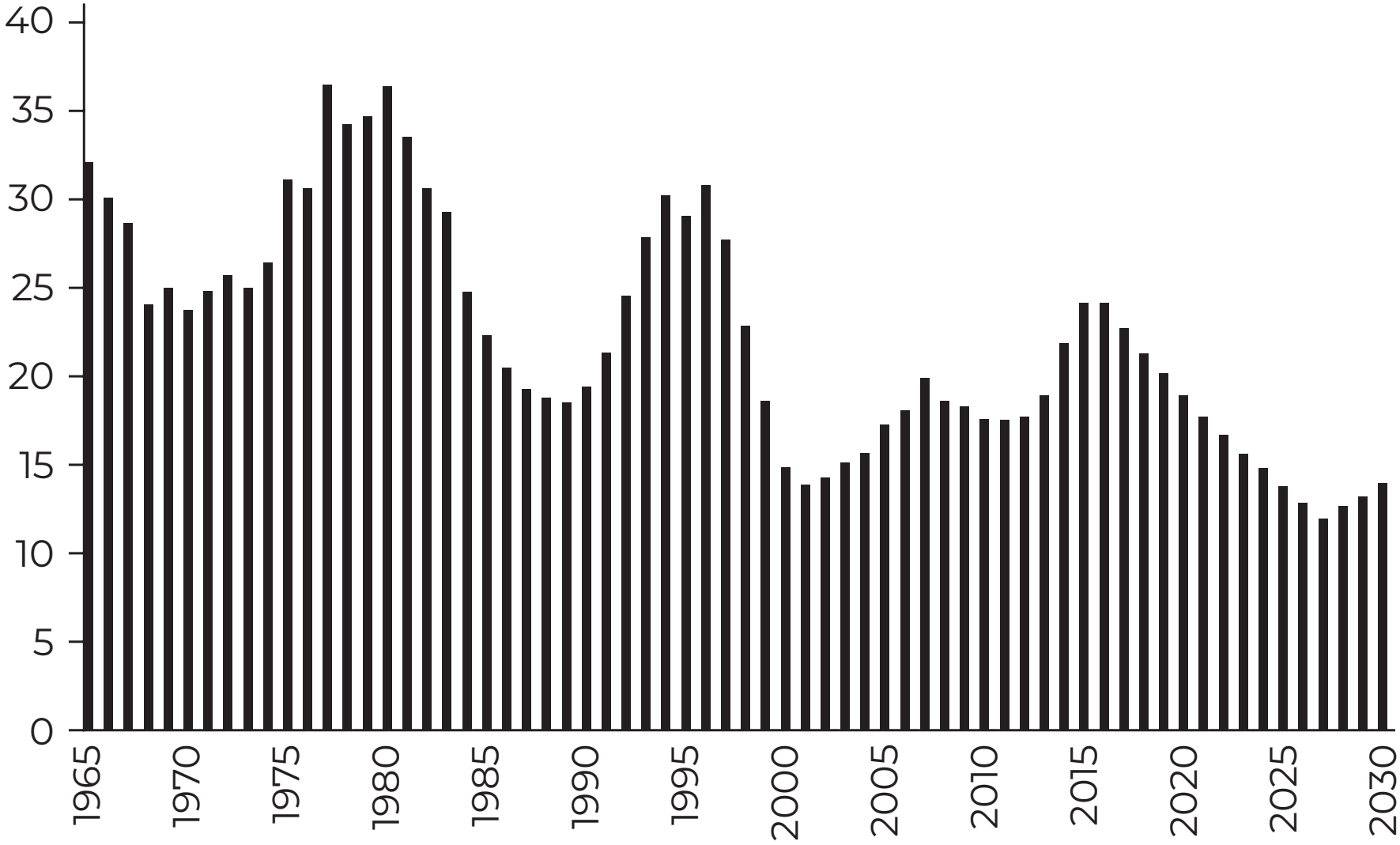


Figure 1.1: *Average company life span on the S&P 500 Index (adapted with permission from Innosight)*

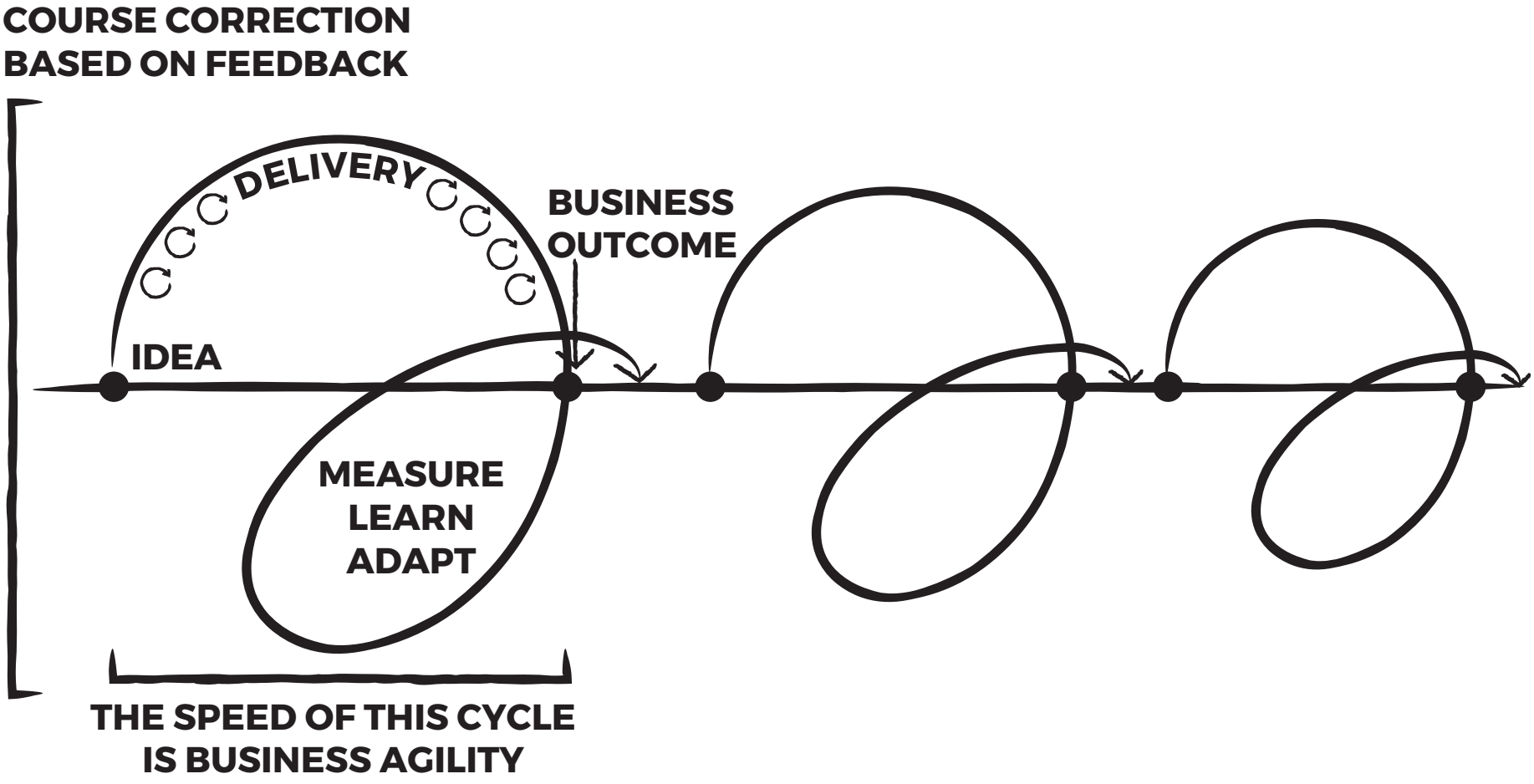


Figure 1.2: *Business agility—measuring, learning, and improving*

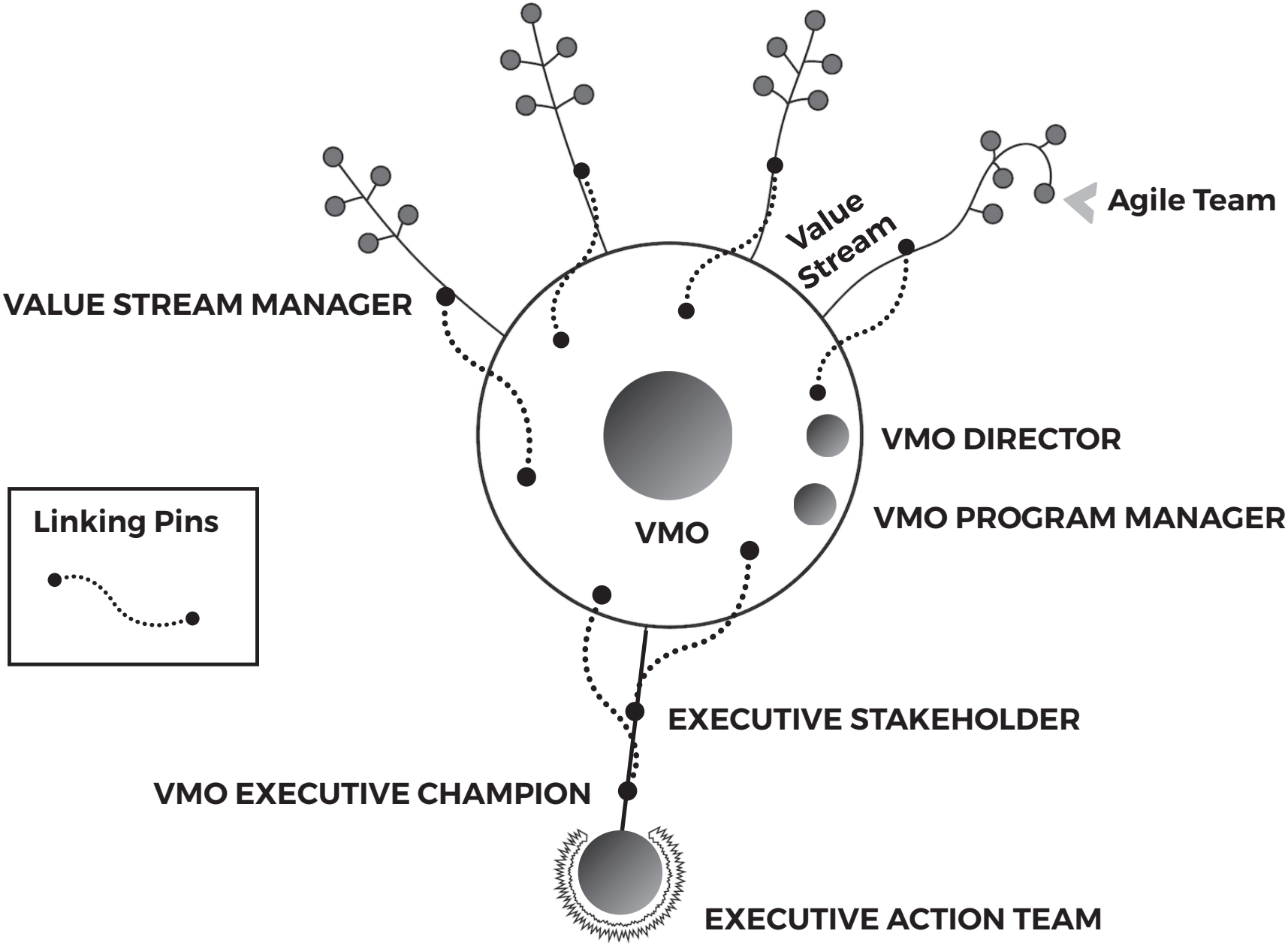


Figure 1.3: *The Agile VMO—an end-to-end, cross-hierarchy team driving business agility*

Table 1.1. ***VMO Responsibilities***

Agile VMO Function	Responsibilities
Defining an agile process	• Establish high discipline as the driving goal for all your agile processes • Take a calibrated approach to defining your agile processes • Define metrics that support and drive dynamic transformation • Develop process controls as natural outputs of the process
Organizing around value streams	• Organize as adaptive networks of teams • Define flexible value streams by customer journeys • Establish the VMO as a team of teams • Fund experience-aligned teams by value stream
Adaptive planning	• Conform to value, rather than comply to plan • Plan, deliver, and measure in small batches • Measure business outcomes, not stage outputs • Sense and respond to business conditions • Apply adaptive planning at multiple levels • Conduct strategy planning • Conduct portfolio planning • Conduct product and release planning • Conduct Sprint/iteration and daily planning

Table 1.1. (*continued*)

Agile VMO Function	Responsibilities
Tracking and monitoring program flow	• Understand visual management systems • Track and monitor program flow with visual management systems • Measure and improve flow • Drive continuous learning and adaptation
Prioritizing and selecting minimally marketable products (MMPs)	• Plan for a fundamental shift from project to MMP delivery • Select MMPs for maximum financial impact • Use weighted shortest job first to prioritize and select the most impactful options • Deliver the MMP and learn
Evolving a funding and governance strategy	• Keep your funding model flexible • Provide fixed funding for value streams • Strategize more frequently; annual is not enough • Monetize at the feature level • Devise a fixed-cost model for your stable agile teams • Adopt business outcomes as key governance controls • Utilize a lean business case • Require frequent delivery, and measure incremental business results • Recognize that it is fundamentally about the time value of money
Managing organizational change	• Recognize that change is extraordinarily difficult • Design and set up a holistic change management system • Position the VMO to drive the change

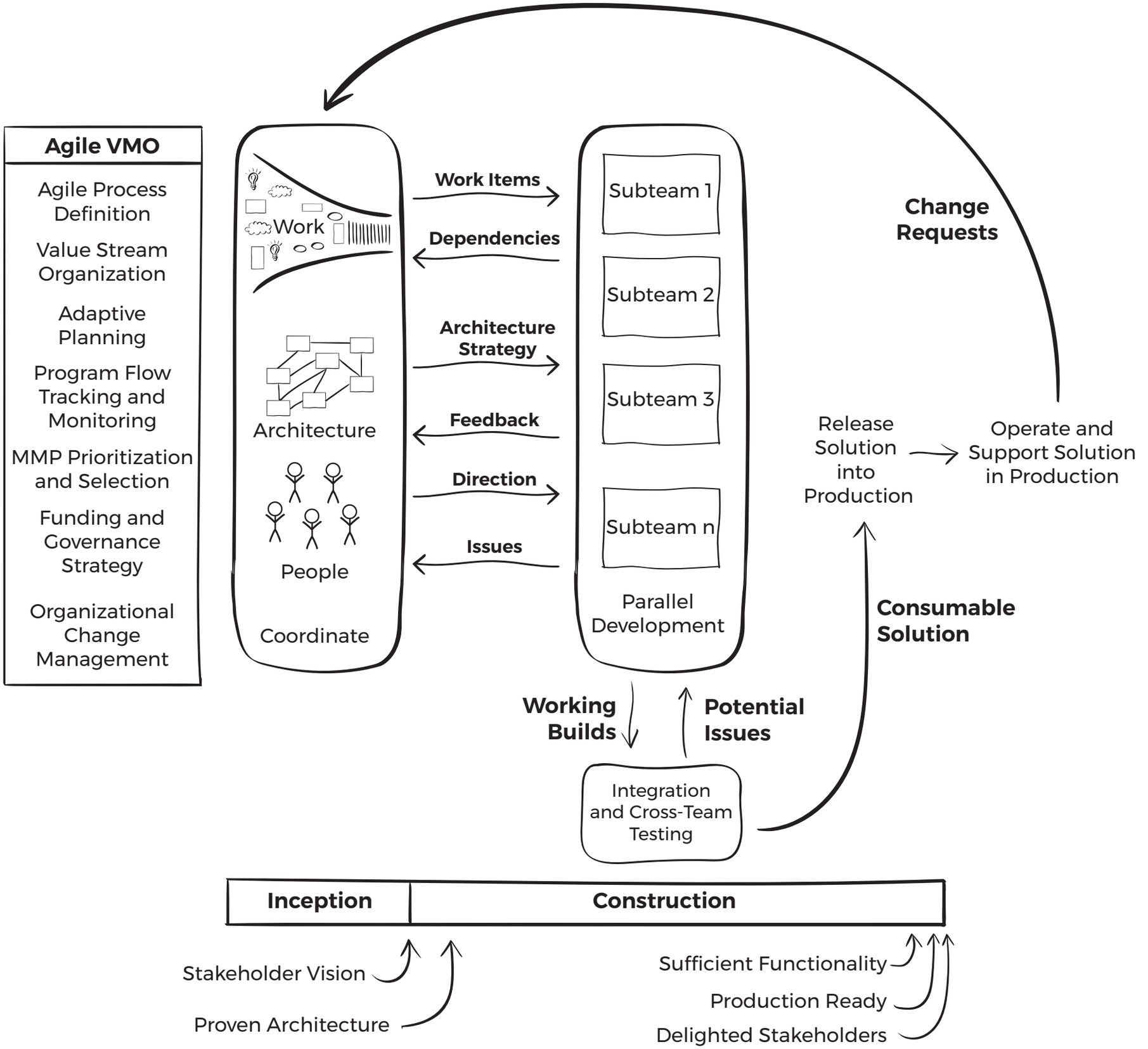


Figure 1.4: *The Agile VMO and Disciplined Agile's team of teams (adapted with permission from PMI)*

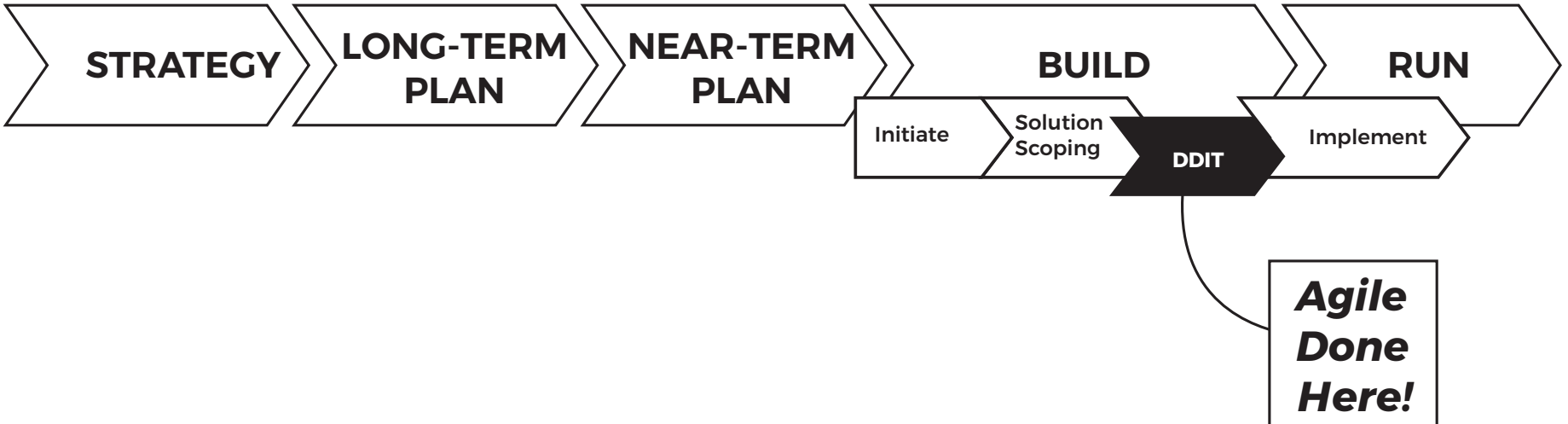


Figure 1.5: *Typical agile-only-in-IT antipattern*

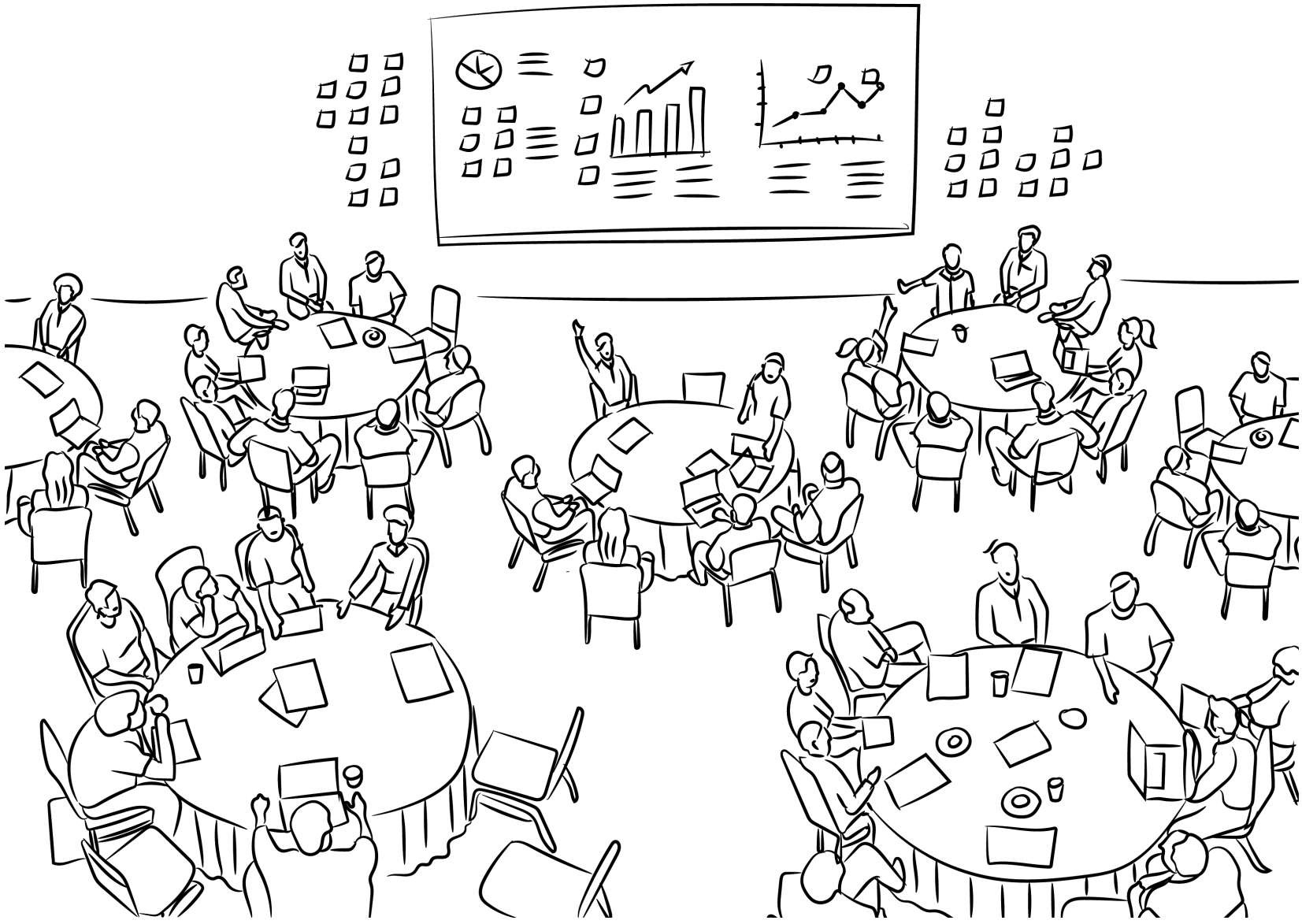


Figure 1.6: *Collaboration across silos with big room planning*

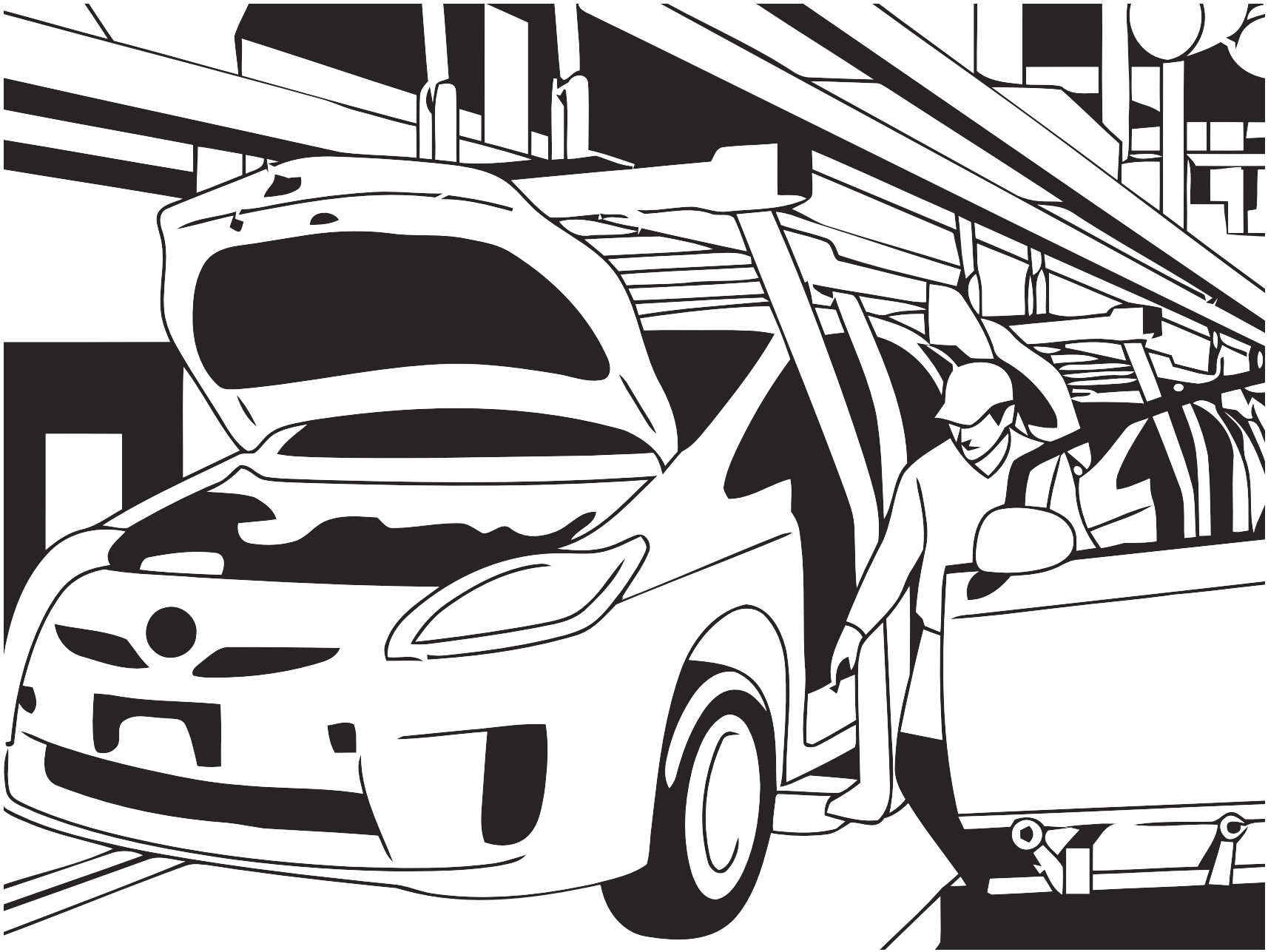


Figure 2.1: *The Toyota car factory as a model for lean thinking and continuous flow*

