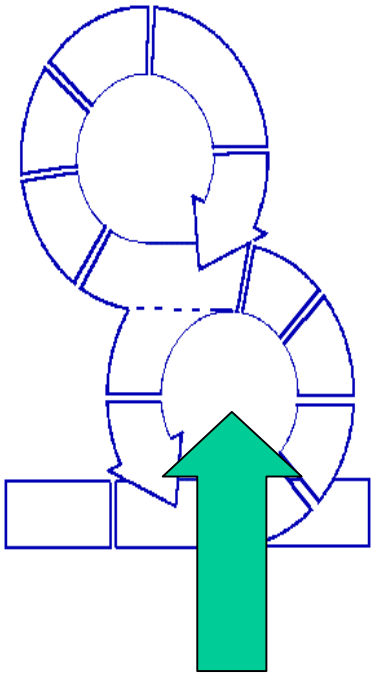
- Easy to implement within 1 day
- Improves ROI
- Solves customer involvement
- Removes floundering and politics
- Scrum

Building the Thing Right

- More time to implement
- Solid engineering practices
- Solid engineering infrastructure
- XP



Agile Heart



- Let people figure out the right thing to do, and then do it.
- Let people be creative.

OOPSLA'02

Doing the Right Thing the Right Way

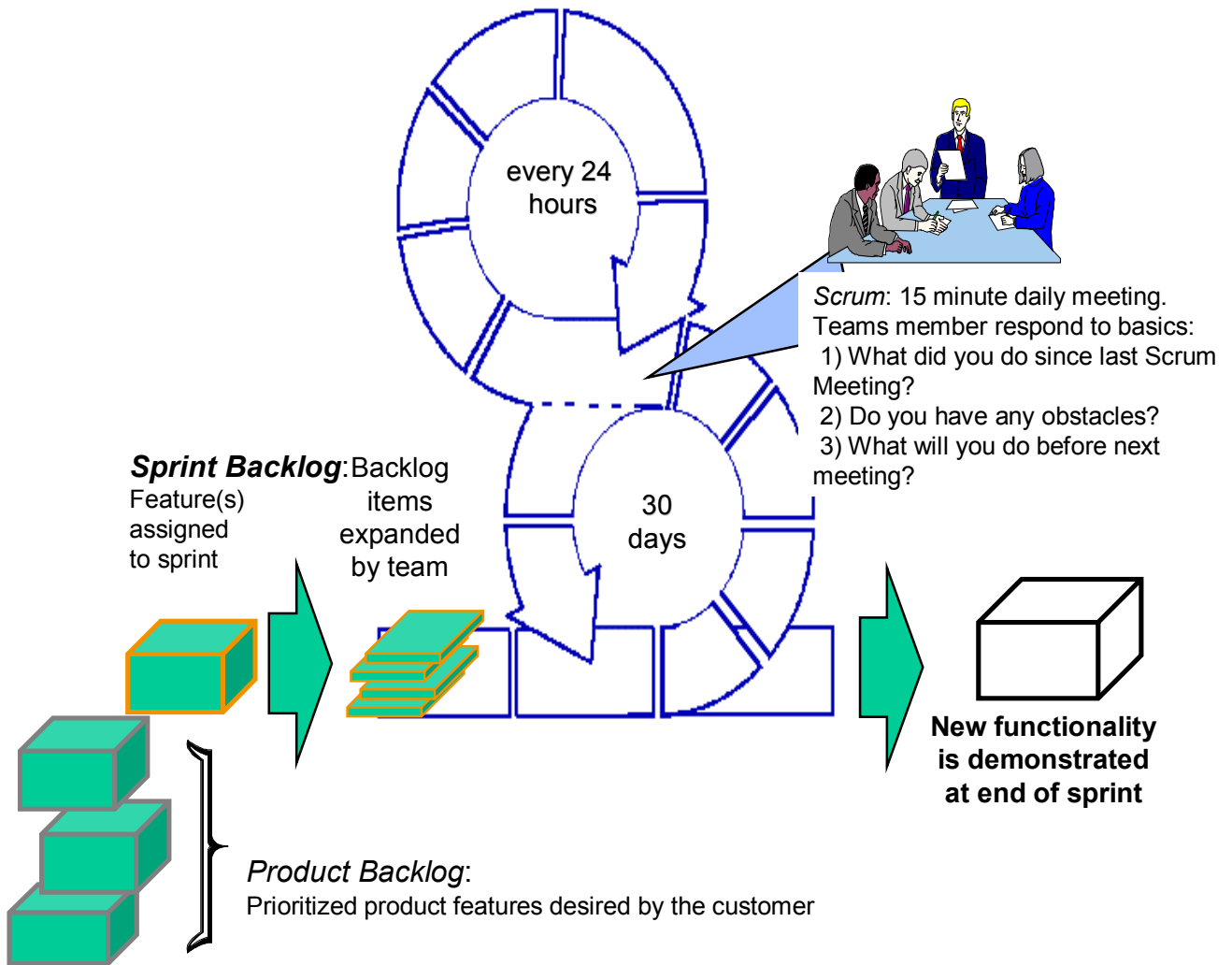
- Hardest to implement
- Improves productivity
- Work becomes a pleasure
- Scrum

The
Story
Of
"Done"

Scrum Overview

- Empirical management and control process for development efforts;
- Used at product companies and IT organizations since 1990;
- Wraps existing engineering practices;
- Extremely simple but very hard;
- Common sense;
- CMM Level/2 and Level/3 compliant;
- Delivers business functionality in 30 days;
- Scalable; and
- Scrum feels completely different!

Scrum Tutorial



Roles

Scrum Tutorial

| Activity | Owner | Responsibilities |
|---|----------------------|---|
| Manage the vision | Product Owner | The Product Owner establishes, nurtures and communicates the product vision. He achieves initial and on-going funding for the project by creating initial release plans and the initial Product Backlog. |
| Manage the ROI | Product Owner | The Product Owner monitors the project against its ROI goals and an investment vision. He updates and prioritizes the Product Backlog to ensure that the most valuable functionality is produced first and built upon. He prioritizes and refines the Product Backlog and measures success against expenses. |
| Manage the development iteration | Team | During an iteration the team selects and develops the highest-priority features on the Product Backlog. Collectively, the team expands Product Backlog items into more explicit tasks on a Sprint Backlog and then manages its own work and self-organizes around how it desires to complete the iteration. The team manages itself to its commitments. |
| Manage the process | Scrum Master | The Scrum Master is responsible for setting the team up for success by ensuring the project and organizational culture are optimized for meeting the ROI goals of the project. This involves organizing a Sprint Planning Meeting (during which the team expands Product Backlog into Sprint Backlog), a Sprint Review Meeting (during which the newly developed functionality is demonstrated), shielding the team from outside disturbances, holding brief Daily Scrum meetings, and removing obstacles to progress. |
| Manage the release | Product Owner | The Product Owner makes decisions about when to create an official release. For a variety of reasons it may not be desirable to release at the conclusion of every increment. Similarly, if an official release is planned for after the fifth increment it may be released (with fewer features) after the fourth increment in order to respond to competitive moves or capture early market share. The Product Owner makes these decisions in a manner consistent with the investment vision that has been established for the project. |

