

Agile Methodologies & PLM

CIMdata 2020 PLM Market & Industry Forum

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PLM Market & Industry Forum

A CIMdata PLM Leadership Event

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We are dedicated to maximizing our clients' ability to design, deliver, and support innovative products and services through the application of PLM.

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Key Takeaways

Agile Methodologies & PLM—2020 CIMdata PLM Market & Industry Forum (PMIF)

- Agile development is a proven software development methodology commonly used in commercial software development that can be successfully used for configuring and deploying a PLM solution
- Using agile to deploy a PLM solution can improve deployment time, quality, and user satisfaction
- There are risks in applying an agile methodology to a PLM deployment, but they can be mitigated
- Within industrial companies, agile awareness is growing but experience is light

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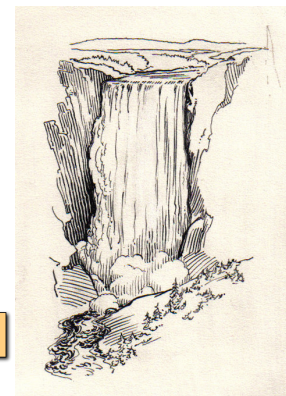
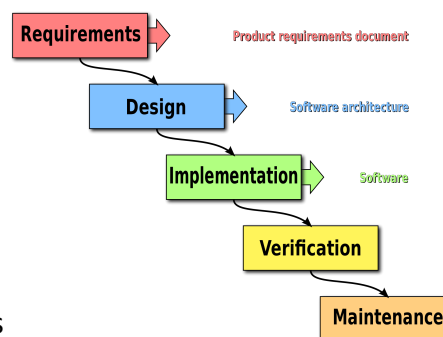
Waterfall Software Development

Most common PLM deployment method

- Waterfall consists of 5 sequential phases with feedback loops
 - Requirements gathering->Design->Implementation->Verification-> Maintenance

• Benefits

- Required discipline improves design quality
- Formal design specification supports knowledge transfer
- Project progress is easier to measure
- Can leverage junior developers
- Less wasted code



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Waterfall Software Development

Most common PLM deployment method

- Waterfall consists of 5 sequential phases with feedback loops
 - Requirements gathering->Design->Implementation->Verification-> Maintenance
- Issues
 - Customers don't really know what they want until they see the product
 - Business environment is dynamic, and specifications become obsolete
 - Changes in requirements break the model
 - Testing occurs after coding—quality is inspected in



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What is Agile Software Development?

Modern software development approach

- Agile is a group of software development methodologies based on a definition that crystalized with the release of The Agile Manifesto¹ in 2001

Agile Core Values

- **Individuals and interactions** over Processes and tools
- **Working software** over Comprehensive documentation
- **Customer collaboration** over Contract negotiation
- **Responding to change** over Following a plan

*It's about doing the right thing, not
doing things right*

¹<http://agilemanifesto.org/>

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So What? Why Bother?

If it's not broken, don't fix it!

- So the next time you hear the cringe-worthy phrase “If it ain't broke, don't fix it,” stop and think. Persisting with a rigid IT strategy is as bad as ignoring that tangled mess of cables in the data center. Always remember, it's the “not broken” things in business that provide the best opportunities for innovation.

- Peter Waterhouse CA Technologies



Source: <https://www.informationweek.com/strategic-cio/digital-business/its-famous-last-words-if-it-aint-broke-dont-fix-it/d/d-id/1113337>

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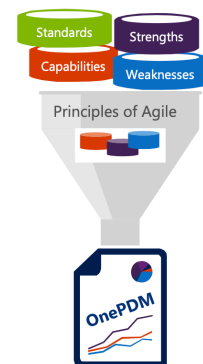
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Microsoft Agile Case Study

Using agile to consolidate multiple PDMs



- Objective: Consolidate multiple PDMs from hardware groups including Surface, Xbox, and Nokia, into a single platform using an agile methodology
- Results
 - Time to first release of OnePDM in production – 6 months
 - Time to replace two legacy PDM solutions – 12 months
 - “The ability to see how things are going to be in short cycles enables us to immediately say this process isn't going to work or we need this information. That way, we're able to correct changes before the end of the line when the system is dumped on us.” – Phil Nixon, Microsoft



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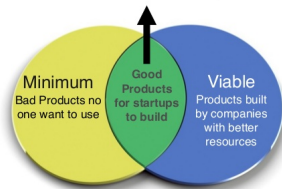
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Interested Now?