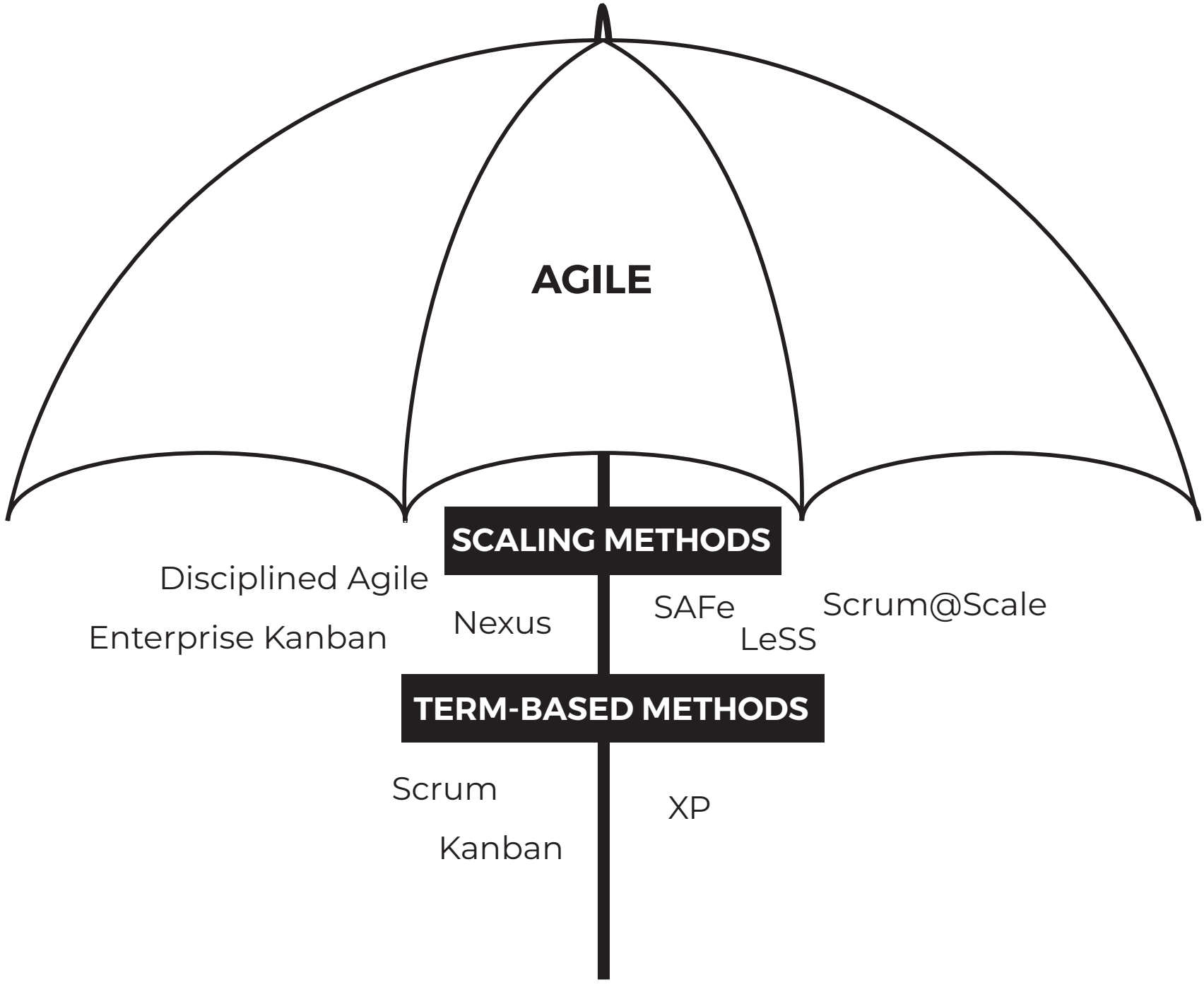


Figure 2.2: *The agile umbrella*

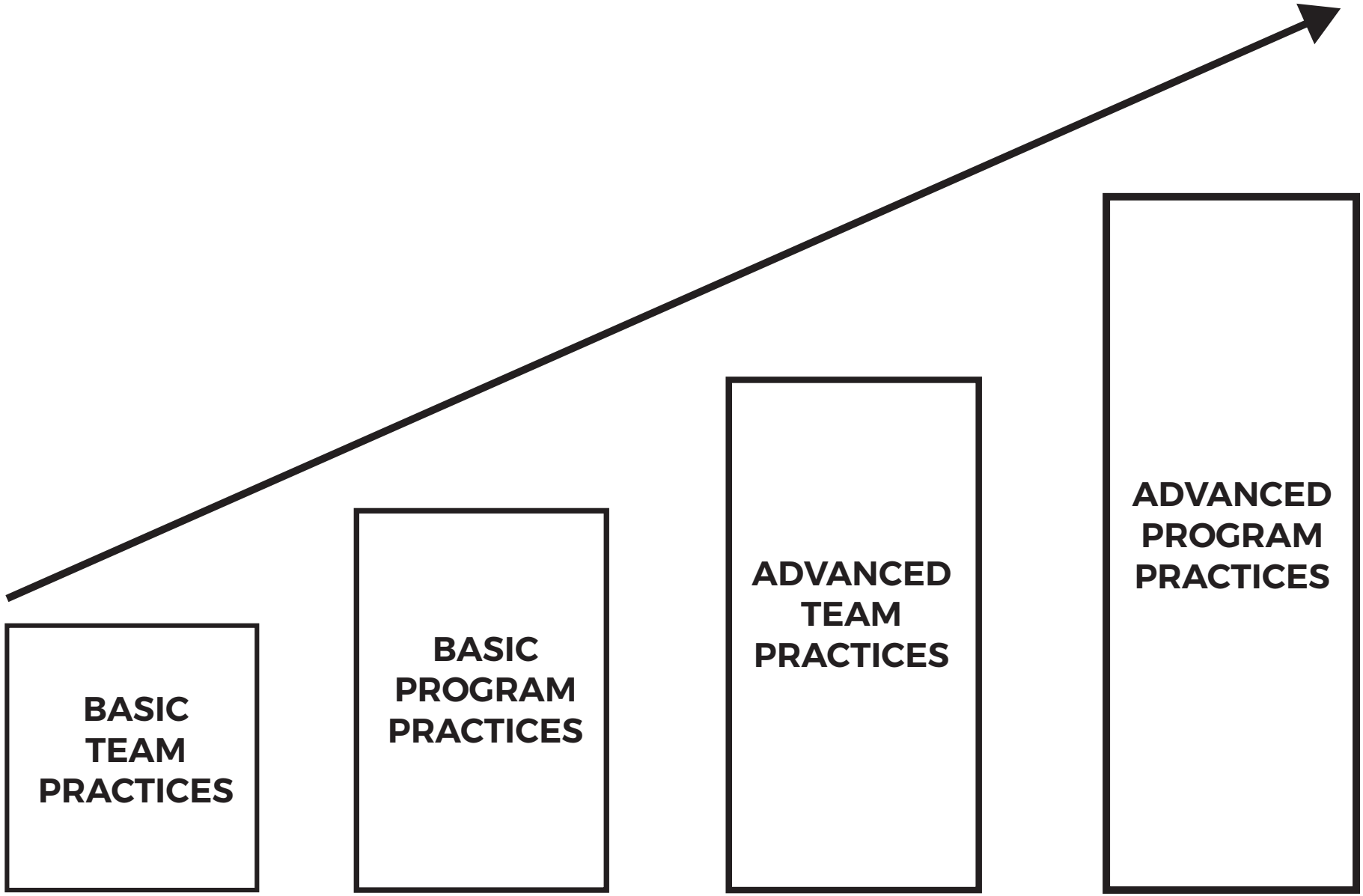


Figure 2.3: *Calibrated agile process road map*

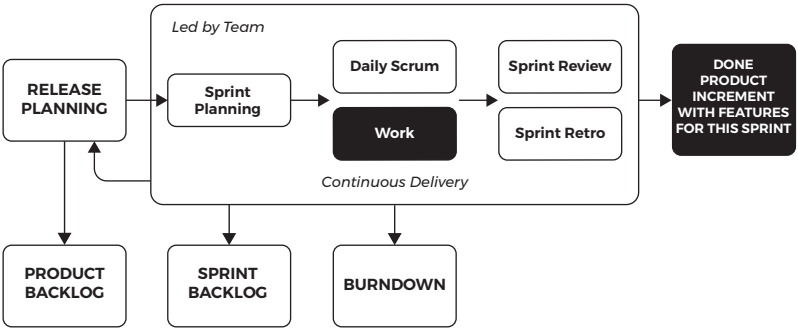


Figure 2.4: *Basic Scrum process*

Table 2.1. *Scrum Events/Ceremonies*

Scrum Event	Description
Release planning	A timeboxed planning session that answers several key questions: What is the goal of the next release, what functionality will be in the release, and when will that release happen? While not a required process step, release planning is commonly performed.
Sprint planning	A short planning session that answers two key questions: What can be achieved in the upcoming Sprint and how can it be achieved?
Sprint	A timebox of one month or less during which a done, usable, and potentially releasable product increment is created.
Daily Scrum	A daily 15-minute event, also called stand-up, for the team to synchronize activities and create a plan for the next 24 hours.
Sprint review	Is held at the end of the Sprint to inspect the product increment and adjust the product backlog if needed.
Sprint retrospective	Happens after the Sprint review and addresses what went well during the Sprint, what could be improved, and what the team will commit to improve in the next Sprint.

Table 2.2. *Scrum Artifacts*

Scrum Artifact	Description
Product backlog	An ordered list of everything that is known to be needed in the product. It is the single source of requirements.
Sprint backlog	The set of product backlog items selected for the Sprint. It makes visible all the work that the team needs to meet the Sprint goal. The backlog has enough detail that changes in progress can be understood on a daily basis in the daily scrum.
Burndown chart	A chart showing the number of stories or points still remaining to be completed within the Sprint.
Product increment	A body of inspectable work. The increment must be usable by customers. The entire point of scrum is to deliver a done increment.

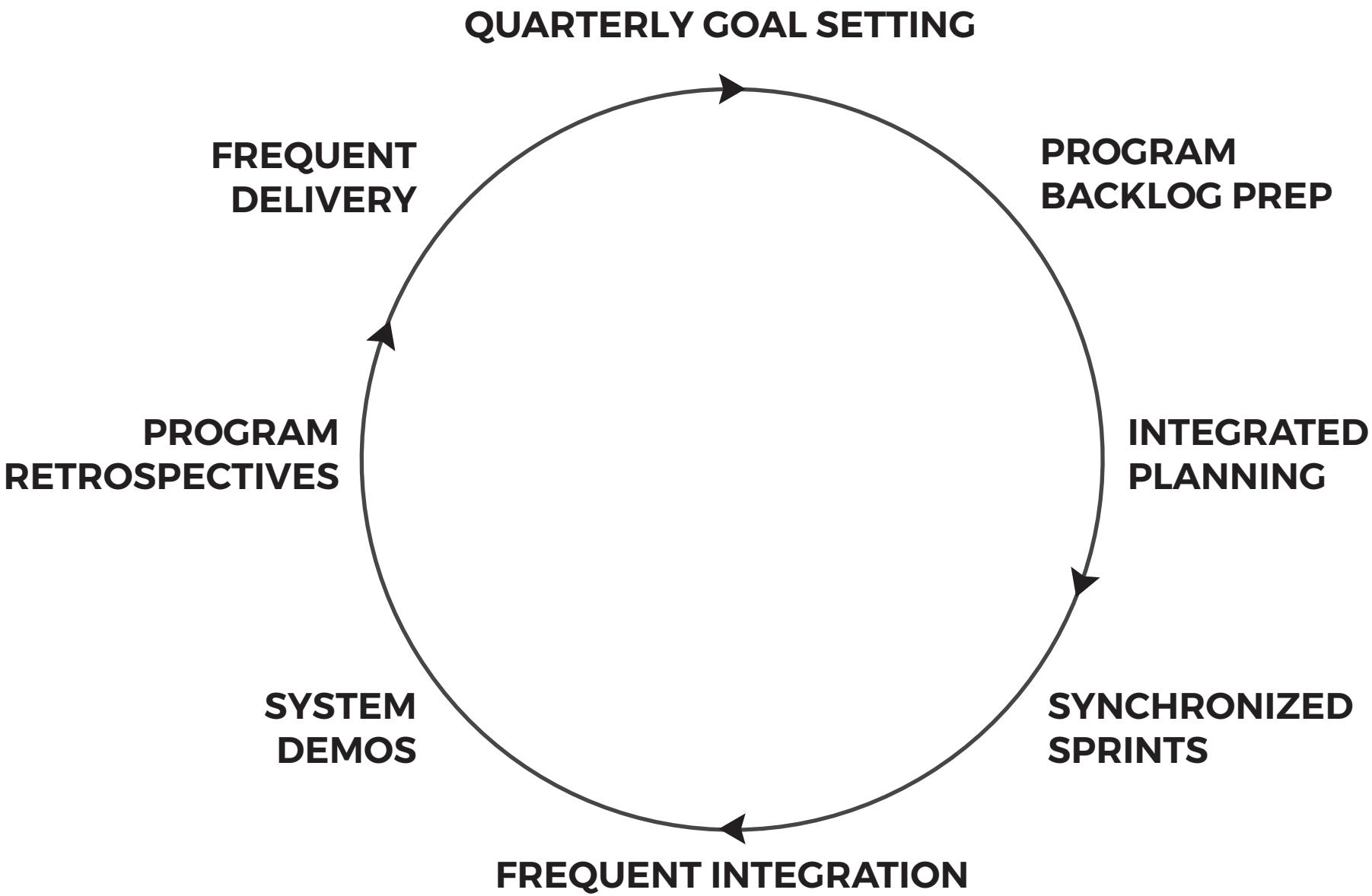


Figure 2.5: *Common elements of agile at scale*

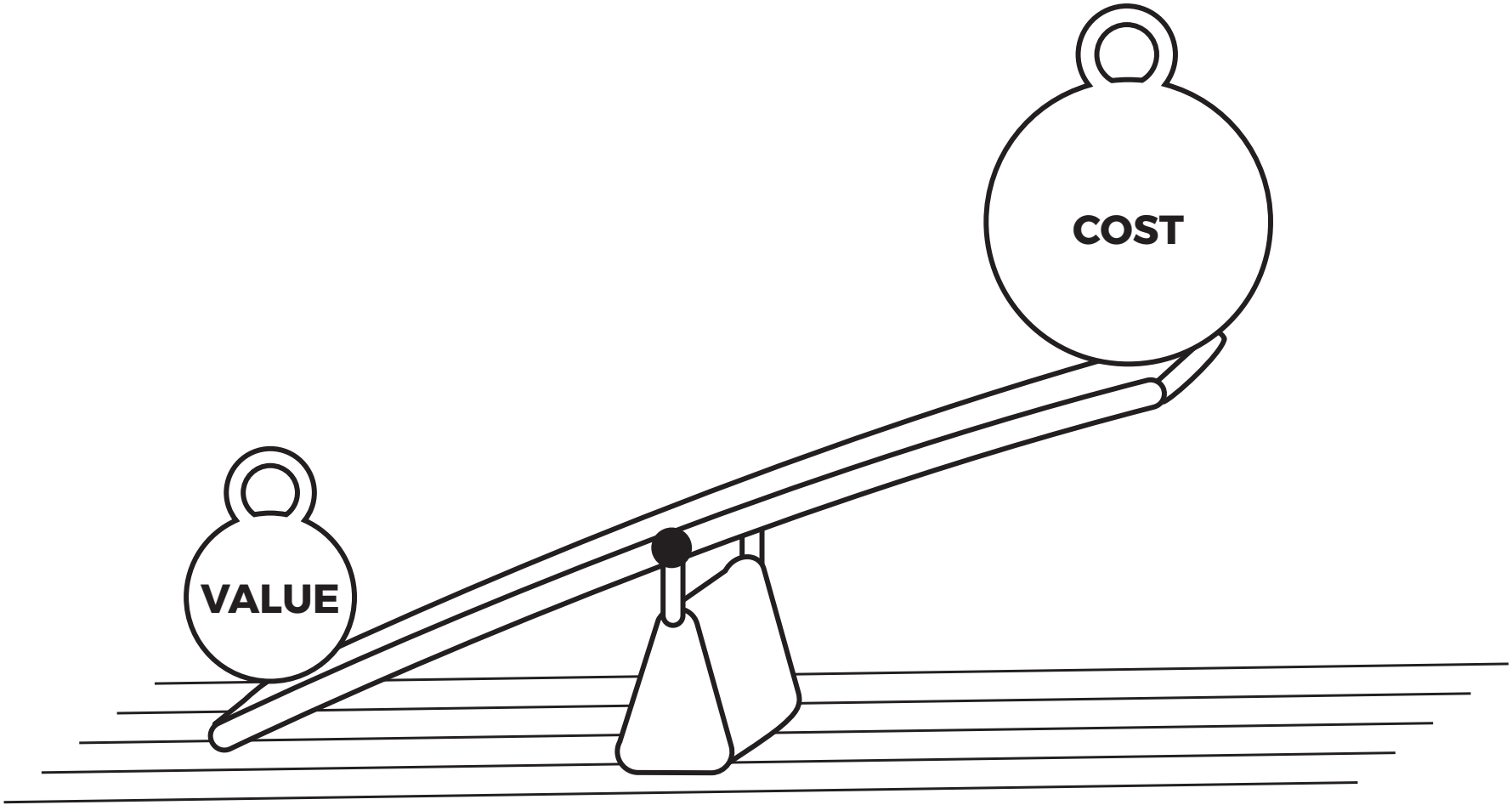


Figure 2.6: *Balance value and cost*

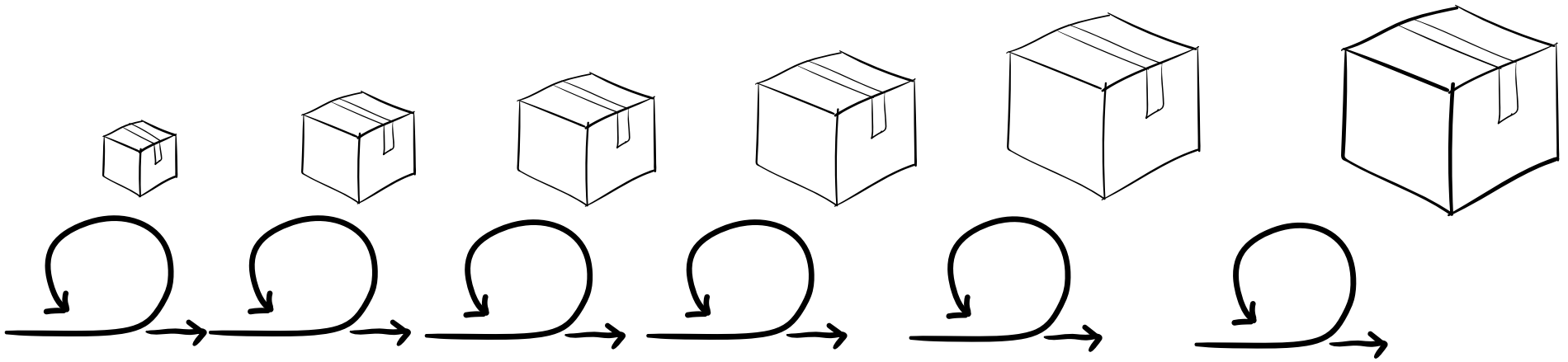
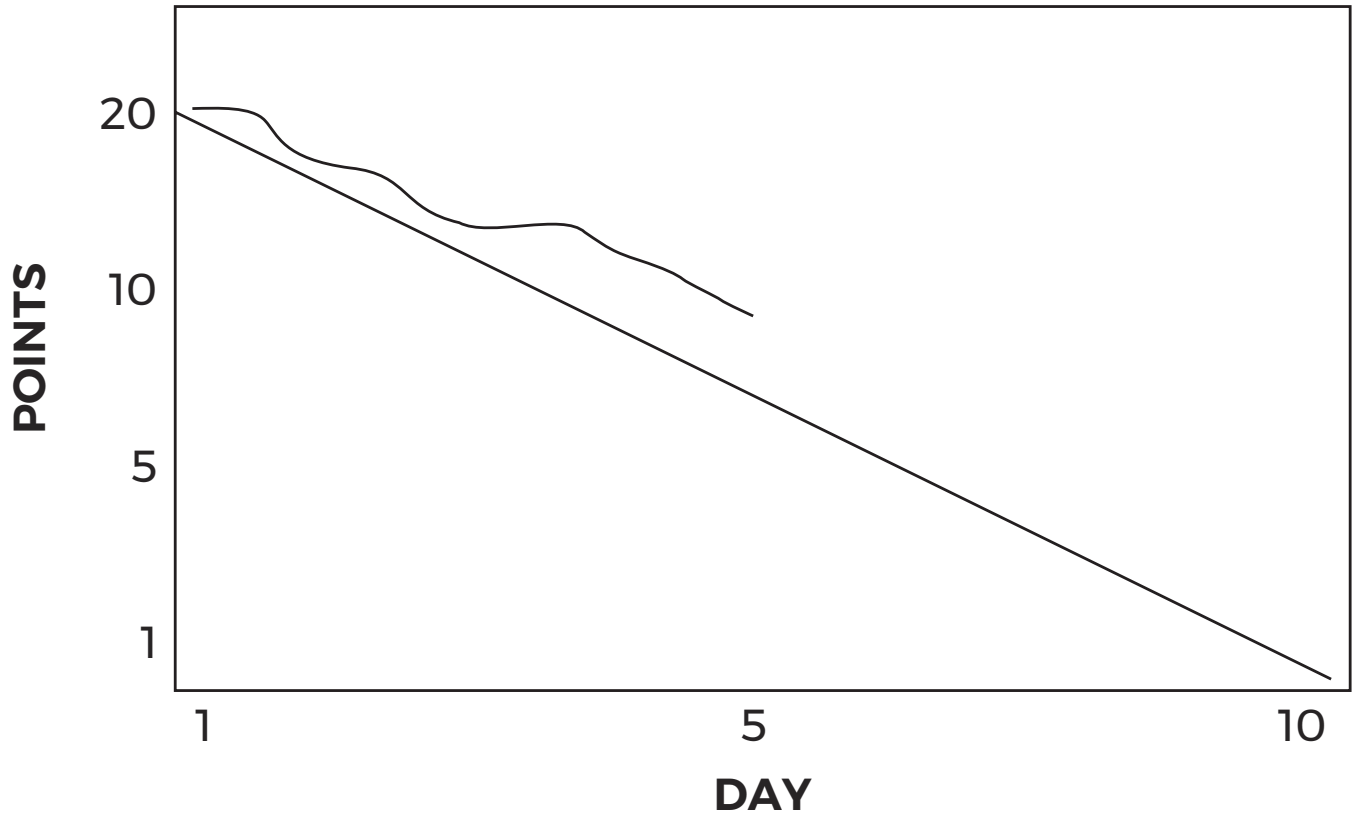


