Agile Development of IoT Devices

Webinar
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Agenda

- Why agile software development? Is it good for IoT projects as well?
- Challenges when developing for embedded
- Blueprint: Agile Software Development Processes within IoT
- Conclusion
- Q&A Session

Welcome

Agile Development of IoT Devices

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IoT projects are typically complex: New technology, too many standards, requirements may change.

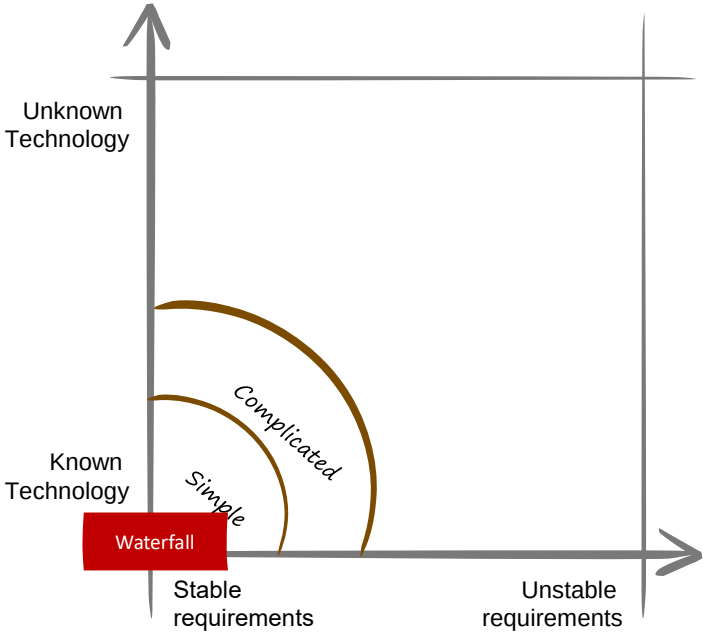

*Diagram derived from Stacey Matrix

Examples from a light bulbs manufacturer perspective:

- Production of an existing light bulb model in a new color
  - ➔ simple
  - ➔ waterfall

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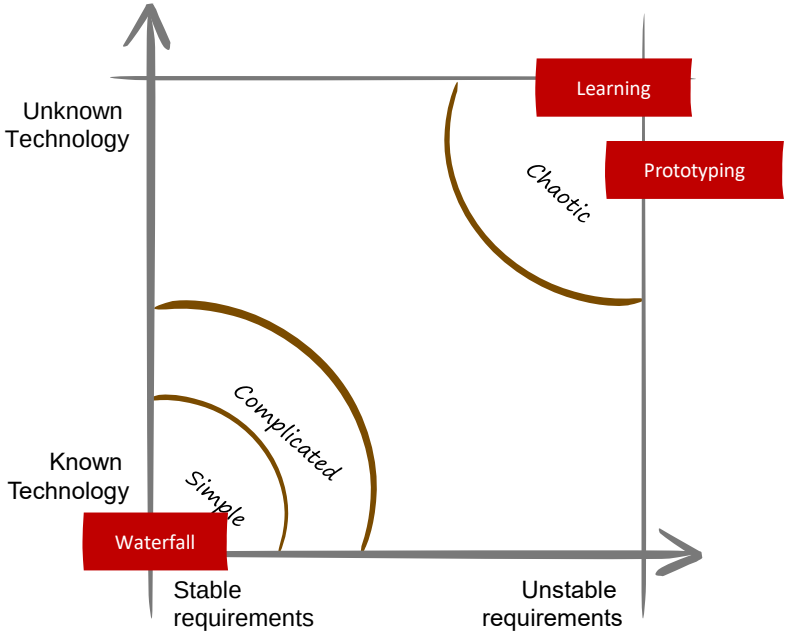

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  - ➔ chaotic
  - ➔ learning / prototyping

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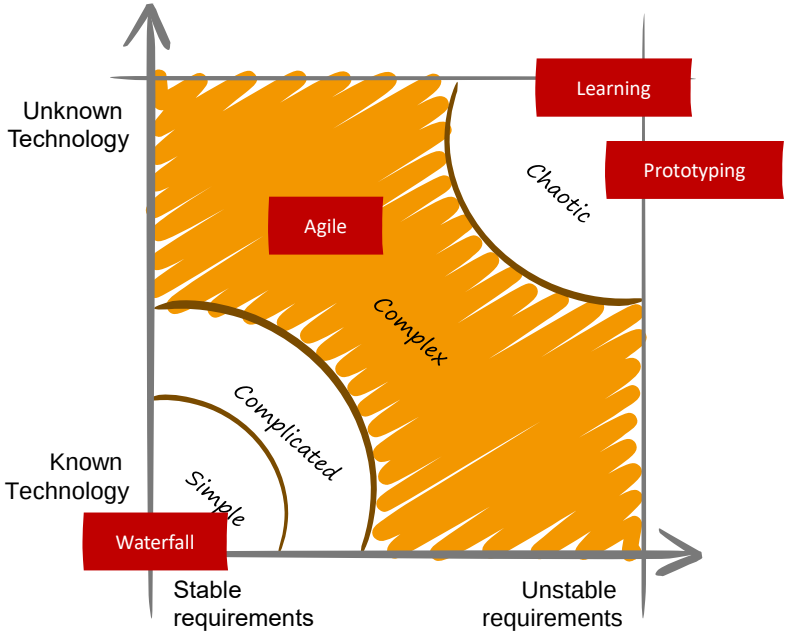

