

A Guide to the
**KANBAN BODY OF KNOWLEDGE
(KBOK™ GUIDE)**

4. Kanban Metrics and Reports

The Practical Implementation Guide for Managing Workflows using Kanban
(Includes Examples from popular digital Kanban tools, facilitates integration with other Agile frameworks,
and recommends ways to use AI for increased productivity.)

4 KANBAN METRICS AND REPORTS

Kanban metrics and reports track team performance and workflow efficiency, providing insights into cycle time, throughput, and bottlenecks. These data-driven tools help teams make informed decisions to improve processes, optimize resource allocation, and enhance overall delivery speed and quality.

Metrics are used to help an organization understand the current state of Workflows and processes, which, in turn, assist the team in making informed decisions about changes that can bring improvements. Using metrics can also help an organization commit to and efficiently meet the service or product obligations of its customers, including factors related to time, cost, quality, risk, and scope. Some of the key metrics on which reports are based in Kanban include:

- Work in Progress (WIP) Aging Work in Progress (or Work Item Age)
- Cycle Time
- Throughput
- Lead Time
- Takt Time
- Queue Length
- Flow Efficiency

When applying the Kanban method within an organization, reports can be used to generate insights into Workflows and communicate work progress, issues, and risks to stakeholders. Many digital Kanban tools enable practitioners to leverage elaborate, AI-driven reports to make data-driven decisions. Some of the key reports used in Kanban are:

- Workflows Reports
- Team Reports
- Individual Performance Reports
- Cycle Time Reports
- Lead Time Distribution Reports
- Flow Efficiency Reports
- Throughput Reports
- Work in Progress (WIP) and WIP Aging Reports
- Cumulative Flow Diagrams (CFD)
- Blocker and Cluster Analysis Reports
- Capacity Utilization Reports
- Forecasting Reports
- Burndown Charts
- Service-Level Agreement (SLA) Adherence Reports

Many organizations prefer to generate reports related to the performance of individuals, teams, Workflows, projects, DevOps initiatives, operations, etc.

This can be facilitated through the use of a digital Kanban tool or a SaaS product. These tools provide real-time dashboards and comprehensive reports to manage work efficiently, even when teams are not collocated.

4.1 Kanban Metrics

Metrics are essential in Kanban because they provide objective, data-driven insights into how workflows through a system. They help teams understand performance, spot inefficiencies, and continuously improve their process. Metrics in Kanban are critical for understanding, managing, and improving Workflows. They turn invisible work into measurable results, enabling teams to become more predictable, efficient, and continuously better at delivering value.

4.1.1 Why Metrics Matter in Kanban

- Measure Workflows Performance

Kanban relies on flow-based metrics to track how efficiently work moves through the system. Some of the key metrics include:

- Cycle Time – How long it takes to complete a Task
- Lead Time – Time from request to delivery
- Throughput – Number of Tasks completed over a period

These metrics help teams understand how long work takes and how much they can deliver.

- Improve Predictability

By analyzing past performance, teams can forecast future delivery more accurately. This helps in planning, setting realistic expectations, and making reliable commitments.

- Identify Bottlenecks and Delays

Metrics highlight where work is piling up or moving slowly. For example, if cycle time is increasing or throughput is dropping, it signals a problem in the flow that needs attention.

- Support Continuous Improvement

With regular monitoring, teams can use metrics to evaluate the impact of process changes, enabling evidence-based decisions for continuous improvement (Kaizen).

- Drive Accountability and Transparency

Metrics make work visible and measurable. This promotes team accountability and builds trust with stakeholders, who can see how work is progressing and how value is delivered.

4.1.1.1 Work in Progress (WIP) Aging Work in Progress (or Work Item Age)

Work in Progress (WIP) Aging—also known as Work Item Age—is a Kanban metric that tracks how long a Task has been in progress since it started but hasn't been completed yet. This is a valuable Kanban metric for tracking how long Tasks have been in progress. It helps teams spot delays, reduce idle time, and keep work flowing smoothly by encouraging timely completion of ongoing Tasks.

What It Measures

- Work Item Age = Current Date – Start Date of the Task

- It applies only to Tasks that are currently in progress (not yet done).
- It gives real-time insight into how long active Tasks have been open.

Why It's Important

- Detects slow or stuck Tasks early before they become bottlenecks.
- Helps teams focus on finishing older work first, improving flow.
- Encourages discipline around limiting WIP and managing Task aging.
- Provides forecasting clues: older items are more likely to be delayed or at risk.

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How It's Used in Practice

- Teams often use a WIP Aging Chart, which shows:
 - Each in-progress Task,
 - Its age (in days),
 - Its location in the Workflows.

This makes it easy to spot Tasks that are aging beyond typical limits or expectations. This is a valuable Kanban metric for tracking how long Tasks have been in progress. It helps teams spot delays, reduce idle time, and keep work flowing smoothly by encouraging timely completion of ongoing Tasks.

4.1.1.2 Cycle Time

Cycle Time is a key flow metric in Kanban that measures how long it takes to complete a Task once it enters the “In Progress” stage until it reaches “Done.” It is a crucial Kanban metric that measures how long it takes to complete a Task once work has started. It provides valuable insights into team performance, helps forecast delivery, and supports continuous process improvement.

What It Measures

- Cycle Time = End Date – Start Date
- It tracks the active time a Work Item spends being worked on.
- It does not include time spent in the backlog or waiting to be started.

Why Cycle Time Is Important

- Predictability
 - Helps teams understand how long it usually takes to complete a Task.
 - Enables better forecasting of future work delivery.
- Performance Tracking
 - Teams can monitor trends and see whether they're speeding up or slowing down over time.
- Process Improvement
 - Long or increasing cycle times may indicate bottlenecks, blockers, or inefficiencies.
 - Encourages teams to reduce unnecessary delays and streamline their Workflows.
- Customer Satisfaction
 - By delivering work faster and more predictably, teams can meet deadlines and deliver value more consistently.

How It's Visualized

- Cycle Time Scatterplots: Show the distribution of cycle times for completed Tasks.
- Control Charts: Help track variability and highlight outliers or patterns in process performance.

Ideal Use in Kanban

- Combine Cycle Time with other metrics like Lead Time and Throughput for a full picture of team efficiency.
- Use historical cycle time data to estimate Service Level Expectations (SLEs)—for example, “85% of Tasks are completed in 4 days or less.”

4.1.1.3 Throughput

Throughput in Kanban refers to the number of Work Items completed during a specific time period (e.g., per day, week, or month). It tells you how much work your team delivers over time. It is a core Kanban metric that shows how many Tasks your team completes in a given time period. It helps with forecasting, capacity planning, and spotting trends in team performance.

What It Measures

- Throughput = Count of completed Tasks in a given time frame
- It measures output, not time.
- Unlike cycle time (which tracks how long Tasks take), throughput shows how many Tasks are finished.

Why Throughput Is Important

- Performance Monitoring
 - Tracks how productive the team is over time.
 - Helps assess if delivery is increasing, decreasing, or stable.
- Forecasting
 - Historical throughput allows teams to predict future delivery capacity.
 - For example: “We complete an average of 20 items per week.”
- Capacity Planning
 - Helps decide how much work the team can commit to in upcoming weeks or sprints.
- Supports Continuous Improvement
 - Sudden drops or irregular throughput may signal Workflows issues, blockers, or overcommitment.

How It's Visualized

- Throughput Run Charts: Display the number of completed items per time interval.
- Used alongside Cycle Time and WIP to analyze team flow and performance.

Best Practices

- Track different work types (bugs, features, support Tasks) separately if needed.
- Avoid comparing raw throughput across different teams—context matters (Task size, complexity, etc.).
- Combine with Work Item Age and Cycle Time for more comprehensive insights.

4.1.1.4 Lead Time

Lead Time in Kanban measures the total time it takes for a Work Item to go from request to delivery—in other words, from the moment it is added to the backlog until it is completed. Lead Time is a vital Kanban metric that tracks how long it takes to deliver a Work Item from request to completion. It gives insight into responsiveness, supports better forecasting, and helps teams improve customer satisfaction by reducing delays.

What It Measures

- Lead Time = Completion Date – Request Date
- It includes waiting time (before work starts) and active work time.
- It tracks the entire customer experience, not just the time spent working.

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Why Lead Time Is Important

- Customer Focus
 - Lead Time reflects the customer's wait time, helping teams understand how long it takes to deliver value.
- Predictability
 - Helps estimate when future work will be completed.
 - Reduces uncertainty and improves planning accuracy.
- Process Optimization
 - A long or increasing lead time may point to delays in starting work or Workflows inefficiencies.
 - Enables teams to optimize queues, reduce delays, and improve responsiveness.
- Supports Service-Level Expectations (SLEs)
 - Teams can use historical lead time data to set delivery expectations (e.g., "85% of Tasks are completed within 7 days").

How It's Visualized

- Lead Time Histogram: Shows the distribution of lead times across completed items.
- Cumulative Flow Diagram (CFD): Helps visualize how work is flowing and where lead time might be increasing.

Difference from Cycle Time

Table 4-1 shows the differences between Cycle Time and Lead Time.