Figure 2.7: *Incremental delivery*



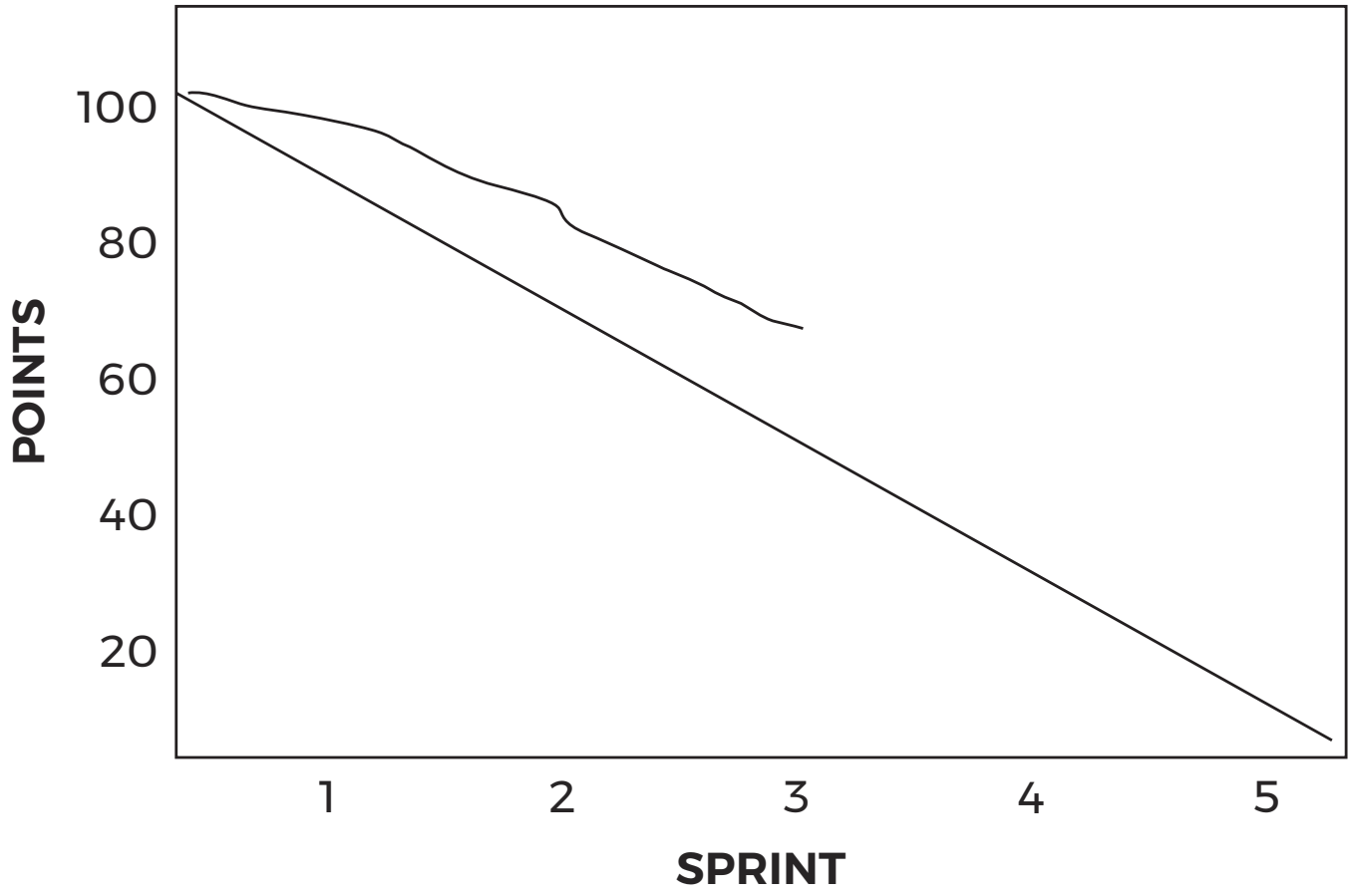


Figure 2.8: *Sprint and release burndown charts*

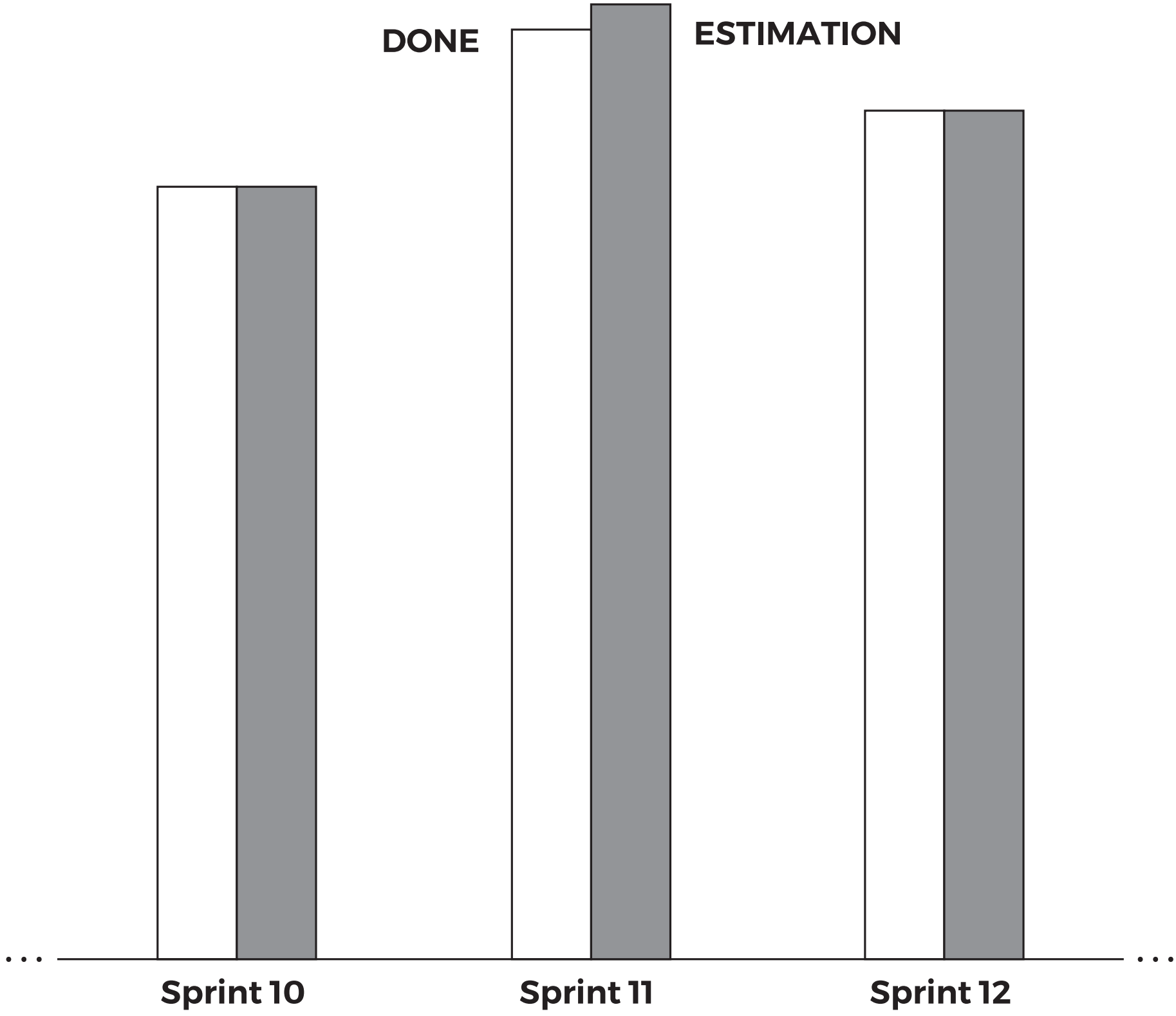


Figure 2.9: *Estimation versus done in Sprint-by-Sprint comparison*

Table 2.3. ***Sample Metrics by Area***

Metric Area	Sample Metrics
Business metrics	Capture intended versus actual business outcome metrics per release or per quarter. These are the most important metrics but are often the most lacking. Examples include • account sign-ups • reduced help-desk calls • improved customer satisfaction surveys • improved customer retention • growth in application usage
Program metrics	• Number of integrations and system demos. It is only by integrating early and often, and by demoing the full system, that we can really know where we truly are in terms of progress and quality. All other interim metrics are guesses at best. • Feature-level progress. Features for the upcoming release will often be broken down into several lower-level user stories, and it can be advantageous to track how much of the planned feature is being delivered versus what was planned. This indicates the completeness of the feature. • Release burnup chart. Shows the cumulative point value of user stories planned for the release that are done as a function of time. By looking at this chart, we can estimate how much of the overall cumulative planned work for the release will be done by the planned release date. This indicates the completeness of the release versus what was planned.
Team metrics	• Points planned versus points delivered by Sprint in order to assess predictability • Sprint burndown to assess short-term schedule performance • Release burnup to assess long-term schedule performance • Mixture of work item types to measure how much of the team's time is being applied to new-value delivery versus defect fixing or maintenance

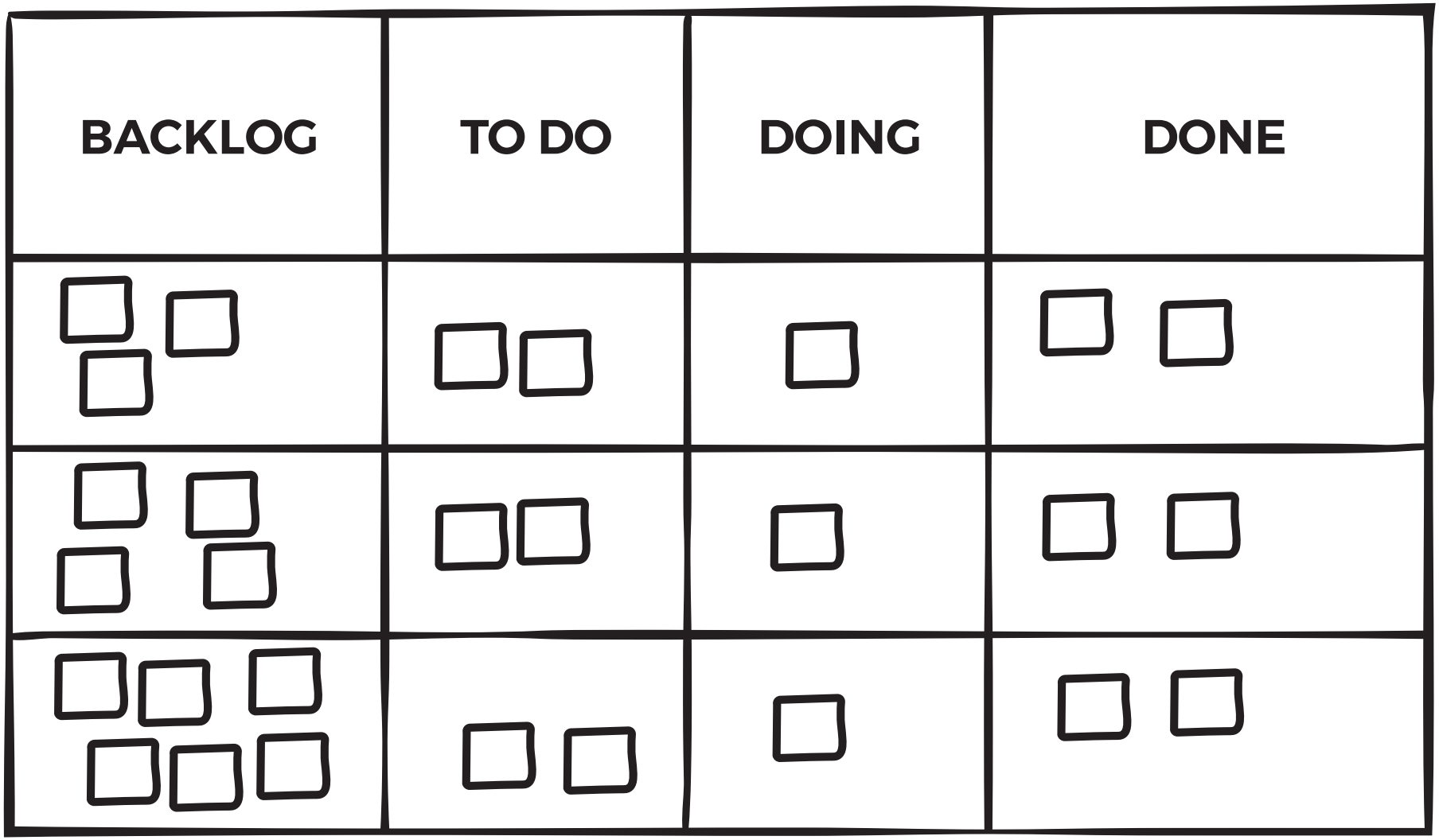


Figure 2.10: *Information radiator*

Table 2.4. ***Process Controls at Multiple Levels***

Organizational Level	Sample Controls
Team-level process controls	• High-level features or epics are captured in an approved agile work management tool. • All lower-level user stories, defects, and other work items are captured in the tool and are tied back to the appropriate higher-level feature or epic. • Backlog items that are targeted for the current release are estimated in points. • The team produces Sprint burndown charts and release burnup charts. • The team tracks Sprint-over-Sprint velocity to measure predictability. • The team has demonstrated practice of at least the following events: ◦ Release planning ◦ Sprint planning ◦ Daily stand-ups ◦ Sprint reviews ◦ Sprint retrospectives
Program-level process controls	The following program-level controls list assumes that a SAFe framework is being used. A slightly different but similar list should be created for organizations that are adopting Project Management Institute's Disciplined Agile, Scrum at Scale, or other scaling mechanism. For example, an organization practicing SAFe might have expectations such as these: • A visible program Kanban that implements the work intake and approval funnel • Weighted-shortest-job-first scores that justify the work for the coming quarter • Early and frequent release of value to customers • Measured business results from each release

Table 2.4. (*continued*)

Organizational Level	Sample Controls
	• Program increment planning events that occur at least quarterly with all teams and dependencies and product owners in attendance • System integration demos that occur at least quarterly • Inspect and adapt workshops that occur at least quarterly • Program increment planning outputs that result in ◦ Sprint plans for every team for the next quarter's worth of Sprints ◦ stories that are estimated and put into targeted Sprints ◦ dependencies across teams that are captured ◦ risks are identified and a risk management plan is in place
Portfolio-level process controls	• All major investment requests have a lightweight business case that includes measurable business outcome objectives. • There is a clear and agreed-to way that the business outcomes will be measured. • Projects/programs are not weighed or considered independently. Instead, all new work requests are brought to the table at regular intervals and must compete against each other. • Projects/program work in progress is limited to available capacity; teams and individuals are not expected to support more than two simultaneous efforts, and there is strong preference for only one effort per team at a time. • The portfolio is visualized in a centralized location so that there is broad transparency into the number of simultaneous programs and the progress of each. • Business outcomes are openly reviewed and measured quarterly. • Objective, measurable business outcomes are the primary measurement used to justify continued funding.

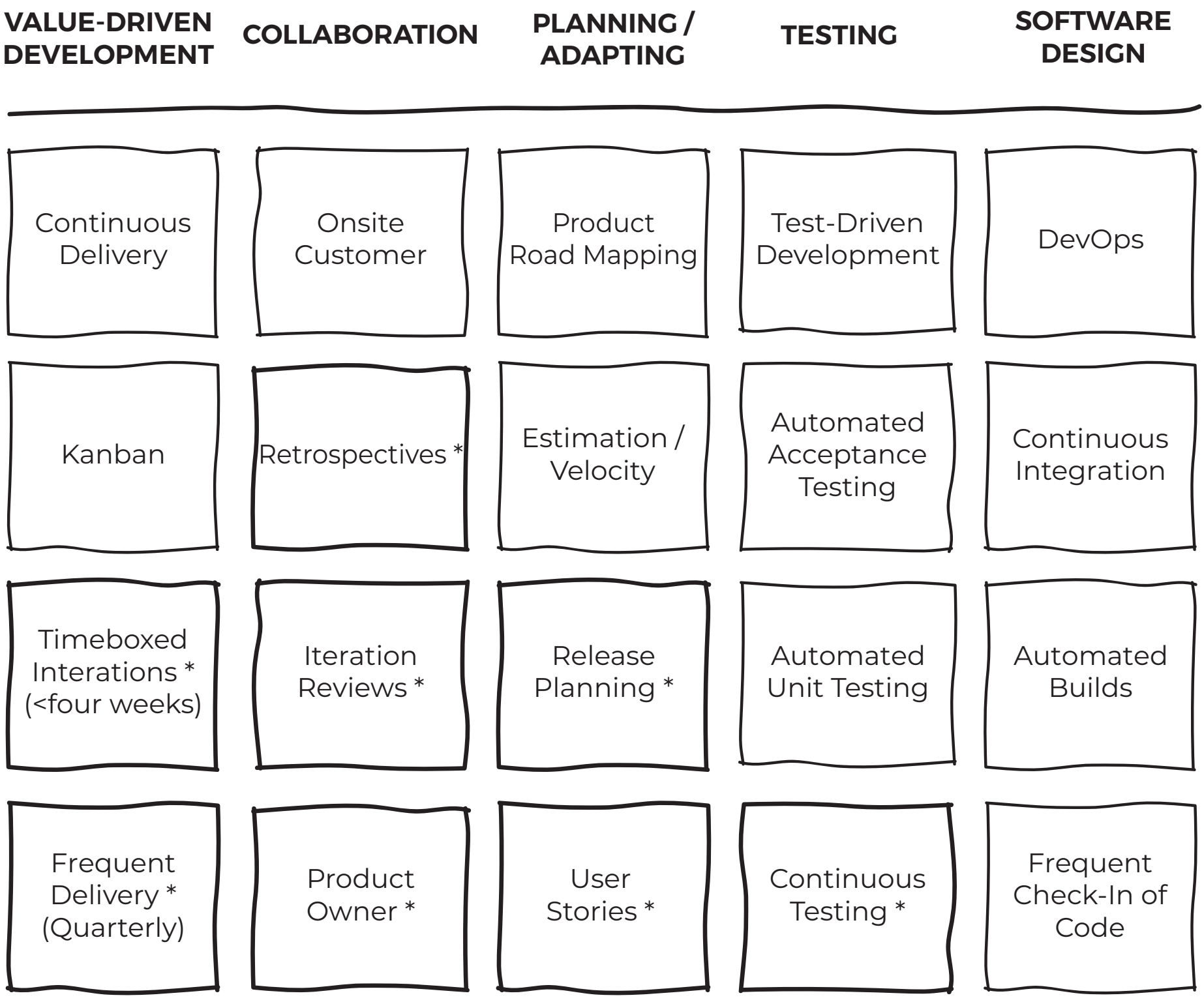


Figure 2.11: *Initial agile practices at U.S. Citizenship and Immigration Services*

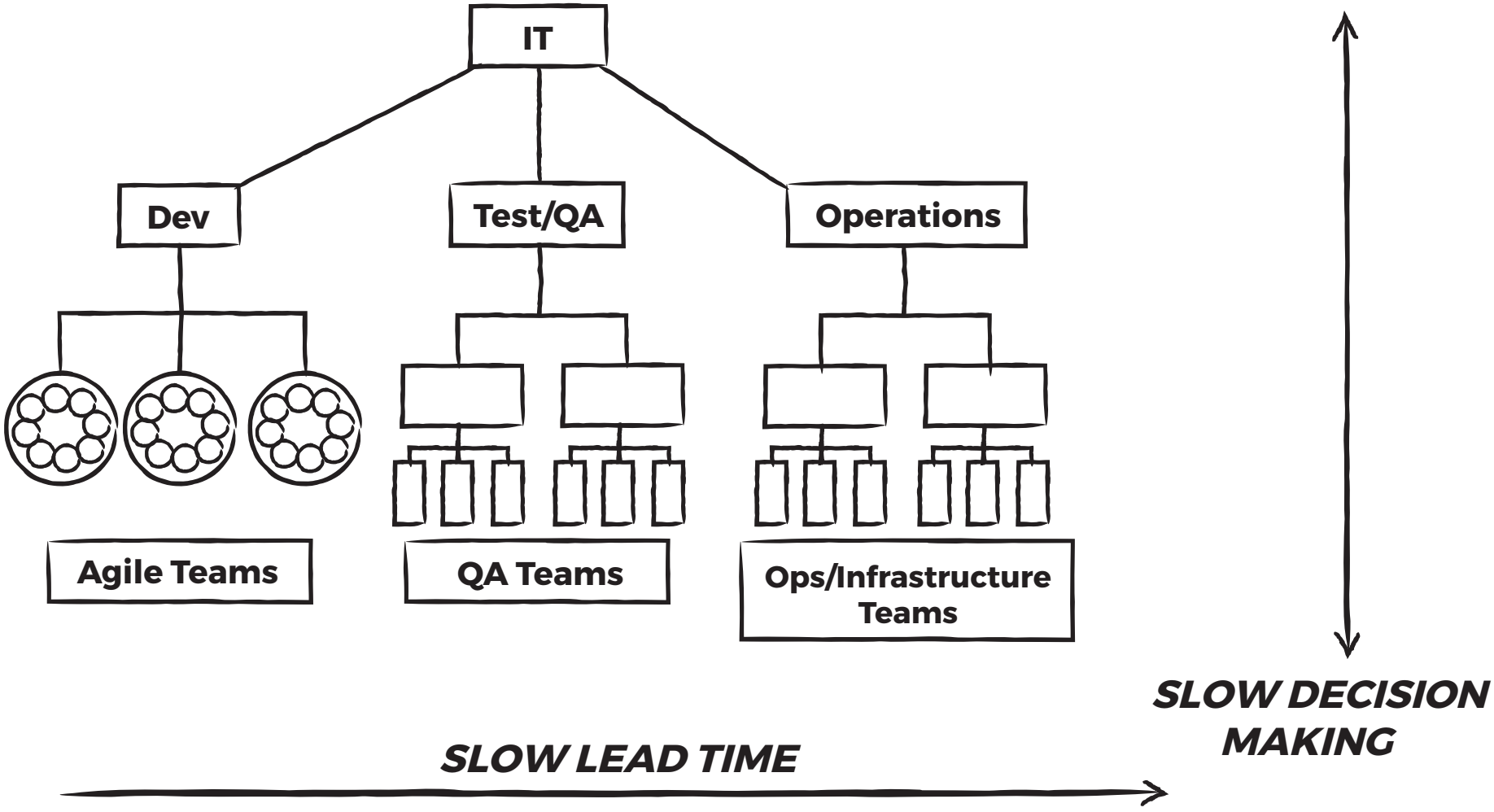


Figure 3.1: *Agile teams in a legacy organizational structure*

Table 3.1. *Organizational Misalignment with Agile Methods*

• While agile methods call for small, cross-functional teams (3–9 people for Scrum), average team size devolves over time to 25+ people.
• While agile methods call for integrated teams with all necessary disciplines represented on the core team, testers get pulled out of the formerly fully integrated team core, and end up in a separate quality assurance silo.
• While agile methods call for team allocation of 80 percent or more for the core team to a single effort, team members end up multitasking on two to three projects at a time.
• While agile methods call for locking down scope within a Sprint/iteration, untrained product owners introduce new user stories while Sprints/iterations are underway.
• While agile methods call for accepting responsibility and team members handling work assignments among themselves, newly hired project managers end up assigning work to team members in Sprint/iteration planning meetings.
• While agile methods call for daily stand-up meetings to be run by the team, they eventually devolve into status meetings for the project managers.

