SQGNE Software Quality Group of New England

Dedicated to Software Quality Professionals

www.sqgne.org

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WELCOME TO SEASON 23!

- All-volunteer **non-profit** with no membership dues!
- Supported entirely by our sponsors…
- Over **1,384** members on LinkedIn, **945** Constant Contact
- **346** members have joined our Meetup Group
- Monthly meetings - Sept to June on 2nd Wed of month
- **SQGNE Web site: www.sqgne.org**

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SQGNE Software Quality Group of New England

Officers / Hosts / Mission

Current Officers:

- John Pustaver – Founder
- Stan Wrobel– President
- Robin Goldsmith – Vice President
- Barbara Wioncek – Treasurer
- David Sullivan– Clerk

At-large Directors:

- Candace Murphy
- Marge Shinkle
- Jim Turner

Our Gracious Hosts:

- Abbott Labs
- Eric Poole

Mission

- To promote use of engineering and management techniques that lead to delivery of high quality software
- To disseminate concepts and techniques related to software quality engineering and software engineering process
- To provide a forum for discussion of concepts and techniques related to software quality engineering and the software engineering process
- To provide networking opportunities for software quality professionals

SQGNE 2016-17 Schedule

Speaker	Affiliation	Date	Topic
Bob Crews	Checkpoint Technologies	Sept 14	Shift Left Testing: What the heck does that mean?
Michael Durrant	Everquote	Oct 12	Web Automation Fundamentals
Derek Kozikowski	ZoomInfo	Nov 9	Using Selenium For Web Application Testing
Dave Todaro	Ascendle Technology LLC	Dec 14	Testers and Developers are Best Friends
Robin Goldsmith	Go Pro Management, Inc.	Jan 11 2017	YOU Don't Need No Stinking Test Cases
Barbara Wioncek, Stan Wrobel	**Draper, SQGNE**	**Feb 8**	**Peer Reviews – Still Relevant in the Agile/Scrum Era?**
Joe Zec	Shire Pharmaceuticals	Mar 8	How to build quality into software in 6 easy steps
Nikhil Kaul	SmartBear	Apr 12	Mobile App Testing: What and How to Test?
Mark Holland	Applause	May 10	In Their Shoes: Understanding Your Mobile User's Point of View
SmartBear and Checkpoint Tech	SmartBear and Checkpoint Tech	June 14	Test Tool Bakeoff *Annual Election of Officers*

Tonight's Topic

Peer Reviews – Still Relevant in the Agile/Scrum Era?

Speaker: Barbara Wioncek, Stan Wrobel

Meeting Abstract:

Since the 1970's when Michael Fagan published his seminal work on Formal Inspections, reviews have been considered to be one of the most effective measures for finding defects early in the software development cycle and improving the quality of software systems. Over the years, people have tried many variations of peer reviews, which have met with mixed results. With the advent of Agile methodologies and the popularity of Scrum, many ask whether Peer Reviews are still relevant. Some say that formal inspections are too cumbersome, costly and inefficient. Can we find a way to get the same benefit using an Agile approach?

Using dialogue format and with audience participation, we will explore the following issues:

- What are the types of reviews and how effective are they?
- What training and/or preparations are necessary for a successful review
- What tools are available to support reviews?
- How do reviews work in the context of Agile and Scrum?

Biography:

Barbara has over 20 years of experience in the software engineering. Barbara is a Senior Member of the Technical Staff at Draper where she has worked for over 10 years. She is responsible for defining the various types of peer reviews used at Draper. She also trains software developers in the peer review process.

Stan has over 30 years experience in software development in Programmer, Business Analyst and QA Manager roles. Trained as a Scrum Master and Project Manager, Stan has promoted and conducted reviews in the context of CMM, within a Project Management Office and as Scrum Master for manufacturing, air traffic management, transaction processing and educational software applications.