Yes! How does it work?

- Agile proficiency takes several hours training, a few months of practice
- Most important concept IMHO? Minimum Viable Product (MVP)
- MVPs are almost by definition a simpler system that evolves...

Minimum Viable Product



Bernard Leong

A complex system that works is invariably found to have evolved from a simple system that worked. A complex system designed from scratch never works and cannot be patched up to make it work. You have to start over with a working simple system. – John Gall (1975, p.71)

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Source Gall's Law is a [rule of thumb](#) for [systems design](#), from Gall's book *Systemantics: How Systems Really Work and How They Fail*.




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Using Agile for PLM Deployment

Risks and mitigations

Risk	Mitigation
It's Agile, we don't need to plan 	A product roadmap and sound architecture are required, resolution and detail are added as the project progresses
Sponsors or Organization lose interest as deployment progresses incrementally	Implement cultural change plan
User story backlog is incomplete	Reallocate business resources to generate user stories Leverage developer retrospective time
We don't need to document	Documentation needs to be provided to support knowledge sharing
Code quality issues, duplicates, naming, style	Develop coding standards before project starts Refactor
Regulatory requirements conflict with Agile	Use a methodology that supports requirements

Biggest risks are People and Process related

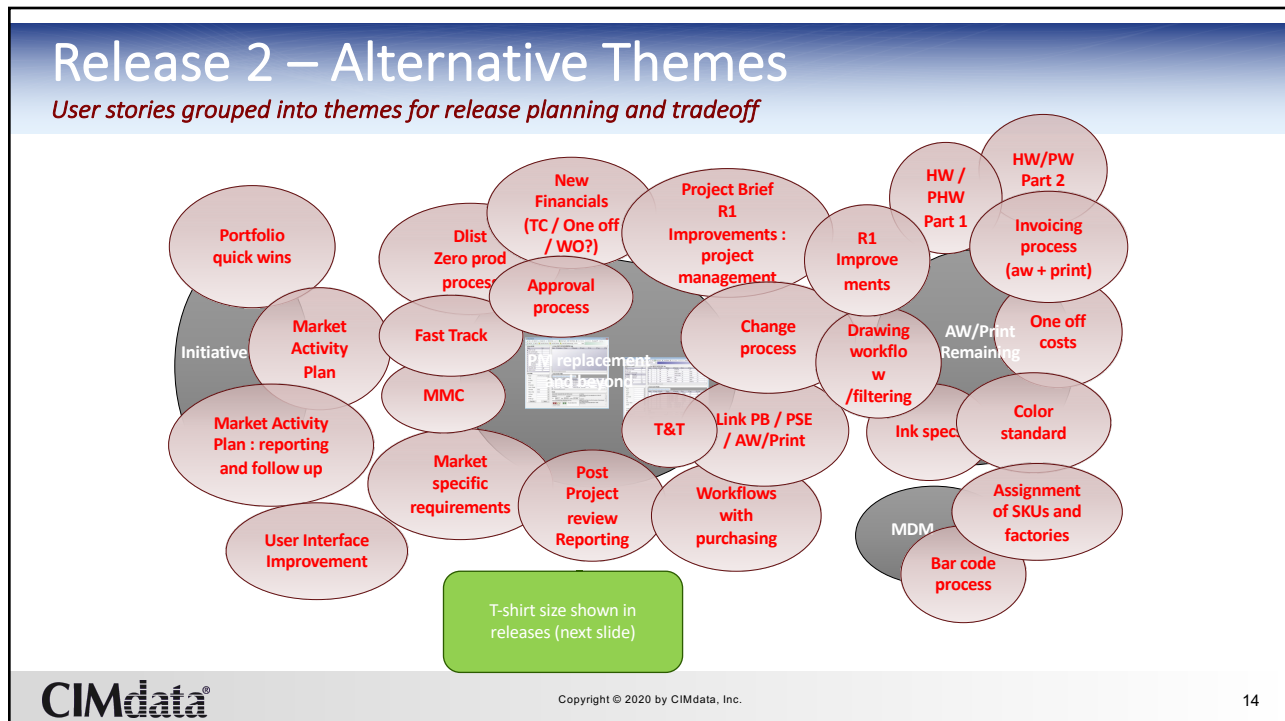
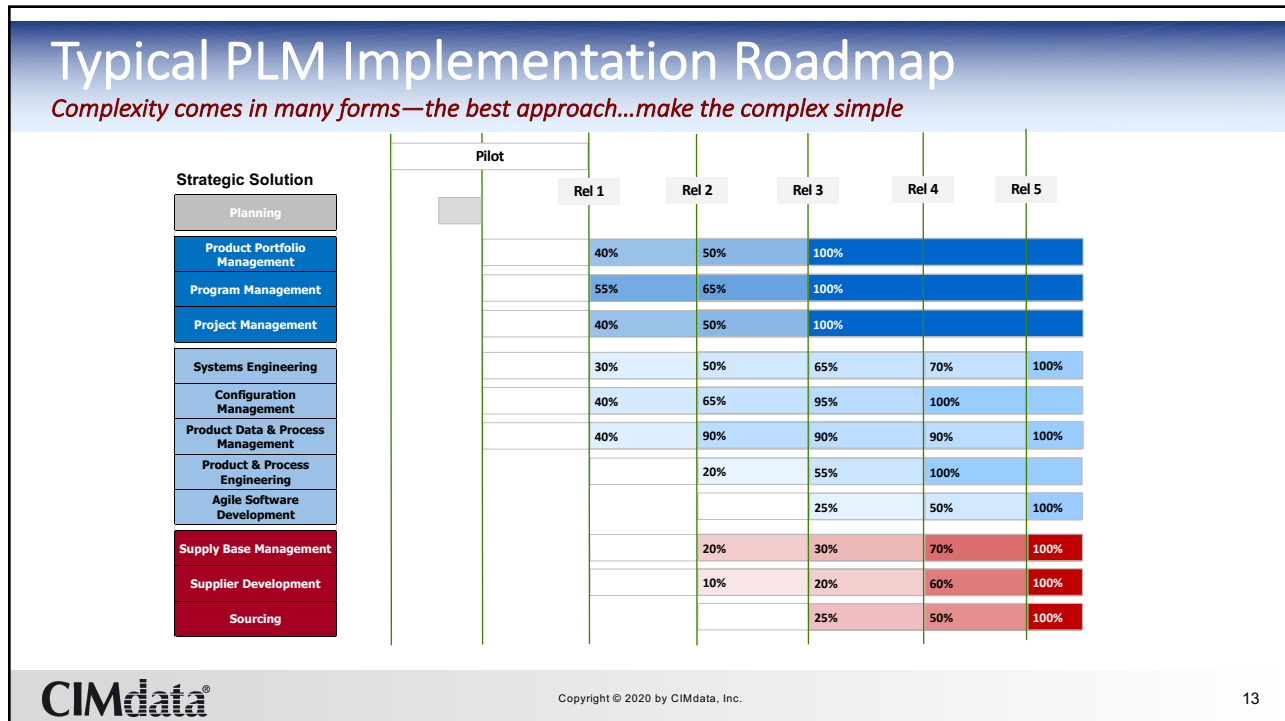