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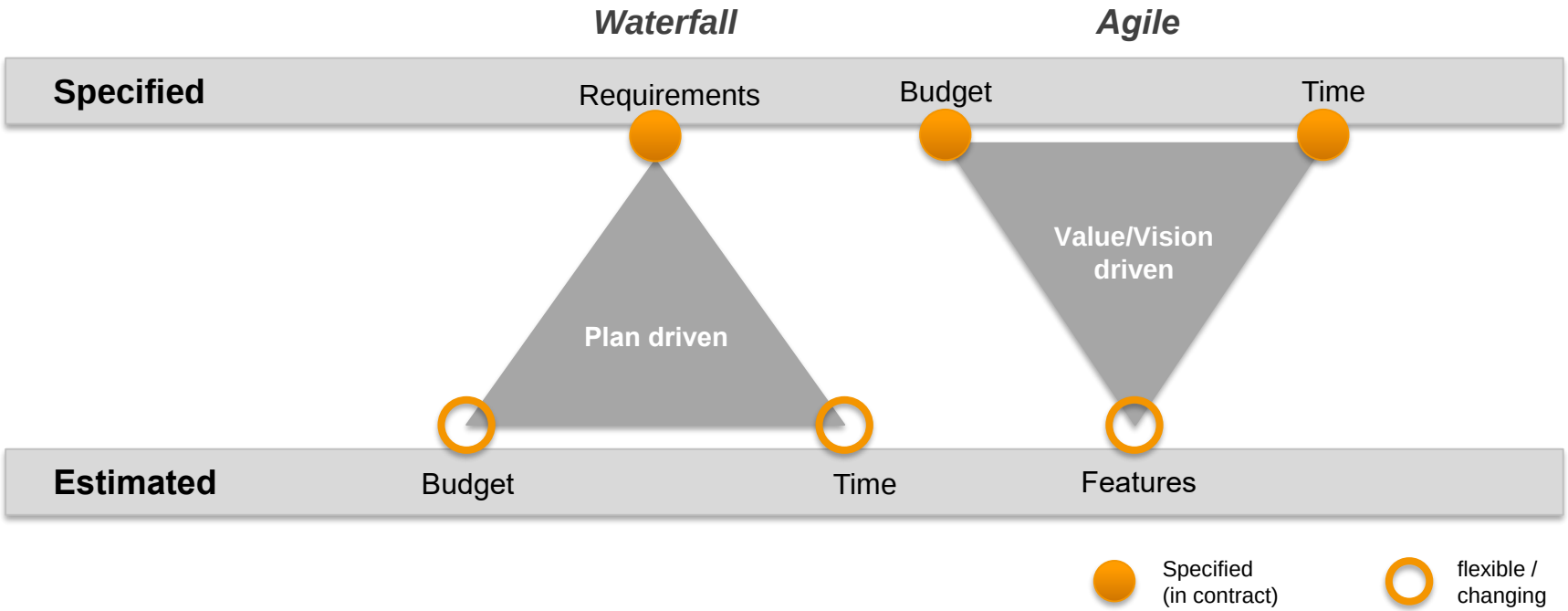
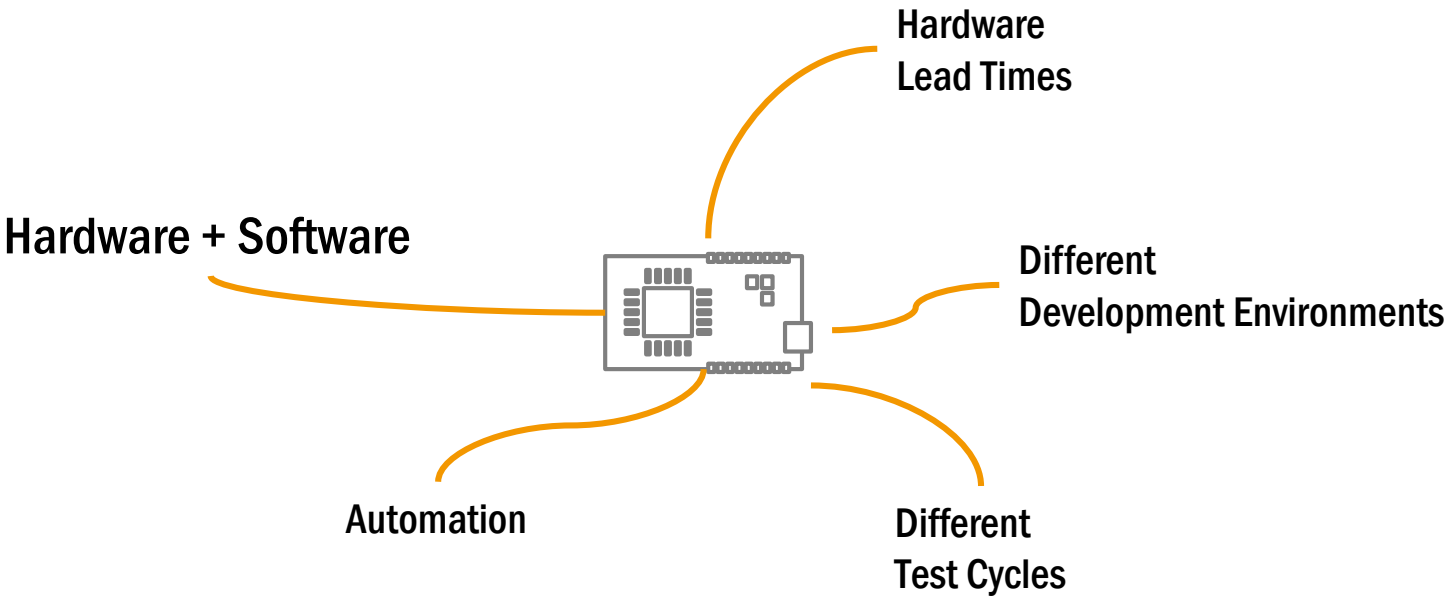
- Production of an existing light bulb model in a new color
  - ➔ simple
  - ➔ waterfall
- Production of a fully functional lightsaber
  - ➔ chaotic
  - ➔ learning / prototyping
- Production of a smart lighting solution
  - ➔ complex
  - ➔ agile