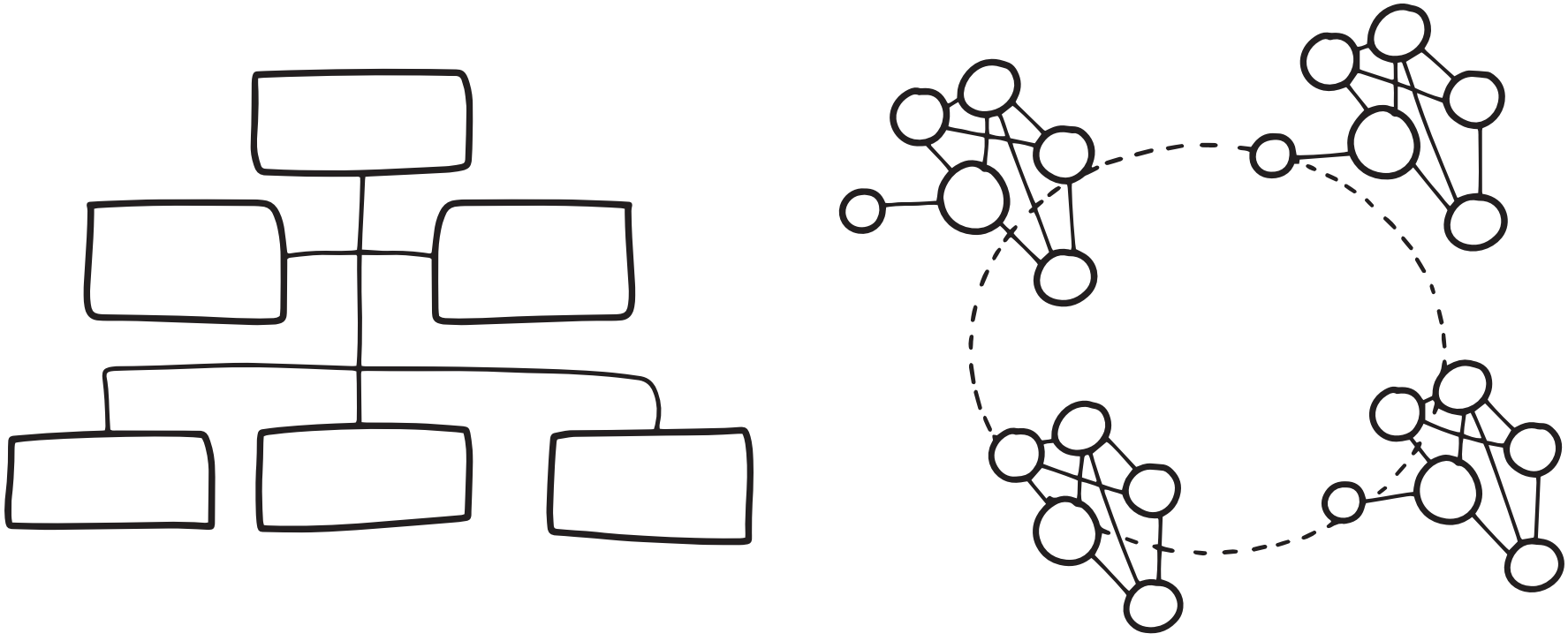


Figure 3.2: *From the industrial to a networked organizational model*

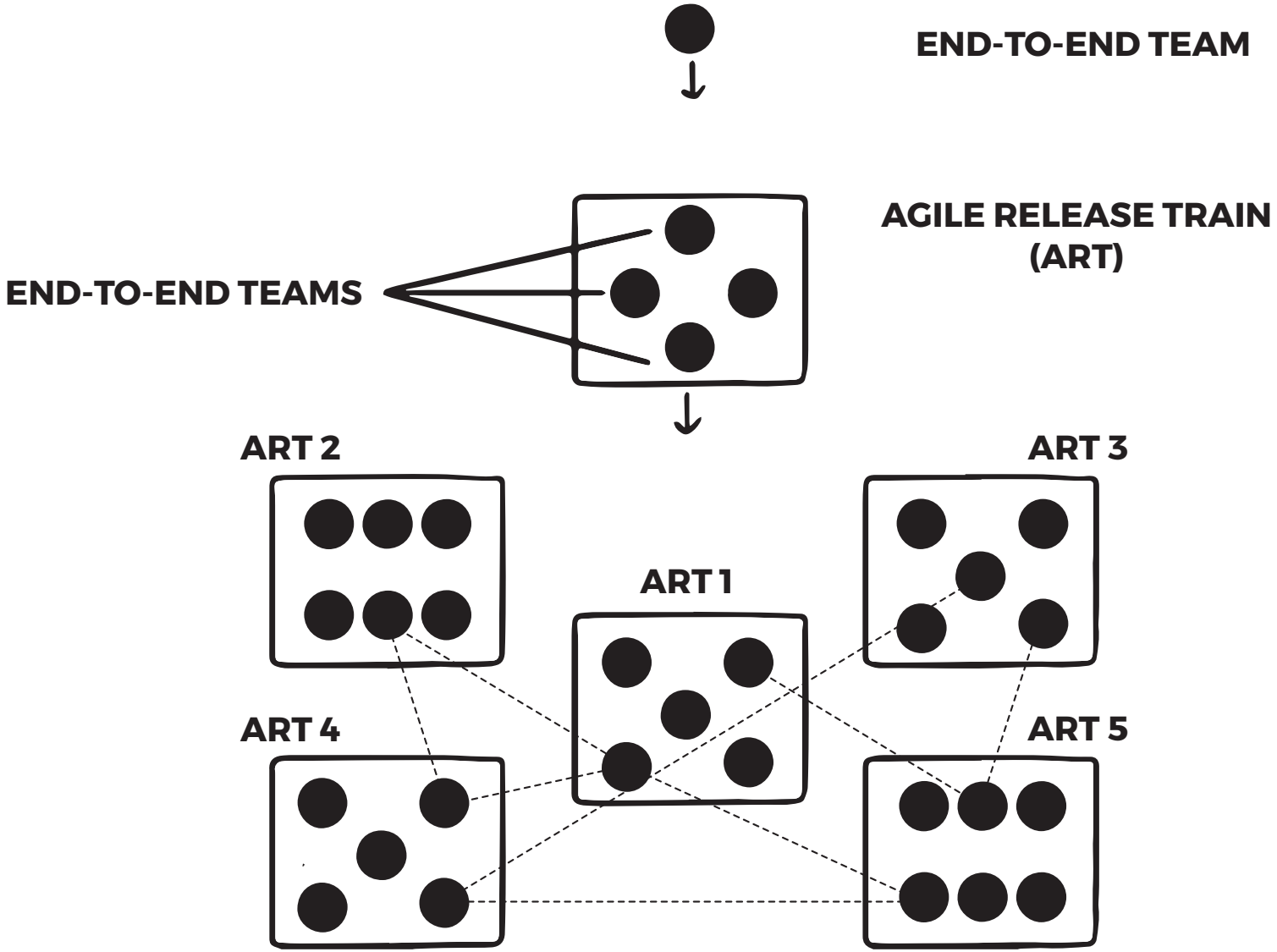


Figure 3.3: *Scaling to multiple teams*

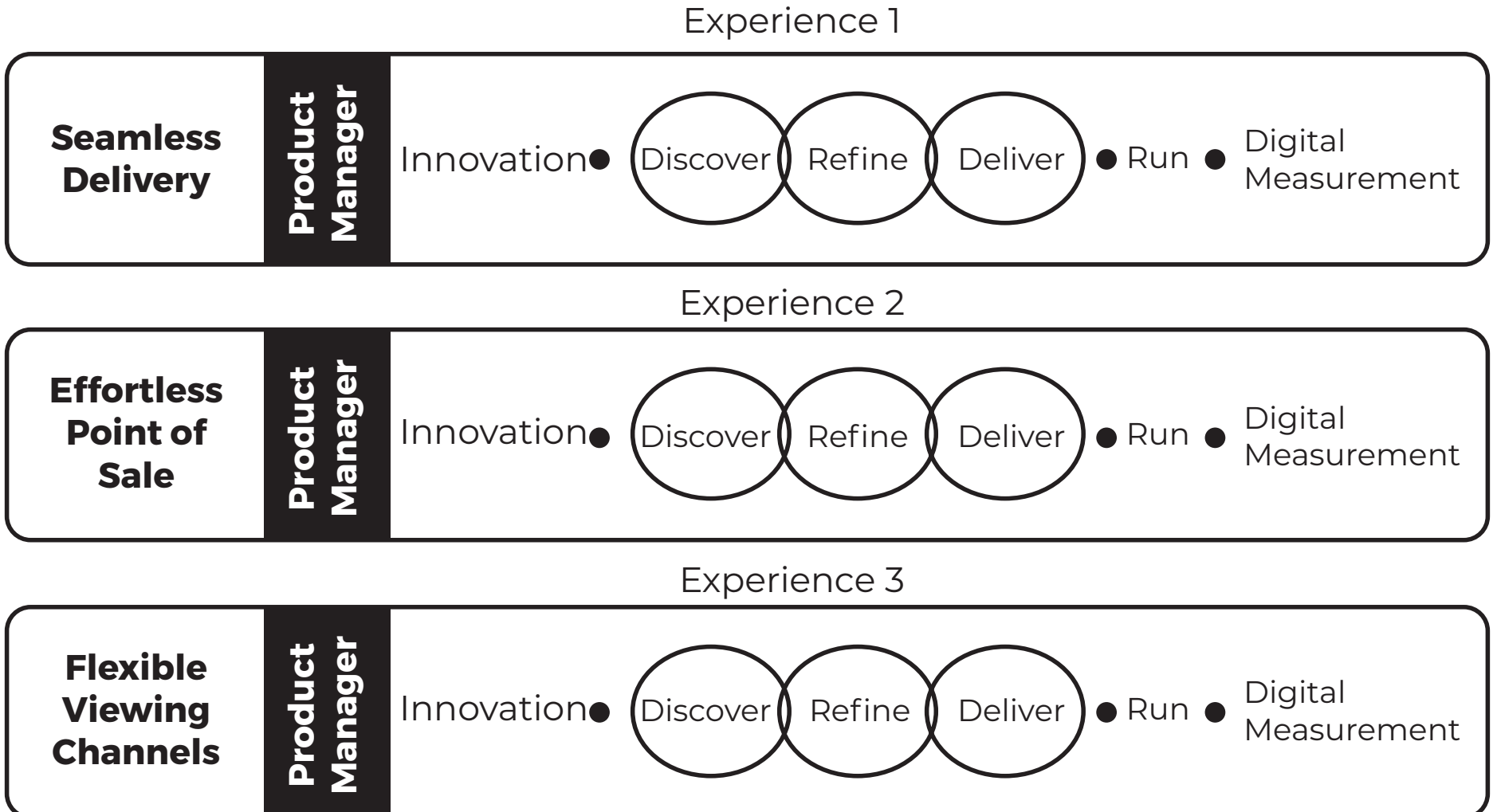


Figure 3.4: *Experience-aligned, end-to-end team model*

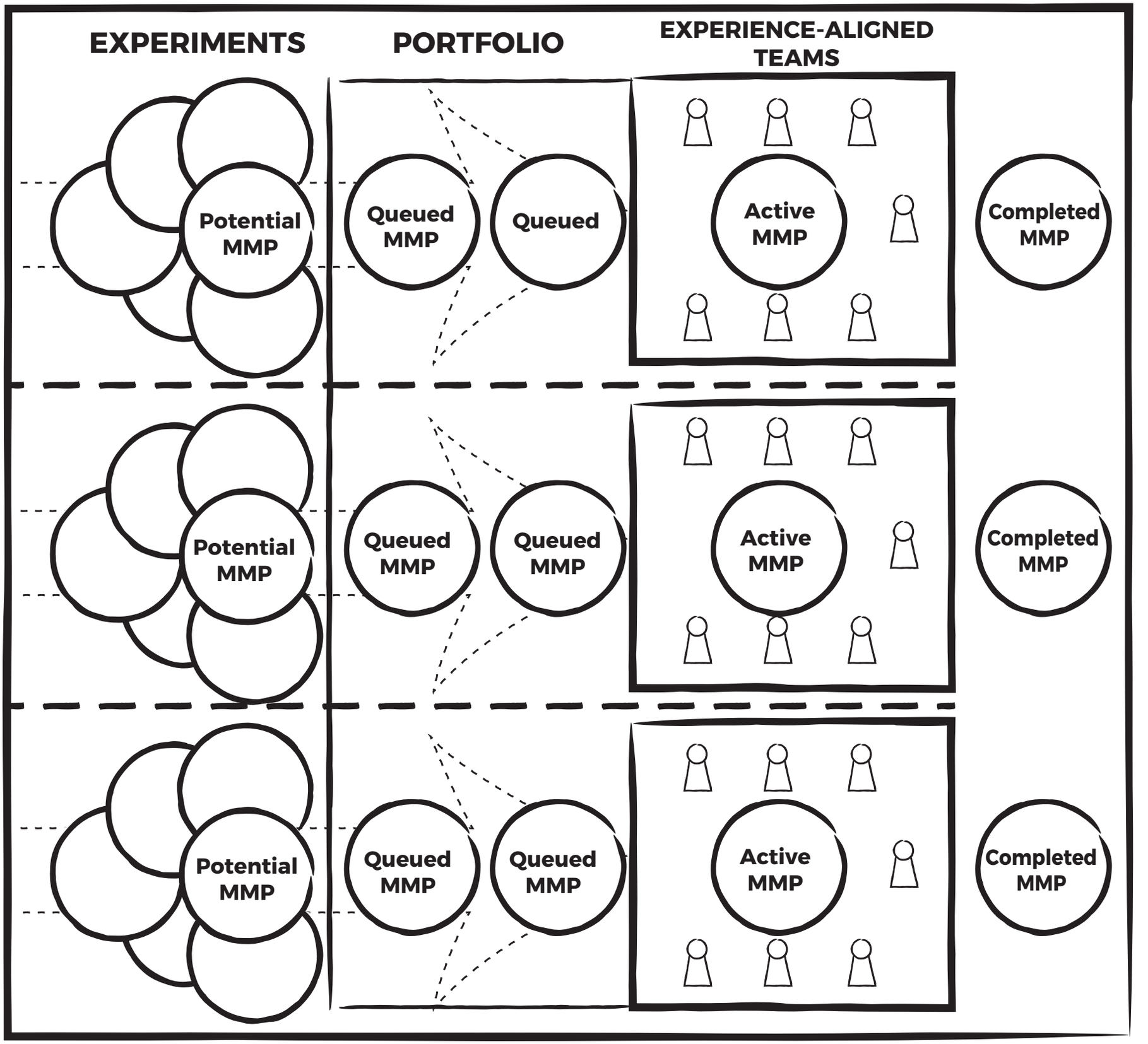


Figure 3.5: *Assigning work to experience-aligned teams*

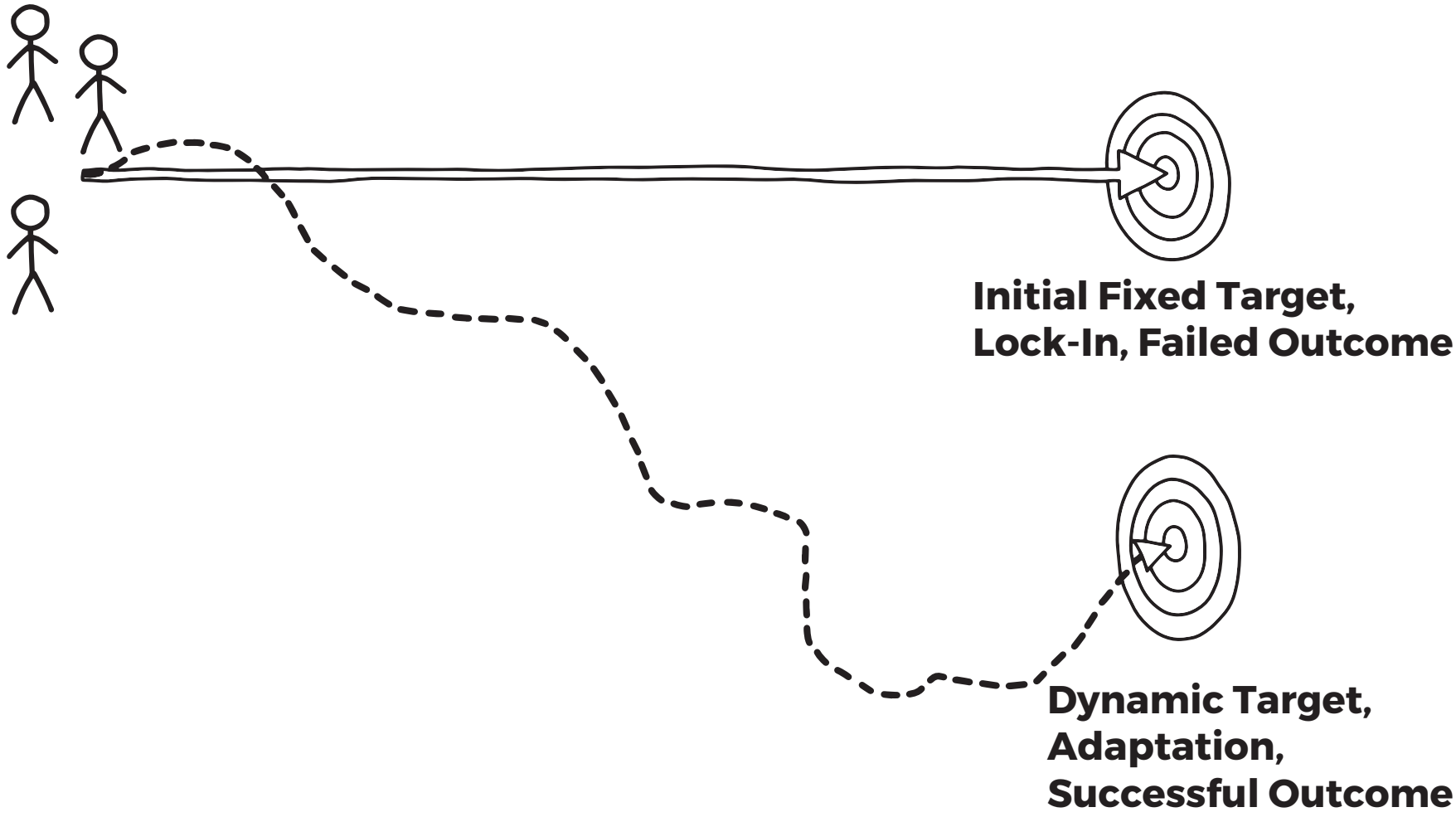


Figure 4.1: *Fixed versus adaptive planning*

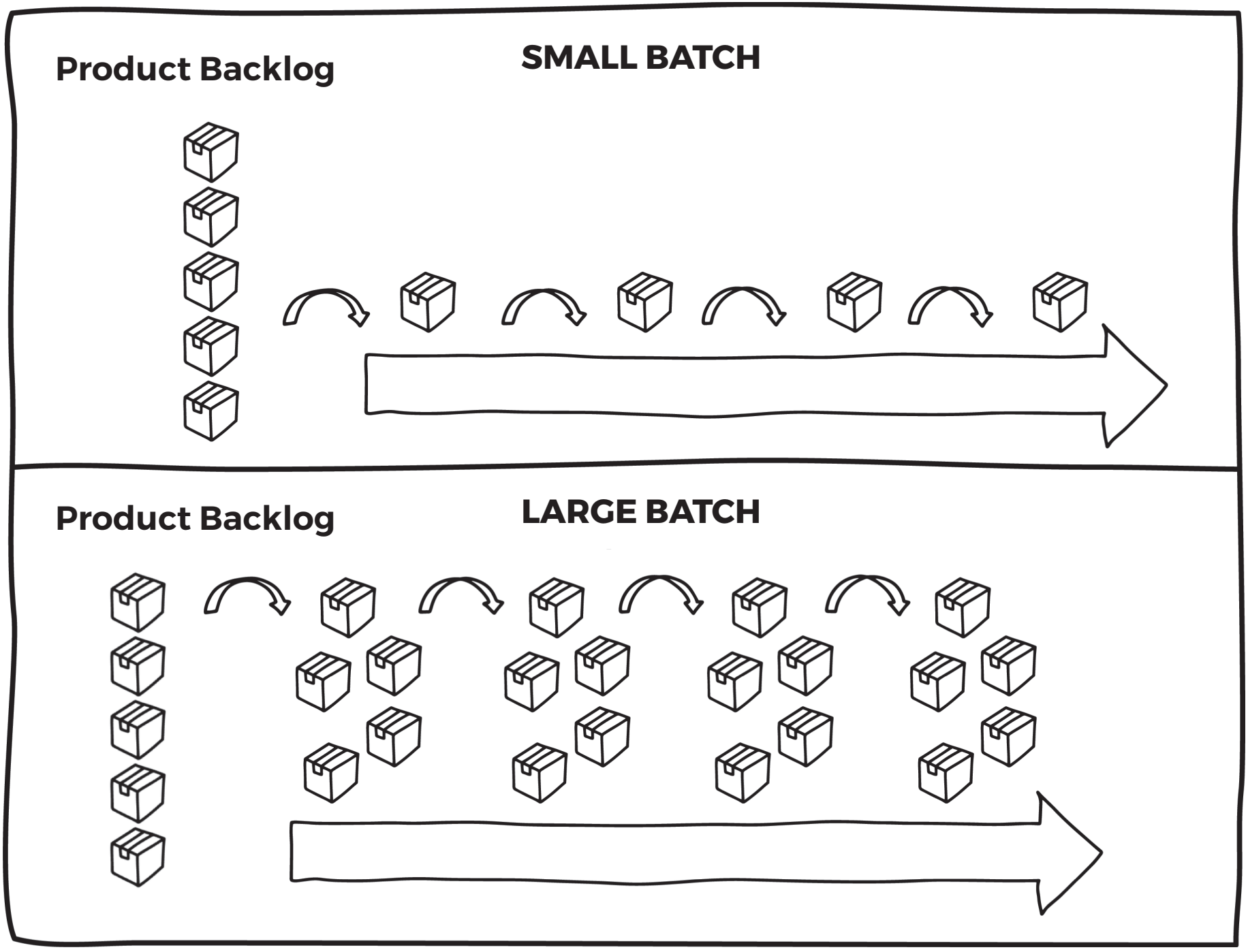


Figure 4.2: *Moving from large- to small-batch delivery*

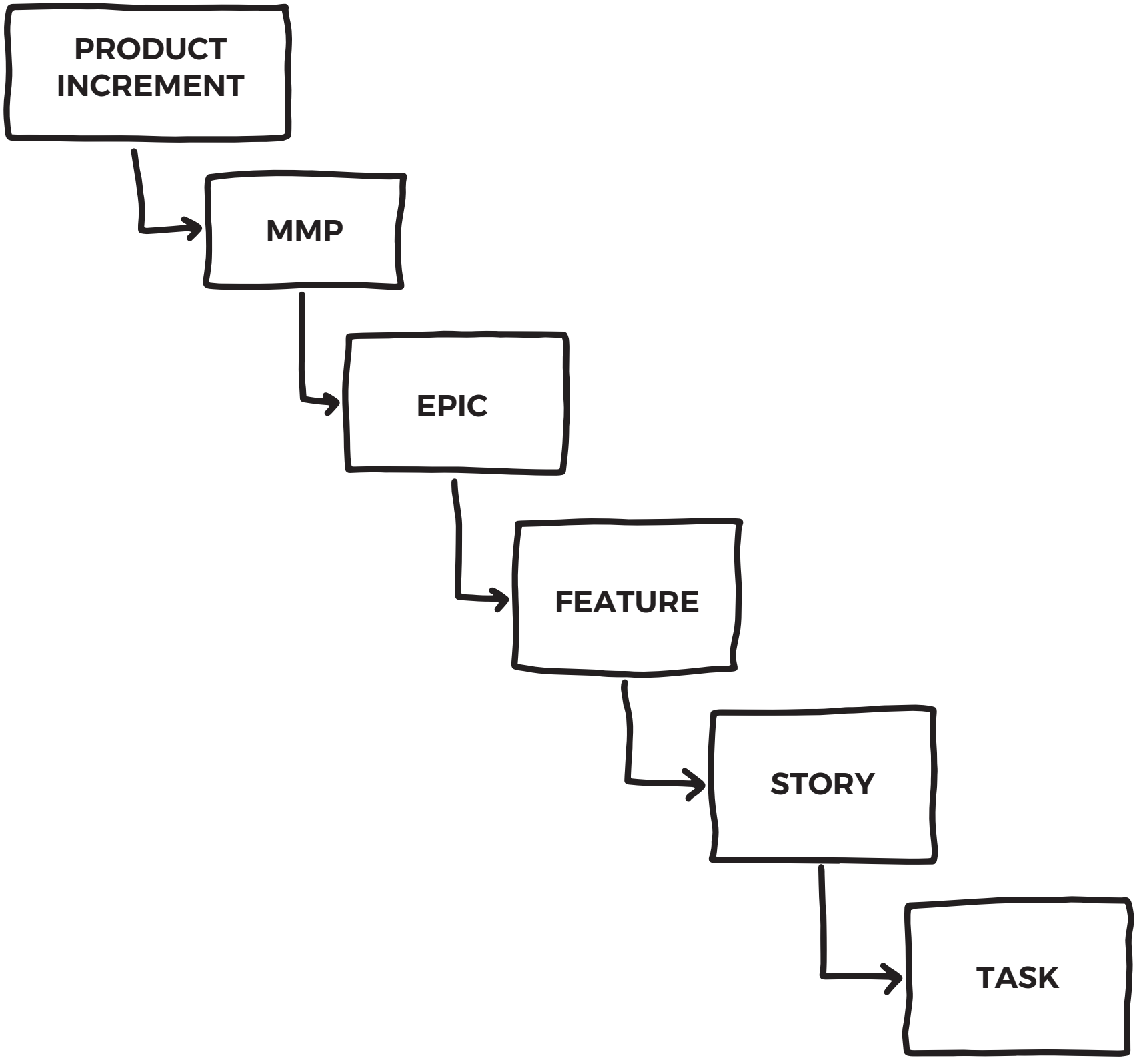


Figure 4.3: *Sample requirements decomposition on agile teams*

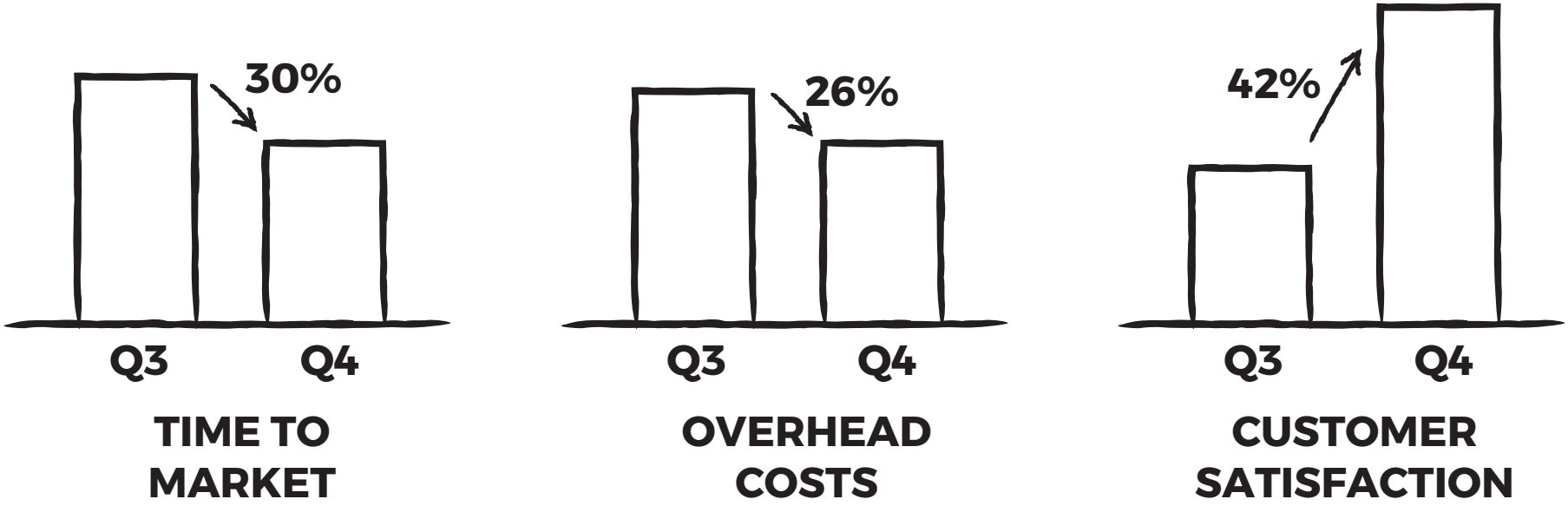


Figure 4.4: *Outcome metrics*

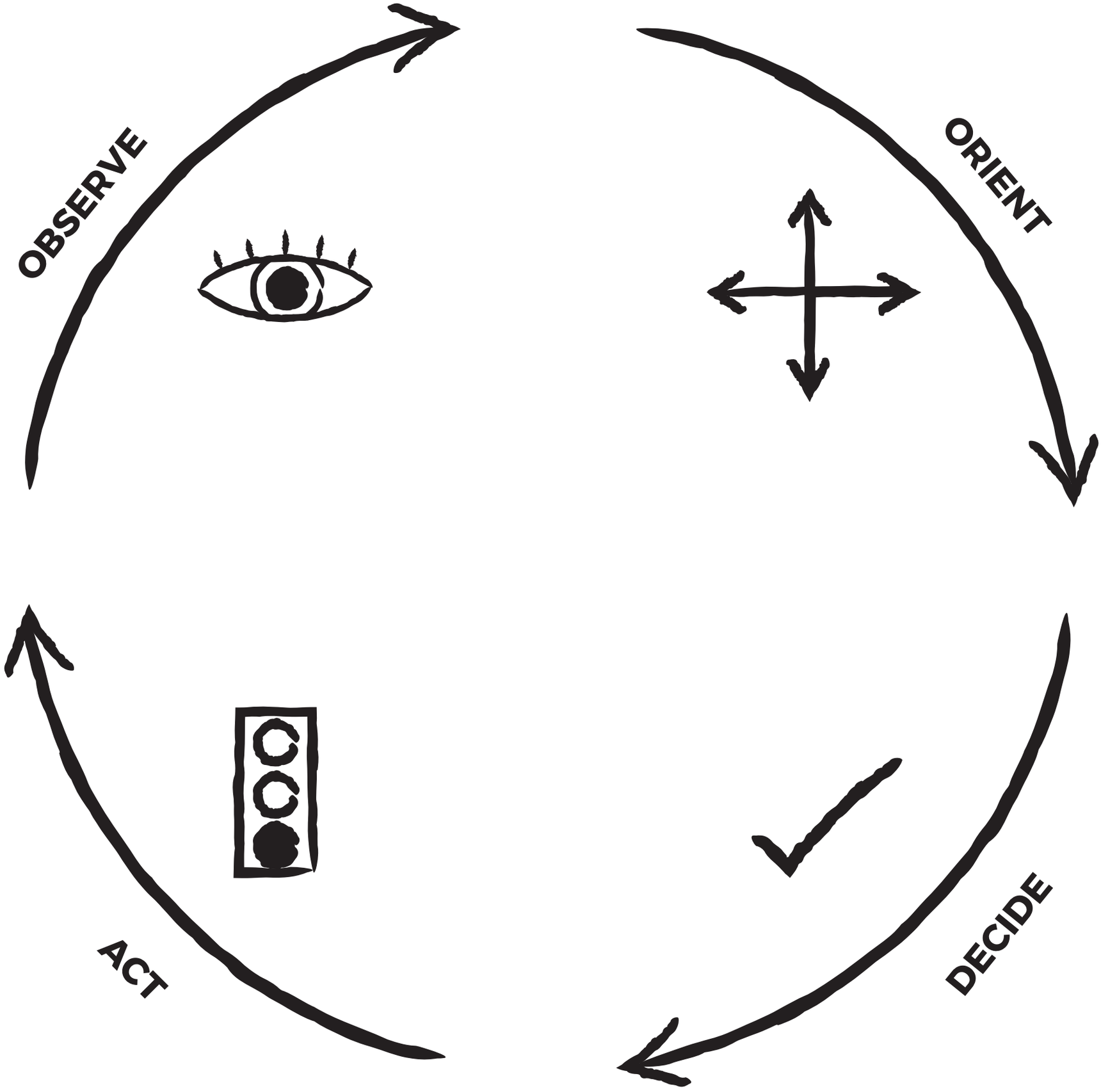


Figure 4.5: *John Boyd's OODA loop learning discipline*

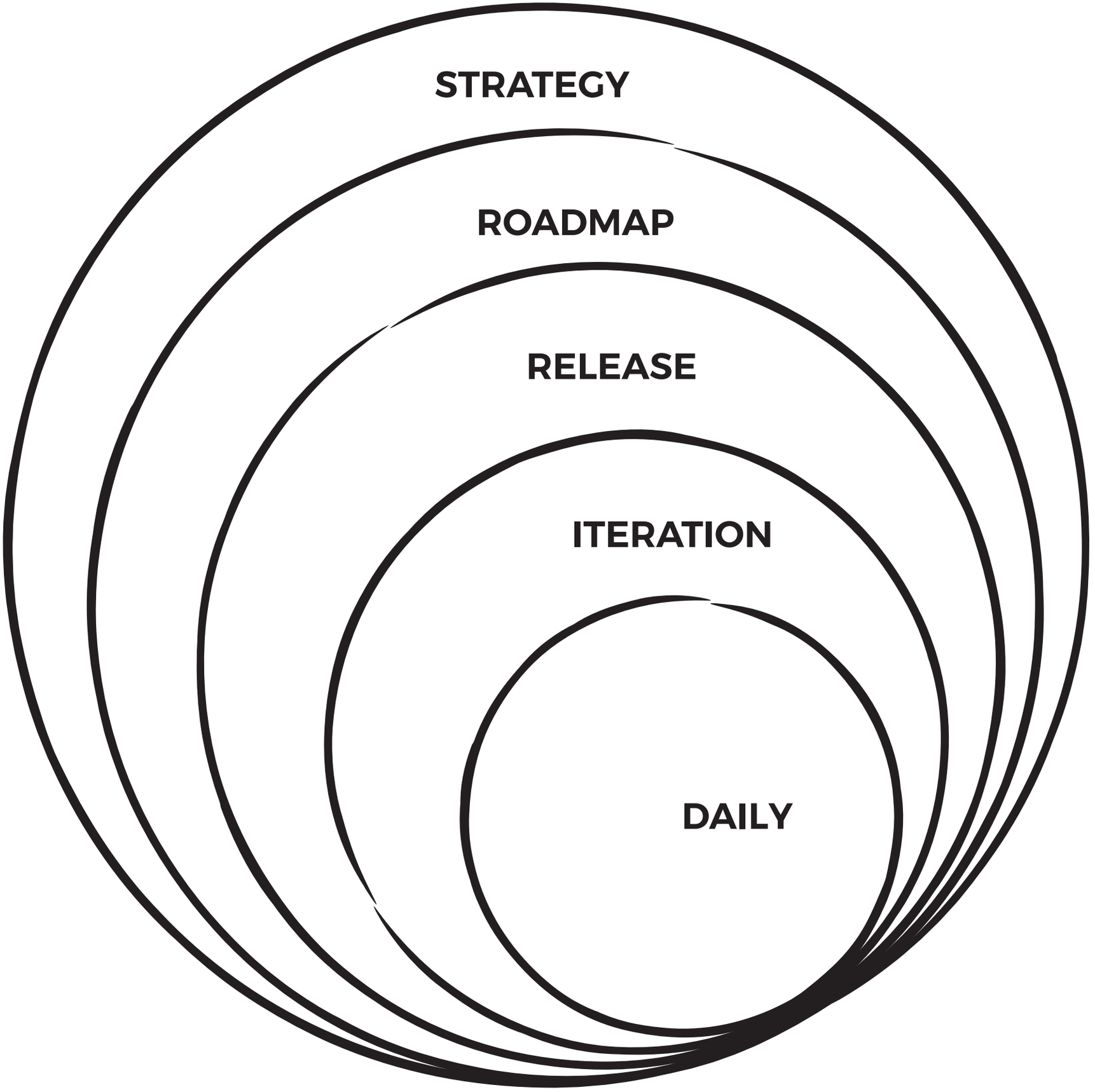


Figure 4.6: *Multilevel agile planning (adapted with permission from Mike Cohn)*

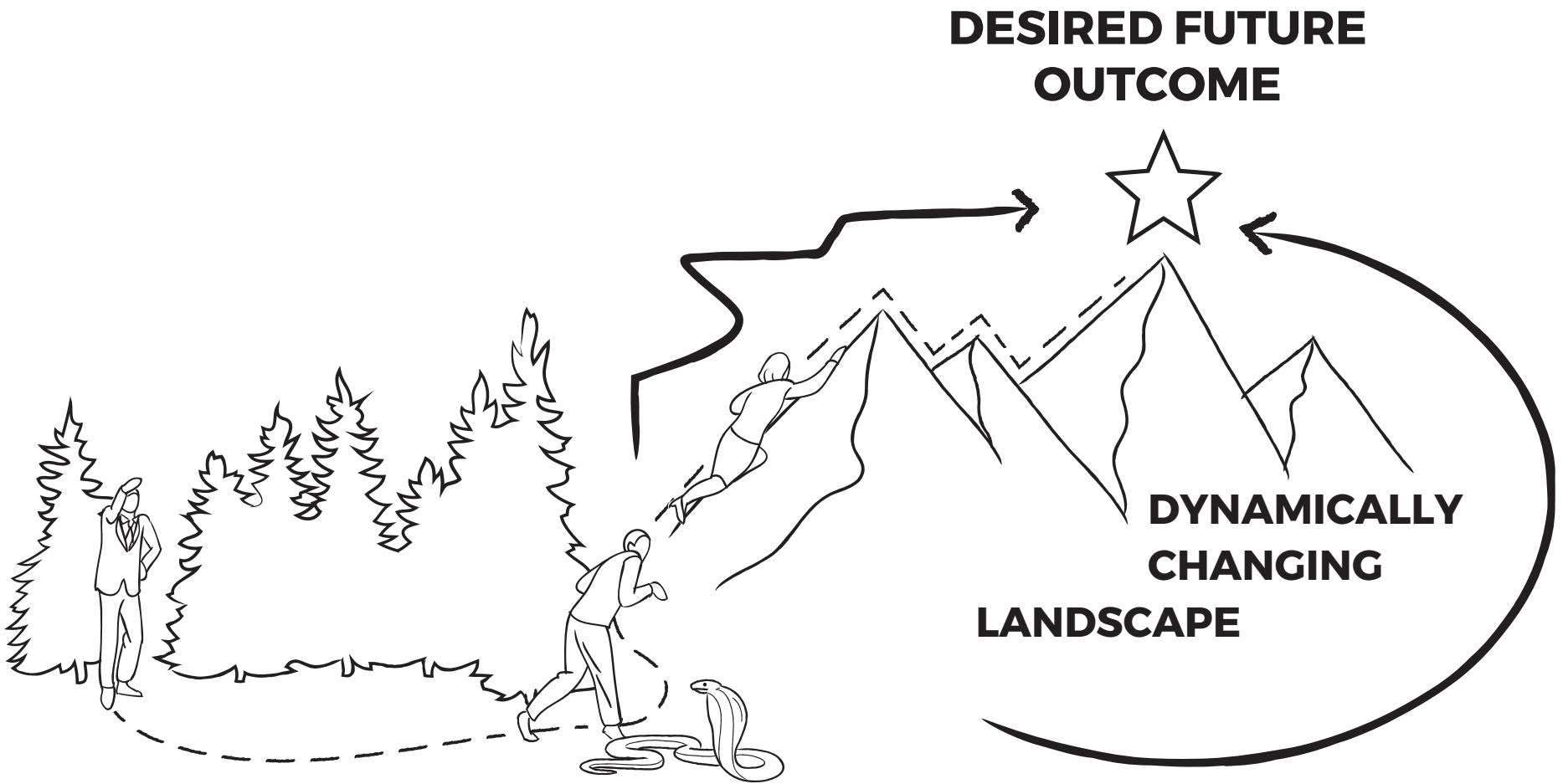


Figure 4.7: *Visualizing the future as a dynamic landscape*

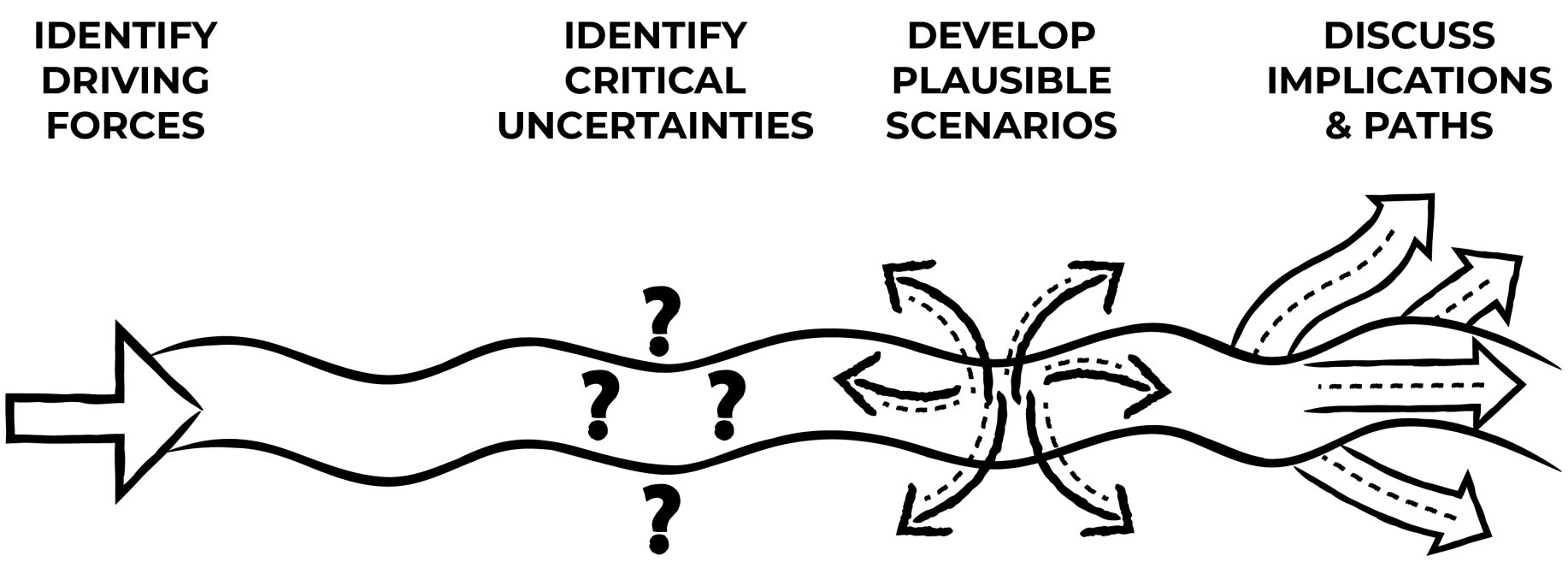


Figure 4.8: *Scenario planning process*

Table 4.1. ***Sample Scenario Planning for Pandemic Impact***

Business Aspect	Uncertainties and Anticipated Impact	Action Items
Scenario 1: Quick Recovery by 2020 Q2 End **Probability 5 percent** **Business as planned with added preparation and awareness.** **Work from home as an option.**		
Main products and services	• May see drop in new business • Communicate precautions • Signage and policies clearly visible onsite	• Digital product/services development; for a simple experiment, look to future to build out a more complex course
Headquarters presence	• Increased awareness of virus and potential impact on desire to work in the physical space • Operational considerations ◦ More handwashing, sanitary considerations and reminders • Potential additional interest in virtual work ◦ Purchase of supplies in advance in case of supply chain disruption	• Prepare signage for office locations • Messaging to employees for health safety ◦ Signs, email alerts ◦ Illness policy update through legal and posted both on site and shared through digital internal communications

(*continued*)

Table 4.1. (*continued*)

Business Aspect	Uncertainties and Anticipated Impact	Action Items
Scenario 2: Global Slowdown Extending until the End of 2020 Probability 25 percent Virtual options a necessity, 50–75 percent drop in business, customers not buying new in-person services.		
Main products and services	• Expect 20–30 percent drop in business • Need to balance out costs	• Accelerate development of digital products and services
Headquarters presence	• Expect in-person presence will drop, and people will choose to work virtually ◦ Operational and supply chain considerations ◦ Growing load on technology team and infrastructure to switch to virtual	• Live and virtual options a necessity • FAQs/information page/ policies for employees • Preorder supplies when possible to allow for supply chain disruption