Scrum Tutorial

Product Backlog with Estimates

| Priority (1-9) | Function | Full Description | Raw Dev. Effort |
|----------------|---------------|--|-----------------|
| 1 | General | Setup development environment | 4 |
| 1 | General | Confirm use of zope as development environment | 2 |
| 1 | Membership | Ability to sign up for various level of membership | 4 |
| 1 | Membership | Ability to use credit card to pay for membership | 15 |
| 1 | Membership | Provide extract from database to external sources | 3 |
| 1 | Membership | Notify members with membership data | 5 |
| 1 | Membership | Generate receipts and certificates | 5 |
| 1 | Membership | Tie membership program to bank accounts | 5 |
| 1 | Membership | Implement open access database (MySQL?) | 6 |
| 2 | News | Authoring environment for news | 8 |
| 1 | Website | Website look, feel, navigation, initial pages | 10 |
| 3 | Founders Page | Include agilealliance.org founders page | 10 |
| 3 | Sponsors | Display sponsors and link to web sites | 6 |
| 4 | Articles | Authoring environment for articles | 10 |
| 4 | Articles | Organizing and sorting capability for articles | 4 |
| 4 | Articles | Library catalog for articles | 8 |

Scrum Tutorial

Product Backlog

fjkdla;fjkdla;f;ds
fjkdla
fdjklad;
fdjklas;
fjkd
fjkdla;fjkdal;f
fjkdlsj;a
fjkdla;
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fdjkl
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fdjksa;
fjkdjklfdjkdla;
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fdjklas;f
fdjksa;
fdjksa;
fdjsaklfjdsjkjfdl
fjkdla;
fdjksa;dfjkl
fjkdla;fd
fdjkl;adjf
fdjksf
fdjkdla;sfjaskf
fdjksa;f;df
fdjksa;j
fdjksa;f;dsal
fdjksa;f
fdjsakl;fd
fdjkl;fdjfdjfdl
fjkdal;fjkdal;fd

This Sprint : well defined work that can be done is <30 days & produce executable

Probable next sprint : backlog next in priority, depends on results from prior Sprint

Planned
Release

During a Sprint, that Sprint's backlog is fixed and can only be changed as a result of the work being performed in that Sprint.

Backlog outside the current Sprint is always changing, evolving, and being reprioritized.

Scrum Tutorial

Sprint Backlog

| Date logged | RFA | Description | Remaining Effort in Days | | | | | | | | | | | | | | | |
|---------------------------------|-----|--|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| | | | 2/11/2002 | 2/18/2002 | 2/25/2002 | 2/26/2002 | 2/27/2002 | 2/28/2002 | 3/1/2002 | 3/2/2002 | 3/3/2002 | 3/4/2002 | 3/5/2002 | 3/6/2002 | 3/7/2002 | 3/8/2002 | 3/9/2002 | 3/11/2002 |
| TOTAL EFFORT IN Man Days | | | 46 | 22 | 15 | 25 | 22 | 21 | 19 | 19 | 19 | 16 | 17 | 18 | 26 | 18 | 0 | 0 |
| 11-Feb-2002 | 1 | UI Object Model | 2 | 1 | 0 | 0 | | | | | | | | | | | | |
| 11-Feb-2002 | 1 | UI Framework | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 5 | 3 | | |
| 11-Feb-2002 | 1 | Learn Torque API | 2 | 0 | 0 | | | | | | | | | | | | | |
| 11-Feb-2002 | 1 | Learn Struts/Tiles API | 3 | 3 | 0 | | | | | | | | | | | | | |
| 11-Feb-2002 | 1 | Finish HTML admin UI workflow | 1 | 1 | 0 | | | | | | | | | | | | | |
| 11-Feb-2002 | 1 | Complete SRS use cases for 2nd iteration | 2 | 0 | 0 | | | | | | | | | | | | | |
| 11-Feb-2002 | 4 | Migrate CPM to WAS 4.0 to get a WAR jetspeed | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| 11-Feb-2002 | 4 | Implement UT for J2EE (Cactus) | 8 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | |
| 13-Feb-2002 | 4 | Automate DB test data upload | 12 | 4 | 2 | 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| 13-Feb-2002 | 4 | Extract CPM DB schema with Torque | 4 | 1 | 0 | 0 | | | | | | | | | | | | |
| 18-Feb-2002 | 1 | Design Access Control | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | |
| 18-Feb-2002 | 1 | Design Business Entity Type | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 2 | 1 | 1 | 0 | | |
| 25-Feb-2002 | 1 | Set development environment | | | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | | | | | | |
| 25-Feb-2002 | 1 | Verify what and how is used for attribute definition | | | 1 | 0 | | | | | | | | | | | | |
| 26-Feb-2002 | 4 | Torque primary key generator for CPM | | | | 2 | 0 | | | | | | | | | | | |
| 26-Feb-2002 | 4 | Torque/Struts/CPM OM prototype | | | | 2 | 2 | 1 | 0 | 0 | 0 | 0 | | | | | | |
| 27-Feb-2002 | | Implement Business Entity Type UI | | | | | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | | |
| 27-Feb-2002 | 1 | Define Access Group UI and workflow | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | | |
| 4-Mar-2002 | | BE Session façade | | | | 7 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | | |
| 7-Mar-2002 | 4 | Torque Blob Problem | | | | | | | | | | | | | 4 | 1 | | |
| 8-Mar-2002 | 1 | Deploy admin UI on WAS 3.5 | | | | | | | | | | | | | | 1 | | |

The
Story
Of
the
5th
Variable

Scrum Meetings

- Daily Scrum - 15 minutes
- Sprint Planning - 8 hours
- Sprint Review - 4 hours
- Sprint Retrospective - 3 hours

Sprint Planning Meeting

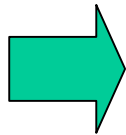
Product
Backlog

Team
Capabilities

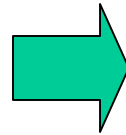
Business
Conditions

Technology
Stability

Executable
Product
Increment



Review,
Consider,
Organize



Next Sprint
Goal

Product
Backlog

Sprint Backlog

Sprint Planning Meeting

- 1 day
- 1st - 4 hours team selects Product Backlog and sets goal with product owner
- 2nd - 4 hours team defines Sprint Backlog to build functionality
- Anyone can attend, but primary conversation and work is between team and Product Owner

Daily Scrums

- Daily 15 minute status meeting;
- Same place and time every day;
- Meeting room;
- Chickens and pigs;
- Three questions;
 - What have you done since last meeting?
 - What will you do before next meeting?
 - What is in your way?
- Impediments; and
- Decisions

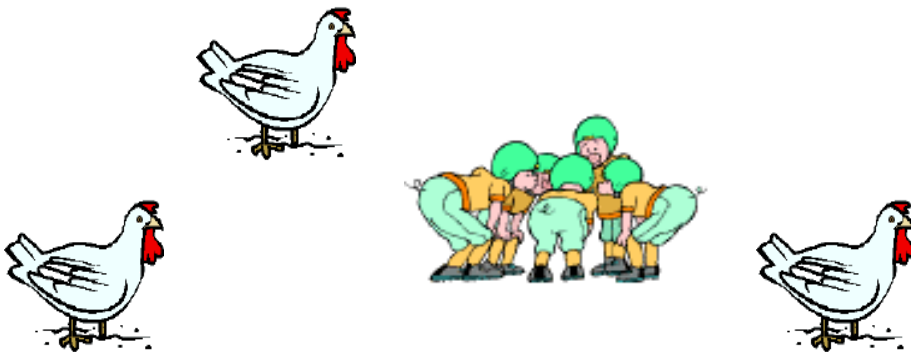
Chickens and Pigs

A chicken and a pig are together when the chicken says, "Let's start a restaurant!"