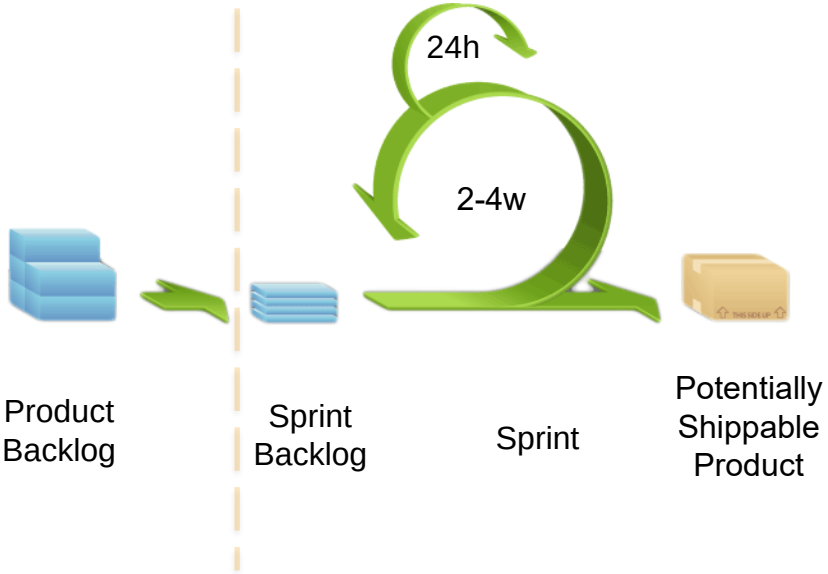
Agile projects run under different constraints which have a big impact.



Some Challenges of IoT Projects



In pure software projects, agile methodologies are well established. Regarding mixed hw/sw projects, reconsideration is necessary.



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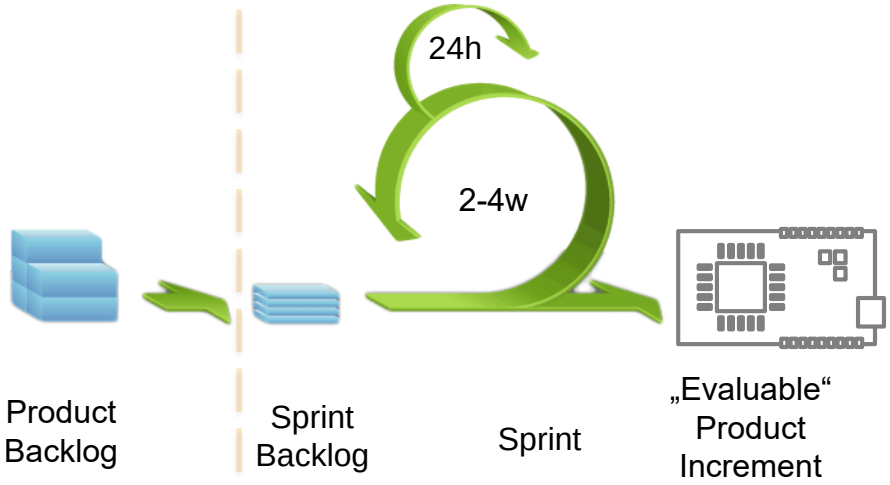

