# Kanban

- Kanban is a Japanese term meaning 'signal'.
- It is a signal (in form of a physical or electronic card) from the downstream process to the upstream process
  - to replenish the product or
  - start manufacturing because there is a demand.
- Kanban is commonly used to achieve 'Just In Time' (JIT) production in a Pull system.

# Kanban

- Kanban methodology of work dates back many many years.
- In the late 1940s Toyota began optimizing its engineering processes.
- To communicate capacity levels in real-time on the factory floor (and to suppliers), workers would pass a card, or "kanban", between teams.

# Kanban

- Push System - is a Supply Chain philosophy where the production is 'Make to Stock' and the manufacturer pushes its products into the market.
- Production is driven by forecasted demand.

# Kanban

- Pull System - is a Supply Chain philosophy where the production is 'Make to Order' i.e. the customer is demanding the product and hence it is made.
- Production is driven by customer demand.

# Kanban

- Kanban is all about <span style="color:red">visualizing</span> your work, <span style="color:red">limiting work in progress</span>, and maximizing <span style="color:red">efficiency (or flow)</span>.
- Kanban teams focus on reducing the time a project takes (or <span style="color:red">user story</span>) from start to finish.
- They do this by using a <span style="color:red">kanban board</span> and continuously improving their flow of work.

# Kanban's aim

- Kanban aims to give team members <span style="color:red">just enough work</span> so the team is consistently working at capacity.
- Teams that practice kanban benefit from
  - flexible planning,
  - clearer focus, and
  - total transparency
- <span style="color:red">because whatever's on the board is the top priority.</span>
- That's what developers are working on.

# Six rules of Kanban

- Customer(Downstream) processes withdraw items in the precise amounts specified on the Kanban.
- Supplier(Upstream) produces items in the precise amounts and sequences specified by the Kanban
- No items are made or moved without a Kanban.
- A Kanban should accompany each item, every time.
- Defects and incorrect amounts are never sent to the next downstream process.
- The number of Kanbans is reduced carefully to lower inventories and to reveal problems.

# JIT / Software Development

- Agile software development teams today are able to leverage these same JIT principles by matching the amount of work in progress (WIP) to the team's capacity.
  - This gives teams more flexible planning options,
  - faster output,
  - clearer focus, and
  - transparency throughout the development cycle.
- the only physical things a software teams need are a board and cards, and even those can be virtual.

# metrics for kanban

- Lead time and cycle time are important metrics for kanban teams. The deal with the average amount of time that it takes for a task to move from start to finish.
- Cycle time is the amount of time it takes to complete an issue.
- Improving cycle times indicates the success of kanban teams.

# Kanban boards

- The work of all kanban teams revolves around a kanban board, a tool used to visualize work and optimize the flow of the work among the team.

- While physical boards are popular among some teams, virtual boards are a crucial feature in any agile software development tool for their traceability, easier collaboration, and accessibility from multiple locations.

- A kanban board is used throughout the lifecycle of a project whereas a scrum board is cleared and recycled after each sprint.

# Kanban boards

- Regardless of whether a team's board is physical or digital, their function is
  - to ensure <span style="color:red">the team's work is visualized,</span>
  - their workflow is <span style="color:red">standardized,</span> and
  - all <span style="color:red">blockers and dependencies</span> are immediately identified and resolved.
- A basic kanban board has a three-step workflow:
  - To Do, In Progress, and Done.
  - Visual signals, columns, work-in-progress limits, a commitment point, and a delivery point.

# Kanban boards

# Kanban cards

- In Japanese, kanban literally translates to "visual signal."
- For kanban teams, every work item is represented as a separate card on the board.
- is to allow team members to track the progress of work through its workflow in a highly visual manner.

# Kanban cards

- Kanban cards feature critical information about that particular work item,
- giving the entire team full visibility into who is responsible for that item of work,
- a brief description of the job being done,
- how long that piece of work is estimated to take,
- and so on

# The benefits of kanban

- 1.Planning flexibility
  - ◦ WIP Limit A kanban team is only focused on the work that's actively in progress.
- 2. Shortened time cycles (ensuring minimal average cycle)
  - ◦ Cycle time is a key metric for kanban teams.
  - ◦ Cycle time is the amount of time it takes for a unit of work to travel through the team's workflow – from the moment work starts to the moment it ships.
  - ◦ By optimizing cycle time, the team can confidently forecast the delivery of future work.

# The benefits of kanban

- 3. In a kanban framework, it's the entire team's responsibility to ensure work is <span style="color:red">moving smoothly through the process</span>.
- 4. Overlapping skill sets lead to smaller cycle times.
- 5. Fewer bottlenecks
- 6. Visual metrics
- 7. Continuous delivery

# Scrumban

- Scrumban is a hybrid structure that leverages the best of two methodologies - Scrum and Kanban

# Scrumban

- Remember the fact that as scrum does not tell about the 'how' part, we have the liberty to use anything without breaking the rules that govern the scrum framework.
- This is where a  technique like Kanban can be used inside the Scrum framework to leverage its process improvement benefits.
- So let us see as how using the hybrid version, ScrumBan - the combination of Scrum and Kanban, we can get the benefits

# Scrumban

- The iterations(sprints) of scrum are  not pre-fixed, but as needed , a kind of replaced by continuous flow system as in Kanban.
- The teams involved  may be specialized rather than cross functional teams of Scrum.  Specialized team obviates the need of a Scrum master, who controls Scrum.
- Task limits- Limited by work in progress(WIP), rather than sprint in Scrum.
- Tasks are taken up by the team members in a pull system, rather than preassigned tasks to team.
- Boards, backlogs and burn downs of Scrum are replaced by boards only.

# Scrumban

- The Performance metrics in Scrumban included  lead and cycle time,  average Cycle time, rather than burndown chart in Scrum.
- Planned meetings are not mandatory, rather on demand and optional meetings are conducted.
- Sprint planning is not required and replaced by on demand and bucket planning.
- Prioritization of work is carried out by priority columns, rather than backlog refining in Scrum.
- New tasks and changes may be added in a live iteration, which is not allowed in Scrum.

# Benefits of Scrumban

- 4. Using Kanban's WIP limit can result in taking limited amount of work items (usually in the form of user stories for a typical IT Scrum project ) and ensuring that you are on achieving to complete your items without overburdening yourselves and complete it on the time-boxed duration.

- WIP limit gives an opportunity to stay focussed as a team to complete the items that we pick (as a team) and then proceed to the subsequent items and then complete the iteration.

- It ensures that the planned goal/objective for that iteration(Sprint) is achieved.

# Benefits of Scrumban

- Quality oriented
- Just in time is facilitated
- Event driven and caters to the requirement
- Continuous improvement(Kaizen) is facilitated
- Waste is minimized by eliminating non value added things
- Overall process improvement, as and when needed
- Workflow issues and  resource issues  of Scrum get sorted out
- Ideal for maintenance projects
- Ideal for projects with unexpected user stories and programming errors