Scenario 3: Global Pandemic and Recession until 2021+ Probability 70 percent All in-person work canceled, and most new customer business put on hold for several months. Total business shift to virtual, plus bottom line significantly impacted in 2020.		
Main products and services	• Business expected to drop by 50–70 percent • All in-person customer presence will drop dramatically ◦ Operational and supply chain considerations	• Begin emergency development of digital products and services • Accelerate business model innovation to pivot core business

Table 4.1. (*continued*)

Business Aspect	Uncertainties and Anticipated Impact	Action Items
	◦ Massive load on technology team and infrastructure to switch to virtual	
Headquarters presence	• Shutdown of all in-person presence • All staff will work virtually ◦ Operational and supply chain considerations ◦ Massive load on technology team and infrastructure to switch to virtual	• Virtual options a necessity • FAQs/information page/ policies for employees • Preorder supplies as soon as possible to allow for supply chain disruption • Invest rapidly in cloud technology and agile methods

Table 4.2. *Sample OKRs for Global Economic Slowdown Scenario*

Objective	Key Results
Determine emerging customer needs in the pandemic	1. Conduct 25 interviews at key regional customer accounts 2. Design and implement survey of 100 worldwide customers 3. Analyze feature usage in key products and services to track declines
Innovate rapidly with experimental product prototype	1. Develop fully functional product prototype in a month 2. Support 100,000 simulated visits to new product site 3. Track feature usage real time via DevOps telemetry
Reduce overhead expenses	1. Terminate or renegotiate leases for all major properties within 60 days 2. Renegotiate vendor contracts to lower vendor expenses by 10 percent
Support growing remote workforce	1. Hire five site reliability engineers to ensure increased online presence is reliable and secure 2. Transition all employees to Microsoft Teams within 90 days 3. Release updated remote worker handbook with current work-from-home tools and procedures

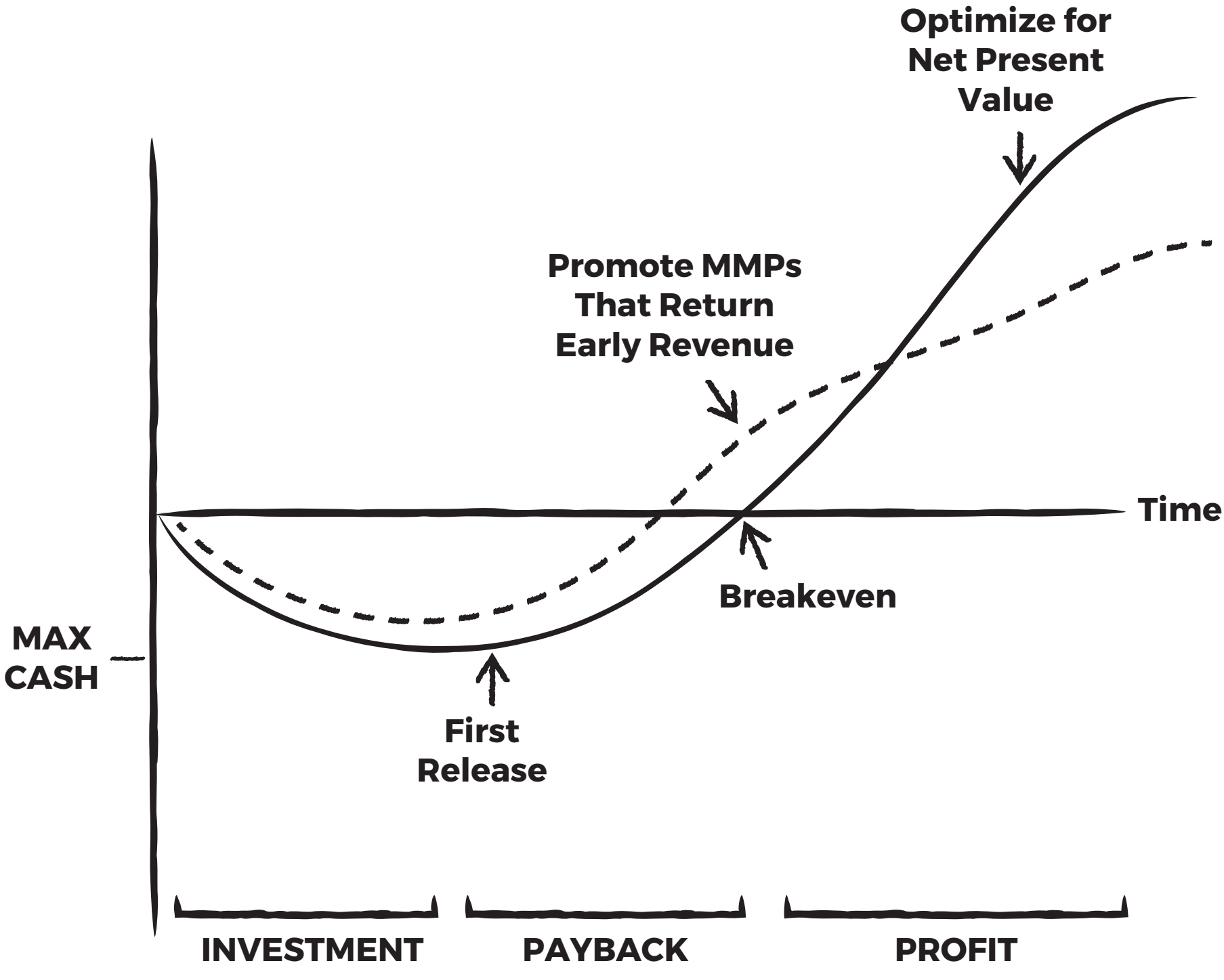


Figure 4.9: *Financial benefits of the incremental approach*

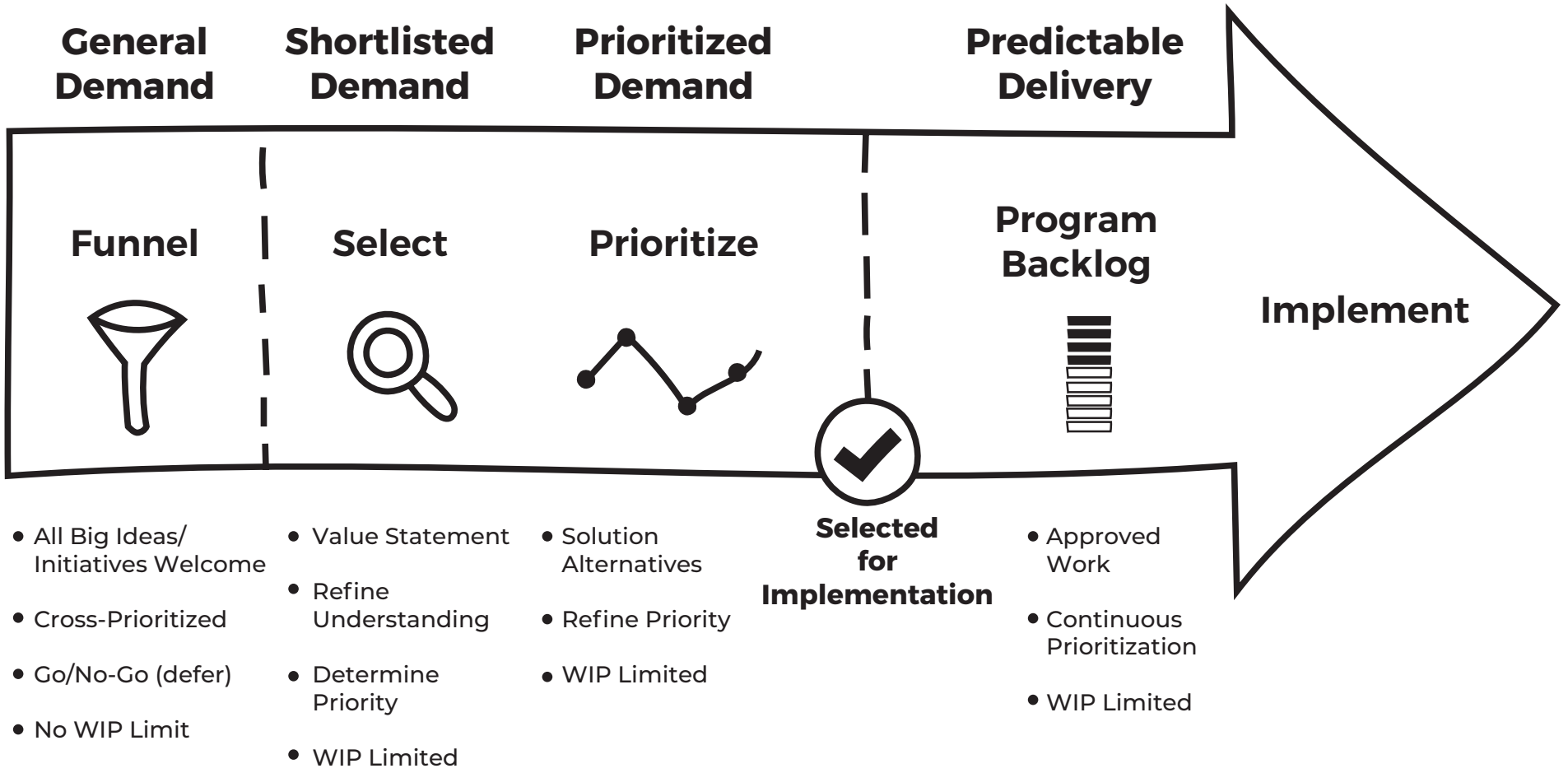


Figure 4.10: *Essential portfolio Kanban elements*

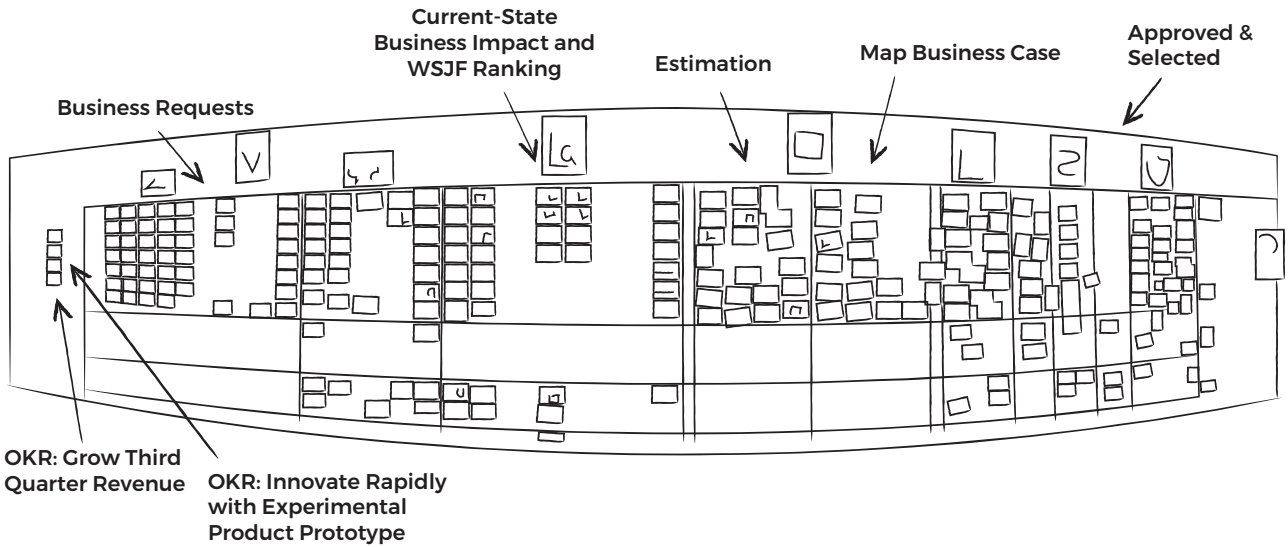


Figure 4.11*: Creating a line of sight from OKRs to MMPs on a portfolio Kanban*

Table 4.3. *Planning Feature-Release Timing with a Product Road Map*

Strategic OKR: Innovate Rapidly with Experimental Product Prototype		
Release 1 Goal: A guided retrospective MMP that tracks improvement and works for remote teams too.	**Release 2 Goal:** Make and share your own retrospectives.	**Release 3 Goal:** Powerful and beautiful improvement visualization and reporting.
Target features: - Moderate retros locally or remotely - Facilitate and track retros - Plan and review actions and their results	Target features: - More built-in retro flows and visualizations - Customizable questions and flow - Tips for moderators	Target features: - Visualize Sprint rating, happiness index, action results, customer satisfaction, and more - Custom metrics - Track and trend multidimensional improvement