Metric	Start Point	End Point	Focus
Lead Time	When item is requested	When item is delivered	Customer experience
Cycle Time	When work starts	When item is delivered	Internal process time

Table 4-1: Differences between Cycle Time and Lead Time

4.1.1.5 Takt Time

Takt Time is a flow metric that represents the maximum amount of time available to produce a single unit of work in order to meet customer demand. The term comes from the German word *Takt*, meaning “pulse” or “beat.” Takt Time in Kanban sets the pace your team needs to follow to meet customer demand consistently. It helps align Workflows with expectations, balance capacity, and identify inefficiencies—making it a powerful tool for flow optimization.

What It Measures

- Takt Time = Available Work Time / Customer Demand
- It tells you how frequently you need to complete a Task or deliver value to meet expectations.

Example:

If your team works 40 hours per week (2,400 minutes) and the customer expects 10 items per week:

Takt Time = 2,400 minutes / 10 items = 240 minutes per item

This means your team should complete one item every 240 minutes to meet demand.

How It's Visualized

- In Kanban, Takt Time is visualized using charts or dashboards that compare actual throughput against the required pace of work to meet customer demand. It may appear on cumulative flow diagrams, control charts, or custom widgets showing average output per time interval.
- Visual cues like color coding or threshold lines help teams quickly assess whether they're ahead, behind, or on track. This supports decision-making and enables timely adjustments to maintain consistent flow and delivery performance.

Why Takt Time Is Important in Kanban

- Aligns Delivery with Demand
 - Helps ensure your team is delivering work at a pace that matches what the customer or market requires.
- Identifies Overproduction or Underproduction

- If actual delivery is faster than takt time, you may be overproducing (wasting resources).
- If it's slower, you may be falling behind customer expectations.
- Supports Flow Efficiency
 - Helps balance Workflows by ensuring teams don't overload or underuse their capacity.
- Useful in Repetitive or Predictable Environments
 - While Takt Time is more common in manufacturing, it can be applied in Kanban Teams handling repetitive, consistent demand, like customer support or content production.

Takt Time vs. Other Metrics

Table 4-2 captures the differences between Takt Time and other key metrics used in Kanban.

Metric	Measures	Focus
Takt Time	Time allowed per unit (target rate)	Customer demand rate
Cycle Time	Time to complete one Task	Actual performance
Lead Time	Time from request to delivery	Total customer wait time

Table 4-2: Takt Time vs. Other Metrics

4.1.1.6 Queue Length

Queue Length in Kanban refers to the number of Work Items waiting in a queue before they are actively worked on. These items are in stages where no one is currently working on them, such as "To Do" or any waiting/ready states between active stages. Queue Length is a Kanban metric that tracks how many Tasks are waiting to be worked on. It helps identify bottlenecks, reduce idle time, and improve flow efficiency—making it essential for optimizing team performance and delivery speed.

What It Measures

- Queue Length = Count of items waiting in a specific stage (usually non-active columns like "Ready for Review" or "Waiting")
- It reflects the volume of work that is idle or waiting for attention.

Why Queue Length Is Important

- Reveals Bottlenecks
 - Long queues can signal blockages or capacity issues in the Workflows.
 - For example, too many items in "Ready for Testing" may mean the QA team is overloaded.
- Improves Flow Efficiency

- Reducing queue length minimizes wait time, helping to lower lead time and boost overall delivery speed.
- Supports Work-In-Progress (WIP) Limits
 - Monitoring queues helps enforce WIP limits by showing where work is piling up unnecessarily.
- Enhances Predictability
 - Short, consistent queues lead to more predictable cycle and lead times, making delivery more reliable.

How It's Visualized

- Cumulative Flow Diagrams (CFDs) can visually highlight growing queue lengths over time.
- Kanban Board s also show queues directly in each column—visually representing where work is stalled.

Queue vs. Active Work

Table 4-3 shows how Queue and Active Work relate to each other.

Stage	Work Type	Example
Queue Stage	Waiting/Idle	"Ready for Review"
Active Stage	In Progress	"Coding," "Testing"

Table 4-3: Queue vs. Active Work

Only queue stages contribute to Queue Length.

4.1.1.7 Flow Efficiency

Flow Efficiency measures the percentage of time a Work Item spends actively being worked on versus the total time it spends in the system, including waiting or idle time. Flow Efficiency is a powerful Kanban metric that shows how much of a Work Item's time is spent on productive work vs. waiting. It helps teams identify waste, improve processes, and deliver value faster with greater predictability.

What It Measures

- $\text{Flow Efficiency} = (\text{Active Work Time} \div \text{Total Lead Time}) \times 100$

Where:

- Active Work Time = Time spent actually working on the item
- Total Lead Time = Time from when the item was requested to when it was delivered (includes wait time)

Example:

If a Task takes 2 days of active work but spends 8 days total in the system:

$$\text{Flow Efficiency} = (2 \div 8) \times 100 = 25\%$$

Why Flow Efficiency Is Important

- Uncovers Waste
 - Low flow efficiency often means work is spending more time waiting than being worked on.
 - Highlights opportunities to reduce delays, blockers, and context switching.
- Boosts Productivity
 - Helps teams focus on minimizing idle time, leading to faster delivery without overworking.
- Informs Process Improvements
 - Enables teams to identify non-value-adding activities in their Workflows.
 - Encourages smoother transitions between stages.
- Improves Forecasting
 - A more efficient flow leads to more predictable delivery, helping with planning and setting accurate expectations.

How It is Tracked

- Often visualized in flow analytics dashboards or derived from Cycle Time breakdowns.
- Tools like control charts or time-in-state reports help separate active vs. waiting time.

What is a Good Flow Efficiency?

- Many knowledge-work teams (e.g., software, marketing) start with 5–15% flow efficiency.
- The goal is not 100%, but rather continuous improvement by reducing waste and delays over time.

4.2 Kanban Reports

Reports in Kanban play a crucial role in monitoring, analyzing, and improving Workflows performance. They provide data-driven insights that help teams make informed decisions, identify inefficiencies, and continuously enhance their process. Reports in Kanban are vital for transparency, performance tracking, and continuous improvement. They turn raw Workflows data into actionable insights, enabling teams to deliver value more efficiently and consistently.

4.2.1 Why Reports Matter in Kanban

- Visualize Workflows Efficiency

Reports like Cumulative Flow Diagrams (CFDs) show how work moves through various stages, helping teams see trends, bottlenecks, or delays in real time.

- Measure Key Metrics

Reports track essential flow metrics such as:

- Cycle Time (how long a Task takes to complete)
- Lead Time (total time from request to delivery)
- Throughput (number of Tasks completed in a given time)

These metrics help teams set realistic expectations and improve predictability.

- Support Continuous Improvement

By regularly reviewing reports, teams can identify patterns, uncover waste, and prioritize areas for improvement. This supports the Kaizen mindset (continuous improvement) promoted by Kanban.

- Enable Data-Driven Decisions

Instead of guessing or relying on assumptions, teams use factual data from reports to guide changes in WIP limits, process policies, or resource allocation.

- Promote Transparency and Accountability

Sharing reports with stakeholders fosters trust and alignment, as everyone can clearly see how the team is performing and where improvements are needed.

Figure 4-1 presents a dashboard in Vabro displaying various reports categorized under “Kanban” methodology. It features visual representations of key metrics like sprint burndown, velocity, lead time, and cycle time, offering insights into work progress and team performance.

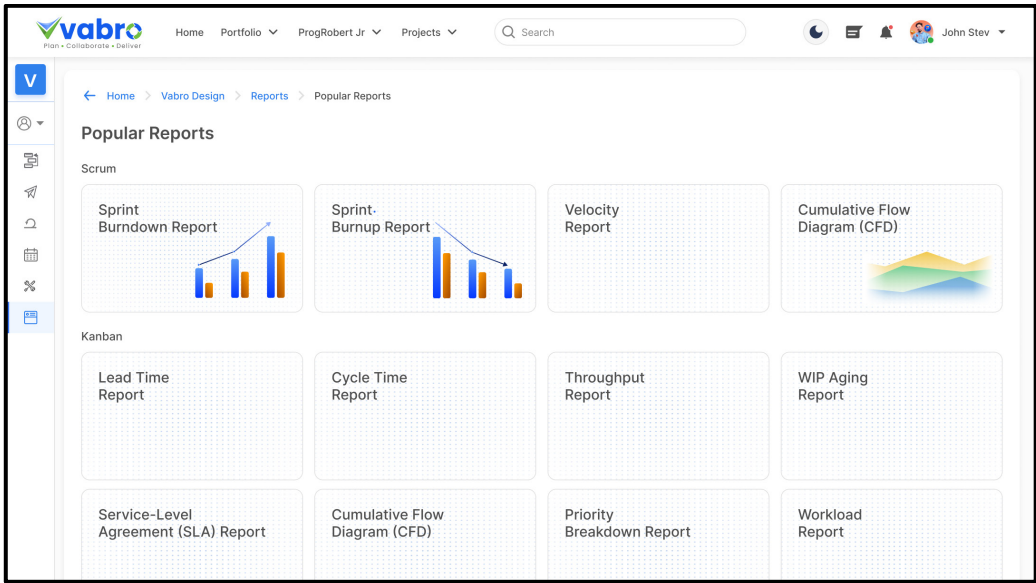


Figure 4-1: Reports Overview (Source: Vabro)

Figure 4-2 shows a dashboard, specifically the "Home" screen of Basecamp, displaying active initiatives and teams. It highlights the "Orange Team" with a focus on their completed initiatives and progress, alongside other teams and their ongoing initiatives with deadlines and progress indicators.