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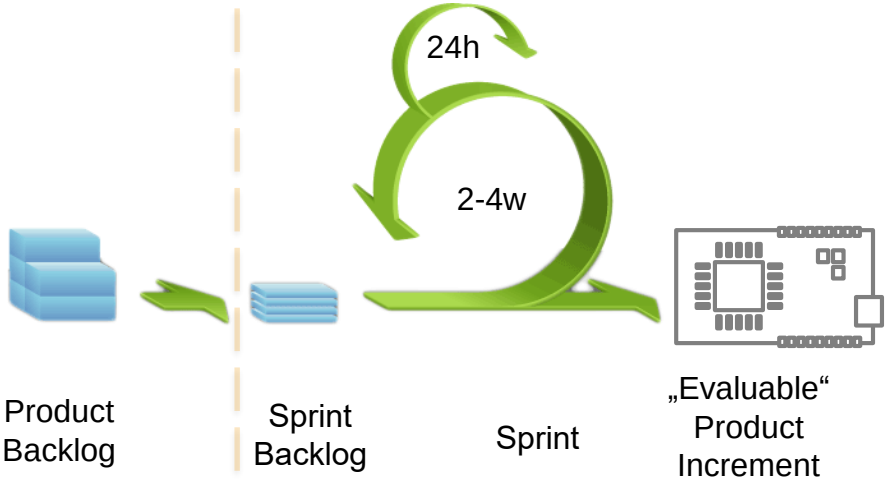


“Definition of Done” (*)

Each completed task of a sprint will:

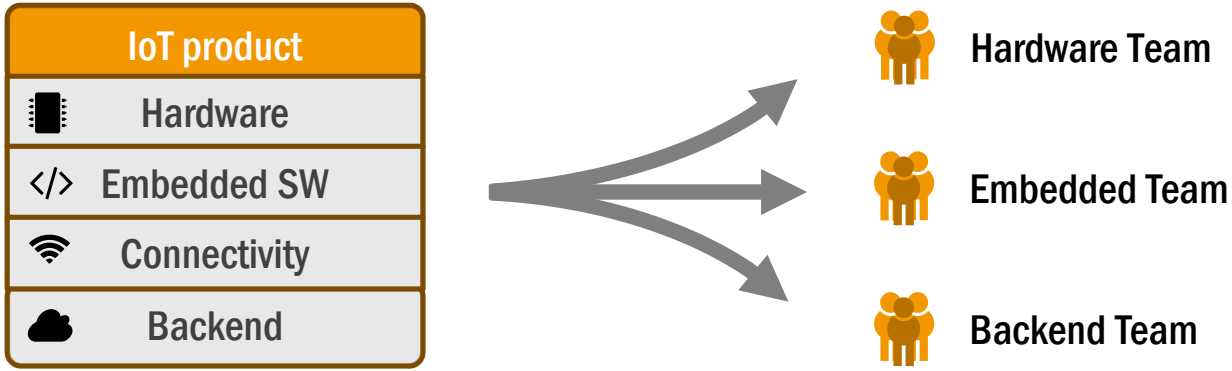
Include updated and reviewed
- **block diagram**
- **interface description**
- **architecture**
- **schematics**
- **placement**
- **layout with basic routing**

(if needed)

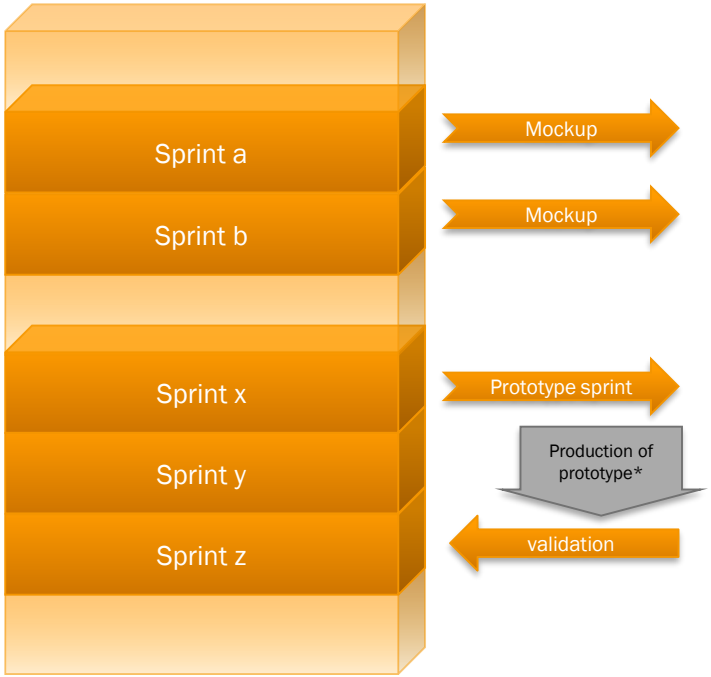
and will be tested (if testable)

(*) Example, has to be adapted to individual project

Developing IoT devices typically requires multiple teams with different knowledge backgrounds.