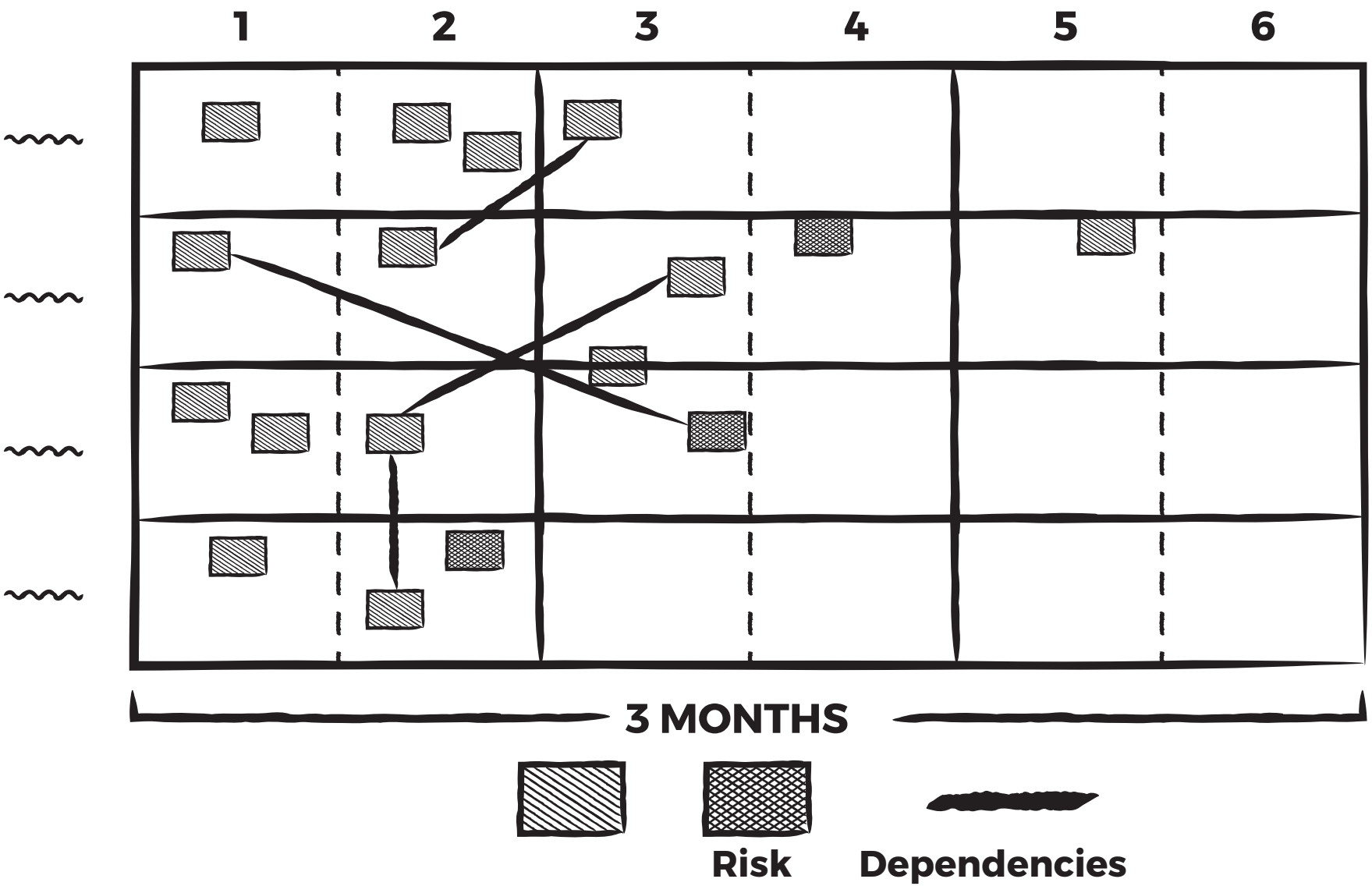


Figure 4.12: *Aligning cross-team releases via quarterly big room planning*

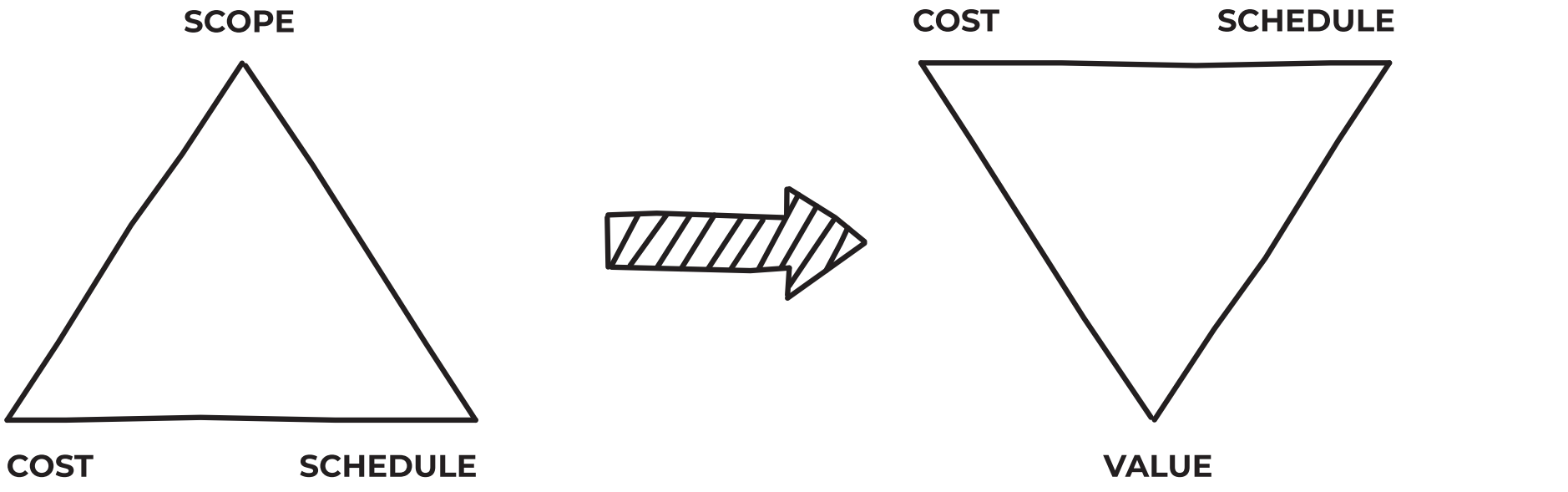


Figure 5.1: *From the iron triangle to the agile triangle*

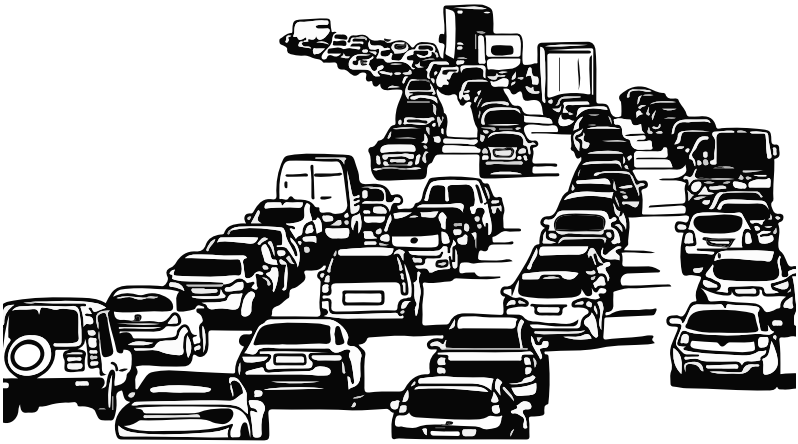


Figure 5.2: *High utilization, low throughput*

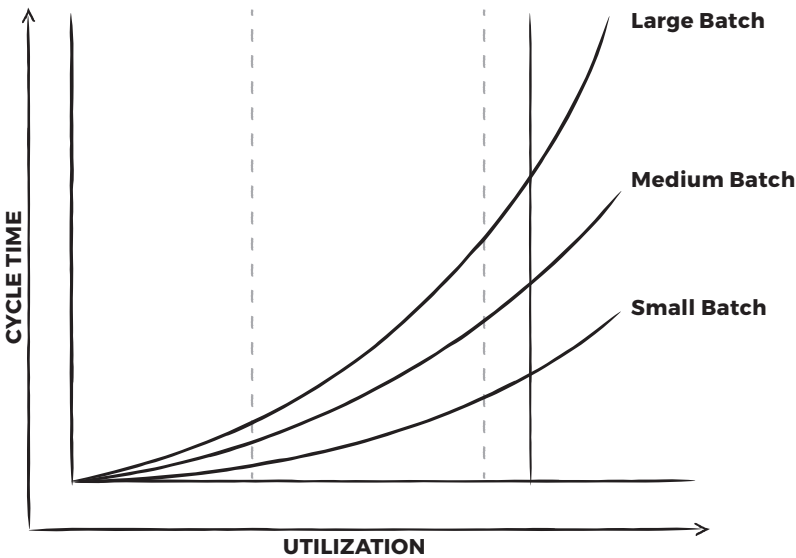


Figure 5.3: *The effect of utilization on cycle time*

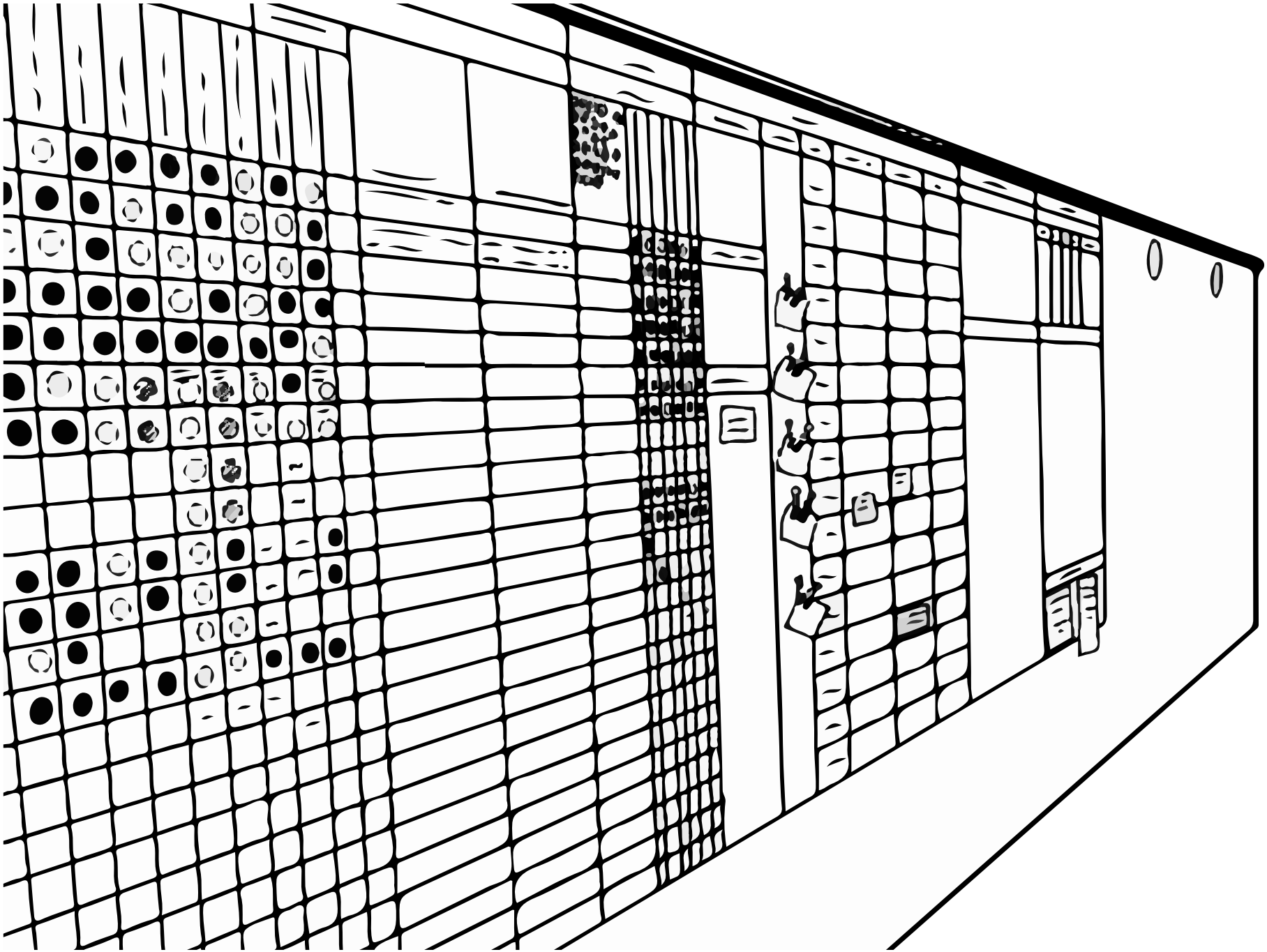


Figure 5.4: *Physical VMS visual design and standardization*

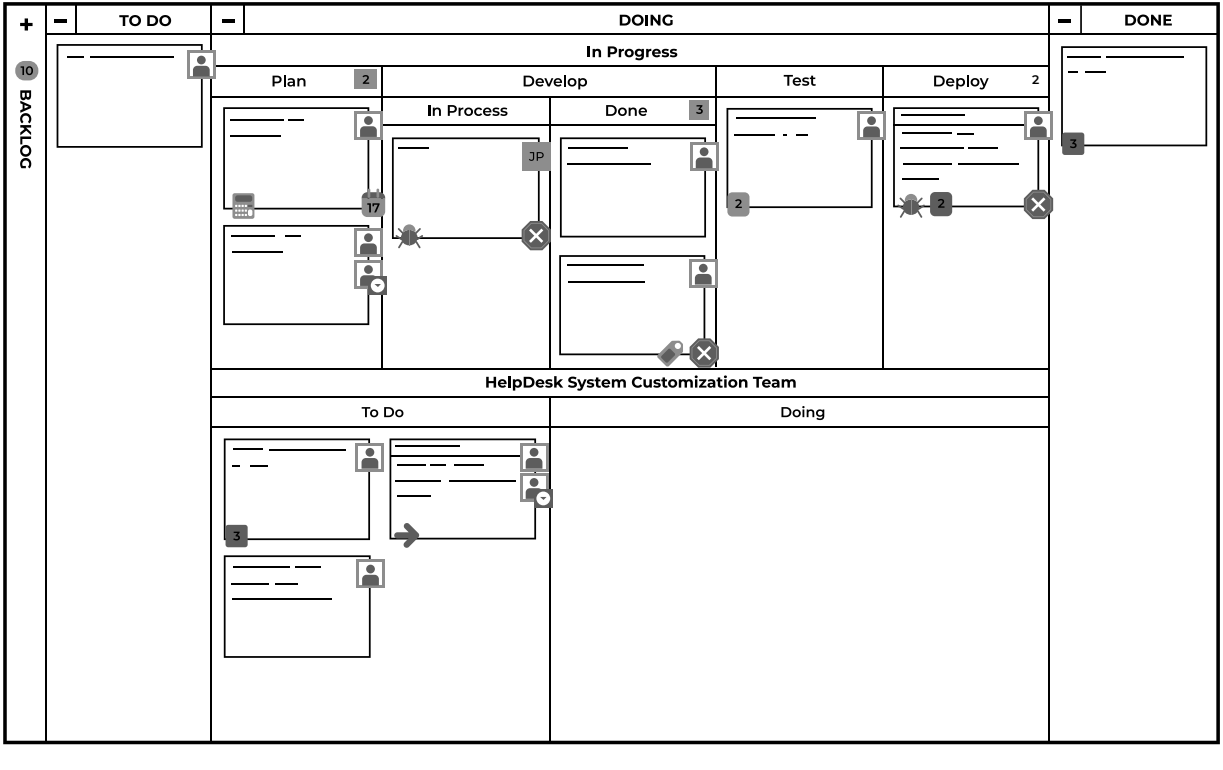


Figure 5.5: *Digital VMS design and standardization*

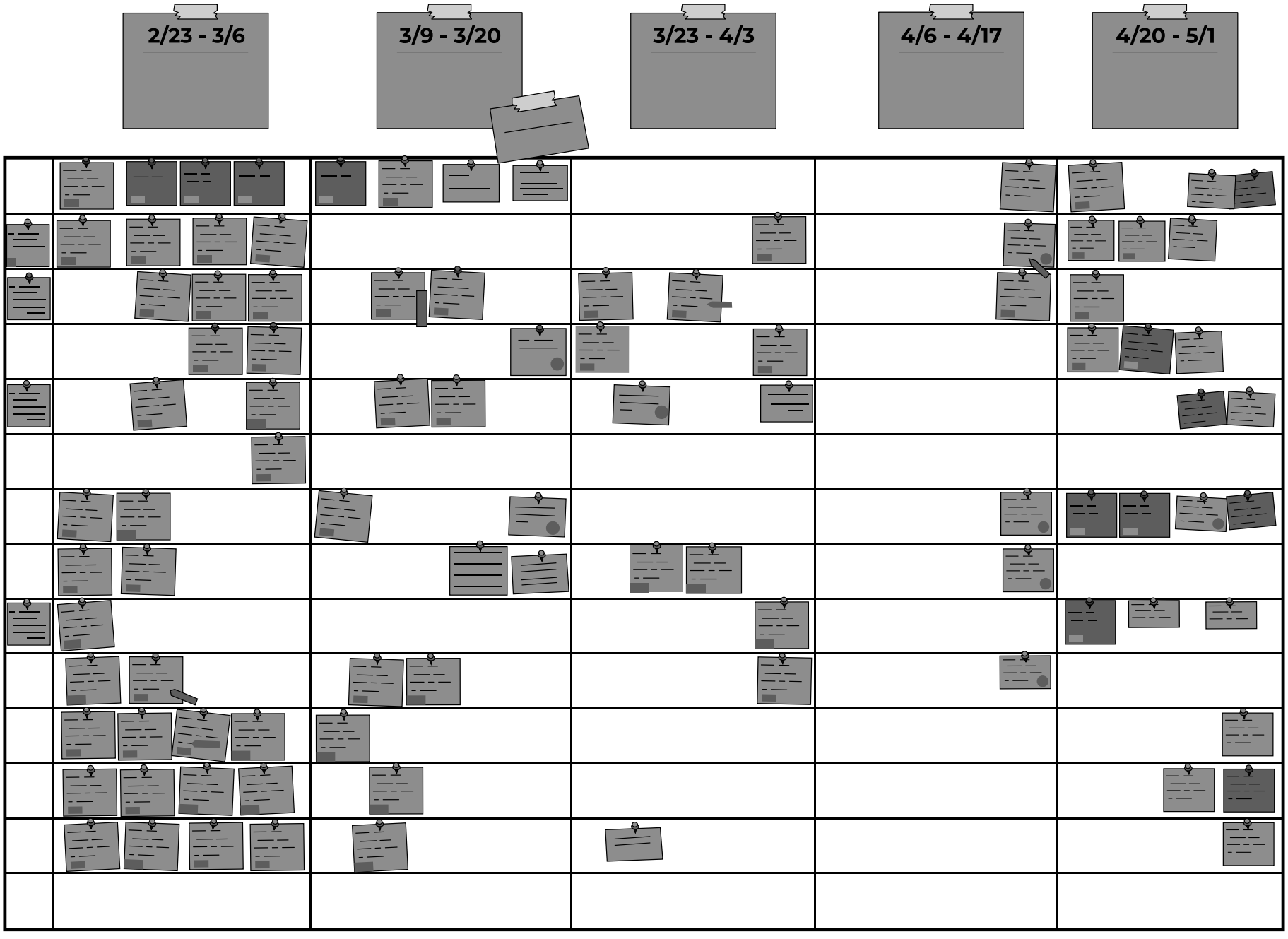


Figure 5.6: *Program-level VMS: A simple program alignment wall*

Figure 5.7: *Program-level VMS: A more detailed program alignment wall*

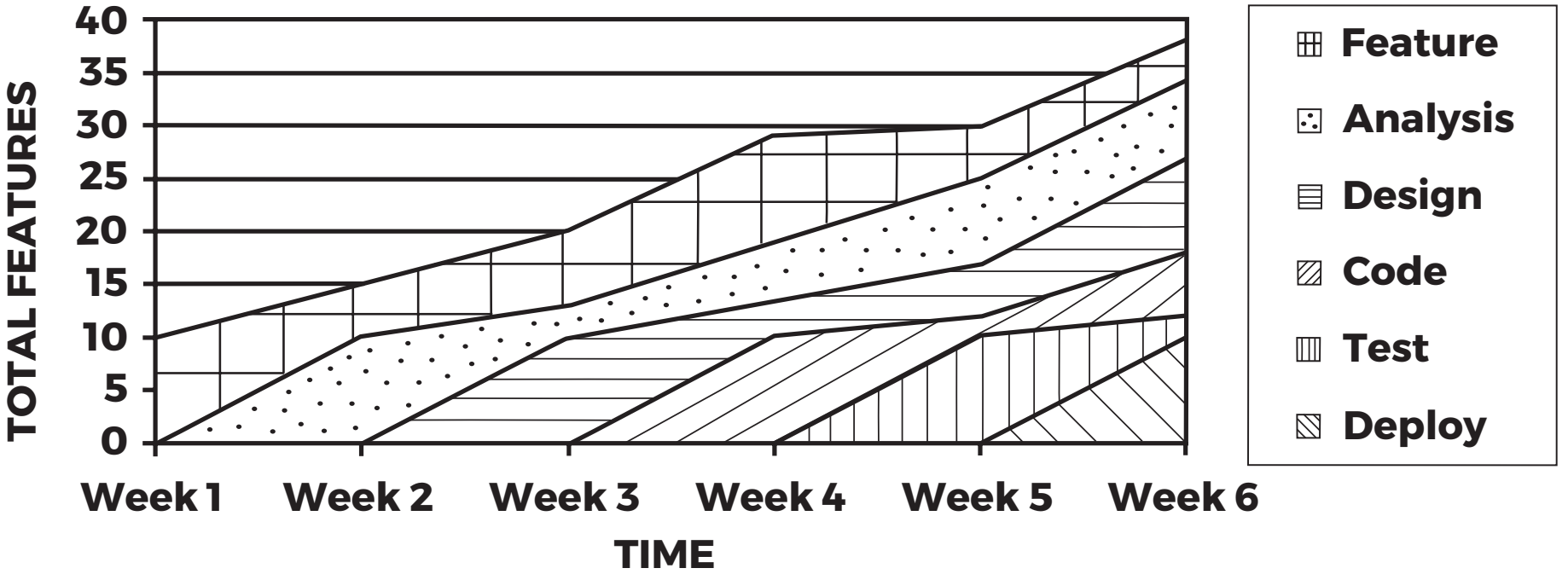


Figure 5.8: *Lead time and cycle time*

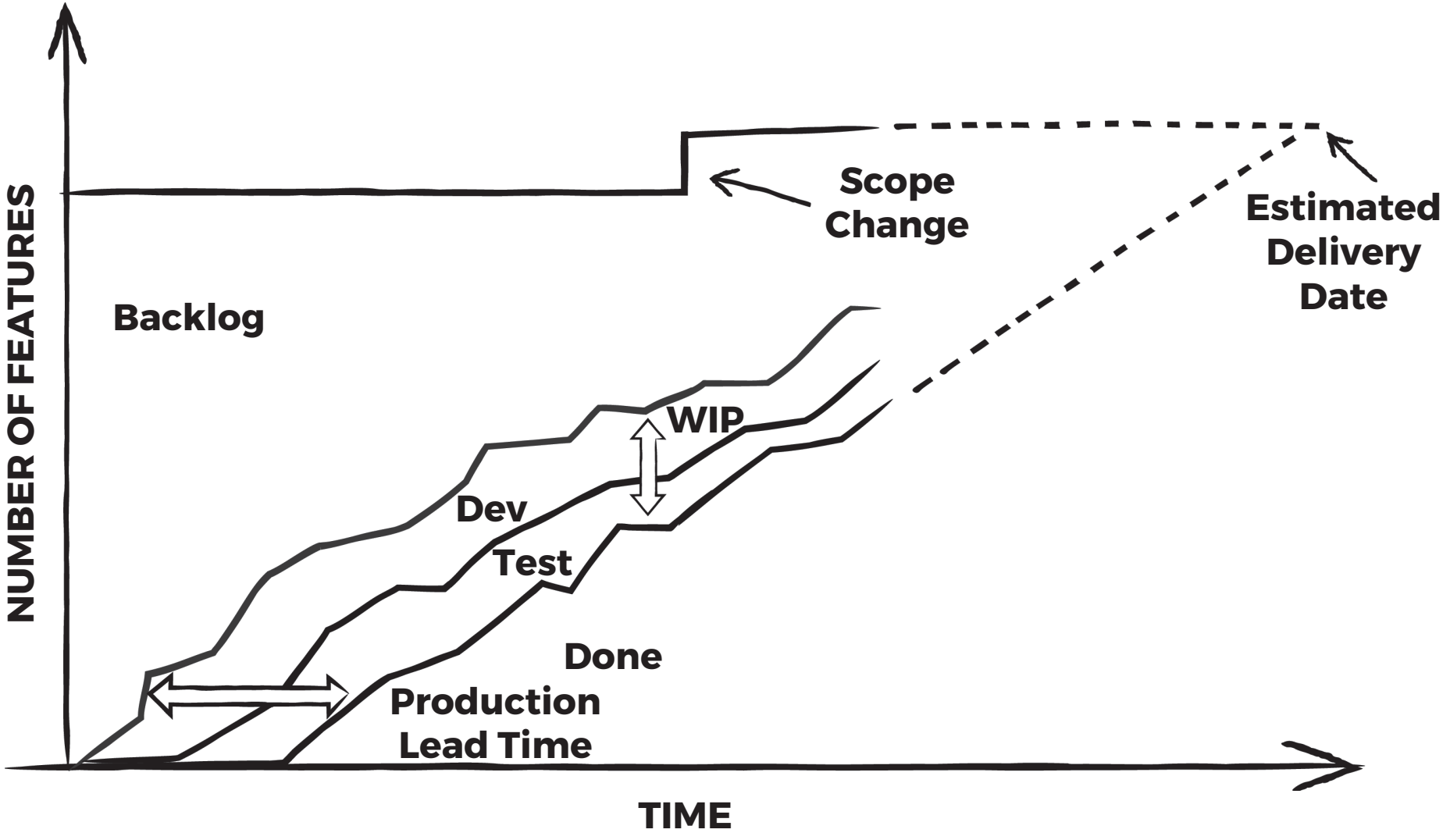


Figure 5.9: *Cumulative flow diagram*

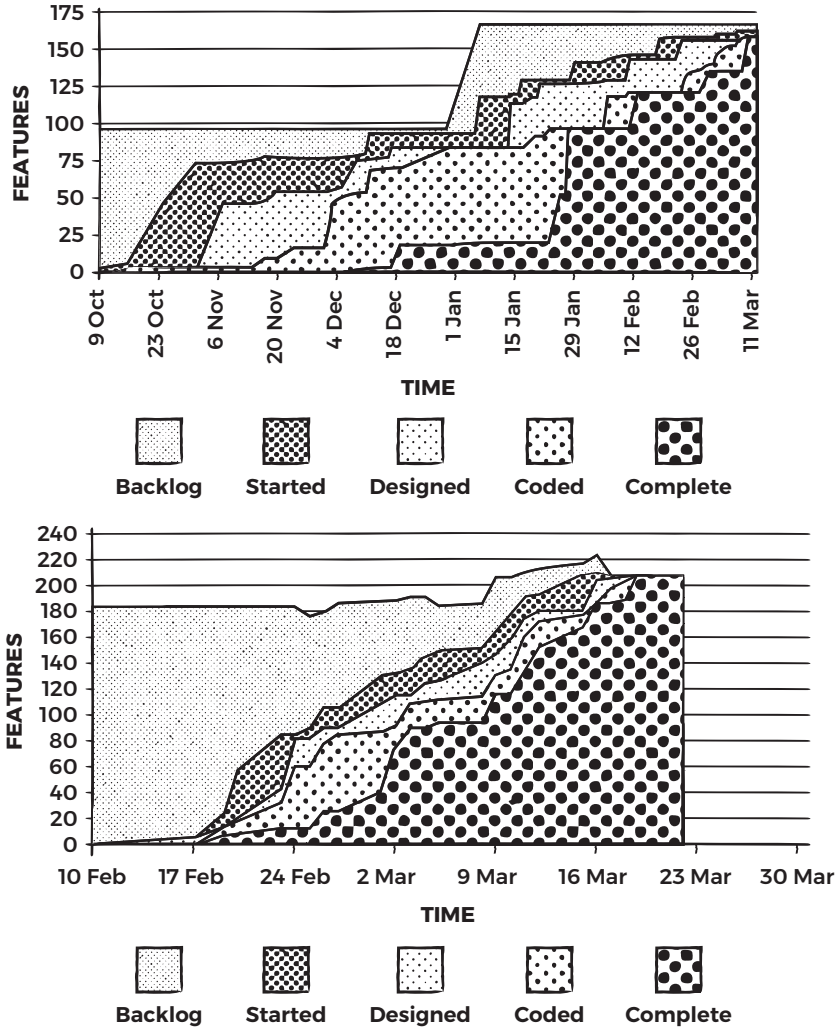


Figure 5.10: *Cumulative flow diagrams with ragged (top) versus smooth (bottom) flow*