The pig thinks it over and says, "What would we call this restaurant?"

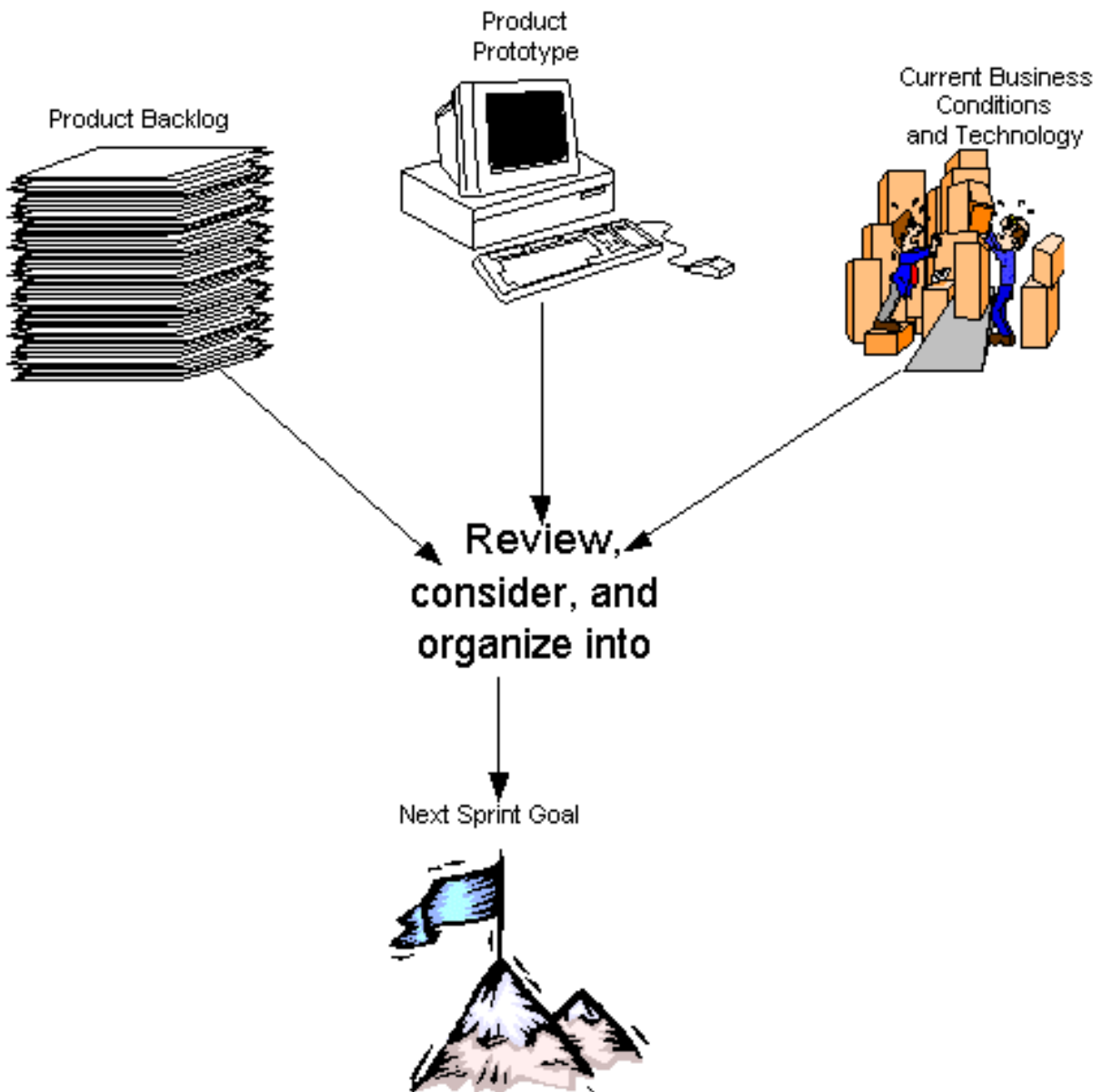
The chicken says, "Ham n' Eggs!"

The pig says, "No thanks. I'd be committed, but you'd only be involved!"



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Sprint Review Meeting



Sprint Review Meeting

- 4 hour Timebox;
- Maximum 1 hour preparation;
- Done on equipment where software was developed and tested;
- Presented by team to Product Owner and customers/users;
- Basis for planning next Sprint; and,
- Must represent potentially shippable increment of product functionality.

Managing a Release

Value Driven Releases

*business value = f(cost, time,
functionality, quality)*

80% of the business value can be derived from 20% of the functionality.

A successful project meets business objectives and delivers value, not functionality.

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Managing a Release

fjkdla;fjkdla;f;ds
fjkdla;
fdjkla;d;
fdjkla;s
fjkd
fjkdla;fjkdal;f
fjkdlsj;a
fjkdla;
fdjkla;s;
fdjkl;d
fdkja;
fdjksa;
fjkdjkl;fdkja;fjkdla;
fjkd
fjkdla;aj
fdjkla;s;
fdjkla;s;kd
fjkdla;s;
fdjkl;a
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fdjkl;fjask;
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fdjksa;asl
fdjksa;
fdjkl
fdjksa;fjkdal;fj
fdjkla;s;f
fdkals;
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fdksal;
fdjsakl;fdjkl;fj
fdjkl;a;
fdkals;fdjkl
fdjkl;a;fd
fdjksa;f;adjf
fdjksa;
fdjksa;f;df
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fdjksa;f;dsal
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fdjksa;f;fd;fd;fd;fd
fjkdal;fjkdal;fd

This Sprint : well defined work that can be done is <30 days & produce executable

Probable next sprint : backlog next in priority, depends on results from prior Sprint

Planned
Release

During a Sprint, that Sprint's backlog is fixed and can only be changed as a result of the work being performed in that Sprint.

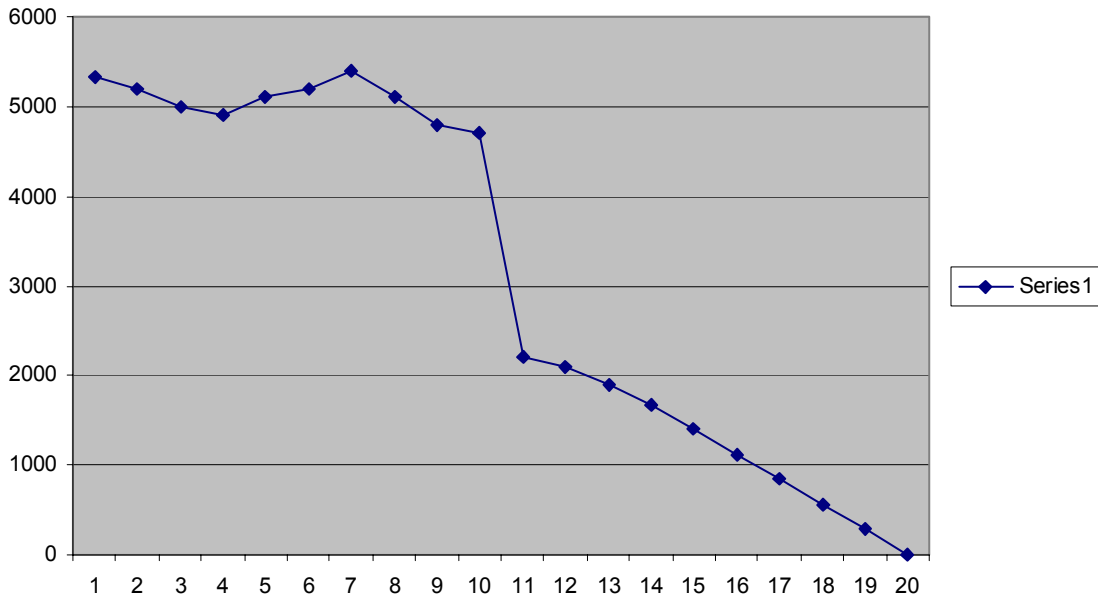
Backlog outside the current Sprint is always changing, evolving, and being reprioritized.