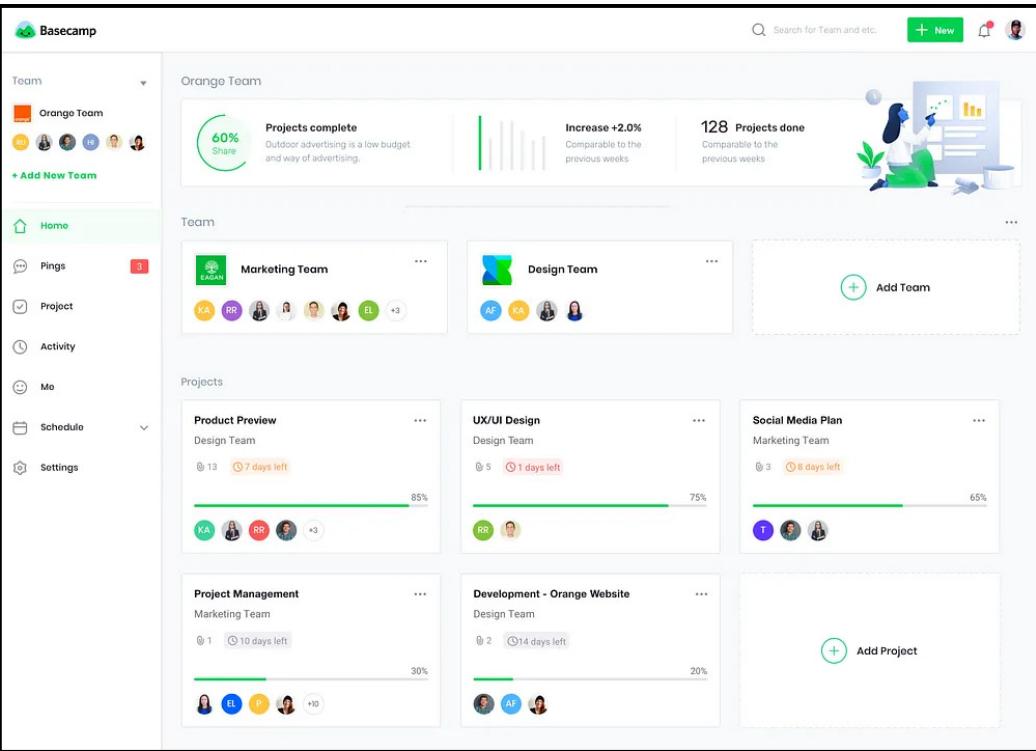


Figure 4-2: Reporting Progress Updates to Stakeholders (Source: Basecamp)

Figure 4-3 shows the Kanbanchi Kanban interface, displaying options to create or browse Kanban Boards, access reports (including Agile charts), and manage user settings, highlighting Workflows management features.

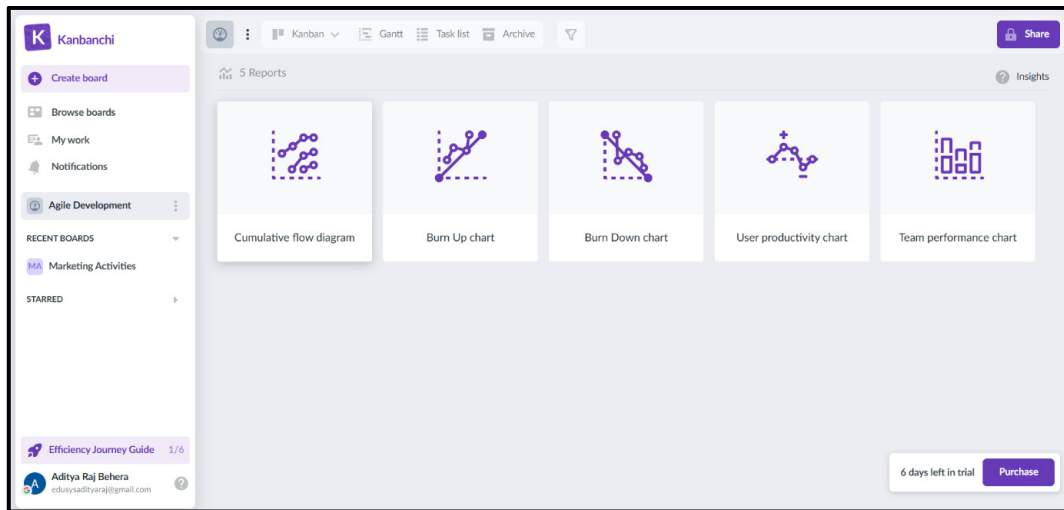


Figure 4-3: Types of Reports in Kanban (Source: Kanbanchi)

4.2.2 Workflow Reports

Workflows reports enable teams to evaluate progress at the Workflows level and unlock actionable insights through AI-driven analytics. These reports provide insights into detailed Workflows-level performance and real-time metrics to optimize customer service Workflows and enhance decision-making. Workflows reports analyze the efficiency of the processes and stages through which Tasks progress. They often feature data on Task distribution across stages, time spent in each stage, and the identification of process bottlenecks.

Workflows Example:

A Workflows report might show that Tasks spend an average of 2 days in the "In Progress" stage but 4 days in the "Testing" stage, suggesting that the testing phase may require additional resources or process optimization. Additionally, a Workflows report can also be generated based on the artifacts used in the initiative.

Figure 4-4 displays Vabro's reporting dashboard, showing Task Group creation and completion trends over time, with a detailed breakdown of individual Task Group statuses and priorities.

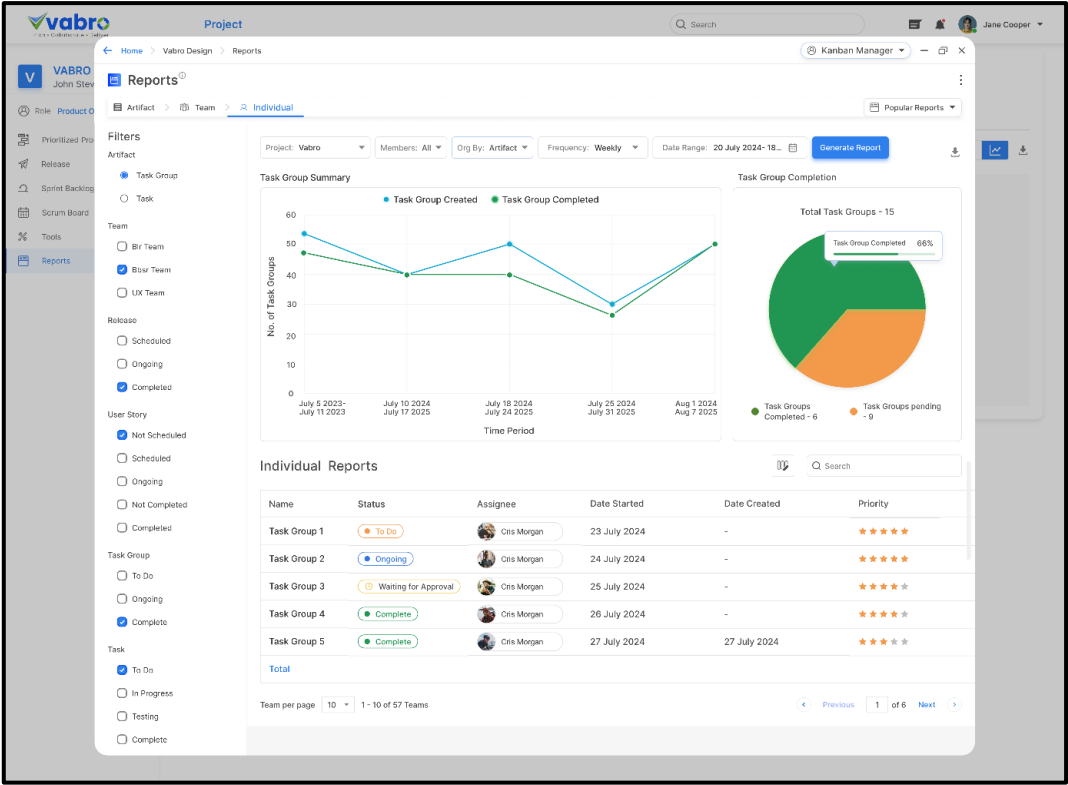


Figure 4-4: Workflows Report (Source: Vabro)

Figure 4-5 displays a Workflows Report, of Monday.com, on employee onboarding metrics with three charts: "Onboarding by department" (bar chart showing counts per department), "Onboarding by site" (bar chart comparing New York and Remote), and "Onboarding by month" (line chart showing a declining trend from March to June 2022). It provides a visual overview of onboarding progress and trends.