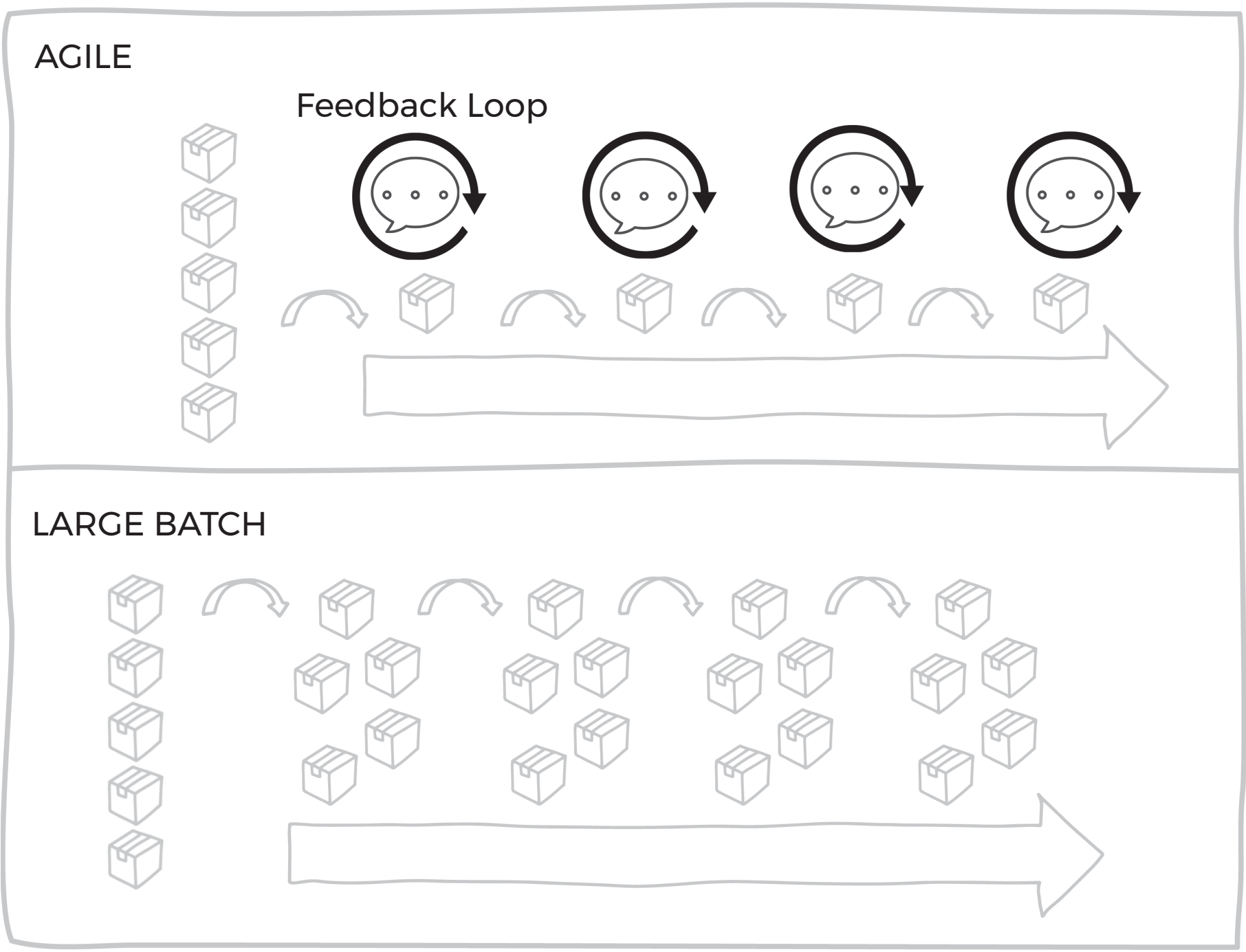


Figure 6.1: *Agile versus large batch*

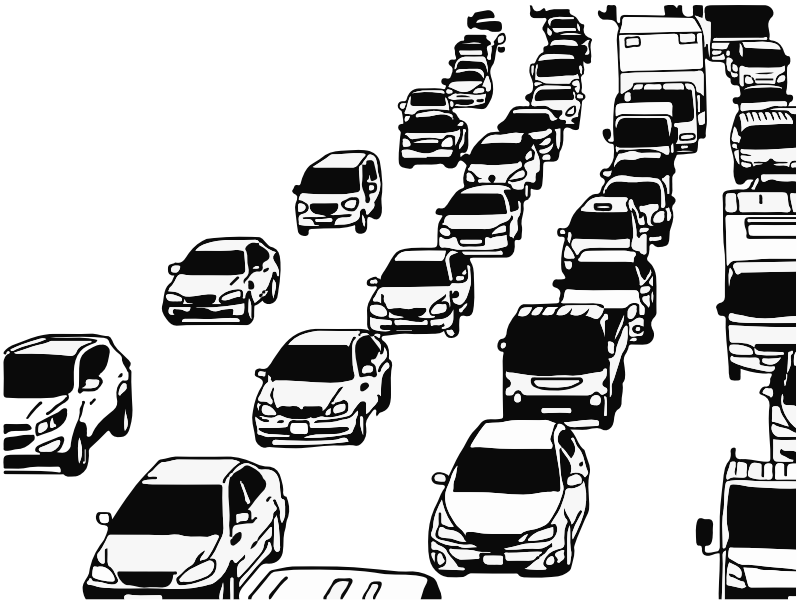


Figure 6.2: *The crowded highway*

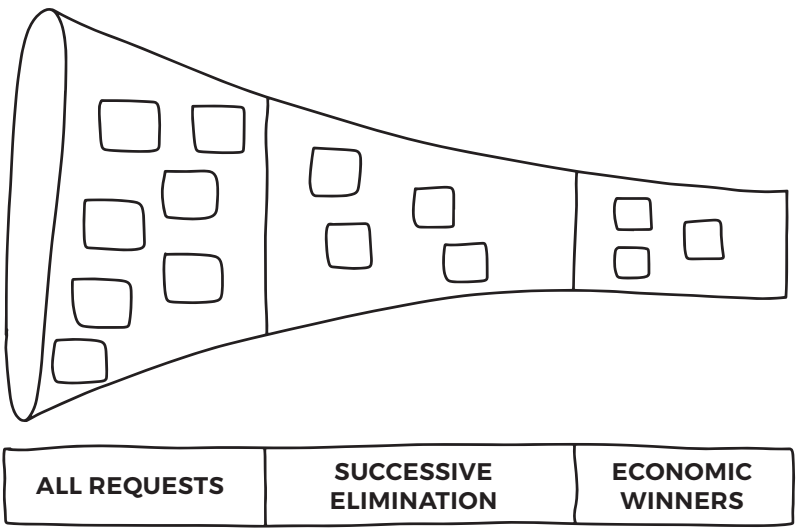


Figure 6.3: *Portfolio funnel*

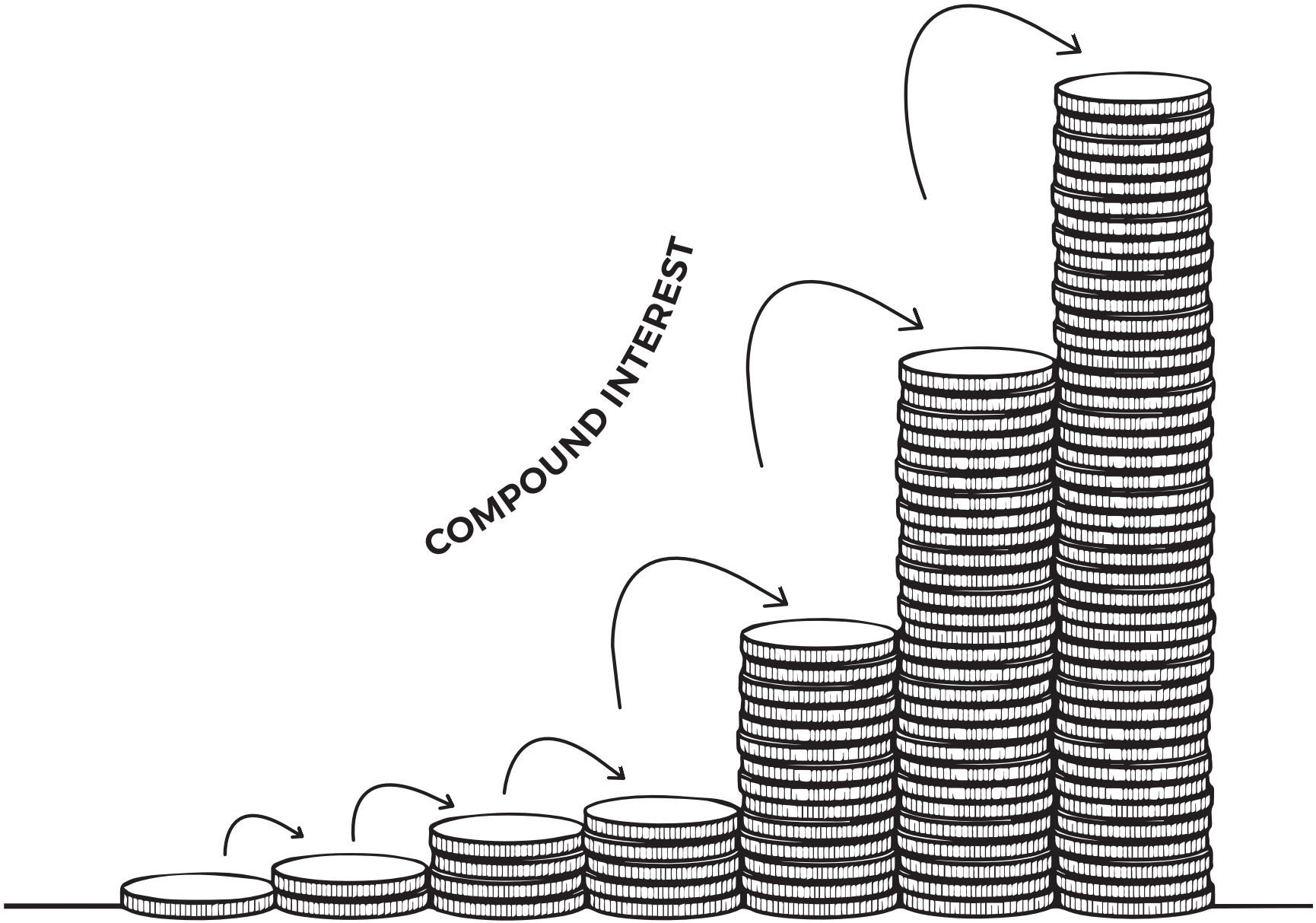


Figure 6.4: *The time value of money*

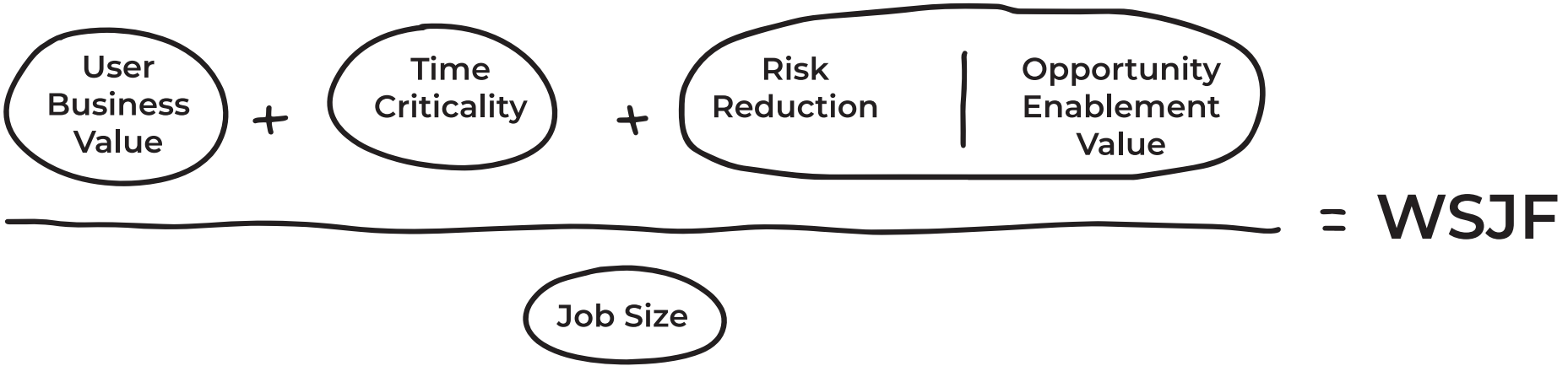


Figure 6.5: *Weighted shortest job first formula*

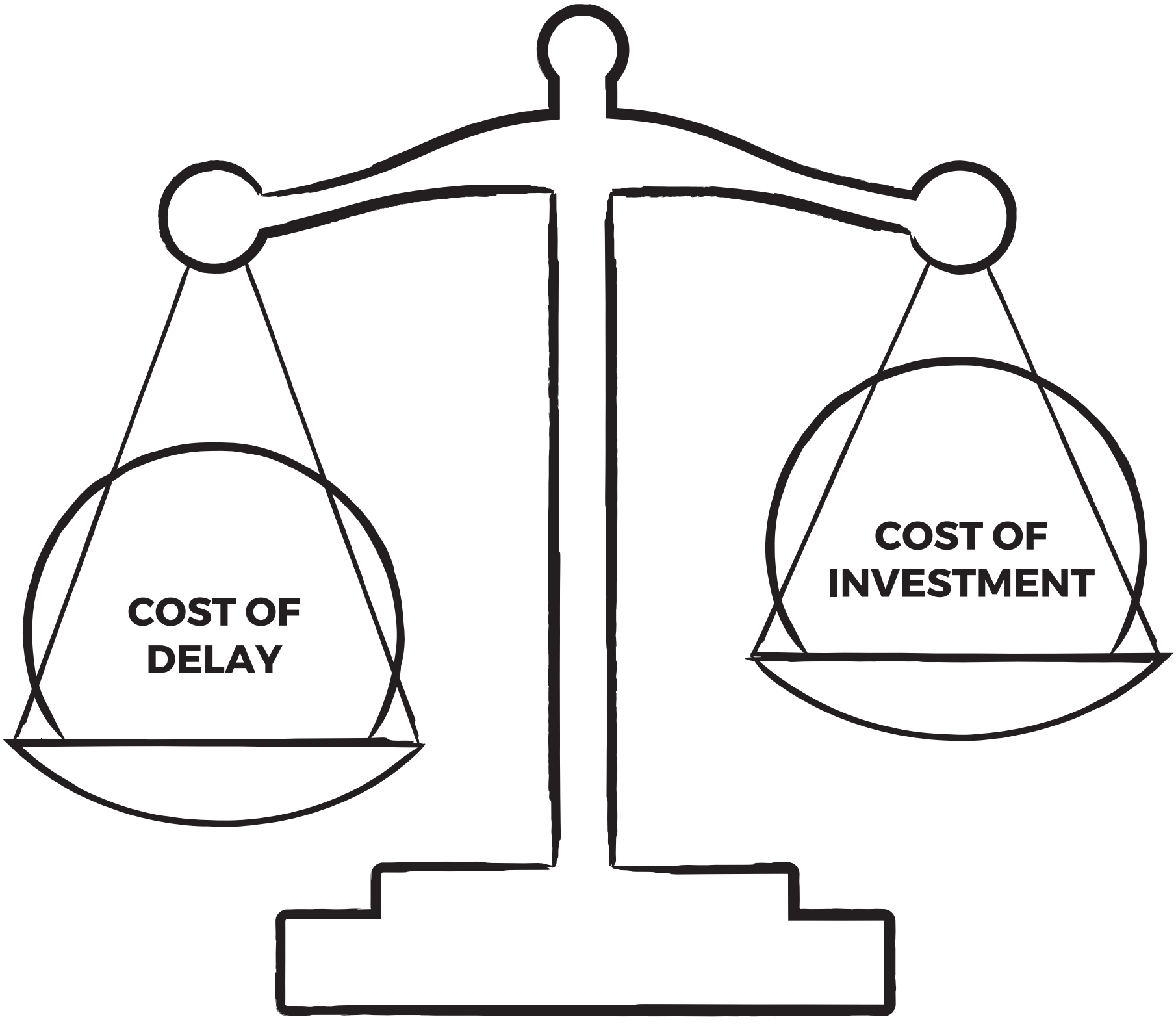


Figure 6.6: *Comparative estimation*

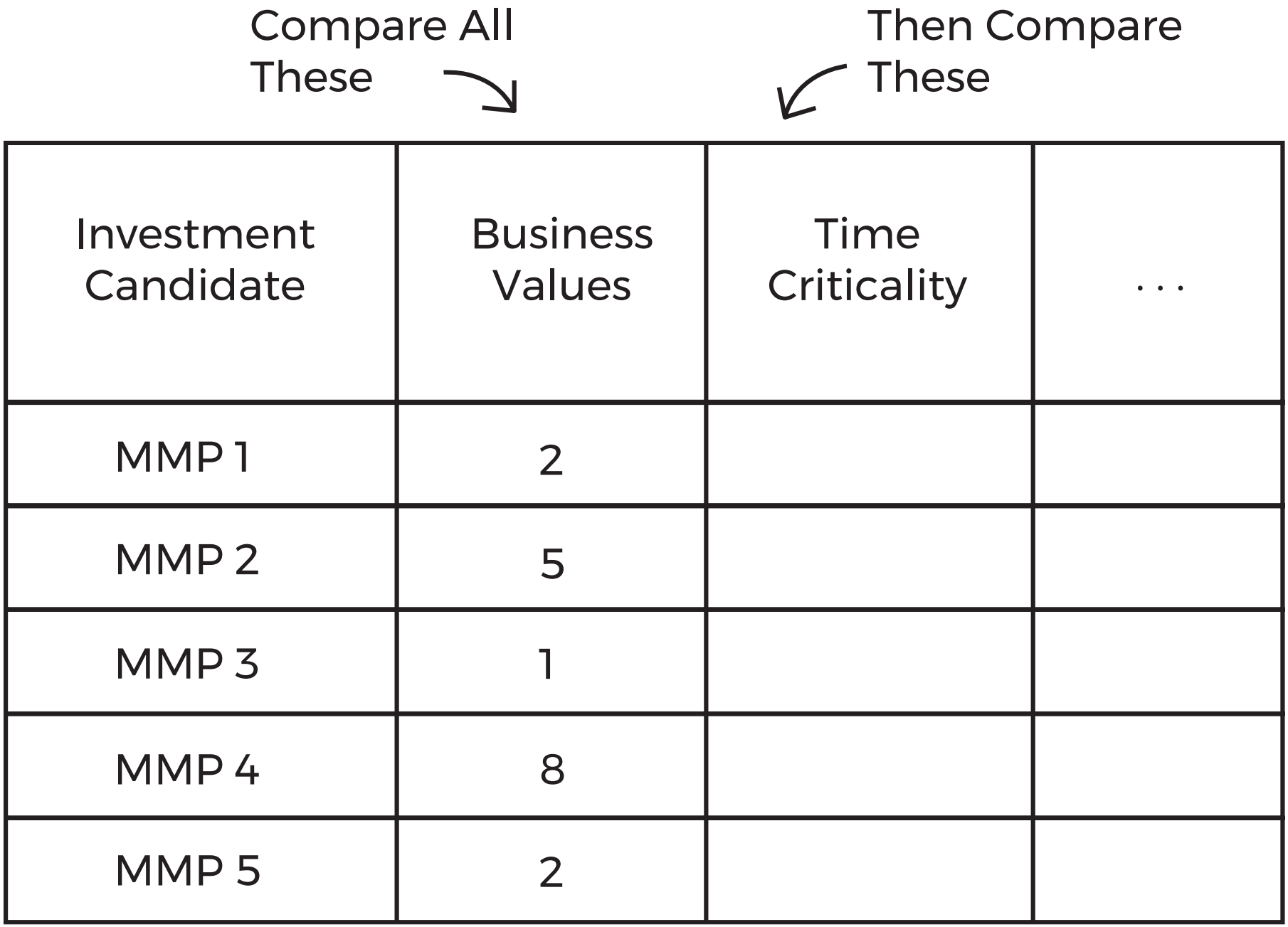


Figure 6.7: *Column-wise comparison*

Table 6.1. ***Fully Scored WSJF Table***

Feature	User Business Value	Time Criticality	Risk Reduction / Opportunity Enablement	Job Size
Authentication	3	2	5	3
Authorization	3	3	5	5
User profile management	2	1	1	2
Transaction management	8	13	2	8
Reporting	1	1	3	3
Auditing	2	2	8	1

Table 6.2. *Scored WSJF Table with Final Rankings*

Feature	User Business Value	Time Criticality	Risk/ Opportunity	Duration	WSJF	Rank
Authentication	3	2	5	3	3.33	2
Authorization	3	3	5	5	2.20	4
User profile management	2	1	1	2	2.00	5
Transaction management	8	13	2	8	2.88	3
Reporting	1	1	3	3	1.67	6
Auditing	2	2	8	1	12.00	1