1. Release depends on progress at burning down backlog
2. Burning down backlog dependent on
 - Required functionality and quality
 - Productivity of team(s)

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Managing a Release

Release with reduced functionality



- Project slope of work remaining to determine probable release date
- By ninth month, not enough productivity to hit desired release date in 20th month
- Customer reduced expected functionality in release which raised the line for release date.

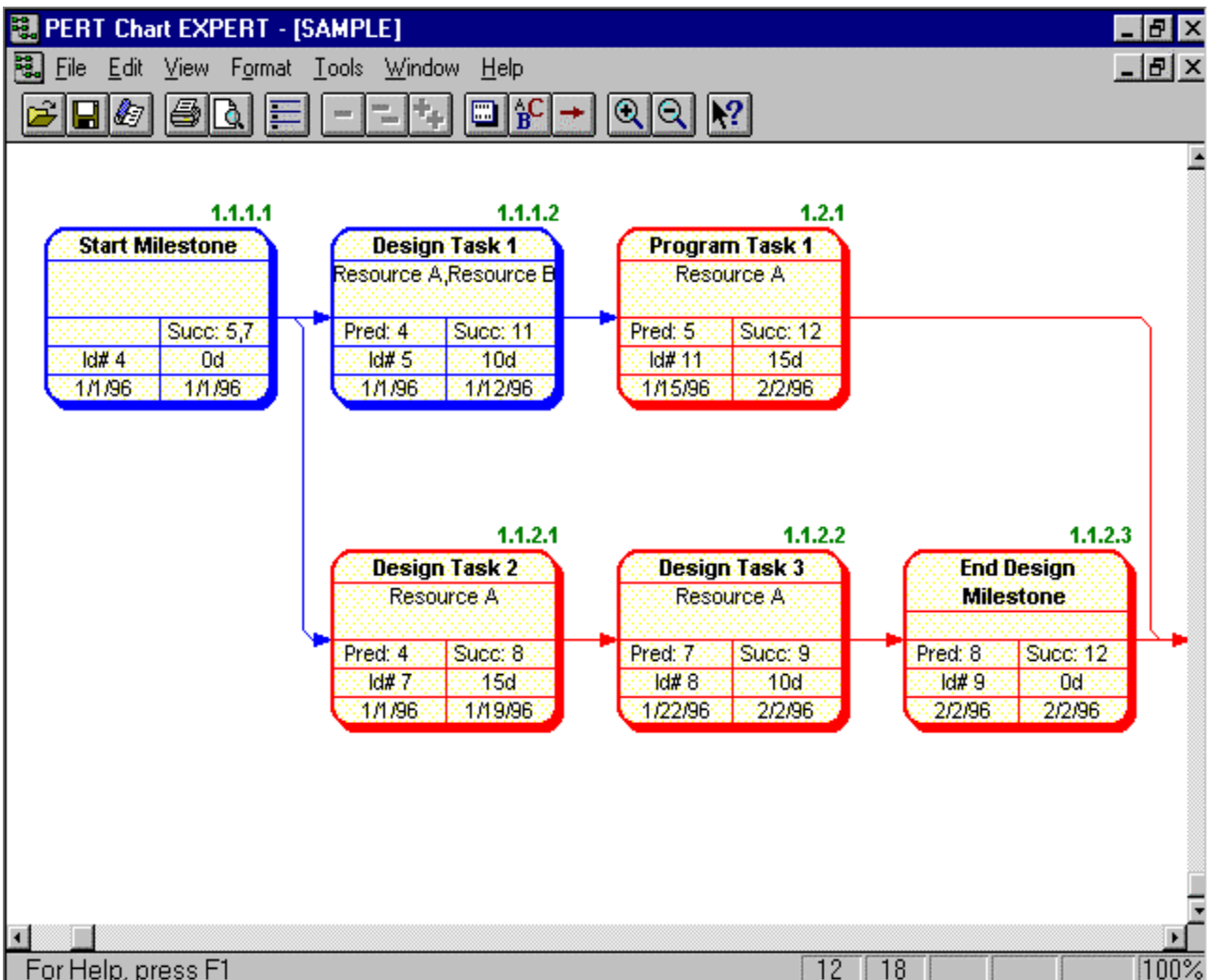
The
Story
Of
The
Predator

Scaling

1. Just doesn't "scale"
2. Not appropriate for mission critical and life critical systems because of their rigor, precision and quality requirements.
3. Inapplicable to larger projects.
4. Not sufficient when the risk is high and the degree of control needed is high.
5. Doesn't address fixed-price, fixed-date projects.
6. Not rigorous enough to meet the requirements of a mature process, such as defined by the Software Engineering Institute's Capability Maturity Model.

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How Is Defined Software Development Work Planned and Managed?

