

Technical Software Product Management

Prof. Dr. Dirk Riehle

Friedrich-Alexander University Erlangen-Nürnberg

PROD C03

Licensed under [CC BY 4.0 International](https://creativecommons.org/licenses/by/4.0/)

Technical Product Management (Recap)

- Key processes
 - Detailed product planning
 - Detailed release planning
 - Feature validation
- Example practices
 - Feature specification
 - Feature prioritization
 - PRD maintenance

Key artifacts

- Product Requirements Document (PRD)

Strategic

STRATEGY

		Business Plan
Market Problems	Market Definition	Pricing
Win/Loss Analysis	Distribution Strategy	Buy, Build or Partner
Distinctive Competencies	Product Portfolio	Product Profitability
MARKET	FOCUS	BUSINESS
Competitive Landscape	Product Roadmap	Innovation
Asset Assessment		



(480) 515-1411 ■ PragmaticMarketing.com

Positioning

Marketing Plan

Buying Process

Customer Acquisition

Buyer Personas

Customer Retention

User Personas

Program Effectiveness

PLANNING

PROGRAMS

READINESS

SUPPORT

Requirements

Launch Plan

Sales Process

Presentations & Demos

Use Scenarios

Thought Leadership

Collateral

"Special" Calls

Stakeholder Communications

Lead Generation

Sales Tools

Event Support

Referrals & References

Channel Training

Channel Support

Pragmatic Marketing Framework™

The market-driven model for managing and marketing technology products

Technical

EXECUTION

- **Functional Specification**
- **Technical Specification**
- **Whole Product Package**

Functional Specification (PRD 1 / 3)

- Types of requirements
- Structure of document
- Individual requirements
 - Feature definition
 - Feature prioritization
 - User experience design