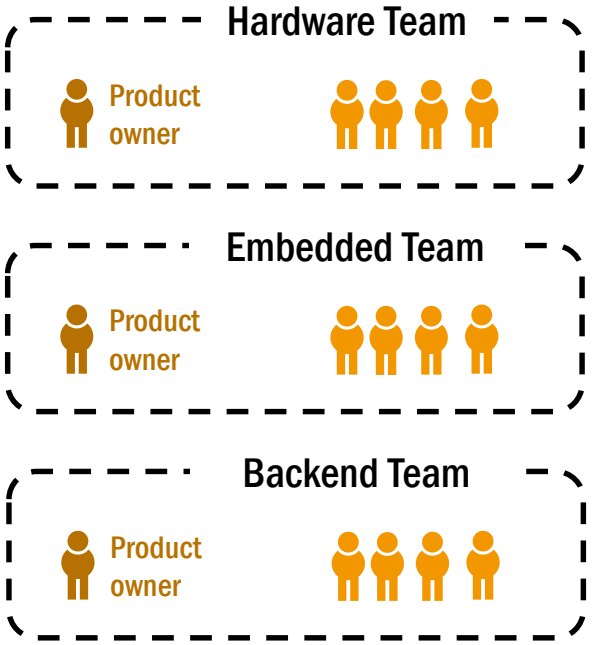


Mock-ups are for testing of intermediary artifacts. Prototypes can be manufactured parallel to development.



Mockup	A mockup is a model of a part or the complete product, used for demonstration, evaluation and other purposes. For a mockup, certain parts of the product may be simplified in order to demonstrate or evaluate specific details. Example: Development Boards, Cardboard Boxes
Prototype	A prototype is a manufactured sample of the product, based on the current development state. It is produced in a way that is as close as possible to the final manufacturing process.

Cooperation between product management, product owner and teams



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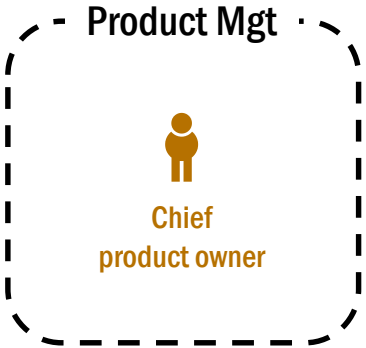

