Kanban (development)
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Kanban is a method for visualizing the flow of work, in order to balance demand with available capacity and spot bottlenecks. Work items are visualized to give participants a view of progress and process, from start to finish. Team members pull work as capacity permits, rather than work being pushed into the process when requested.

In knowledge work and software development, this provides a visual process management system which aids decision-making about what, when and how much to produce. Although the underlying Kanban method originated in lean manufacturing (inspired by the Toyota Production System) it is used in many software development and technical support frameworks, and may be applied to any type of service.

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Overview

David Anderson's 2010 book, Kanban, describes the method's evolution from a 2004 project at Microsoft using a theory of constraints approach and incorporating a drum-buffer-rope (which is comparable to the kanban pull system), to a 2006-2007 project at Corbis in which the kanban method was identified. In 2009, Don Reinertsen's published a book on second-generation lean product development which describes the adoption of the kanban system and the use of data collection and an economic model for management decision-making. Another early contribution came from Corey Ladas, whose 2009 book Scrumban suggested that kanban could improve Scrum for software development. Ladas saw Scrumban as the transition from Scrum to Kanban. Jim Benson and Tonianne DeMaria Barry published Personal Kanban, applying Kanban to individuals and small teams, in 2011. In Kanban from the Inside (2014), Mike Burrows explained kanban's principles, practices and underlying values and related them to earlier theories and models. Kanban Change Leadership (2015), by Klaus Leopold and Siegfried Kaltenecker, explained the method from the perspective of change management and provided guidance to change initiatives. A condensed guide to the method was published in 2016, incorporating improvements and extensions from the early kanban projects.

Principles

Kanban is an approach to process change for organizations which uses visualization with a kanban board, allowing a better understanding of work and workflow. It advises limiting work in progress, which reduces waste from multitasking and context switching, exposes operational problems and stimulates collaboration to improve the system. Kanban is rooted in two sets of principles, for change management and service delivery, which emphasize evolutionary change and customer focus. The method does not prescribe a specific set of steps, but starts from existing context and stimulates continuous, incremental and evolutionary changes to the system. It aims to minimize resistance to change to facilitate it.
Kanban focuses on the customer and work which meets their needs, rather than individuals' activities. Kanban has six general practices: visualization, limiting work in progress, flow management, making policies explicit, using feedback loops, and collaborative or experimental evolution. They involve seeing the work and its process and improving the process, keeping and amplifying useful changes and learning from, reversing and dampening the ineffective.

**Examples**

**Software development**

The diagram shows a kanban board for a software development workflow.\[12\] The boards, designed for the context in which they are used, vary considerably and may show work item types ("features" and "user stories" here), columns delineating workflow activities, explicit policies, and swimlanes (rows crossing several columns, used for grouping user stories by feature here). The aim is to make the general workflow and the progress of individual items clear to participants and stakeholders.

**Other uses**

Although it was developed for software development and software teams, the kanban method has been applied to other aspects of knowledge work.\[13\] As a visualization and control mechanism, any repeatable and consistent workflow can be tracked regardless of complexity or subject area. Business functions which have used kanban include:

- Human resources\[14\] and recruitment\[15\]
- Marketing
- Organizational strategy and executive leadership\[16\]
- Auditing
- Contracts-to-project execution process
- Accounts receivable and payable

**See also**

- Lean software development
- List of software development philosophies
- Comparison of kanban software
- Teamwork

**References**

Further reading


External links

- Kanban Glossary of Terms
- Kanban Case Study Series.