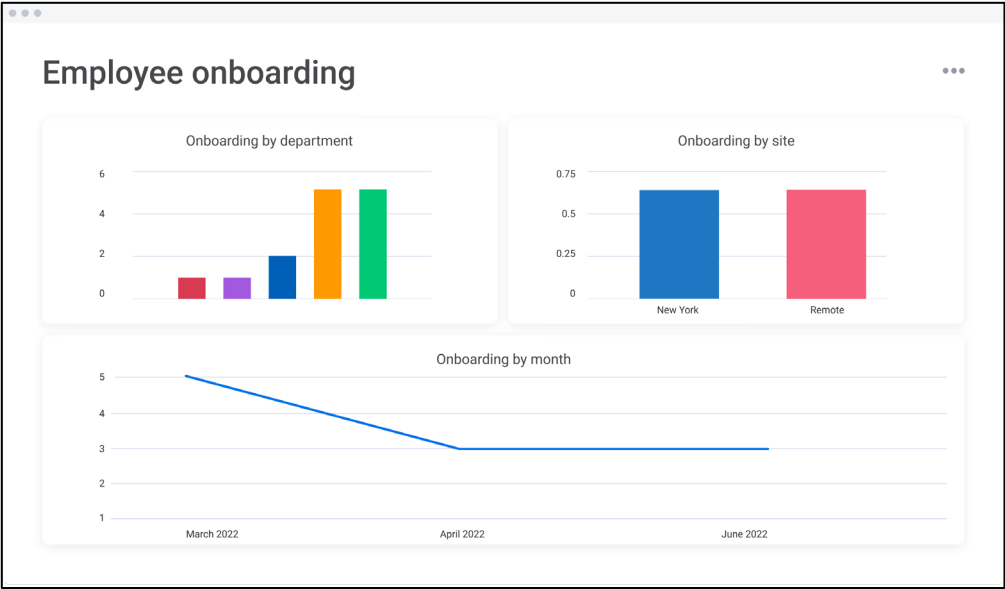


Figure 4-5: Workflows Report (Source: Monday.com)

4.2.3 Team Reports

Team reports enable teams to gain insights into overall performance on a real-time basis and identify bottlenecks to ensure timely resolutions and smoother Workflows. These reports provide a holistic view of the team's performance, highlighting collaboration and collective productivity. Metrics may include the number of Tasks completed by the team, average cycle time, sprint velocity, and the identification of bottlenecks.

Team Reports Example:

A team report might reveal that the team completed 50 Tasks in a development cycle, with an average cycle time of 3 days per Task, and that Tasks in the Review stage experienced delays, indicating a potential area for process improvement.

Figure 4-6 shows Vabro's reporting dashboard, displaying a summary of boards, Task Group statuses, and team performance metrics, with charts visualizing Task progress and completion.

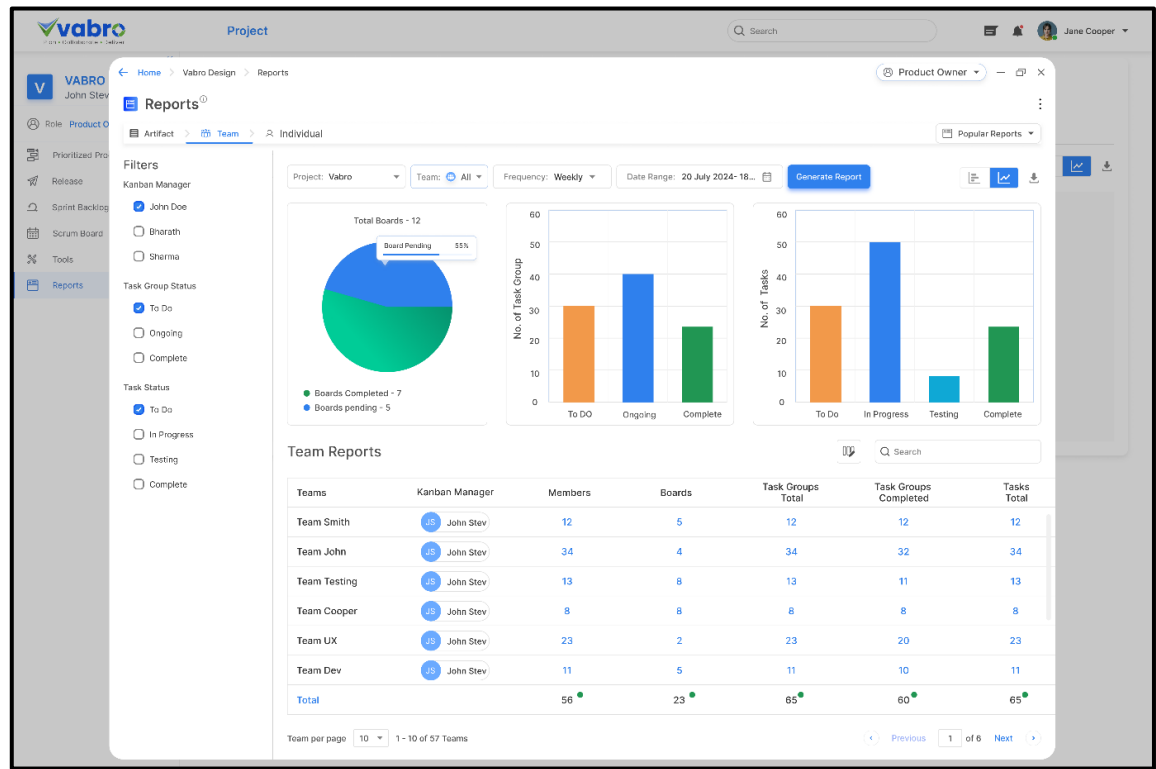


Figure 4-6: Team Report (Source: Vabro)

Figure 4-7 depicts a Workflows management dashboard in ClickUp showcasing the status of Tasks across different categories: Unassigned, In Progress, and Completed. It further breaks down Task distribution by assignee, highlighting the percentage of Tasks assigned to each individual and the number of open Tasks they currently have.

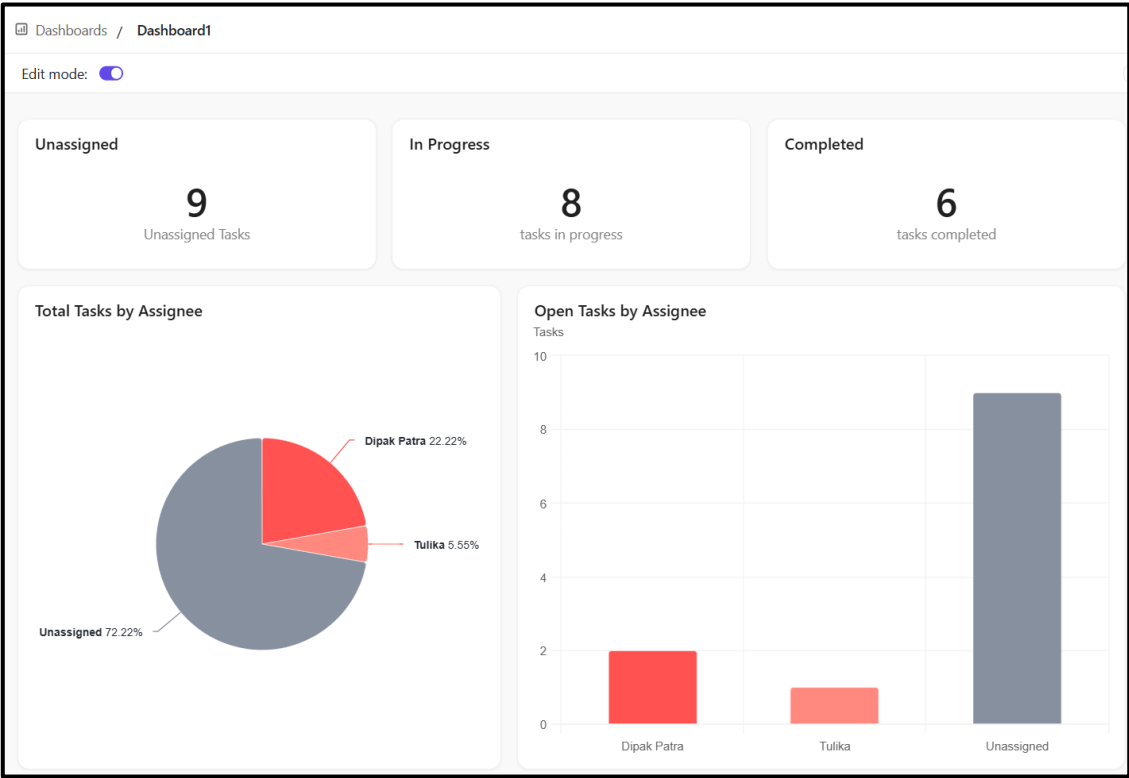


Figure 4-7: A Variant of Team Reports in Kanban (Source: ClickUp)

4.2.4 Individual Performance Reports

Individual performance reports focus on assessing the contributions and productivity of team members. They typically include metrics such as Tasks completed, time spent on Tasks, adherence to deadlines, and quality of work.

Individual Performance Report Example:

Individual Performance Report of Developer - John Doe

- Tasks Completed: 45
- Average Cycle Time: 5 hours/Task
- Adherence to Deadlines: 100%
- Reopened Tasks: 0
- Blocked Items: 2 (resolved in 4 hours)

John demonstrates excellent productivity, timely delivery, and high-quality work with minimal blockers.

Figure 4-8 shows a Vabro software interface displaying a "Individuals Report" for an initiative called "Board 12." The report lists various Tasks for all team members, with their estimated completion times in days.