How the customer explained it



How the Project Leader understood it



How the Analyst designed it



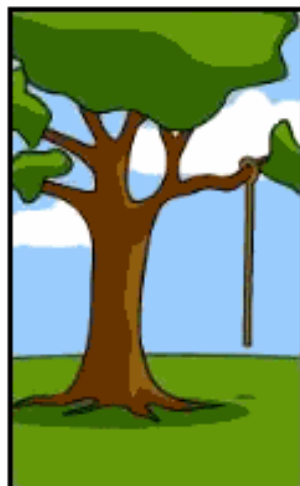
How the Programmer wrote it



How the Business Consultant described it



How the project was documented



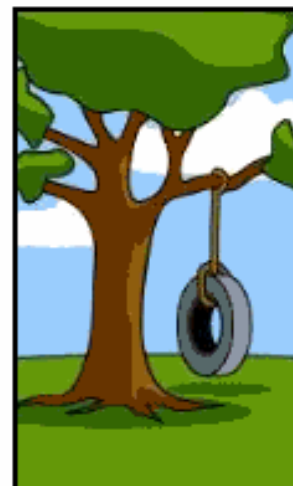
What operations installed



How the customer was billed



How it was supported

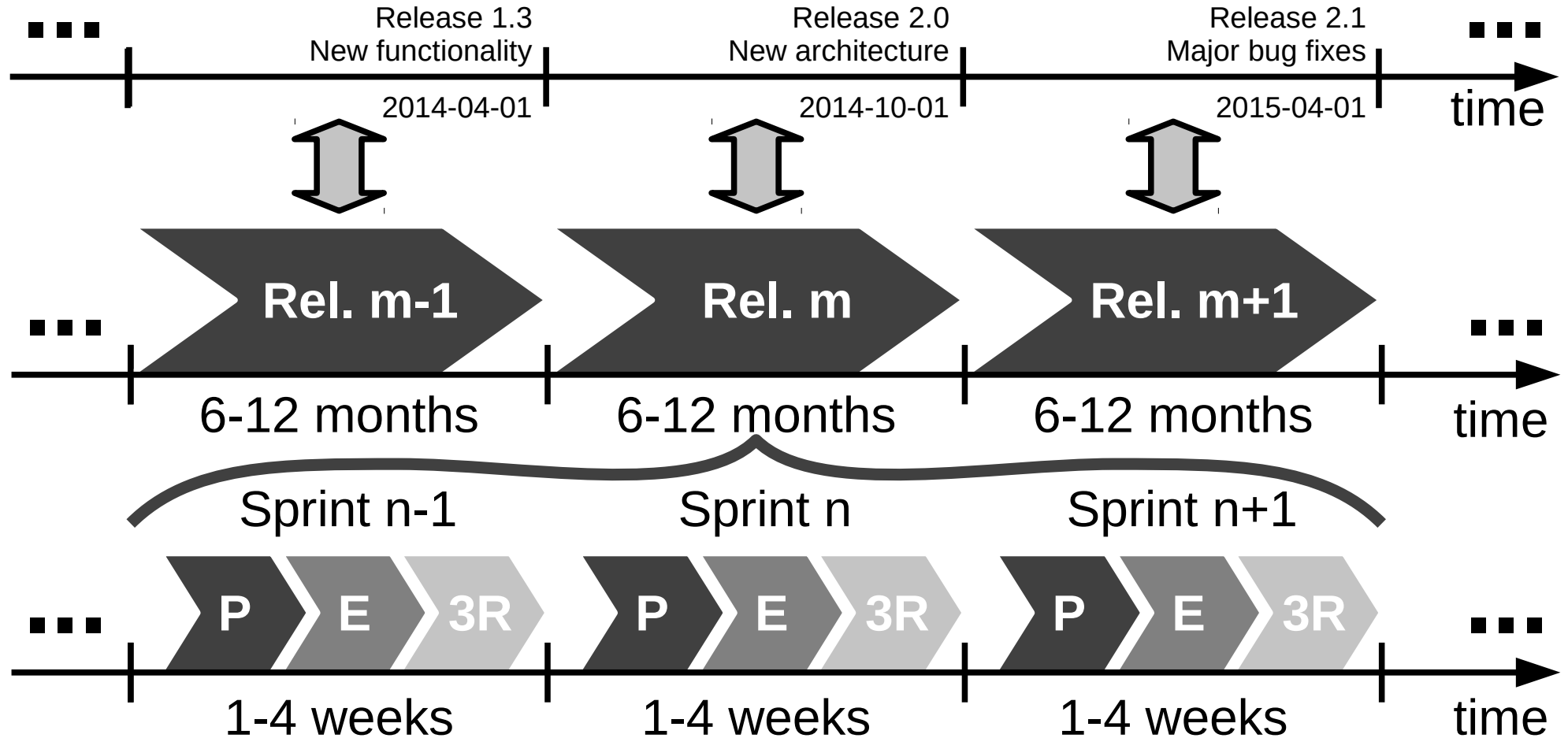


What the customer really needed

Cartoon Lessons

- Understanding project requirements is hard
 - **Understanding market requirements is even harder!**
- Innovative products cannot be predicted easily
 - Certainly customers don't always know what they want
- Product management orchestrates many stakeholders

Agile / Scrum Product Planning



Release Plan

- Functional specification of a release
 - Consists of all features considered part of that release
- Agile / Scrum release plan
 - Structures the release into sprints by theme and purpose
 - Is a planning and communication tool, not a strict plan
 - Evolving: Is adapted in reaction to changes in team and environment

Example Release Plan

Release	Mid-term						
No Sprints	6						
Due Date	12.04.11						
Sprint	Sprint Theme	User Stories	Pred. Size	Pred. Burn-Down	Real Size	Real Burn-Down	Dev. Speed
0				136		134	
1	Basic Visitor Self-Admin	1, 2, 3, 4	21	115	21	113	21
2	Basic User Self-Admin	5, 6, 7, 8	21	94	23	90	22
3	Basic Photo Management	9, 10, 11, 12	25	69	21	69	22
4	Basic Visitor Photo Rating	13, 14, 15	24	45	24	45	22
5	Basic System Administration	16, 17, 18, 19	21	24			18
6	Basic Complaint System	20, 21, 22, 23	24	0			15
Total			136		89		
Release	Final						
No Sprints	6						
Due Date	24.05.11						
Sprint	Sprint Theme	User Stories	Pred. Size	Pred. Burn-Down	Real Size	Real Burn-Down	Dev. Speed
6				155			
7	Viral Marketing Features	24, 25, 26, 27	25	130			
8	Advanced Photo Management	28, 29, 30, 31, 32	25	105			
9	Basic Community Forums	33, 34, 35, 36	23	82			
10	Advanced System Management	37, 38, 39	27	55			
11	Advanced Photo Tagging	40, 41, 42, 43	28	27			
12	Search Engine Optimization	44, 45, 46	27	0			
Total			155		0		