Advantages of Reviews

- H-P's inspection program measured a ten-fold ROI improvement, saving $21.4 million per year (Grady and Van Slack 1994)
- AT & T Bell Labs reported 10x improvement rate and 14 percent improvement in productivity (Humphrey 1989)
- Primark Investment Management Services enjoyed savings of nearly 30,000 labor hours and a five-fold decrease in defects (Holland 1999)
- Litton Data Systems invested just 3 percent of its total project effort in inspections and reduced errors by 30 percent and cut integration effort in half (Mada chy 1995)

What is a Peer Review? (1 of 2)

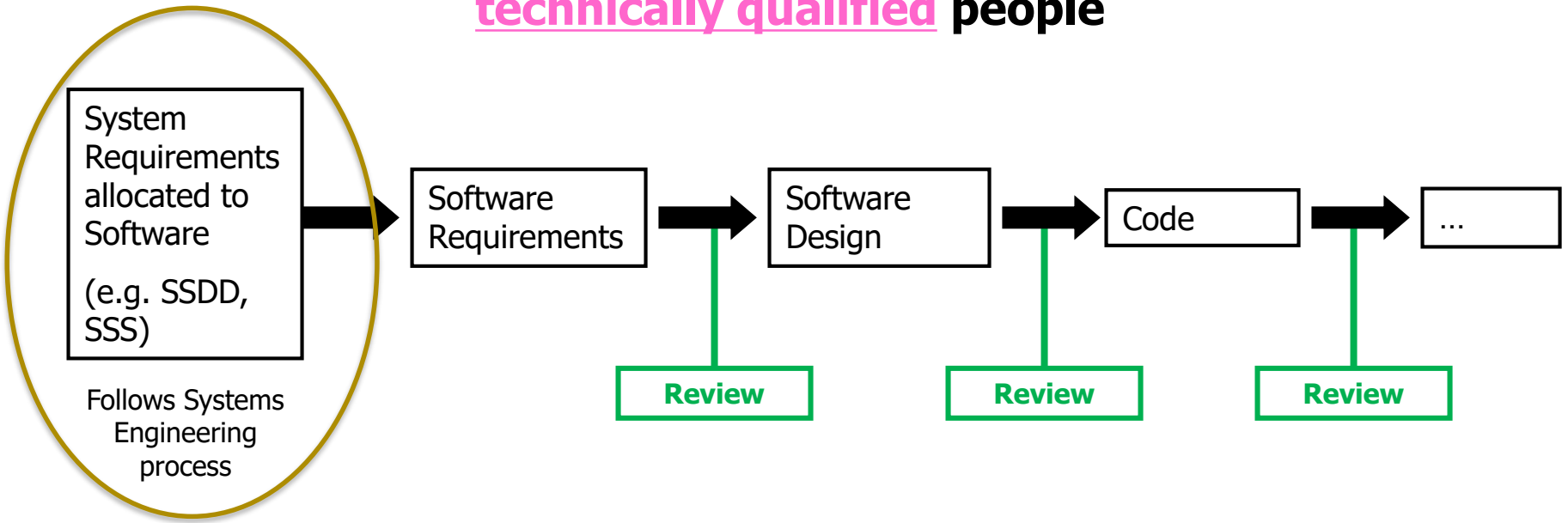
- An Peer Review is an

  in-process

  technical examination

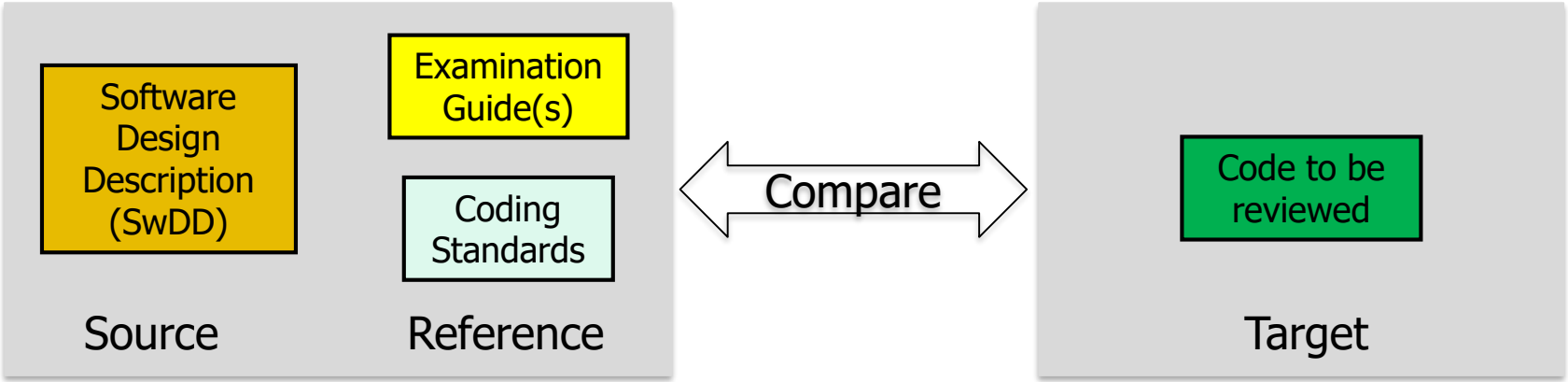
  of a work product by

  technically qualified people



What is an Peer Review? (2 of 2)

- A Peer Review is the process of reviewing a work product (target) in context of reference and source material, looking for correctness and completeness in the work product



Example for a code peer review

Why Perform Peer Reviews?

- Dictated by process requirements (Contracts, Standards (i.e. IEEE, CMMI, etc.))
- Ensure the work product is done right before moving onto the next phase
  - *Buy-in by stakeholders and technical community*
  - *Agreement on product before moving forward*
- Will the product meet the needs?
  - *Physical needs*
  - *(Regulatory) Standards, Policies, Guidelines*
  - *Customer design/requirements*

Peer Reviews vs. Testing Only

- Can't test documents
- Testing platform(s) not always available
- Peer Reviews will find different errors than testing will
- Issues found during testing have higher visibility