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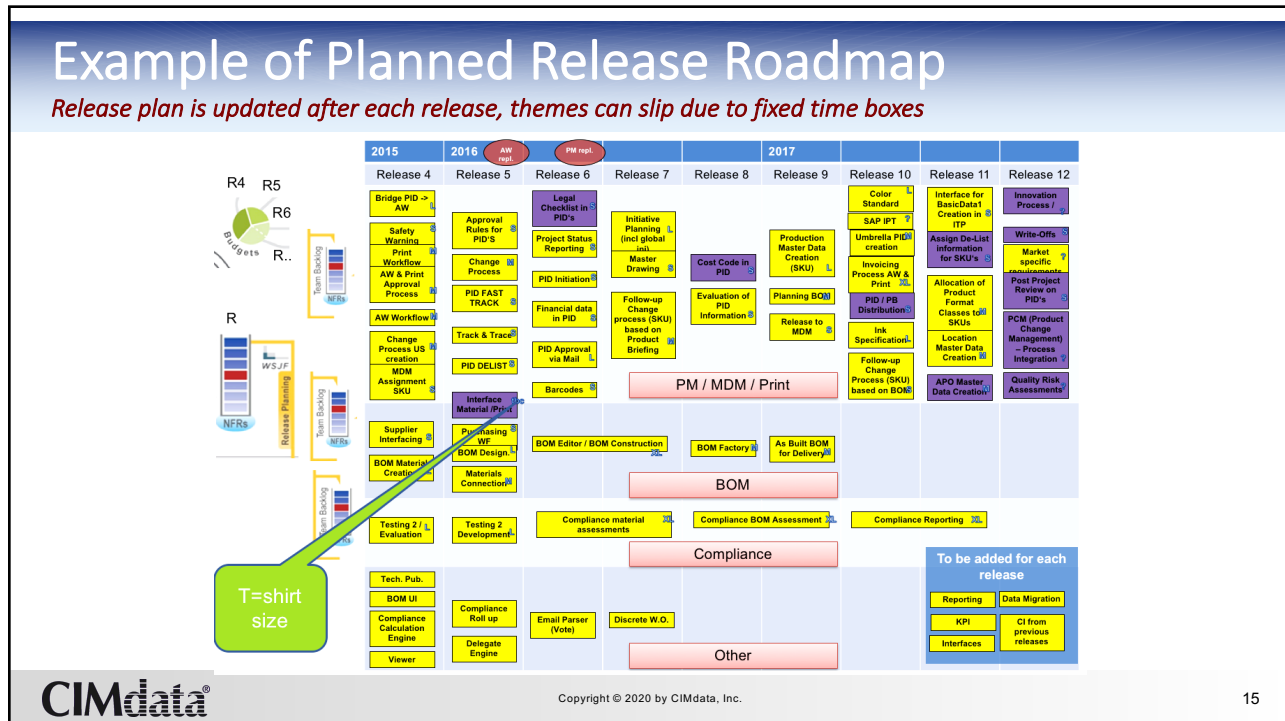
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How Does Agile Improve PLM Deployments?

Qualitative improvements

- An excellent fit for managing the configuration of software
- Business and Software Development work closely as a team
- Product owners are from the business, understand the customer, and have the final word
- Short time between working software increments enables gap identification and adjustments to the project
- Rapid cadence keeps team focused on product
- Supports parallelized development enabling faster time to value
- Supports continuous development, PLM is never “Done”

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What is the Business Opportunity?

How can the PLM Economy best support Agile implementation methodology?

- ISVs and SIs need to operate differently to support agile, services, communications, and organizations all function differently from waterfall-oriented operations
- Industrials know of agile and believe its better, but most are immature in their understanding, so sales teams need to understand Agile well enough to manage expectations
- Make sure your solutions can be easily upgraded
 - Can your solution support a form of continuous integration?
- Leaving behind a working agile development, testing, continuous integration environment is value added to the customer and a reason to maintain a customer relationship

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Concluding Remarks

Developing and implementing a sustainable PLM strategy is a requirement

- PLM needs to be built on a solid foundation of business justification as well as a set of strategy elements that have been designed to evolve as the business evolves
- The agile software development approach enables PLM solution deployment to effectively respond to changing needs and requirements, but still requires planning and architectural design
- By putting working software in front of users quickly, feedback enables faster product evolution, reducing time-to-value, while improving quality, and user satisfaction
- Adopting agile software development has risks, but mitigations are well understood, and the value is well proven

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To Learn More...

- Tom Gill, Senior Consultant
- Email: t.gill@CIMdata.com
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- CIMdata has several useful resources on this topic
 - An earlier webinar on Agile:
<https://register.gotowebinar.com/register/2954779538459934210>
 - Product innovation platform dossier:
<https://www.cimdata.com/en/resources/about-plm/a-cimdata-dossier-plm-platformization>

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