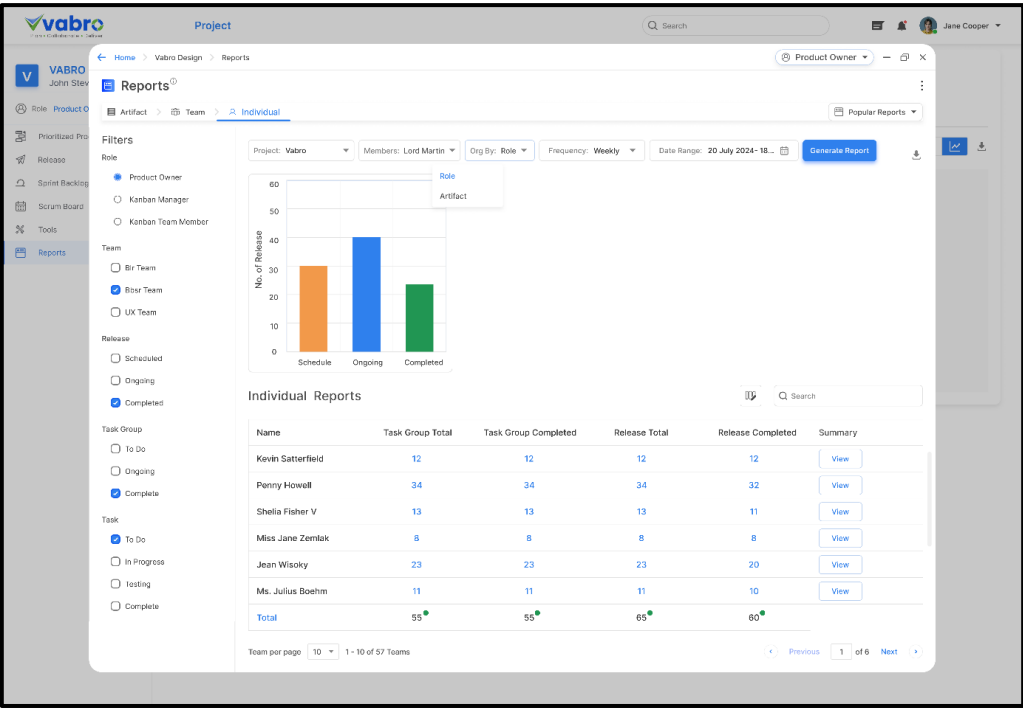


Figure 4-8: Individual Performance Report (Source: Vabro)

Figure 4-9 displays Asana's bar graph visualizing the number of goals owned by different individuals: James Smith, John Doe, and Simon Murphy. James Smith has the highest number of goals with 10, followed by John Doe with 4, and Simon Murphy with 1.

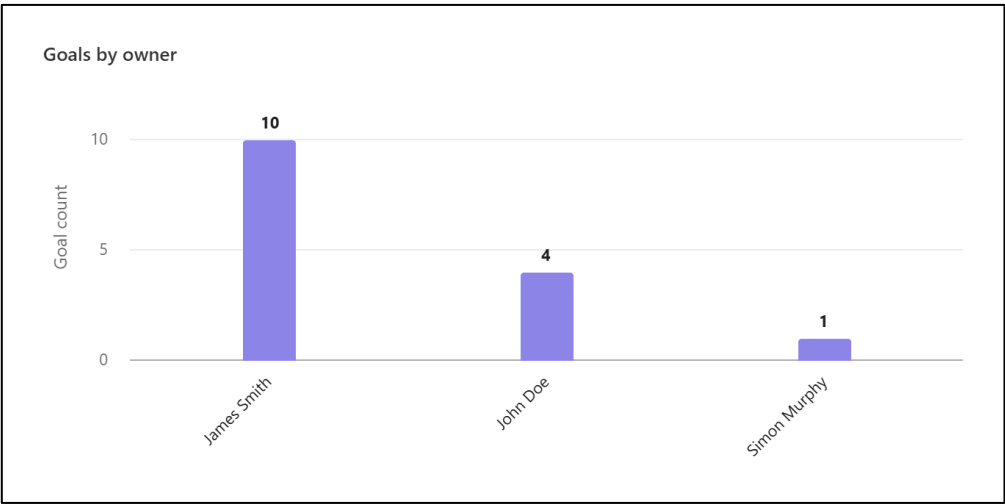


Figure 4-9: Individual Performance Report (Source: Asana)

4.2.5 Cycle Time Reports

A Cycle Time Report is used to measure the efficiency of a process or Workflows and to determine a team's Task completion time. Cycle Time is the total amount of time that a Work Item, such as a Task or feature, remains in the 'Work in Progress' status. Therefore, it is the duration taken for a Work Item to move from the 'In Progress' column to the 'Done' column on a typical Kanban Board.

The metrics used in this report include Average Cycle Time, Median Cycle Time, Minimum Cycle Time, and Maximum Cycle Time.

- Average Cycle Time is the mean duration of all Work Items or Tasks under implementation.
- Median Cycle Time is the middle value of all sorted Cycle Times.
- Minimum and Maximum Cycle Time are the shortest and longest durations, respectively.

Figure 4-10 shows a Vabro "Cycle Time Report" for "Board 12," visualizing Task completion times. It displays a list of Tasks and their corresponding durations represented by horizontal bars, indicating the time spent on each Task.

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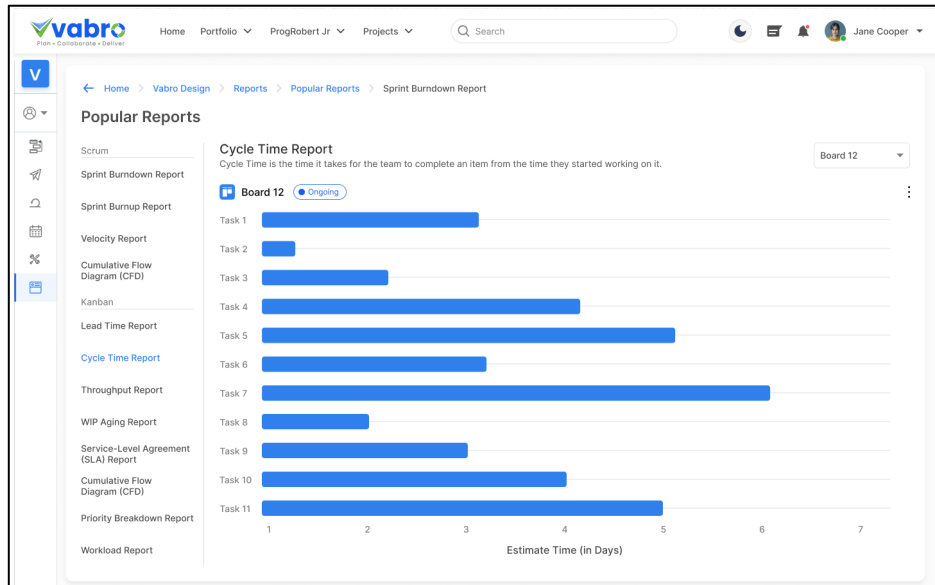


Figure 4-10: Cycle Time Report (Source: Vabro)

Figure 4-11 shows a "Cycle Time Trend Gadget" in Jira tool, displaying the average time it takes to complete Tasks over five time intervals. The overall average cycle time is 25.33 hours, with a downward trend indicated by the orange line.

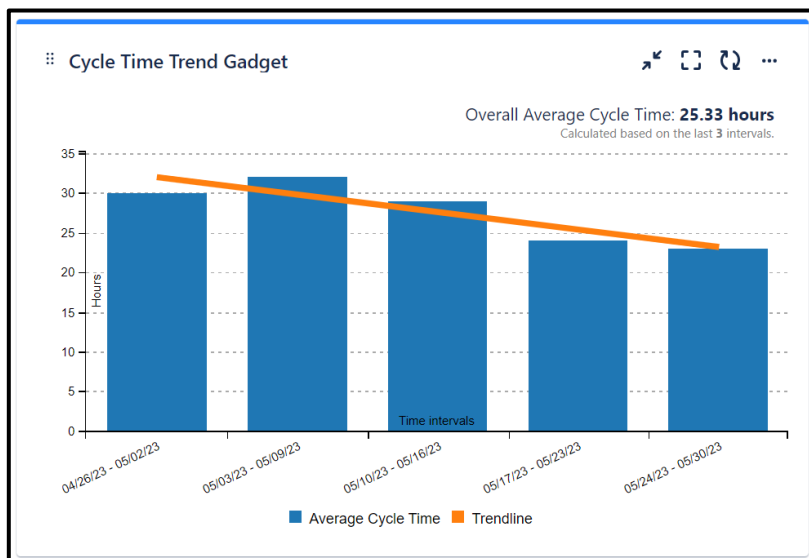


Figure 4-11: Cycle Time Report (Source: Jira)

The key benefits of using a Cycle Time Report are to help teams:

- Identify improvement opportunities to optimize Workflows.
- Provide accurate estimates of delivery times to set stakeholder expectations and commit to targets.
- Consider the Cycle Times of various processes and prioritize those that offer the highest improvement benefits.
- Identify and eliminate blockers in the process.
- Focus on continuous improvements by targeting Cycle Time reductions.

Depending on the information needs of the Kanban Team and other stakeholders, Cycle Time Reports can include control charts, histograms, summary tables, and/or line graphs. Below is a brief description of how each visual can be used:

- Control charts can be used to present the Cycle Time of individual Tasks, features, or Work Items over a specified duration. This visual helps the team understand any variations in Cycle Time, identify outliers, and address them to bring the Cycle Time within acceptable limits. In a typical Cycle Time control chart, the Task or feature completion date is plotted on the x-axis, and the number of hours or days taken to complete the Task or feature is plotted on the y-axis.
- Histograms can be used to depict the distribution of Cycle Time frequency for Completed Work Items in a given Workflows. In a typical histogram, Cycle Time (in hours or days) is plotted on the x-axis, and the number of Work Items is plotted on the y-axis.
- Summary tables can be used to capture numerical summaries of gathered Cycle Time data, providing a detailed comparison of Cycle Times for specific teams or Work Items across different time periods. A typical summary table might contain information on the average, median, minimum, and maximum Cycle Times for various categories of Work Items in a Workflows or across Workflows related to selected teams over a specific timeframe.
- Line graphs can be used to depict trends in Average Cycle Time over a specified duration. A typical line graph will have selected time periods on the x-axis and Average Cycle Time on the y-axis.