- Peer Reviews will find problems earlier in the product lifecycle
  - *Often cheaper to find problems earlier through Peer Review*
  - *More time to fix issues when found earlier*
  - *Can find issue at the point where it needs to be addressed, whereas a test may require diagnosis*

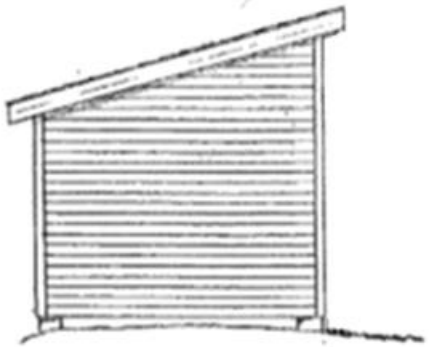
Typical reduction of effort with inspections

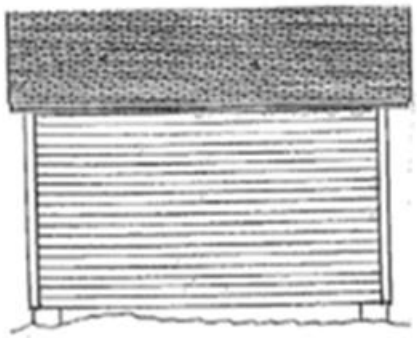
<Chart redacted due to legal considerations>

Example Review

Peer Review: Construction of a Shed

Shed Example





Bill of Materials (BOM) for a garden shed

#	Key	Item	Description	Quantity	Use
1	Base	2x4x8	Pressure Treated (Ground contact)	1	Bottom plates
2	Base	2x6x10	Pressure Treated	2	Front and rear base
3	Base	2x6x8	Pressure Treated (Ground contact)	6	Floor joists
4	Base	4x8x 3/4	Plywood	2	Floor
5	Framing	2x4x10	Kiln Dried	5	Top plates
6	Framing	2x4x12	Kiln Dried	5	Rafters
7	Framing	2x4x8	Kiln Dried	29	Wall Studs
8	Framing	2x6x10	Kiln Dried	1	Door header
9	Roof	4x8x 1/2	Exterior grade plywood	3	Roof
10	Siding	T-111 (5/8)	Siding	7	Siding
11	Trim	1x3x8	No 2 pine (pre primed)	4	Corner boards
12	Trim	1x4x10	No 2 pine	2	Soffit trim
13	Trim	1x4x12	No 2 pine	3	Door bracing and trim
14	Trim	1x4x8	No 2 pine	4	Corner boards
15	Trim	1x5x8	No 2 pine	1	Door gap cover
16	Trim	1x6x10	No 2 pine (pre primed)	2	Fascia
17	Misc	Flashing	Galvanized	3	Roof
18	Misc	Hasp	Galvanized	1	Hasp
19	Misc	Hinges	Galvanized	6	Hinges
20	Fastners	Nails	Framing, galvanized	1	Framing
21	Fastners	Nails	Roof, galvanized	1	Roof
22	Fastners	Nails	Siding, galvanized	1	Siding
23	Fastners	Bolts	Galvanized	6	Bolts for hinges
24	Fastners	Adhesive	Construction adhesive	2	Various
25	Fastners	Screws	Various	1	Various