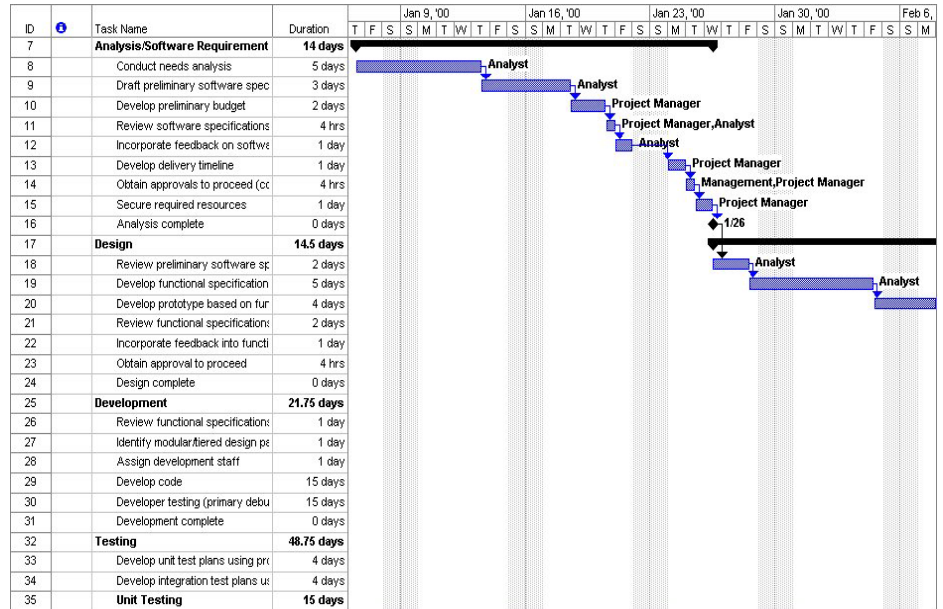


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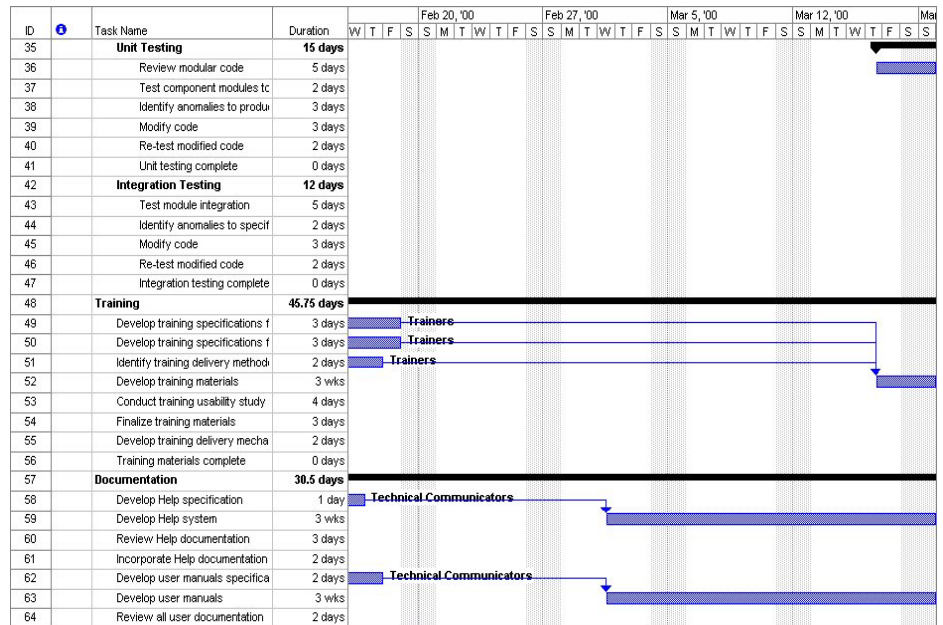
How Defined Methodologies Scale