4.2.6 Lead Time Distribution Reports

A Lead Time Distribution Report can be used to assess average lead time, lead time per Task or Work Item, and trends in lead time. Average lead time is the mean of the lead times associated with a Work Item or Task under consideration. Lead time per Task or Work Item refers to the total time taken from when a request for a Work Item (or order) is received until it is delivered. Trends in lead time refer to recurring patterns for a Work Item or Task that the team can identify. Lead time is a key metric that can be viewed from either the customer's or the team's perspective. From the customer's perspective, lead time is referred to as customer lead time—the duration the customer waits from placing an order to receiving it. From the team's perspective, lead time is referred to as system lead time—the duration an order, request, or Work Item stays in the system, from the time it enters until it leaves the system.

The Lead Time Distribution Report can be visually represented by a histogram that captures average lead time, providing insights into the nature of lead times in Workflows or processes under review within an organization. This helps evolve a fit-for-purpose or customer-focused approach, as it allows teams to focus on variations in lead times rather than just a single lead time value. In a typical histogram, the number of hours or days from when a Work Item gets committed to when it is completed is plotted on the x-axis, while the count of Work Items is plotted on the y-axis. By using histograms to analyze lead times, teams can commit to stakeholders based on the most frequently occurring lead times for the Work Items under consideration.

4.2.7 Flow Efficiency Reports

A Flow Efficiency Report can be used to measure how efficiently Work Items or Tasks move through the Workflows. Some of the key metrics used are flow efficiency, value-adding time, and non-value-adding time. Flow efficiency is the ratio of value-adding time to the total cycle time, and it helps to minimize non-value-adding time. Value-adding time is the total duration that a team actively works on the Task or Work Item. Non-value-adding time is the total duration that a Task or Work Item remains idle, without any team members working on it. To assess flow efficiency, a team needs to gather data on the start and end dates for a Work Item, the time that the Work Item spends in each column of the Kanban Board, and the time that the team is actually spending on the item versus its wait time. A simple formula to assess flow efficiency is:

$$\text{Flow Efficiency} = (\text{Value-adding Time} / \text{Cycle Time}) * 100$$

A Flow Efficiency Report can be presented using a data summary table or a bar or line chart. A data summary table on flow efficiency helps an organization understand the average flow efficiency of a specific number of Work Items over a specified duration by considering value-adding time, cycle time, and non-value-adding time. Similarly, a bar or line chart depicts the flow efficiency across Work Items to identify patterns, reduce wait time, and balance workload.

4.2.8 Throughput Reports

A Throughput Report can be used to assess the capacity or productivity of a team or system by measuring the number of Work Items or Tasks completed over a specific time period (e.g., daily, weekly, bi-weekly). Some of the metrics related to throughput include average throughput, trends in throughput, and variability in throughput. Average throughput is the average number of Work Items or Tasks completed over a specified duration.

Trends in throughput are patterns or changes in throughput over a specified time period. Variability in throughput refers to variations in the number of Tasks completed over a specified duration. High throughput indicates high productivity or capacity.

Throughput can be visually represented using a run chart or a summary table. A simple summary table captures information on the number of Work Items completed by a team over a specified time period. It may optionally contain information on categories of Work Items if a more detailed analysis is needed.

When using a run chart to display throughput, the x-axis represents the timeline, and the y-axis represents throughput. The bars indicate the type of Work Item or Task being examined. This will help decipher patterns or trends in throughput, allowing teams to assess the causes of those trends and determine the next course of action.

Figure 4-12 displays a dashboard in Vabro, showcasing a "Throughput Report" with a bar chart visualizing Task completion rate across five teams over five weeks. It tracks Task progress, highlighting completion rates and potential bottlenecks, aiding in data-driven decision-making for Workflows optimization.

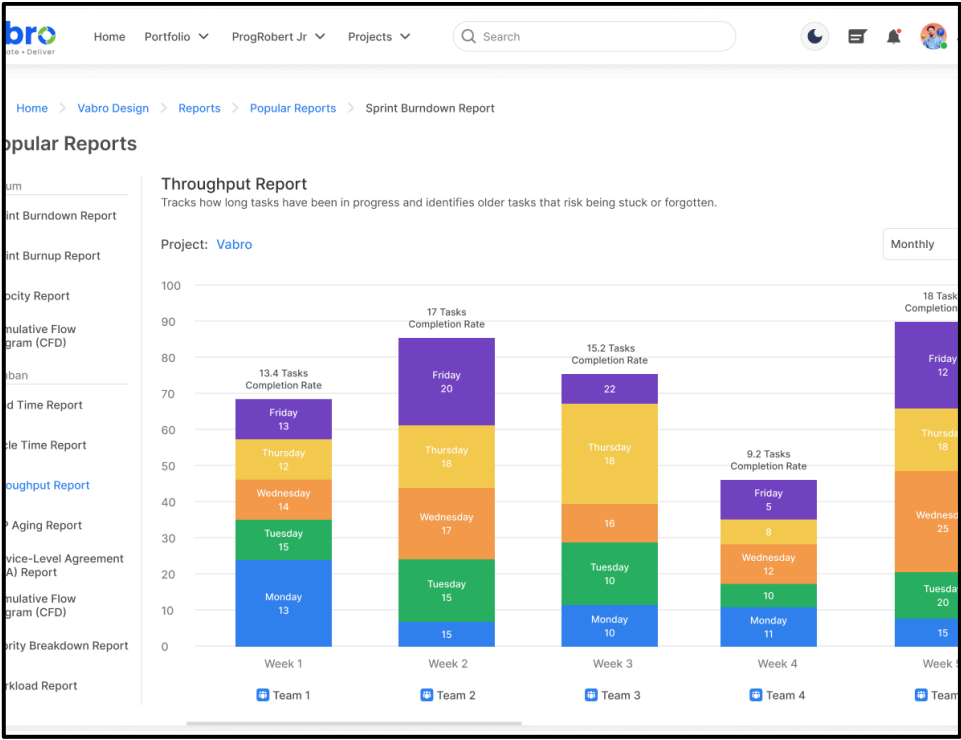


Figure 4-12: Throughput Report (Source: Vabro)

Figure 4-13 depicts a Jira Kanban Velocity/Throughput chart, illustrating the amount of work completed over successive time intervals, with bars showing completed story points and an orange line tracking the average velocity. The chart shows a current average velocity of 24, calculated from the last three intervals, suggesting a trend of increasing productivity over time.

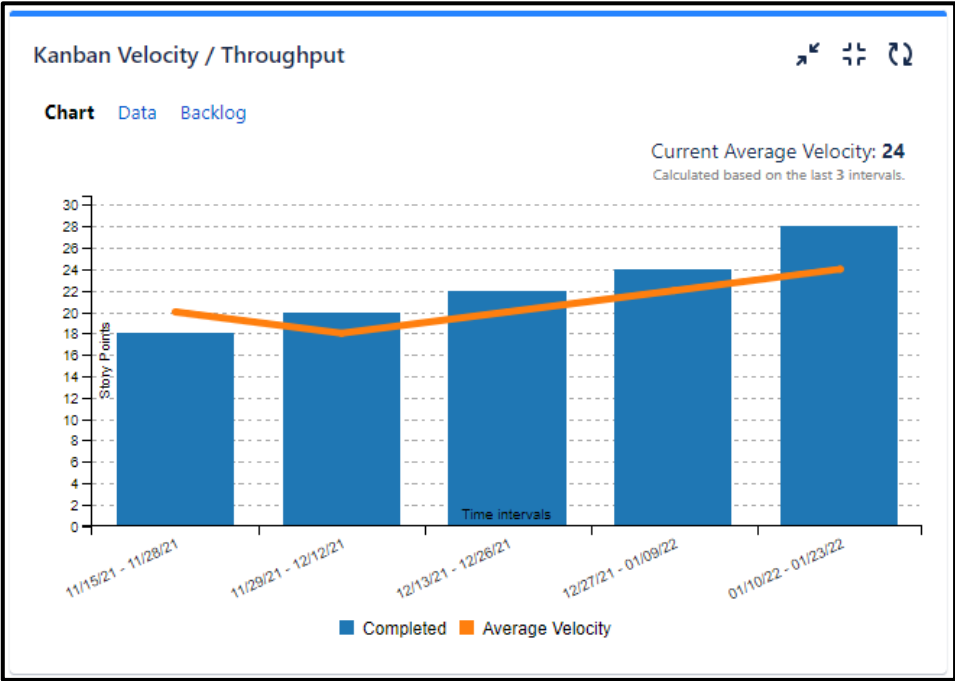


Figure 4-13: Sample Throughput Report (Source: Jira)

4.2.9 Work In Progress (WIP) and WIP Aging Reports

The WIP Report can be used to track the number of Tasks or Work Items under implementation by a Kanban Team at any given time. This report helps the team manage its workload by setting a limit on the number of items that the team can work on, based on the availability and complexity of the work. The metrics that can be used for WIP are current WIP, average WIP, WIP age, and WIP limits. Current WIP refers to the number of Work Items or Tasks currently in various stages of implementation. Average WIP is the average number of Work Items or Tasks under implementation at a specific time or over a specified duration. WIP age refers to the period of time that a Work Item or Task has been under implementation. WIP limits refer to the maximum number of Tasks or Work Items that can be worked on by the team at a specific time or over a specified duration.