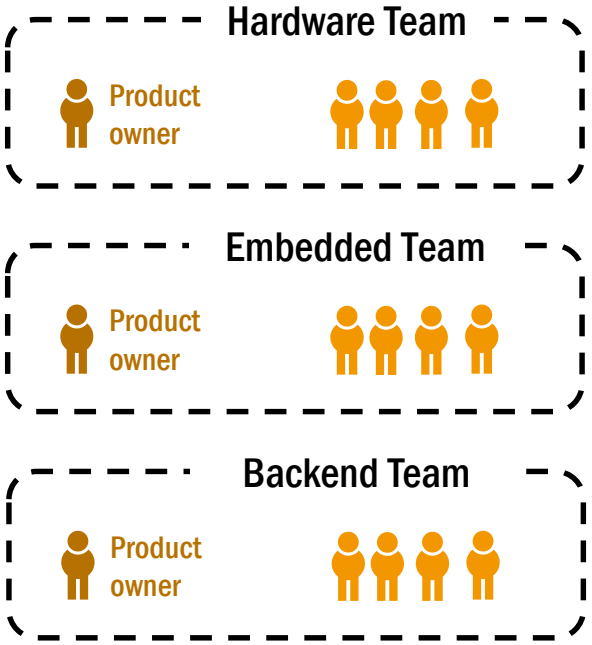

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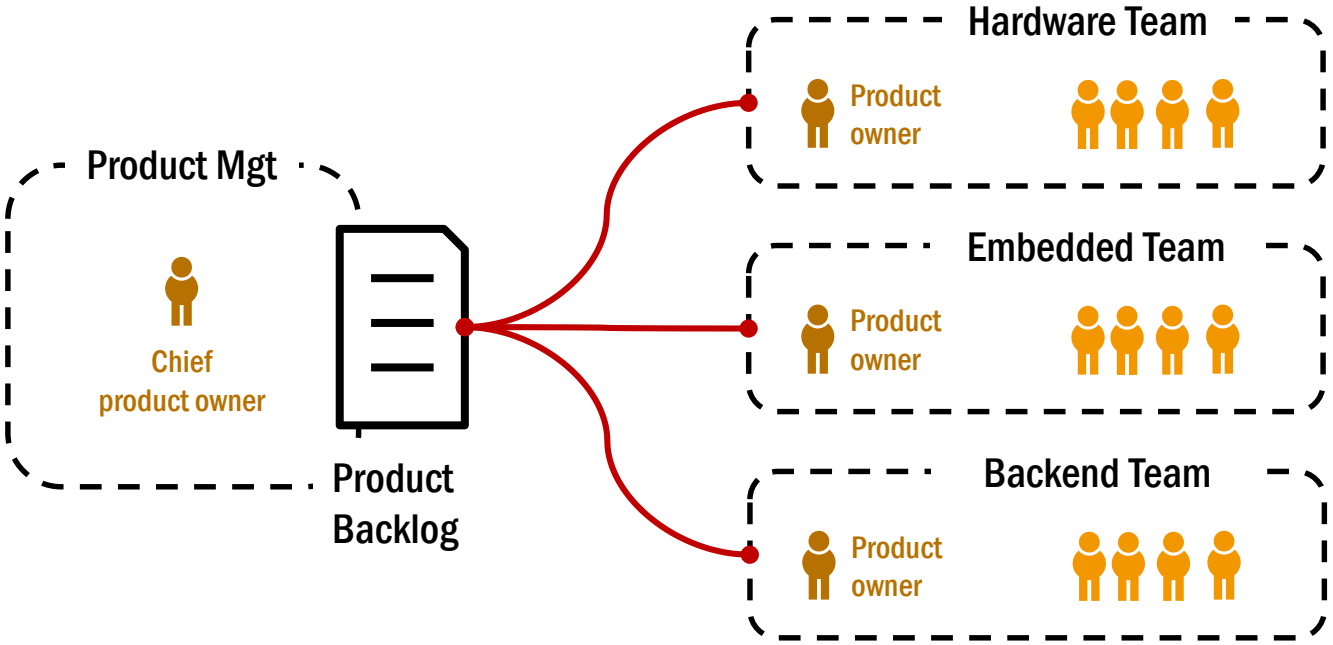

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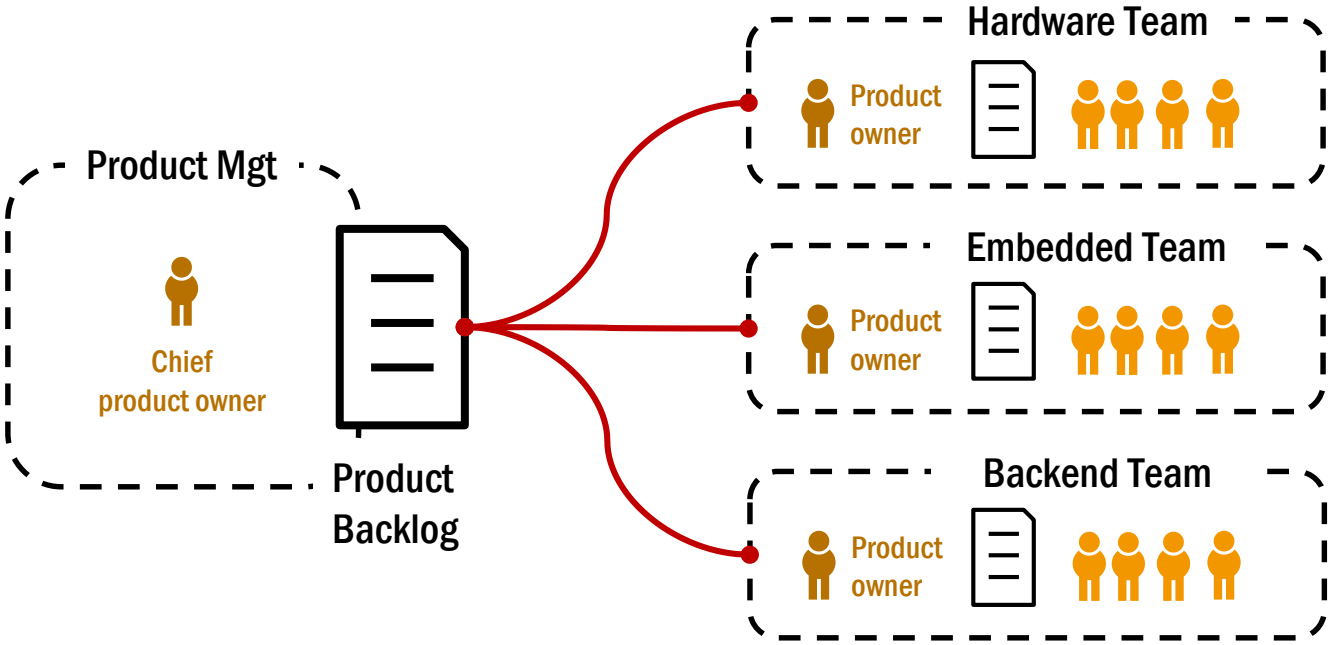