Agile / Scrum Product Backlog (Functional Specification)

- Product backlog
 - Is a prioritized list of features for upcoming release
 - Scrum's PRD and the product owner's primary work artifact
 - Does not contain any task descriptions or assignments
 - Is a living document (rather than static) and keeps evolving

Example Product Backlog

	A	B	C	D	E	F
1	ID	Theme	Short Name	Item Description	Acceptance Criteria	Size
2	13	Photo Showing and Rating	Show Next Photo	As a visitor, I am presented with a random photo when I go to the website	Repeated visits to the site provide different photos	8
3	14	Photo Showing and Rating	Rate Photo and Proceed	As a visitor, I can rate a photo with a numerical value 1-10; after rating another photo is shown	The rating is stored and an average value is computed	8
4	15	Photo Showing and Rating	Show or Hide Photo Caption	As a visitor, I am presented with a photo caption, which I can expand to full photo data	A first click shows me the photo data, a second click hides it again; repeat	8
5	16	System Administration	Create Default Admin	As a sysadmin, I can create a default application administrator from the command line	After running the command, a default "admin" account with default password "dingdong" exists and can be used	5
6	17	System Administration	Startup and Shutdown Scripts	As a sysadmin, I can startup and shutdown the service from the command line	Three consecutive startup and shutdown command line invocations leave the system in a consistent state	3
7	18	System Administration	Reboot and Shutdown UI	As a administrator, I can reboot or shutdown the service using a graphical UI	The command is only available to the administrator role and shuts down the system to a clean restartable state	5
8	19	System Administration	Cold Backup and Restore	As a sysadmin, I can backup all data to files and reload it fresh while the system is down, using the command line	Running restore after backup recreates the same identical system	8
	20	User Feedback	Flag Photo	As a user, I can flag a photo as	The flagged photo cannot be	8
<div><div><div><div></div><div></div></div><div>Chart</div><div>Development Speed</div><div>Product Backlog</div><div>Sprint Backlog</div><div>Feature Archive</div></div><div><div></div><div></div></div><div><div>Explore</div></div></div>						

Domain Glossary

- Domain glossary
 - A list of concepts and their definition from the product being developed
 - The missing link between the vision and the product backlog
 - Is a “poor man’s approach” to a domain model
- Glossary term
 - Have a clear fully-defined name for glossary entry
 - Have a crisp “is a” definition, followed by secondary properties
 - Definitions are short; rarely longer than a paragraph
 - Glossary entries are human readable, not machine-processable
- More entries
 - Synonyms are listed as their own entries
 - Shorthands point to the full name (not the other way around)

Example Domain Glossary

Term	Definition
Individual Photo Rating	A photo rating by a single user of a particular photo at a given point in time.
Overall Photo Rating	A photo rating that represents the community's ranking of the photo in question. Over time, a photo accumulates a large number of individual ratings ...
Photo	A photo is a flower photo that has been uploaded (and is owned) by a system user. A photo has a status that determines its accessibility.
Photo Rating	A numerical value 1..10 that rates a given photo.
Photo Sharing Policy	Flowers has a photo sharing policy. The policy determines what an acceptable photo is. Photos are unacceptable if they are unrelated to the Flower's purpose (e.g. ...)