Route Maps with all tasks for each type of project

New FDA System with Distributed Teams using Web

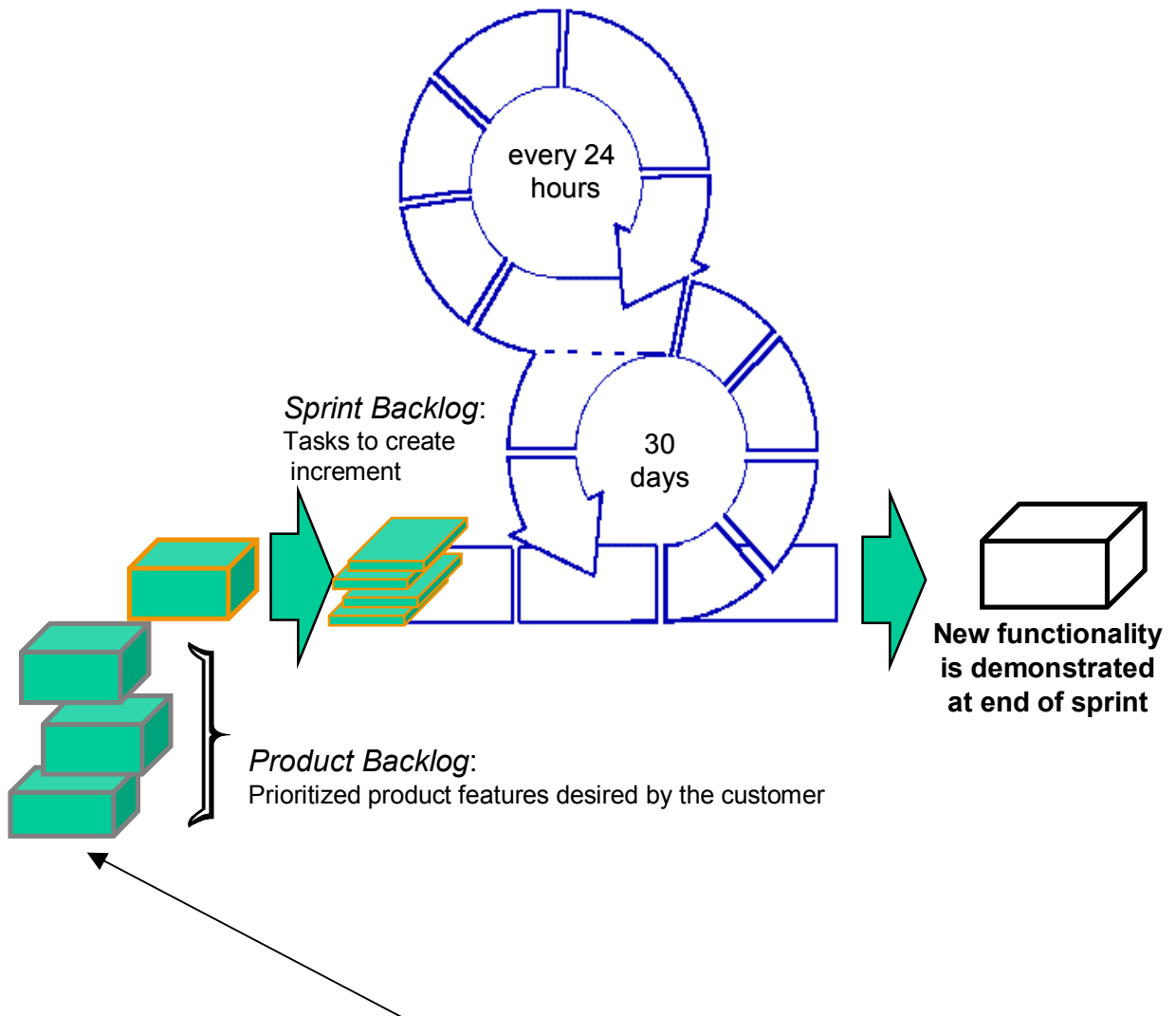


Enhancement to Commercial System with Distributed Teams using Web



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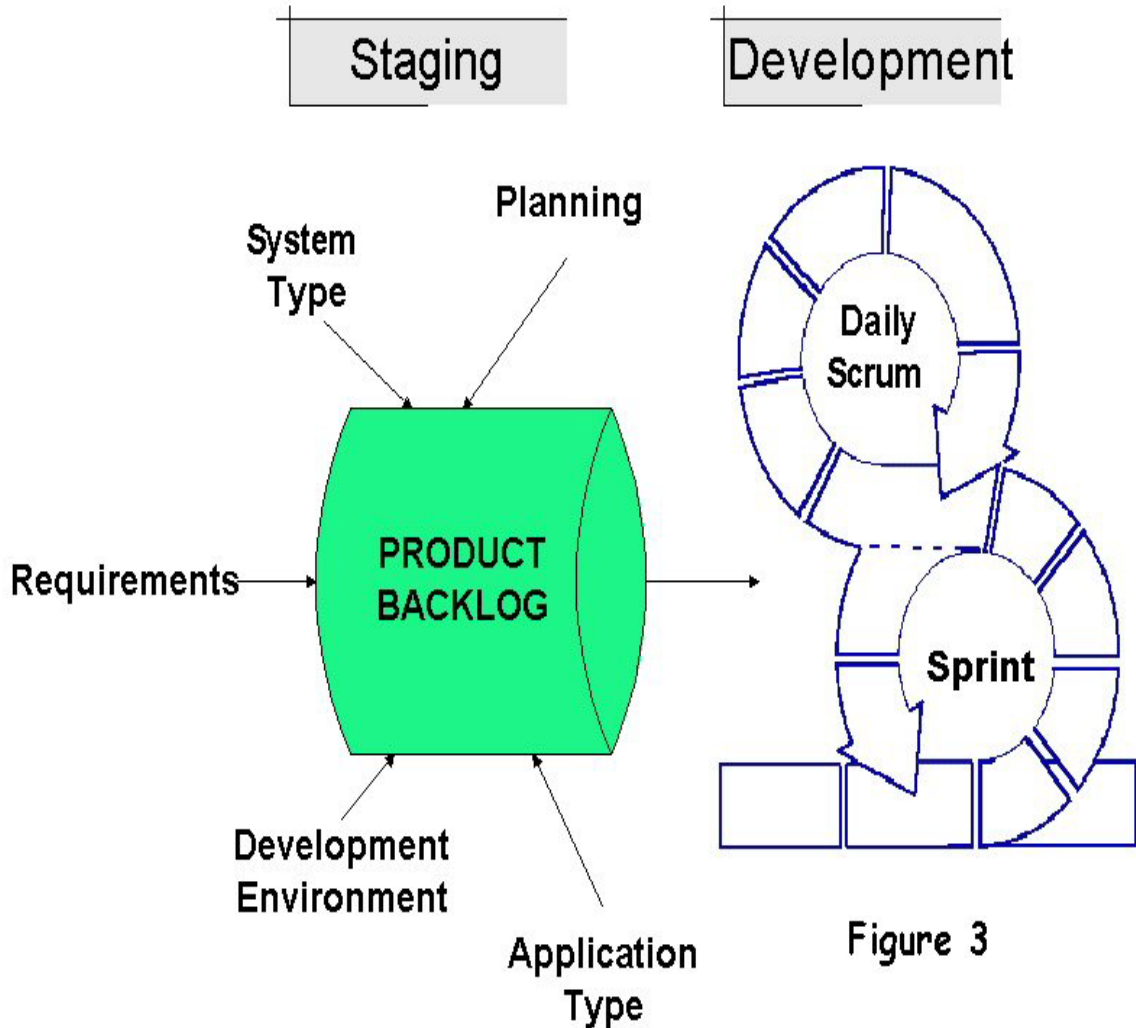
How is Agile work scheduled and managed?



Minimized JIT inventory reduces waste, obsolescence and quality problems

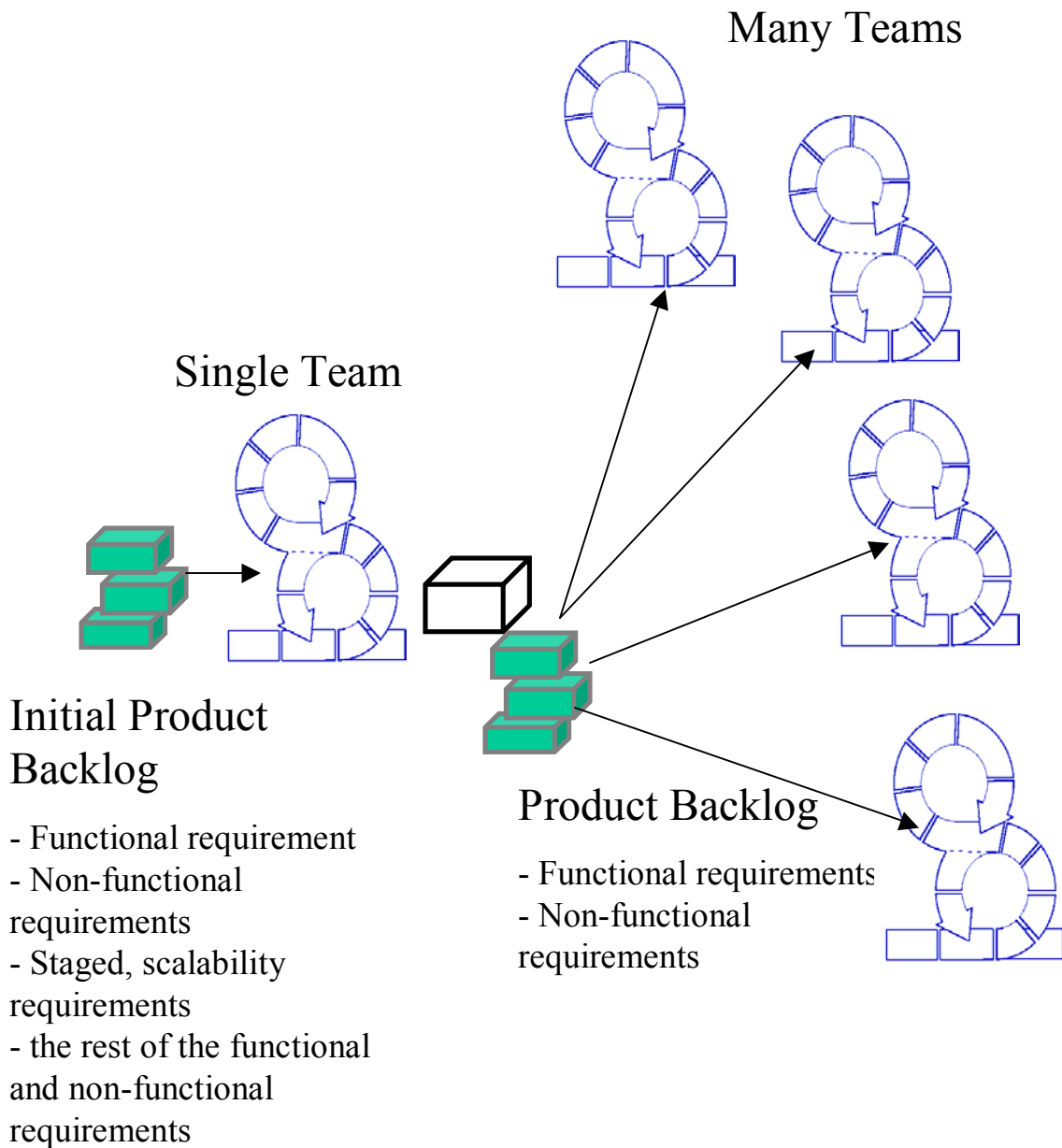
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How Agile Methodologies Scale