Examples on how to read the above

Base	2x6x10	2 inches by 6 inches by 10 feet (Two by six, ten feet long)
Base plywood	4x8 x 3/4	4 feet by 8 feet by 3/4 inch
Framing	2x4x8	2 inches by 4 inches by 8 feet (Two by four, eight feet long)

- Your Job: Take few minutes to look this information over for defects and inconsistencies.
- Think as if you are the
  - *Contractor*
  - *Customer and/or*
  - *Building Inspector*

Did anyone find any issues?

Previously Identified Issues (1 of 4)

- **General Problems:**
  - *Dimensions not specified*
  - *Door and window not in BOM (big $$)*
  - *BOM calls for T-111, yet drawing indicates clapboard*
- **Base:**
  - *(Item #1) 1 (2x4x8) bottom plate is not enough. Compare to 5 (2x4x10) top plates*
  - *Assuming an 8'x 10' (from the front/rear base materials) there is not enough material for the floor. Only 8' x 8' of the floor would be covered. If the shed were 8' x 8', then the front/rear base material wastes 4' of stock.*
  - *Should the floor be P.T. plywood?*
  - *Blocks that the shed sits on are not on BOM*

Previously Identified Issues (2 of 4)

- **Framing:**
  - *5 (2'x4'x12') rafters allows for 2' on-center spacing. Insufficient for ½" plywood roof. No allowance to frame the overhang.*
  - *A minimum of 38 studs are needed (not 29) and only 13 would be 2'x4'x8'. Others may need to be longer to accommodate the higher front (or the back studs need to be cut shorter, wasting lumber). Note: 9 studs short = $27 loss.*
  - *The door header requires 2'x6'x8' rather than 10'.*
- **Roof:**
  - *Assuming an 8' x 10' (from the front/rear base materials) there is not enough material for the roof. Only 8' x 12' of the roof would be covered.*
  - *No shingles or tar paper in the roof BOM.*

Previously Identified Issues (3 of 4)

- **Siding:**
  - *Not enough T-111 to go around the building. 9 sheets rather than 7 are required.*
- **Trim:**
  - *Need 8 corner boards rather than 4. May need some longer than 8'.*
  - *Soffit trim is covered, but two 1'x'4'x 12' are needed for the rake boards.*
  - *Item #14 listed as corner boards but not pre-primed. Assume this is the material to trim around window and door. (in which case there is enough).*

Previously Identified Issues (4 of 4)

- **Misc:**
  - *Size of roof flashing not specified*
  - *Too many hinges (need 2-3)*
  - *Need door knob/latch set*
- **Fasteners:**
  - *Quantity of nails not specified*
  - *Number of hinge bolts incorrect*

Estimate based on original BOM

#	Key	Item	Description	Qty	Use	Cost Ea	Extended
1	Base	2x4x8	P.T.	1		5.00	5.00
2	Base	2x6x10	P.T.	2		9.50	19.00
3	Base	2x6x8	P.T.	6		7.50	45.00
4	Base	4x8x3/4	Plywood	2		30.00	60.00
5	Framing	2x4x10	K.D.	5		5.00	25.00
6	Framing	2x4x12	K.D.	5		4.00	20.00
7	Framing	2x4x8	K.D.	29		3.50	101.50
8	Framing	2x6x10	K.D.	1		7.50	7.50
9	Roof	4x8x1/2	Plywood Ext. Grade	3		25.00	75.00
10	Siding	T-111	Siding 5/8"	7		45.00	315.00
11	Trim	1x3x8	No 2 Pine (pre-primed)	4		6.00	24.00
12	Trim	1x4x10	No 2 Pine	2		7.00	14.00
13	Trim	1x4x12	No 2 Pine	3		8.50	25.50
14	Trim	1x4x8	No 2 Pine	4		6.25	25.00
15	Trim	1x5x8	No 2 Pine	1		7.25	7.25
16	Trim	1x6x10	No 2 Pine (pre-primed)	2		10.25	20.50
17	Misc	Flashing	Galvanized	3		10.00	30.00
18	Misc	Hasp	Galvanized	1		6.00	6.00
19	Misc	Hinges	Galvanized	6		3.50	21.00
20	Fastener	nails	Framing (Galv) (est 50#)	1		50.00	50.00
21	Fastener	nails	Roof (Galv) (est 50#)	1		50.00	50.00
22	Fastener	nails	Siding (Galv) (est 50#)	1		50.00	50.00
23	Fastener	Bolts	Galvanized	6		1.00	6.00
24	Fastener	Adhesive	Construction Adhesive	2		4.00	8.00
25	Fastener	Screws	Misc	1		15.00	15.00
					Tot Cost		$1,010.25