The WIP Report can be visually represented using cumulative flow diagrams (CFDs), charts, and graphs. When using a CFD, teams can determine how Tasks or Work Items accumulate and move through the Workflows by depicting the number of Work Items or Tasks in progress at each stage of the Workflows. Whether using CFDs, charts, or graphs, the WIP Report helps the team maintain flow efficiency by identifying and removing impediments, balancing workload, and improving cycle time.

4.2.10 Priority Breakdown Reports

Tracks the priorities of Tasks in a Kanban Board giving a visual overview to understand the team's priority based on requirements.

Figure 4-14 displays a Task Priority Breakdown, in Vabro, showing the distribution of Tasks across five priority levels, represented by star ratings. The bar graph indicates the number of Tasks assigned to each level, with the 4-star priority having the highest count and the 1-star being the lowest, suggesting a focus on moderately high-priority items.

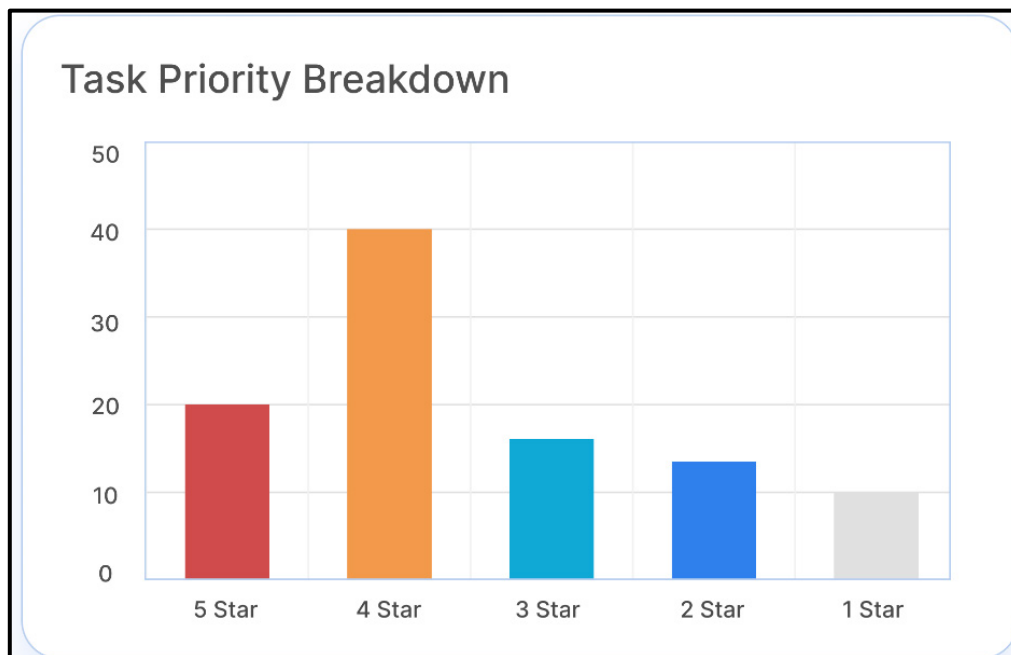


Figure 4-14: Sample Priority Breakdown Report (Vabro)

4.2.11 Workload Reports

Tracks the capacity of Team Members based on the number of Tasks being worked on by them as an Assignee.

Figure 4-15 above depicts a Team Workload distribution chart in Vabro, showing the percentage and count of Work Items assigned to each team member. The chart reveals that John Doe has the highest workload at 30%, while Robert Heads has the lowest at 10%.

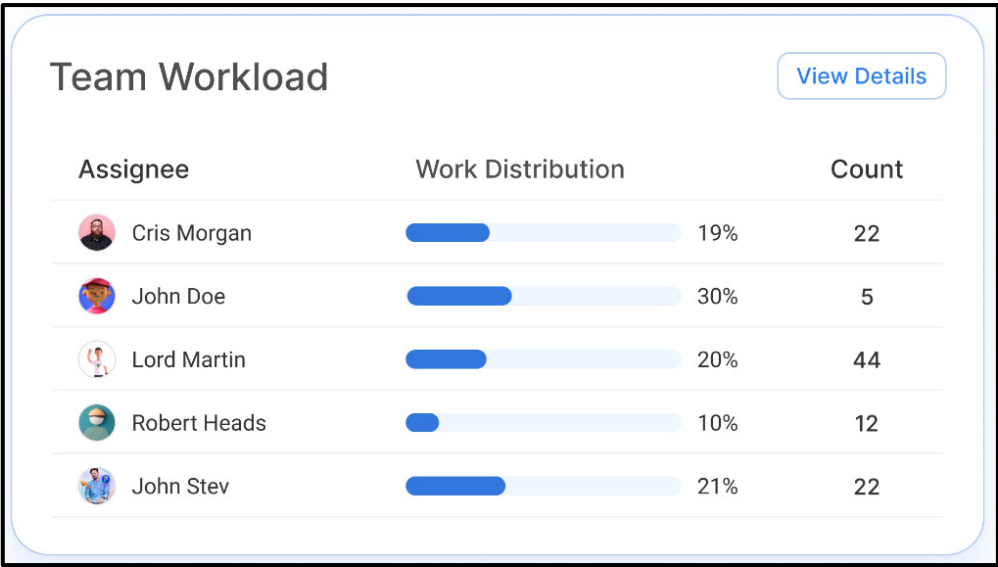


Figure 4-15: Sample Workload Report (Source: Vabro)

Figure 4-16 displays a ClickUp workload management screen, showing team members' assigned Tasks and their distribution over time, with color-coded indicators for Task status and potential overcapacity. The timeline view allows for visualizing individual and team workload, facilitating resource allocation and Workflows management.

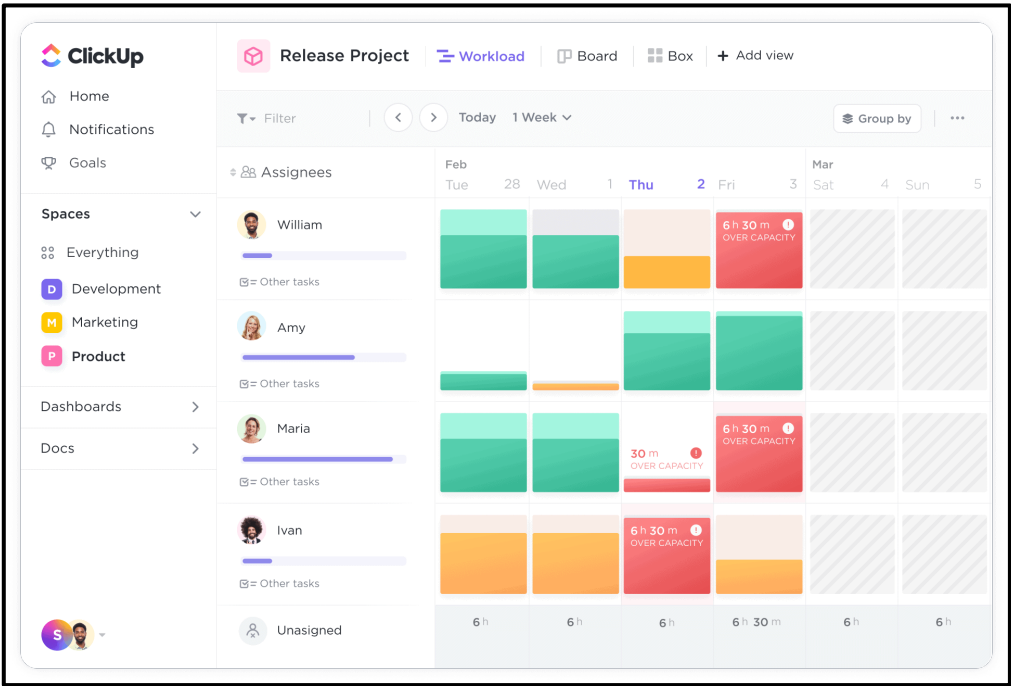


Figure 4-16: Sample Workload Report (Source: ClickUp)

Figure 4-17 shows a Workflows management interface, from Nifty, displaying a workload view for team members across different Workflows over a weekly timeline. It visualizes Task assignments, progress, and capacity, with features for filtering, searching, and creating new Tasks or documents.