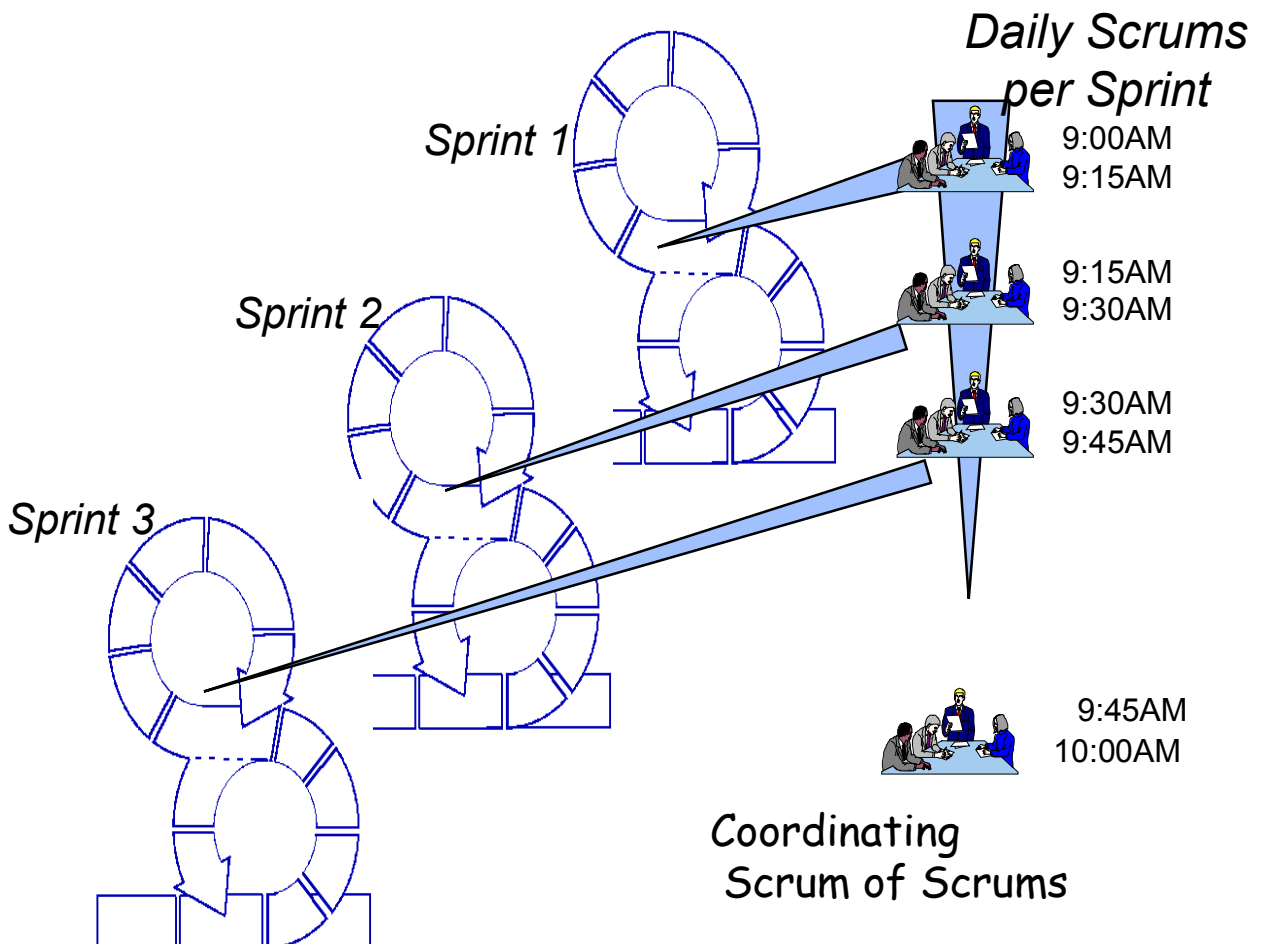
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How Agile Methodologies Scale



Large Project, Multiple Teams

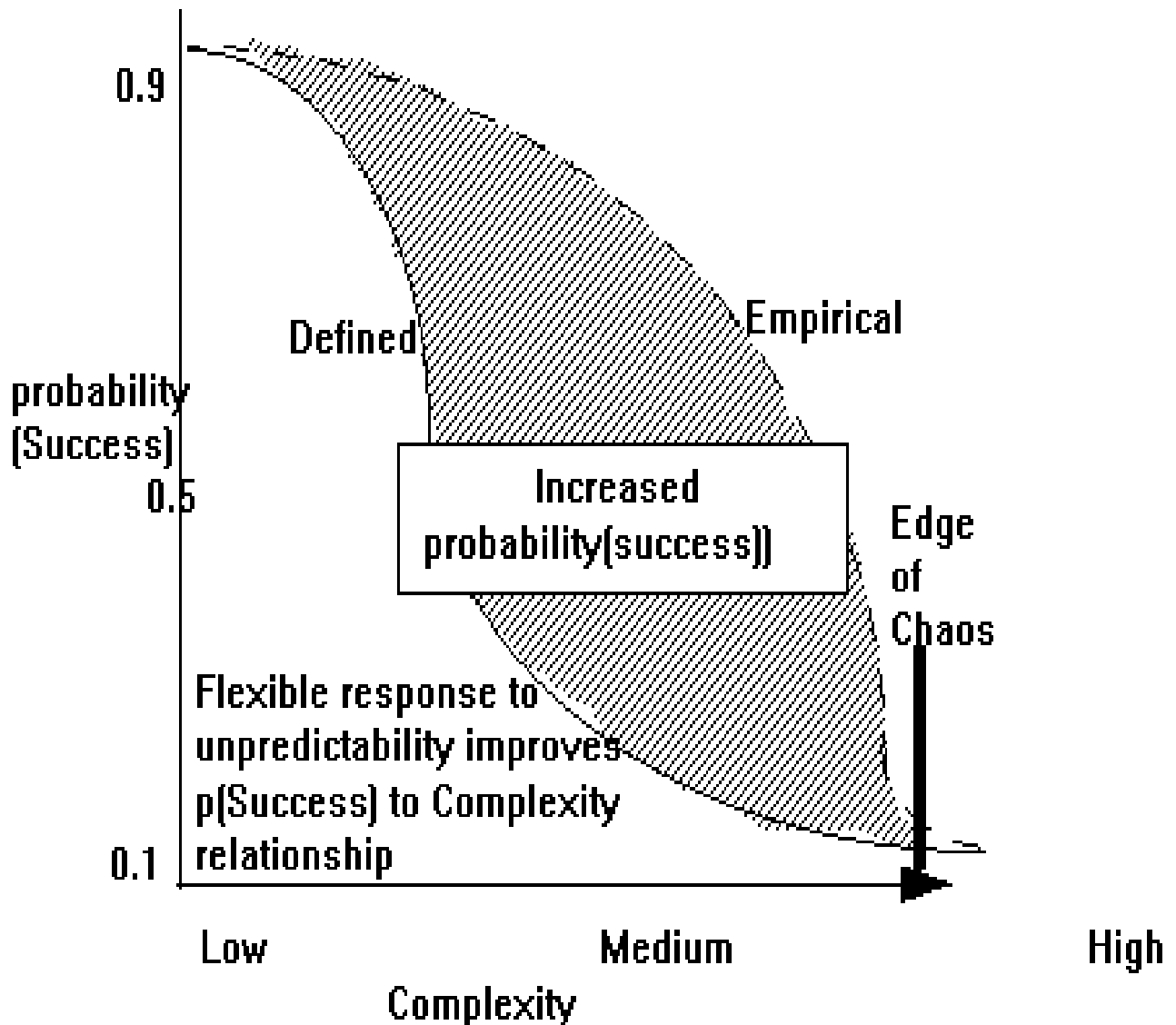
1. For smaller projects the vision statement coupled with emergence and refactoring is adequate.
2. Some architecture and design needed when multiple teams are used..



What Comprises a Potentially Shippable Product Increment

| | |
|---------------------------|---|
| Single Use Software | Tested, debugged executable and documentation |
| Commercial Software | Tested, debugged executable, help, training materials, documentation |
| FDA Approved Software | Tested, debugged executable, training materials, documentation, requirements traceability, FDA required documentation |
| Mission Critical Software | Tested, debugged executable, training materials, documentation, requirements traceability, performance models |
| etc. | etc. |

Maximized Control Through Inspection and Adaptation



Fixed Price, Fixed Date

Develop vision, value statement with prospect.

Create product backlog of functional and non-functional requirements.

Prioritize product backlog and review with customer in light of vision and value statements.

Create enough architecture and design to develop product backlog estimates; more accuracy on functionality that maximizes value.

Discuss with customer how value will be delivered incrementally and that they are free to change product backlog content and priority ... as long as estimates stay the same.

Submit bid based on product backlog.