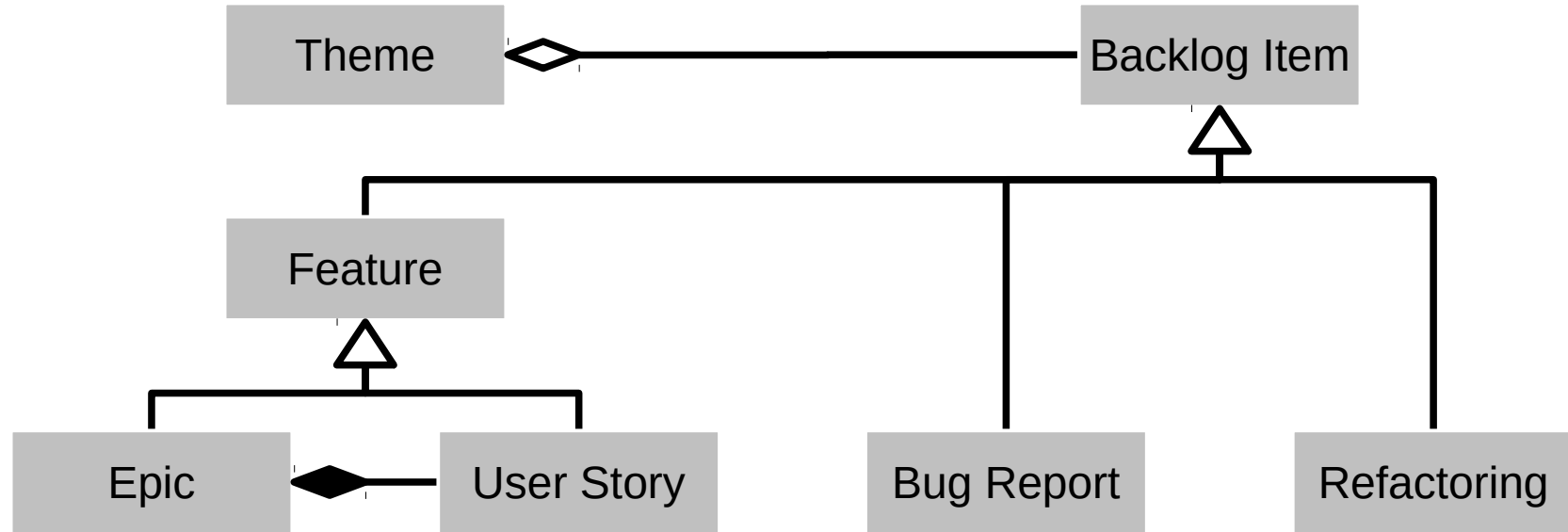
Connecting Product Vision with Backlog Through Glossary



Types of Product Backlog Entries

- Feature
 - A feature is a distinguishing characteristic of a software item (for example, performance, portability, or functionality) [IEEE 829]
- Epic
 - An epic is a large feature awaiting break-down into smaller features; in a product backlog, it acts as a placeholder for these smaller features
- (User) story
 - A user story is a feature presented using a the user-story-pattern that is small enough to be implemented in a sprint
- Refactoring
- Bug report

Model of Product Backlog Items



Example Product Backlog Item



	A	B	C	D	E	F
1	ID	Theme	Short Name	Item Description	Acceptance Criteria	Size
2	13	Photo Showing and Rating	Show Next Photo	As a visitor, I am presented with a random photo when I go to the website	Repeated visits to the site provide different photos	8
3	14	Photo Showing and Rating	Rate Photo and Proceed	As a visitor, I can rate a photo with a numerical value 1-10; after rating another photo is shown	The rating is stored and an average value is computed	8
4	15	Photo Showing and Rating	Photo Caption	As a visitor, I can expand photo caption, which I can expand to full photo data	A first click expands the photo data, a second click hides it again; repeat	8
5	16	System Administration	Create Default Admin	As a sysadmin, I can create a default application administrator from the command line	After running the command, a default "admin" account with default password "dingdong" exists and can be used	5
6	17	System Administration	Startup and Shutdown Scripts	As a sysadmin, I can startup and shutdown the service from the command line	Three consecutive startup and shutdown command line invocations leave the system in a consistent state	3
7	18	System Administration	Reboot and Shutdown UI	As a administrator, I can reboot or shutdown the service using a graphical UI	The command is only available to the administrator role and shuts down the system to a clean	5

Flowers / Tell-a-Friend Implemented



[[show](#) | [tell](#)] — [[signup](#) | [login](#) | [configure](#)]

Tell a friend!



From Email Address:

To Email Address:

Email Subject:

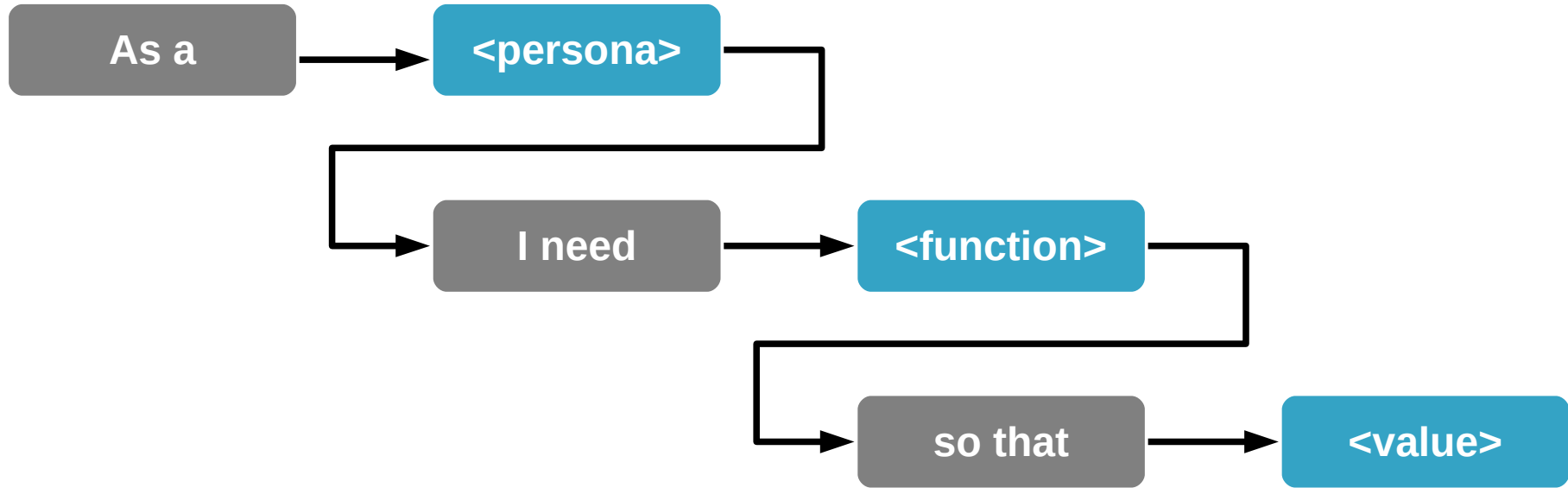
Message:

This website is to show the best in photos!

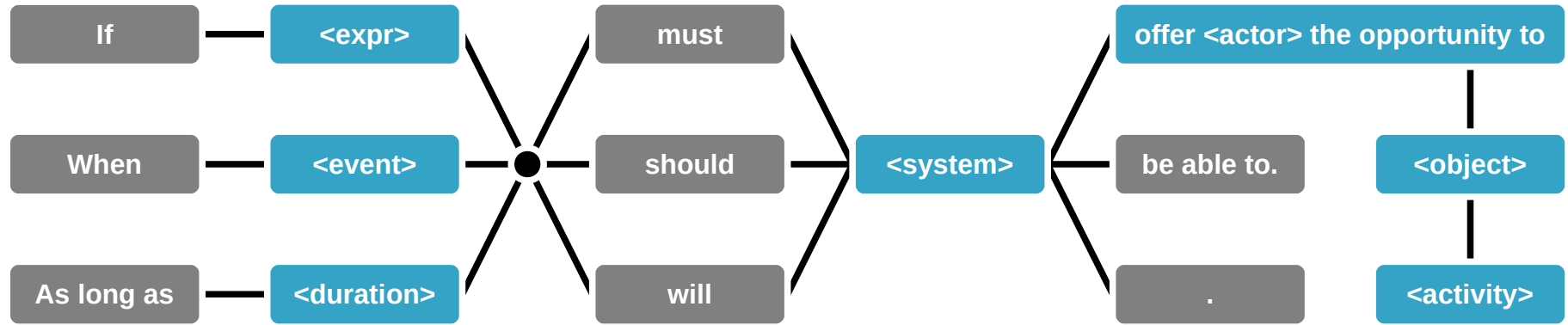
[[blog](#)] — [[about](#) | [contact](#) / [imprint](#) | [terms](#)] — [language: en | [de](#)] — [photo size: [XS](#) | [S](#) | M | [L](#) | [XL](#)] — [debug: [reset](#)]

[processing time: 0.012 seconds]

Agile Sentence Template (User Story)