Estimate based on original BOM:

Labor:	20 hours @ $60/hr	$1,200.00
Total Matl & Labor:		**$2,210.25**
Bid Project at:		**$2,300.00**

Cost of Defects

Description	Qty	Cost
Window	1	150
Door	1	200
Base #1	4	20
Base #2	1	30
Base #3	3	30
Base #4 (4x8x3/4 P.T.)	1	40
Frame #1	6	40
Frame #2	9	30
Frame #3	1	-3
Roof #1	1	30
Roof #2 (Tar paper)	1	15
Roof #3 (Shingles)	5	75
Siding #1	2	80
Trim #1	4	60
Trim #2	2	60
Misc #1 (Flashing - drip edge)	?	50
Misc #2 (Hinges)	-3	-12
Misc #3 (Lockset)	1	30
Material Delivery Charge		100
Total Cost of Defects		$1,025.00

Original Estimate:	1,010.25
Matl Cost Overrun:	1,025.00
Total Matl Cost:	2,035.25
Contract:	2,300.00
Net Profit:	**$264.75**

Garden Shed Wrap-up

- A quick informal review, revealed some issues
- A more formal in-depth review would have found the majority of the issues
- Additional reference material would have results in a more thorough and accurate review
  - *Town building codes, safety codes, construction best practices, customer requirements, etc.*

Impact (1 of 2)

- Contractor
  - *Cost of missed building materials ate into labor costs*
  - *Extra trip to get missed materials cost time and $(gas)*
  - *Built shed for almost nothing*
- Customer
  - *Original specification was incomplete*
  - *Resulting shed would probably not meet customer's needs (ex. How to get supplies/etc. into the shed)*
- Building Inspector
  - *Delayed acceptance of shed*
  - *Failure to follow building codes could have resulted in re-work*

Impact (2 of 2)

- Intangibles
  - *Potential future business loss from customer for contractor*
  - *Loss of potential customer referrals*
  - *Contractor gets a bad reputation in the local building industry which may result in a more detailed review of future jobs*

Formal Inspections Guidelines

- Meet for 2 hours or less
- Review 200 or less SLOC; 20 pages of document
- Roles:
  - Moderator
  - Author
  - Reader
  - Recorder
- Participants should include (as appropriate):
  - Developers
  - Testers
  - Business Analysts
  - Software Designers
  - Subject Matter Experts

Types of Peer Reviews

- Walkthroughs – Author walks others through the code/document in order to share knowledge, elicit feedback
- Desk Checks – Knowledge sharing with smaller review material often one or two colleagues;
- Pass Around – Using email or other sharing technology, share with a larger group
- Ad Hoc – Favored by Agile teams – just discuss among co-located group
- Tool-Assisted Reviews – Code Diffs, Comment/Defect Recording, Metrics Collection, Workflow Enforcement and Authorization
- Pair Programming – Two developers create code in tandem.