Fixed Price, Fixed Date

Or

Latest Date, Maximum Cost

Contract provisions:

1. Any requirement that hasn't already been worked on can be swapped out for another of equal value;
2. Priority of requirements can be changed;
3. Customer may request additional releases at any time at prevailing time and material fees;
4. Customer may terminate contract early if value has been satisfied for 20% of remaining unbilled contract value

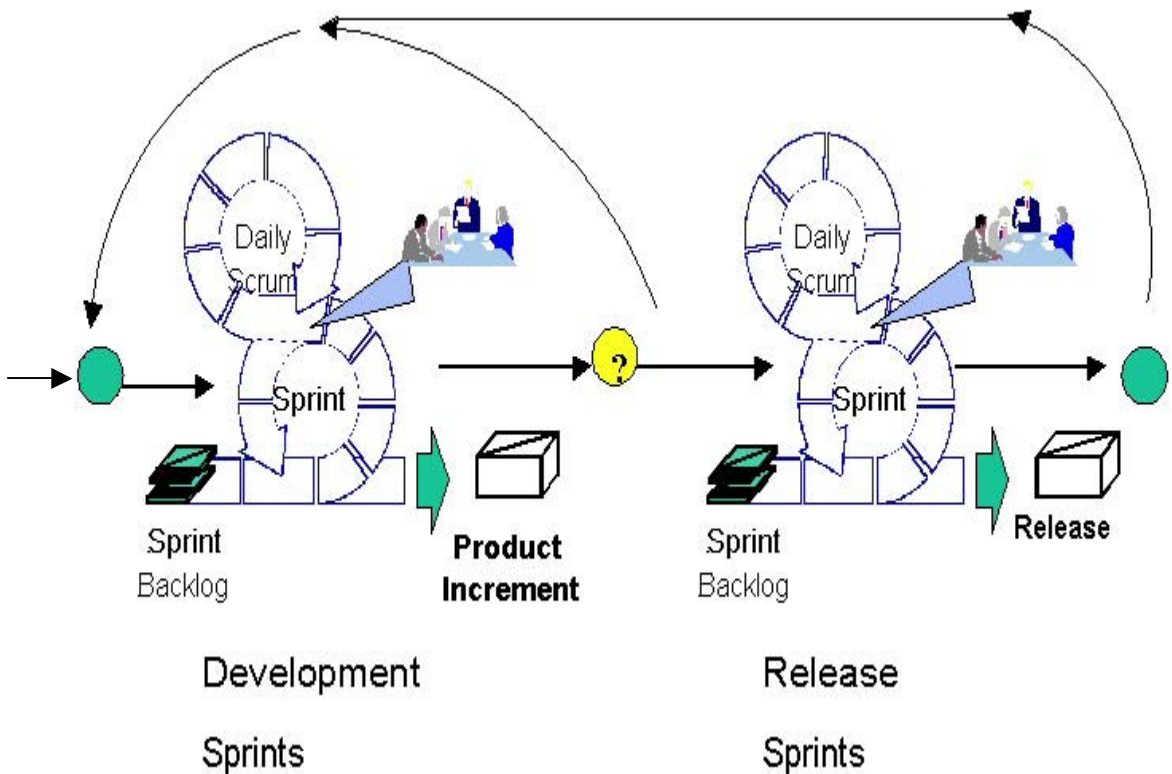
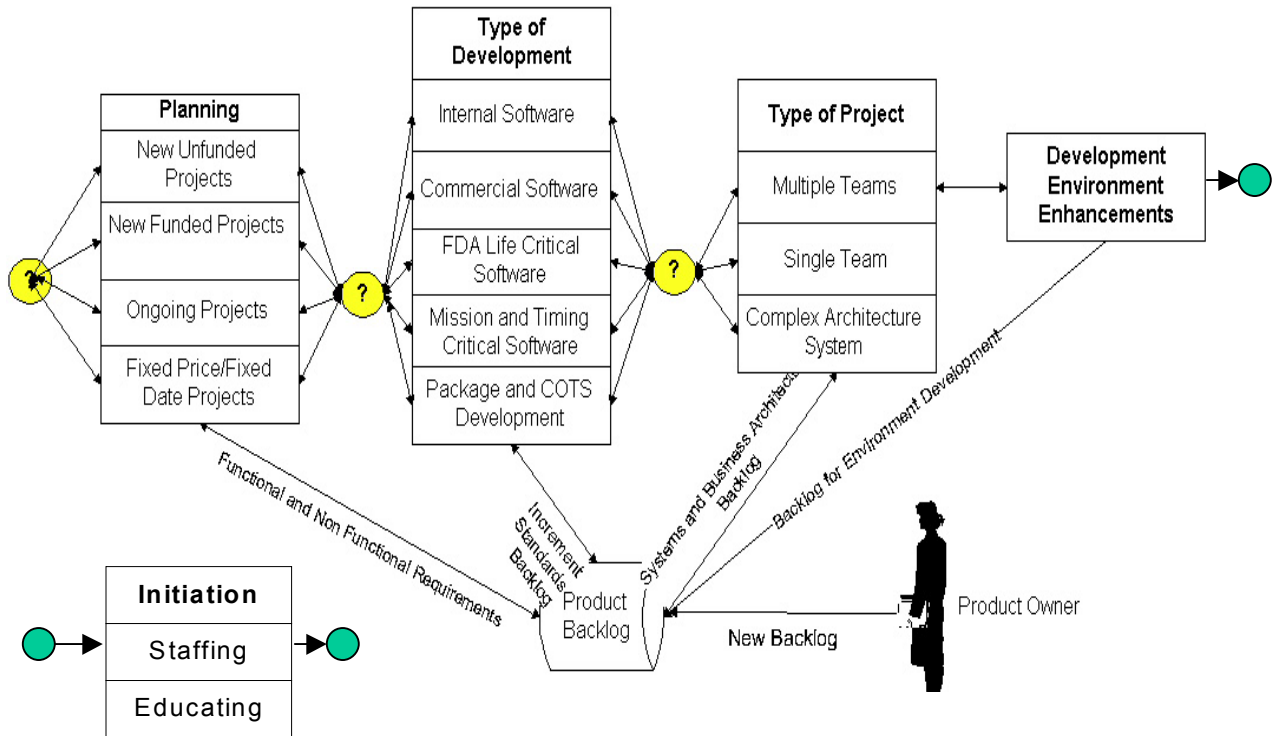
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Scrum Compliance with CMM Software Framework

| Level | Key Practice Area | Rating |
|-------|---|--------|
| 2 | Requirements management | √√ |
| 2 | Software project planning | √√ |
| 2 | Software project tracking and oversight | √√ |
| 2 | Software subcontract management | √√ |
| 2 | Software quality assurance | √√ |
| 2 | Software configuration management | √ |
| 3 | Organization process focus | √ |
| 3 | Organization process definition | √ |
| 3 | Training program | √√ |
| 3 | Integrated software management | √ |
| 3 | Software product engineering | √√ |
| 3 | Intergroup coordination | √√ |
| 3 | Peer review | √ |

Scrum Tutorial

How Scrum Works



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Certified ScrumMasters are responsible for:

Removing the barriers between development and the customer so the customer directly drives development;

Teaching the customer how to maximize ROI and meet their objectives through Scrum;

Improving the lives of the development team by facilitating creativity and empowerment;

Improving the productivity of the development team in any way possible; and,

Improving the engineering practices and tools so each increment of functionality is potentially shippable.

Scrum Tutorial



Questions?

www.controlchaos.com/certifiedscrum