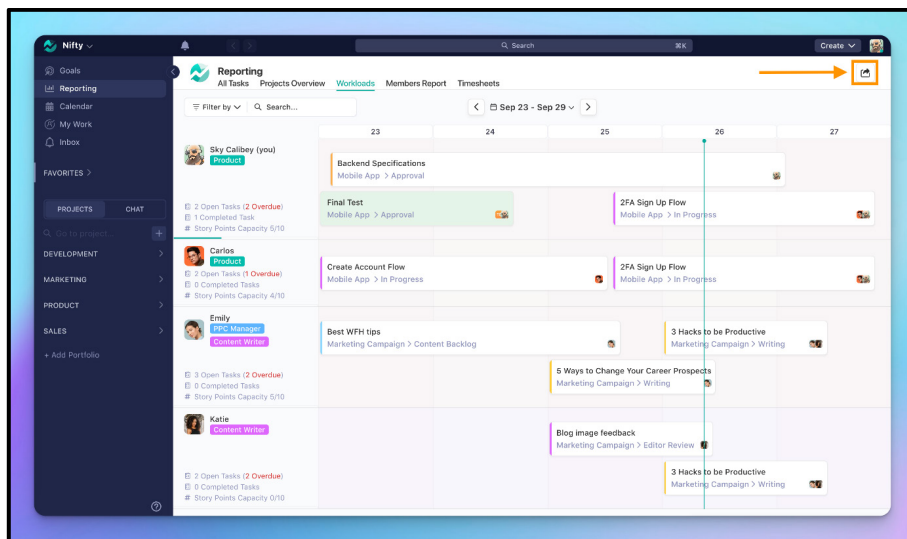


Figure 4-17: Sample Workload Report (Source: Nifty)

4.2.12 Cumulative Flow Diagram (CFD)

A CFD tracks the number of Tasks in each stage over time, providing a visual overview of how work is progressing through the Workflows. A stable cumulative flow diagram indicates a smooth process, while bottlenecks appear as a widening gap in a specific stage. This helps in identifying stages where Tasks pile up, highlighting areas for process improvement or resource reallocation.

Figure 4-18 shows Jira CFD visualizing a "Flow Load" over time, displaying the progression of story points across different Task stages: To Do, In Development, In Testing, Pre-Release, and Done. The rising trend in the total area indicates an increasing number or size of Tasks moving through the Workflows over the observed time period.

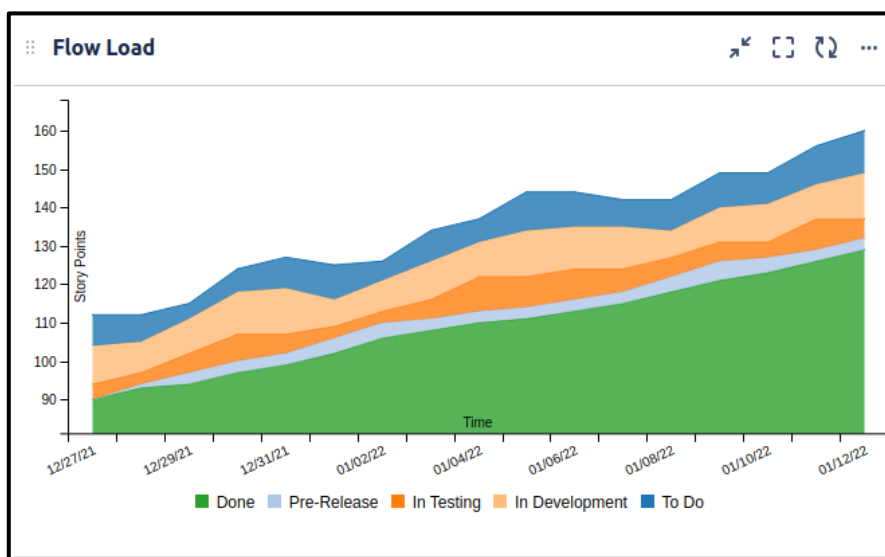


Figure 4-18: Cumulative Flow Diagram (Source: Jira)

Figure 4-19 shows a Vabro dashboard displaying a Cumulative Flow Diagram (CFD), tracking Task progress across different statuses.

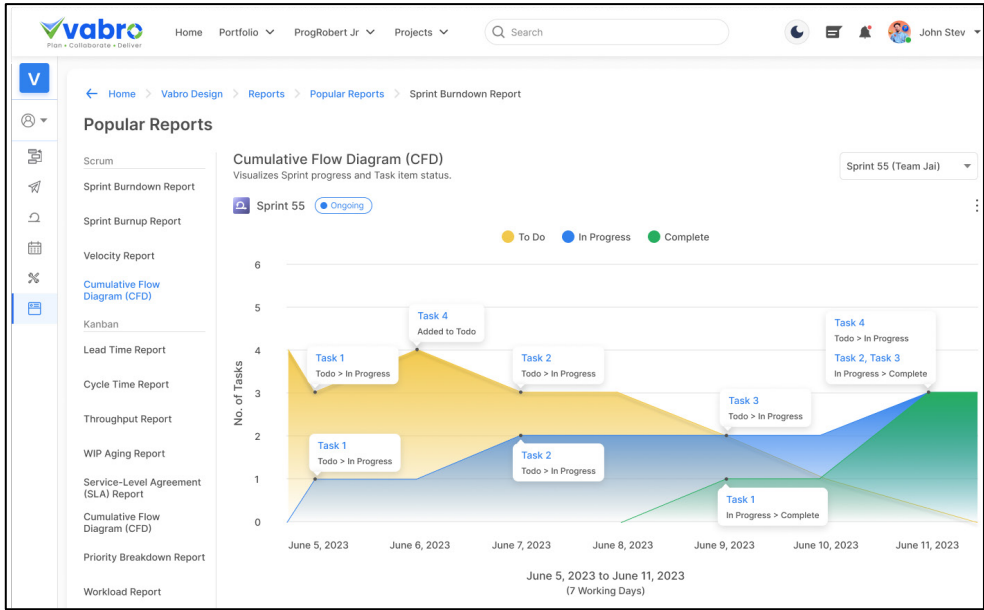


Figure 4-19: Sample CFD (Source: Vabro)

4.2.13 Blocker Clustering and Analysis Reports

Blocker Clustering and Analysis Report helps track and analyze Tasks blocked during the Workflows, focusing on the frequency, duration, and causes of blockers. By understanding what’s causing work to be delayed, teams can take action to prevent these blockers in the future. This may involve rethinking dependencies, redistributing resources, or improving communication with other teams.

Table 4-4 shows a Block and Clustering and Analysis Report that helps assess frequency and impact of various blockers.

Blocker Category	Frequency	Impact
A	5	3
B	7	5
C	6	4
D	8	6

Table 4-4: Block and Clustering and Analysis Reports

4.2.14 Capacity Utilization Report

Capacity Utilization Report helps measure the percentage of time team members spend working on active Tasks versus idle or waiting states. This report is especially valuable for optimizing resource allocation. High-capacity utilization suggests efficiency, while low utilization may indicate potential to take on more work or the need to streamline processes.

4.2.15 Forecasting Report

Forecasting Report uses historical data to predict how long similar Tasks or Workflows will take to complete in the future. This allows managers to provide data-driven estimates for Workflows timelines, which can be particularly valuable for long-term planning and managing stakeholder expectations.

4.2.16 Service-Level Agreement (SLA) Adherence Report

An SLA Adherence Report tracks how often the team meets SLAs, which are commitments to complete certain types of work within a specific timeframe. SLA adherence reports are critical for identifying any recurring patterns of delay and addressing them promptly. These reports can also inform the need for capacity adjustments or Workflows optimizations.

Figure 4-20 shows a pie chart visualizing the distribution of items within and outside of a Service Level Agreement (SLA). The chart shows that 85% of the items are within the SLA, while 15% are outside SLA

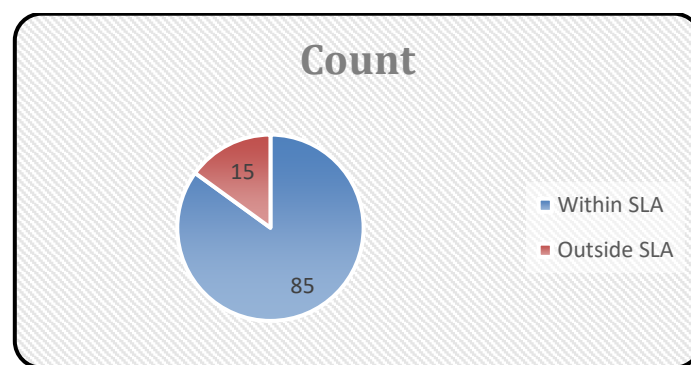


Figure 4-20: SLA Adherence Report

The Practical Implementation Guide for Managing Workflows using Kanban

The Kanban Body of Knowledge (*KBOK™ Guide*) offers guidelines for successfully implementing Kanban, a widely used Agile methodology for managing business workflows. Originally developed in manufacturing, Kanban is now applied across various industries and sectors, including software development, healthcare, education, human resource management, retail, sales and marketing, finance, and more. It works for organizations of all sizes, from small businesses to large enterprises.

The *KBOK™ Guide* is built on insights from thousands of workflows across industries, with significant input from the global Kanban community and the VMEdU® Global Authorized Training Partner Network, comprising over 2,000 companies in more than 50 countries. Its development was a collaborative effort involving experts and practitioners from diverse fields.

The *KBOK™ Guide* is a comprehensive yet easily accessible framework for managing workflows with Kanban. It includes practical examples of Kanban implementation using popular IT tools, helping readers apply the methodology in their organizations. The guide also covers how Kanban integrates with other Agile frameworks such as Scrum, DevOps, OKRs, and Lean. Recommendations about how Artificial Intelligence can be used to increase productivity in Kanban workflows are also included in the *KBOK™ Guide*.

The *KBOK™ Guide* serves as a resource for both experienced Kanban practitioners and professionals new to workflow management. It's also suitable for those with no prior Kanban experience. The widespread adoption of the *KBOK™ Guide* framework standardizes how Kanban is applied to workflows globally and significantly helps organizations improve their overall productivity and return on investment.