Factors For Success

- Training – how to conduct a review and/or to understand responsibilities of the various roles
- Management Buy-in – managers need to ensure they and their superiors understand the value and need for reviews
- Don't Blame – review the code/document, NOT the author!
- Team Buy-in – ensure the team understands the value and quality improvement aspect of the review
- Do Homework – prepare in advance
- Use reference material
- Leverage Tools – make them work for you

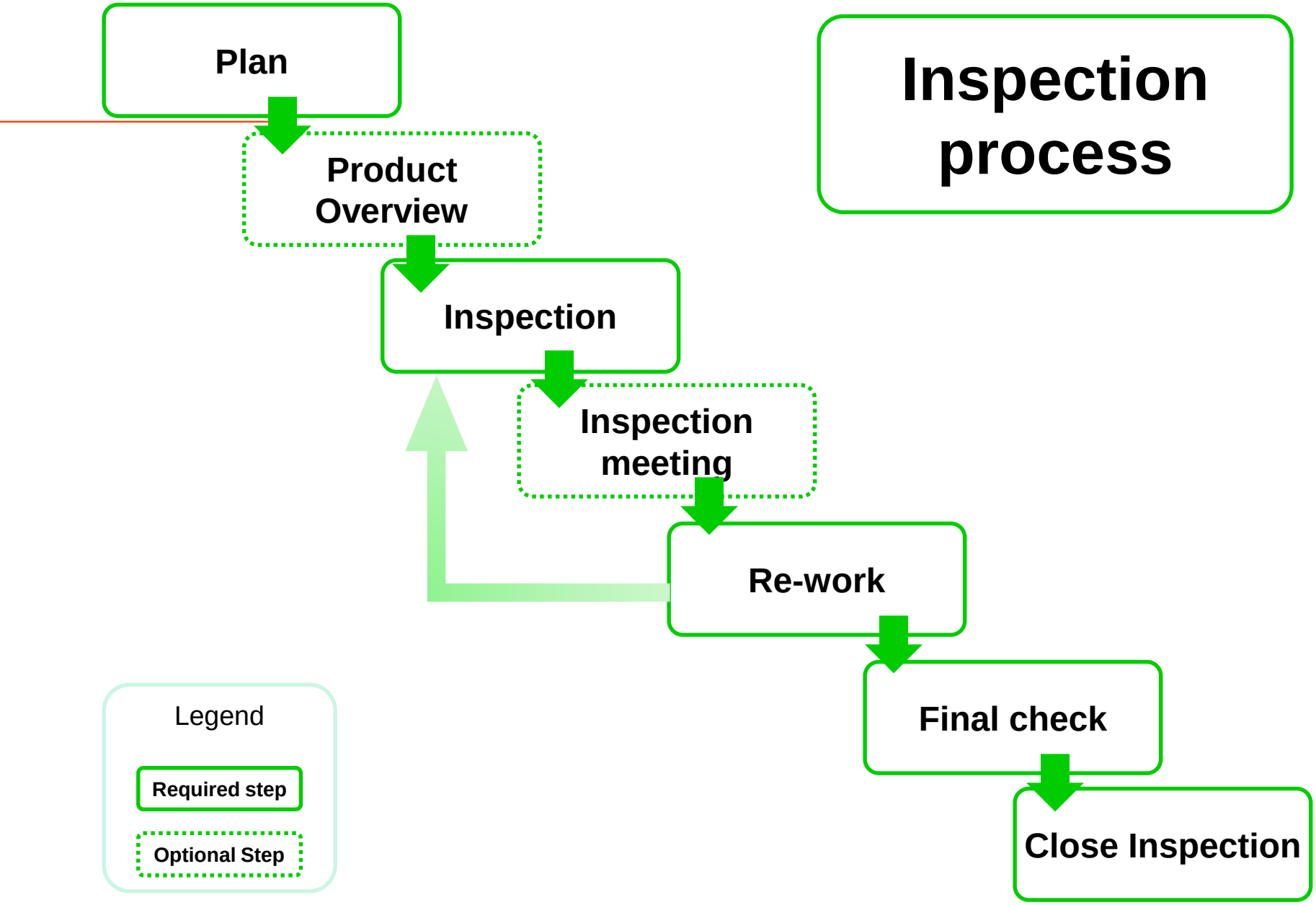
Focus Area

- Define specific areas to be examined
  - *Can be assigned per inspector*
  - *Use specific items from appropriate examination guidelines*
- Define “big picture” areas as well

The Inspection Process

Step by step

Inspection process



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Discussion Points

- Anyone doing formal reviews?
- How do reviews work in the context of Agile and Scrum?
- What tools are available to support reviews?