Kanban (development)

Kanban (Japanese 看板, signboard) is a lean method to manage and improve work across human systems. This approach aims to manage work by balancing demands with available capacity, and by improving the handling of system-level bottlenecks.

Work items are visualized to give participants a view of progress and process, from start to finish - usually via a Kanban board. Work is pulled as capacity permits, rather than work being pushed into the process when requested.

In knowledge work and in software development, the aim is to provide a visual process-management system which aids decision-making about what, when and how much to produce. The underlying Kanban method originated in lean manufacturing[1] (inspired by the Toyota Production System[2]) it is now used in software development and technology-related work and has been combined with other methods or frameworks such as Scrum.[3]

Contents

Overview

David Anderson's 2010 book, *Kanban*,[4] describes the method's evolution from a 2004 project at Microsoft[5] 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 published a book on second-generation lean product development[6] 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*[7] 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*,[8] applying Kanban to individuals and small teams, in 2011. In *Kanban from the Inside* (2014),[9] 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,[10] 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.[11]
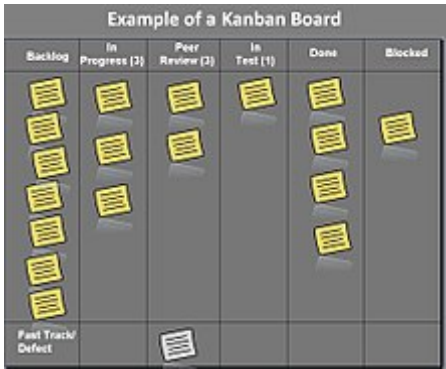
Kanban boards

Although Kanban does not require that the team or organization use a Kanban board, they can be used to visualise the flow of work. Typically a Kanban board shows how work moves from left to right, each column represents a stage within the value stream.

The image below is a typical view of a simplified Kanban board, where work items move from left to right. In some cases each column has a work in progress limit. This means that each column can only receive a fixed amount of work items with the aim to encourage focus, and make system constraints evident.

Examples

Software development

The diagram here and the one in the Kanban Board section shows 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 is usually used for software development and software teams, the kanban method has been applied to other aspects of knowledge work.[13]. Business functions which have used kanban include:

- Human resources[14] and recruitment[15]
- Marketing
- Organizational strategy and executive leadership[16]

See also

- Lean software development
- List of software development philosophies

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Further reading

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