Classic Requirements Specification Sentence Template

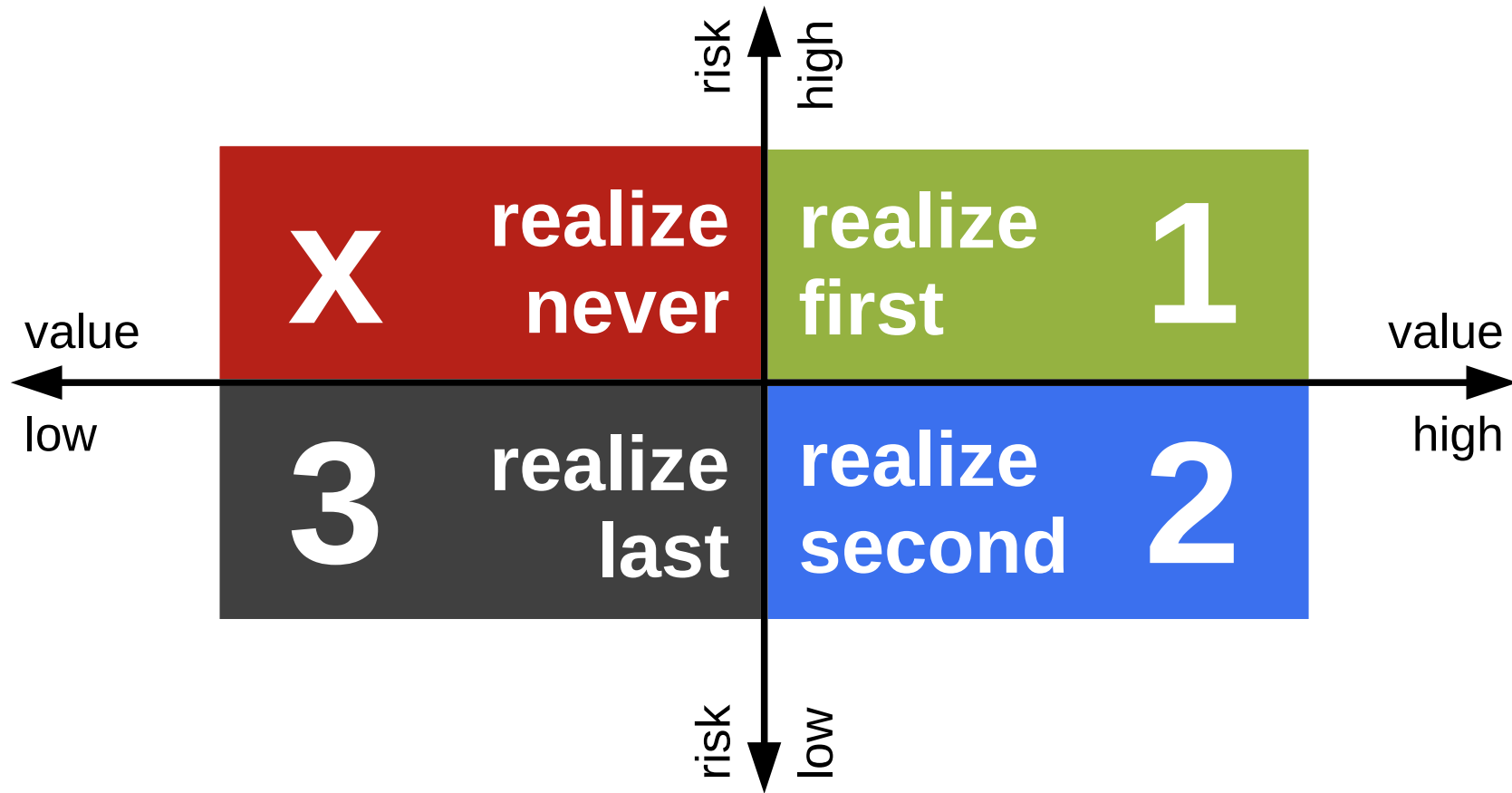


Acceptance Criterion

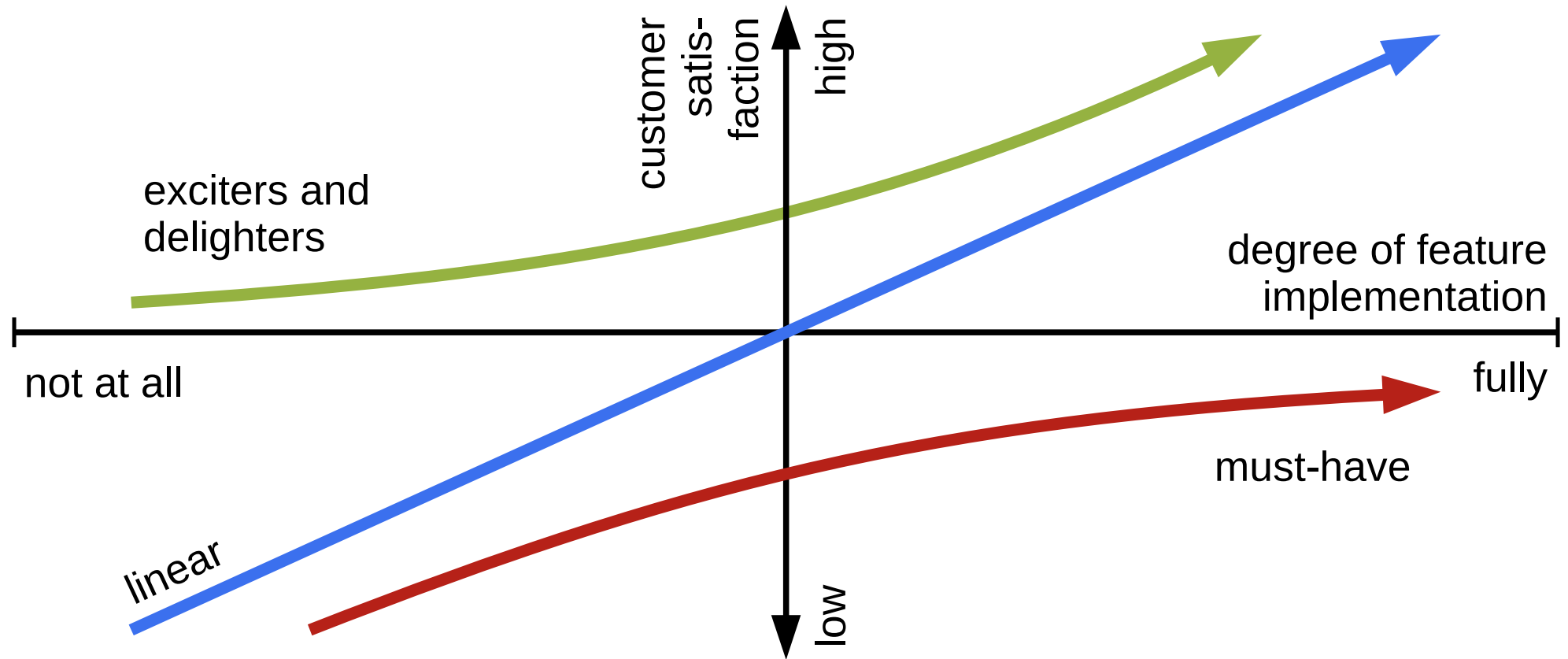
- An **acceptance criterion** for a **backlog entry**
 - Is a **proposition** that must be true
 - Before the entry can be accepted (signed-off on)
- Acceptance criteria
 - A set of criteria that need to be fulfilled

- 1. Essential / High**
- 2. Conditional / Medium**
- 3. Optional / Low**

Prioritizing Features by Value and Risk



Classifying Features by Kano Model



Technical Specification (PRD 2 / 3)

- Definition of platform, language, tools
- Required services and capabilities

Definition of Done

- Definition of Done (DoD)
 - An auditable check-list of results
 - Built from value-adding activities
 - That everyone previously agreed to
 - It is about the non-functional aspects of work

Example DoD for Product Release

1. Project builds, deploys, and tests successfully
2. Component test coverage is 70% or higher
3. Database upgrade in test environment succeeded
4. Software documentation passes external review
5. User manual passes external review

Example DoD for Single Feature

1. Unit tests for feature have been written and are passing
2. Code review has been completed
3. Feature branch has been tagged and merged
4. Project builds, deploys, and tests successfully
5. Feature was demoed and accepted by product owner

Definition of Done vs. Acceptance Criteria

- **DoD (Feature)**
 - Specific to a particular type of artifact
 - The same for all instances of that type
- **Acceptance Criteria**
 - Specific to a particular artifact

The Whole Package (PRD 3 / 3)

- Product package and collateral
- Ancillary services

Review / Summary of Session

- The Product Requirements Document (PRD)
 - Functional Specification
 - Technical Specification
 - Whole Product Package

Thank you! Questions?

dirk.riehle@fau.de – <http://osr.cs.fau.de>

dirk@riehle.org – <http://dirkriehle.com> – [@dirkriehle](#)

Credits and License

- Original version
 - © 2012-2018 [Dirk Riehle](#), some rights reserved
 - Licensed under the [Creative Commons Attribution 4.0 International License](#)
- Contributions
 - ...