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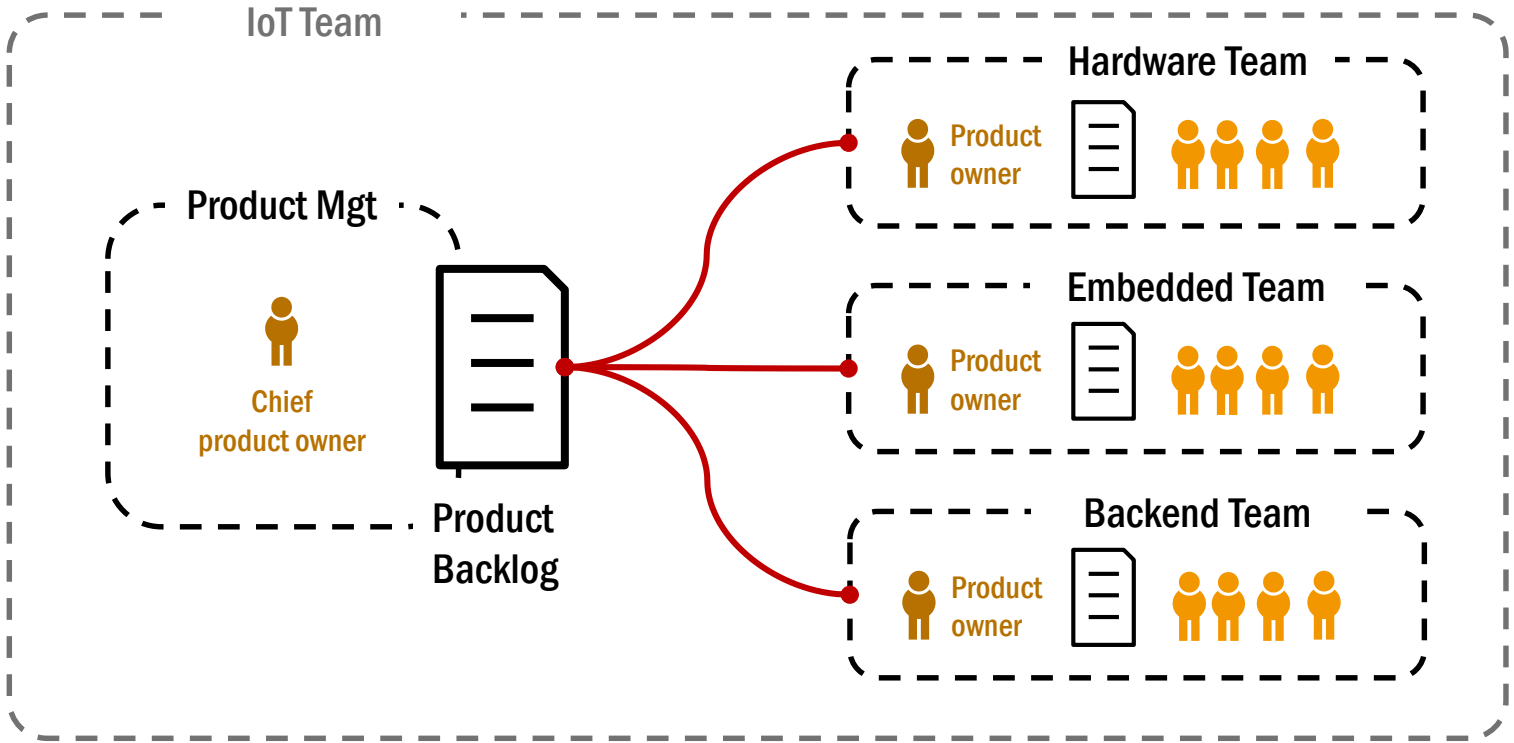
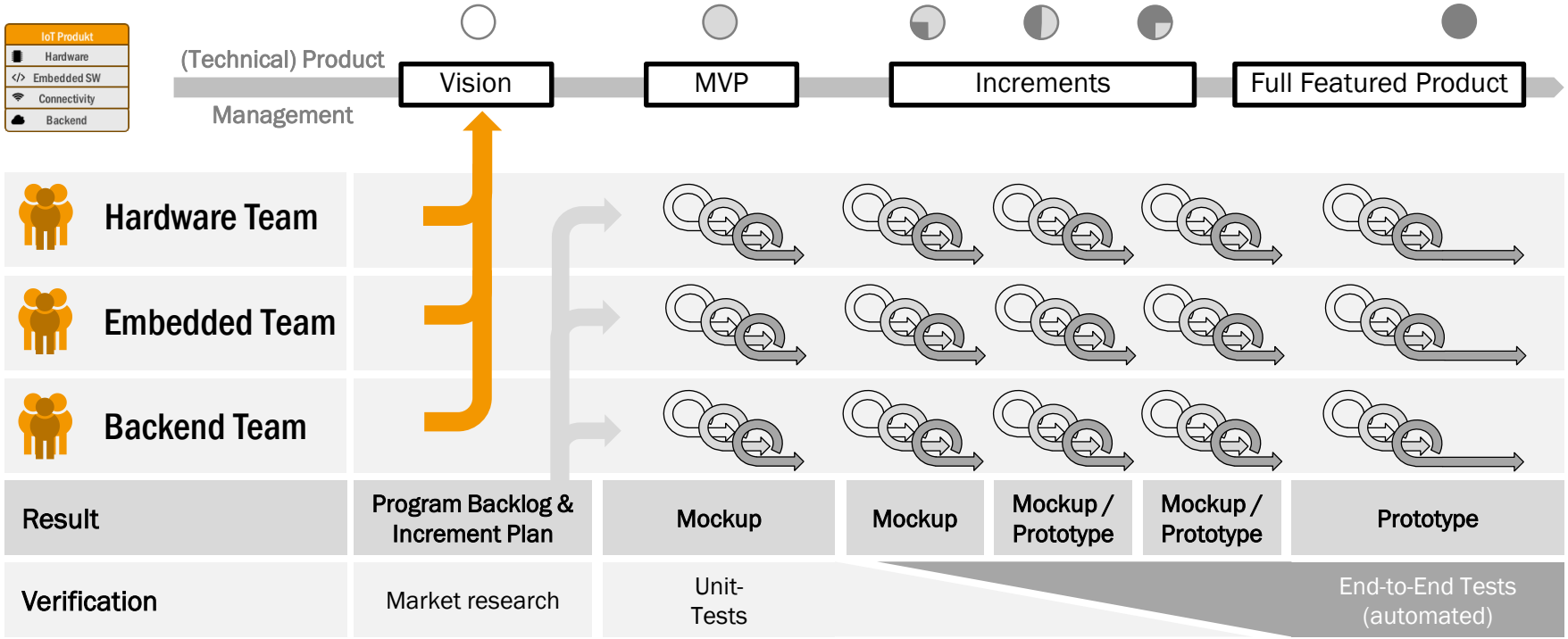
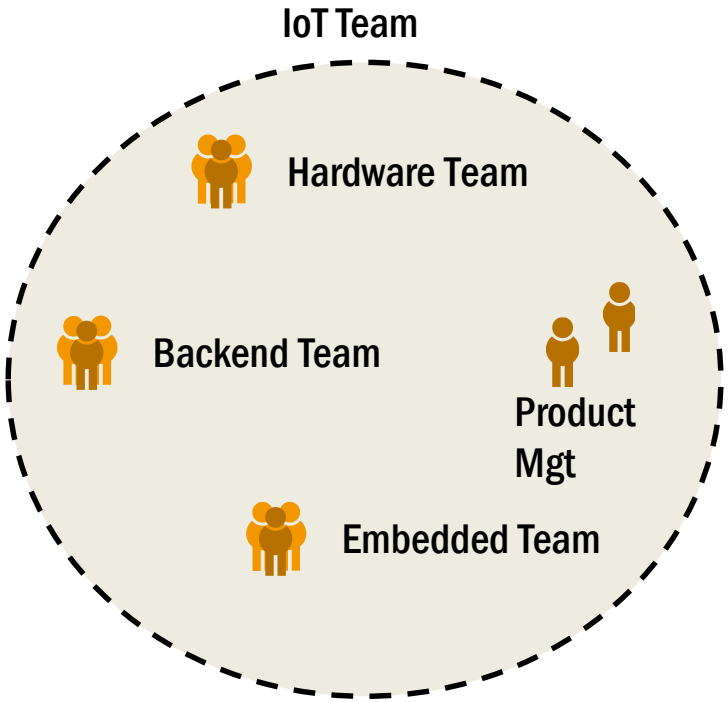


Teams work agile within stages defined by product management.
Continuous integration is essential all the while. Make sure parts fit together.



Take away & outlook

- IoT projects can benefit from developments and knowlegde within the internet industry. Agile methodologies are worthwhile.
- Test automation is an essential driver for accelerated development processes. It strengthens trust in the process and in quality of artifacts.
- Communication and cooperation between teams is vital.
- We depicted a blue print. Each company should find its own methods and optimize them according to their needs.



Thanks for watching!

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Alle Angaben basieren auf dem derzeitigen Kenntnisstand. Änderungen vorbehalten.