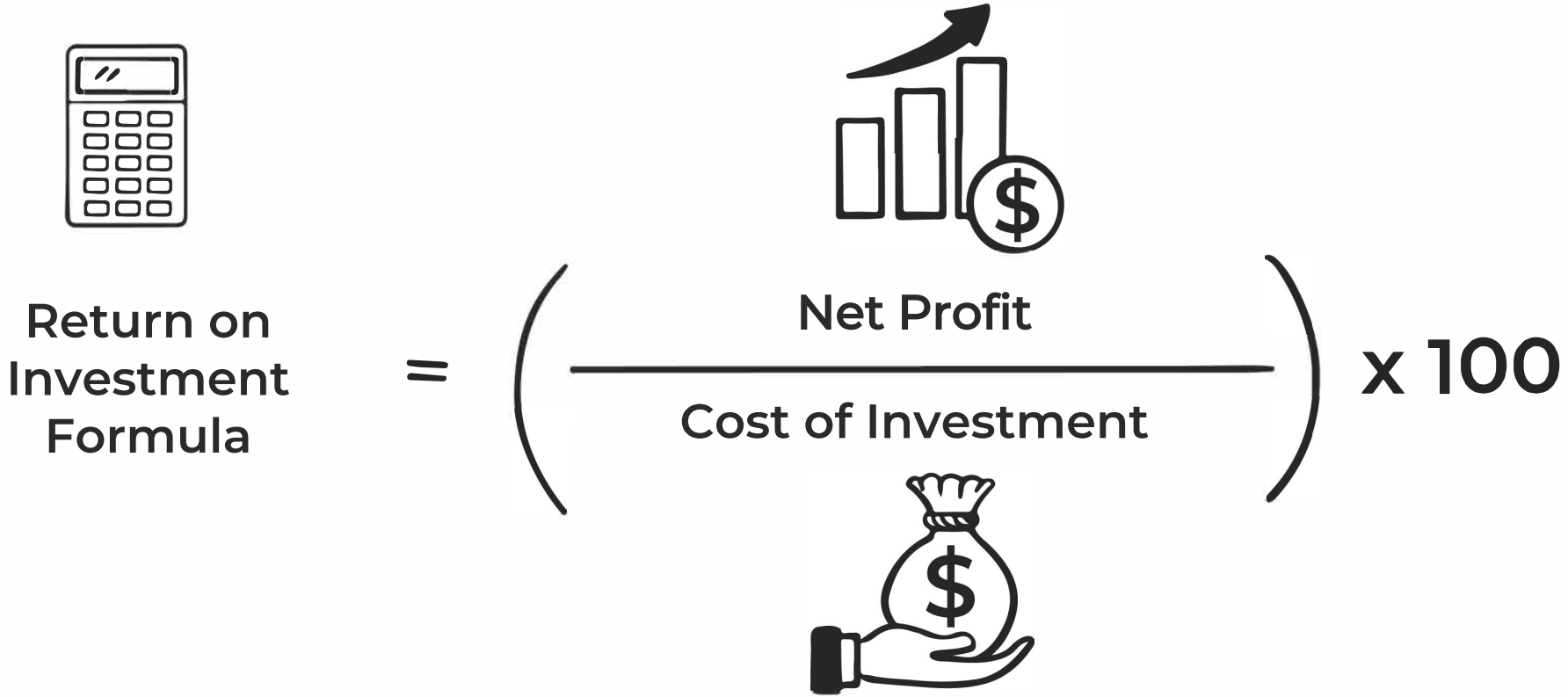


Figure 7.1: *ROI formula*

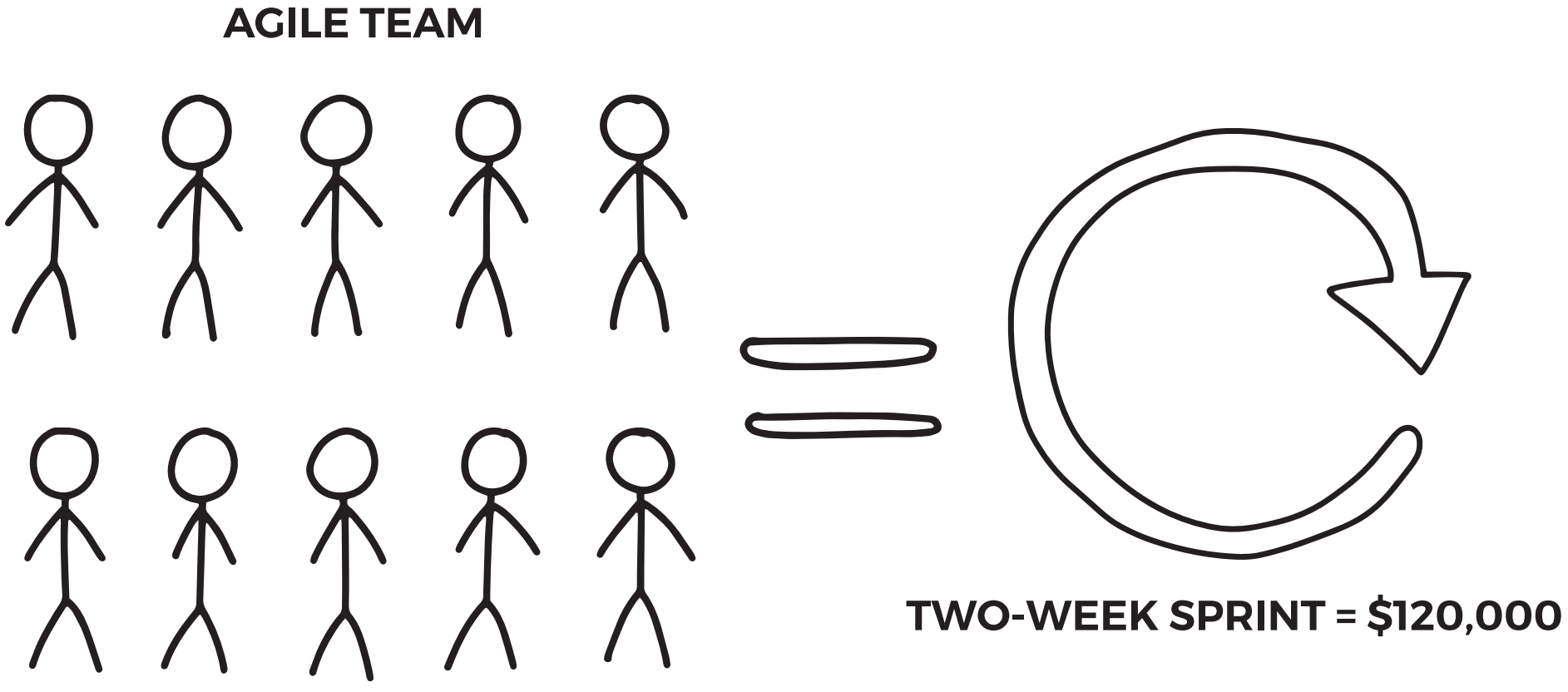


Figure 7.2: *Cost of the team per Sprint*

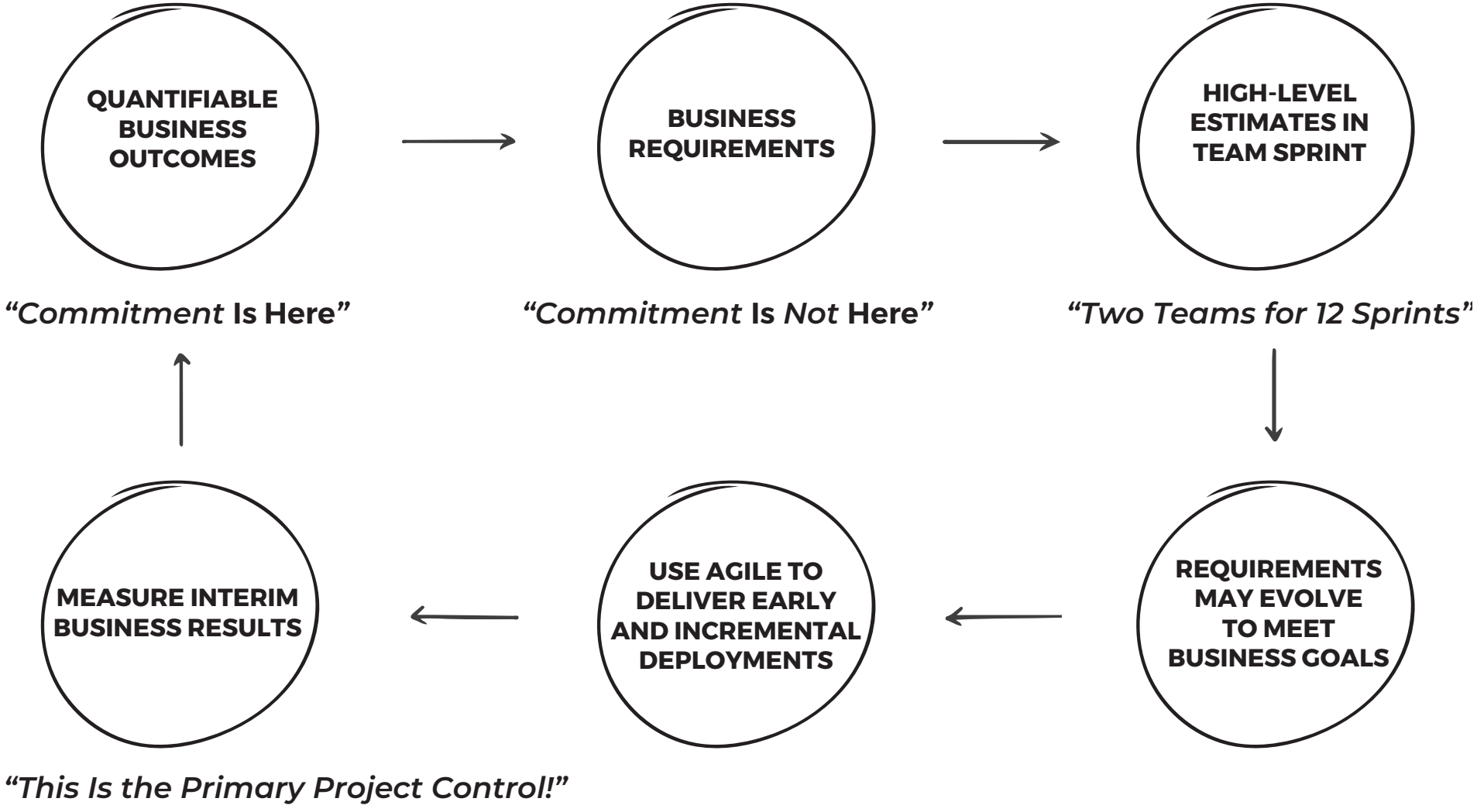


Figure 7.3: *Outcome-based governance model*

BUSINESS PROBLEM	PROBLEM SEVERITY/ IMPORTANCE
New Capabilities or High-Level Features That the Solution Will Provide	Business Outcome (& How It Will Be Measured)
Constraints or Nonfunctional Requirements	Requested Working Budget
Approximate Release Road Map (Approximate Timing of When Features Will Be Delivered)	

Figure 7.4. *Lightweight lean business case*

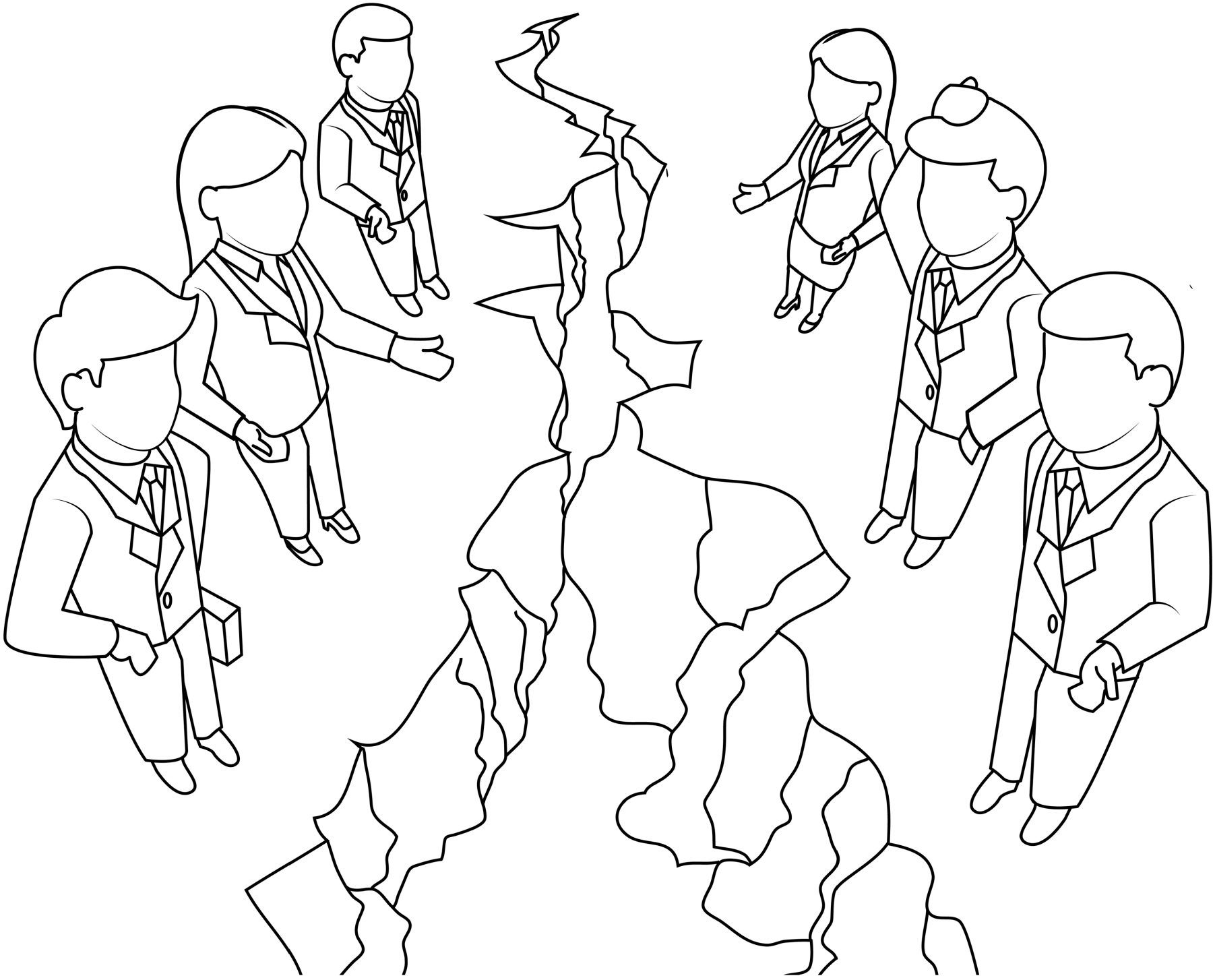


Figure 8.1: *Misaligned leadership*

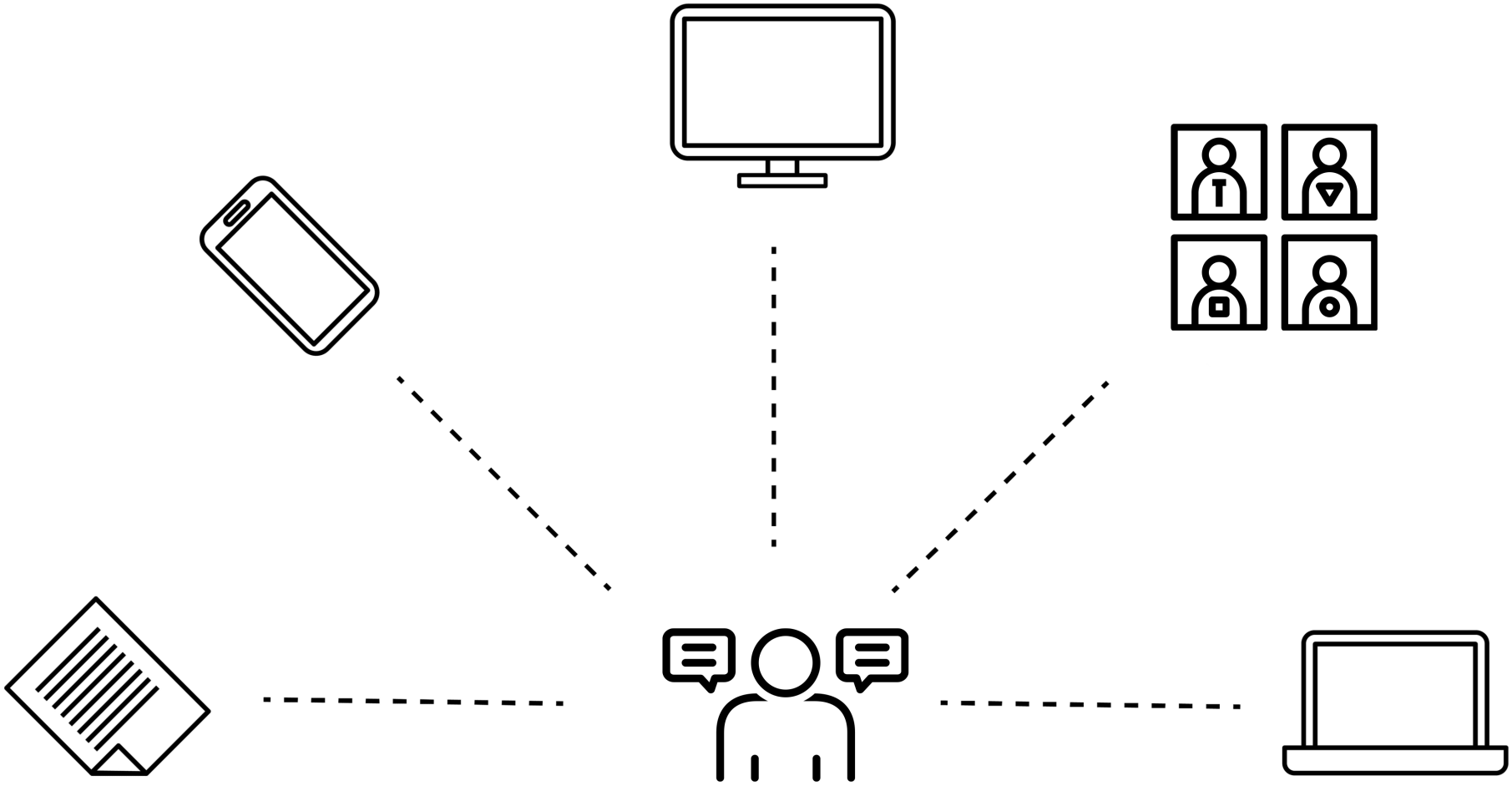


Figure 8.2: *Omnichannel communications*

Table 8.1. ***A Tale of Two CIOs***

CIO #1	CIO #2
• Set big, audacious goals • Set up an executive action team • Ensured that pilot projects were set up to win • Drove an omnichannel marketing campaign • Brought in experienced consultants • Provided extended training	• Made agile the policy • Tied funding to agility • Ensured that pilot projects were set up to win • Brought in experienced consultants • Provided extended training • Measured process discipline

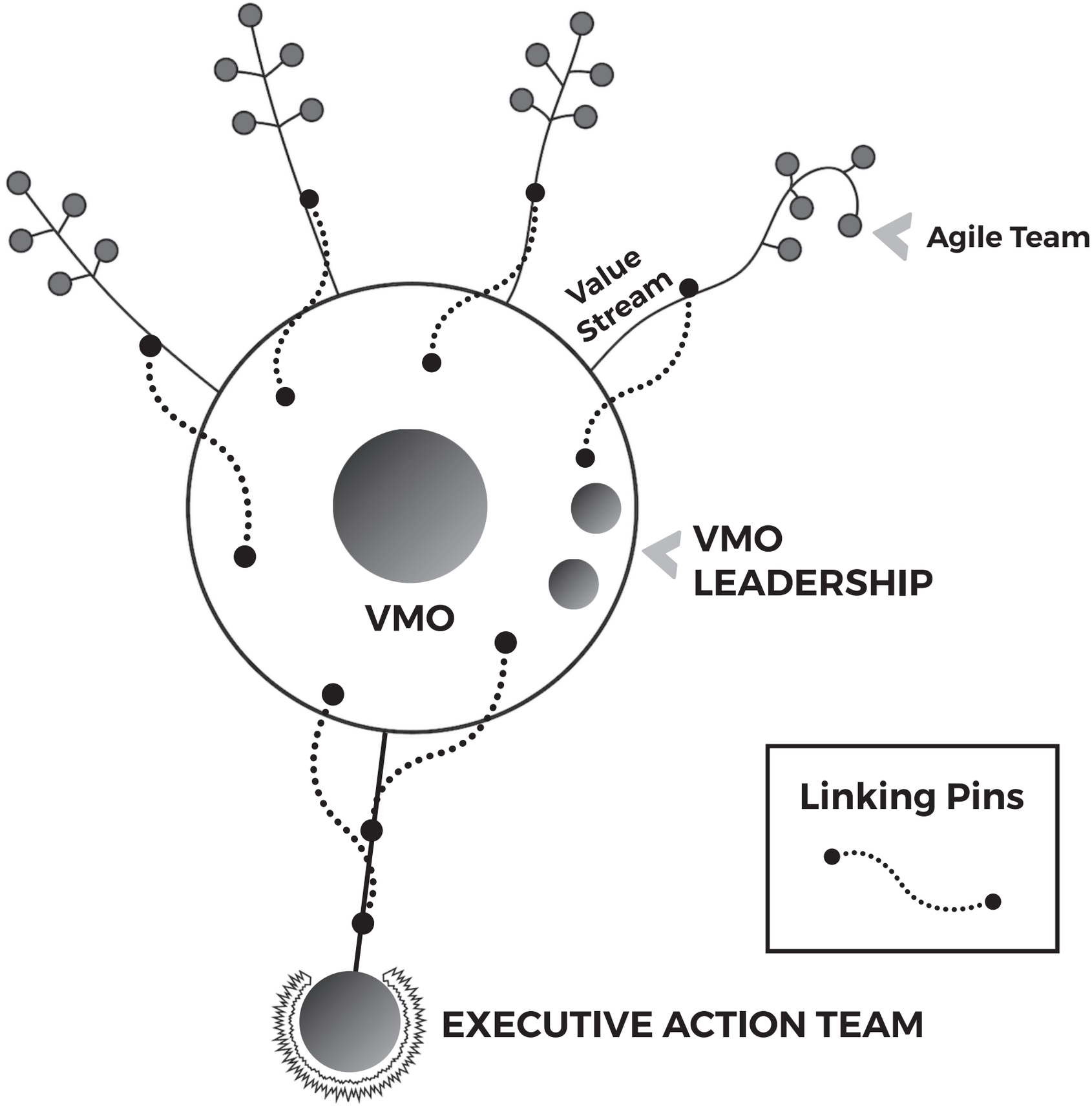


Figure 9.1: *Create the Agile VMO as a fulcrum for outcome-focused action and change*

Table 9.1. ***Agile VMO Roles and Responsibilities***

Agile VMO Role	Sample Participant Titles	Typical Responsibilities
VMO director	Director, VP, SVP	• Set up the VMO • Assign VMO roles • Determine VMO meeting cadence, location, time
VMO program manager	Program manager, senior project manager, project manager	• Schedule VMO meetings • Run VMO meetings • Create and maintain VMO backlog
VMO executive champion	VP, SVP, CIO, COO, CEO	• Lead organizational change • Champion the VMO and agile transformation
Executive action team stakeholder	CIO, COO, CFO, CEO Business owners Project sponsors Portfolio managers	• Set strategic goals • Communicate strategic adjustments • Remove escalated impediments • Decide to start a new investment stream (e.g., epic or feature) • Decide to make a substantial pivot to an existing investment stream • Decide to stop an existing investment stream
Value stream manager	Program managers Chief product owners or agile product managers Chief scrum masters or release train engineers Agile enterprise coaches	• Manage work intake • Lead work decomposition • Prioritize work at epic or feature level on the basis of strategic goals • Measure and report on portfolio health

Table 9.1. (*continued*)

Agile VMO Role	Sample Participant Titles	Typical Responsibilities
	Enterprise architects Compliance/regulatory/ risk representatives Operations Leads	• Recommend investment changes • Track financial performance and metrics • Manage resource reallocation • Highlight process improvement opportunities • Drive change management actions and communications
Agile team representative	Product owners Scrum masters or agile coaches Team representatives as needed to discuss dependencies	• Report on progress against business outcomes • Discuss potential recommended pivots • Raise impediments that cannot be resolved at the team level • Highlight dependencies on other teams or entities

Table 9.2. *Sample Agenda for a VMO Kickoff Meeting*

Agenda Item	Responsible Entity
Introduce the Agile VMO and executive action team concept and details	VMO executive champion
Briefly discuss requested commitments of all involved	VMO director
Present organizational OKRs and budgets	VMO executive action team stakeholders, VMO executive champion
Develop VMO team norms and values	VMO program manager
Review the value stream manager role, and facilitate a brief session to brain-storm the role's responsibilities	Value stream managers, VMO director and program manager
Begin to develop and prioritize backlogs and be prepared to share their near-term plans at the next VMO stand-up meeting	Value stream managers
Capture action items for the VMO, especially for the next set of meetings	VMO program manager

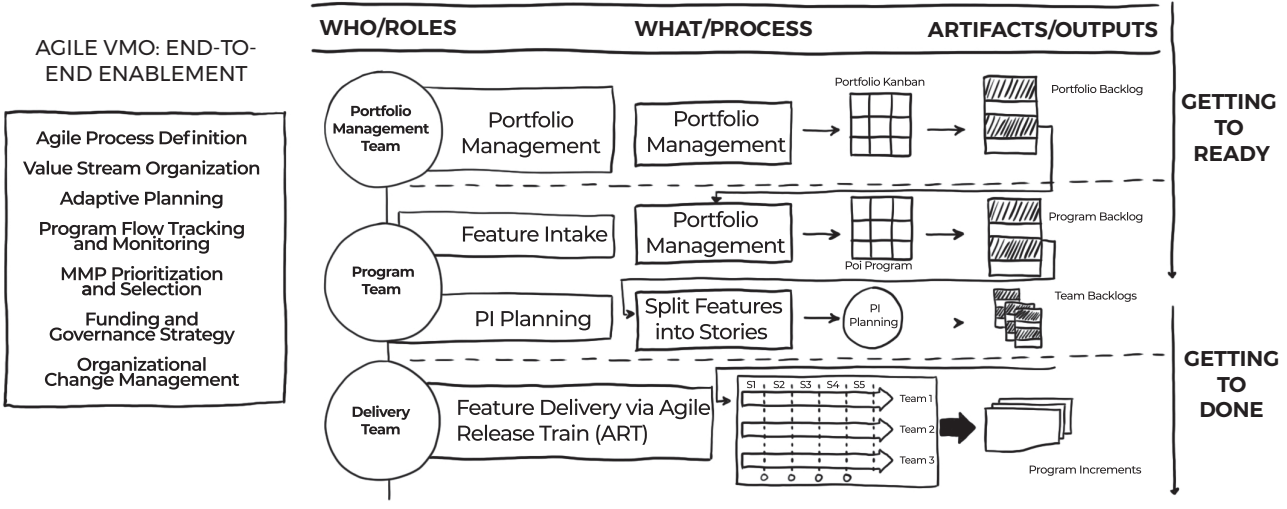


Figure 9.2: *Managing the agile life cycle (adapted with permission from Liam Kane)*

Table 9.3. ***The Getting-to-Ready Workflow***

Workflow Element/ Deliverable	Purpose and Details
Scenario planning and OKRs	Capture strategic themes and OKRs. See chapter 4 for details on how to conduct scenario planning and how to capture OKRs.
Portfolio epics and MMPs	Capture and manage most significant initiatives in a portfolio using epics and MMPs. See chapter 6 for details on prioritizing and selecting MMPs.
Quarterly budget	• Establish funding and governance practices to increase throughput and reduce costs. • Set financial guardrails around spending and other financial considerations. • Allocate funding to value streams. See chapter 7 for details on how to establish a funding and governance strategy.
Portfolio Kanban	Visualize, manage, and analyze the prioritization and flow of portfolio epics from ideation to implementation and completion: • Set up visual management system. • Track stages: funnel, reviewing, analyzing, portfolio backlog, implementing, done. • Measure portfolio performance in terms of flow of delivery, incremental business results. See chapter 5 for details on how to set up a VMS.
Architectural runway	Support continuous flow of value through automated build-and-test, continuous integration, continuous deployment and enablers.

Table 9.4. ***The Getting-to-Done Workflow***

Workflow Element/ Deliverable	Purpose and Details
Program Kanban	Visualize and manage the flow of features and capabilities from ideation to analysis, implementation, and release through the continuous delivery pipeline.
Big room planning, program backlog	Help define and align value streams to strategy and develop an integrated plan.
Sprint planning, team backlogs	Further refinement at the team level for the upcoming Sprint.
Daily Scrum	Daily synchronization and impediment identification.
Scrum of Scrums and product owner sync	Synchronization and coordination across teams and across product owners.
Feature delivery on agile release trains/ teams	Track delivery of working tested software as the primary measure of progress.
Quarterly inspect and adapt	Integrate across teams and perform system demos. Perform program retrospective across teams for improvement.

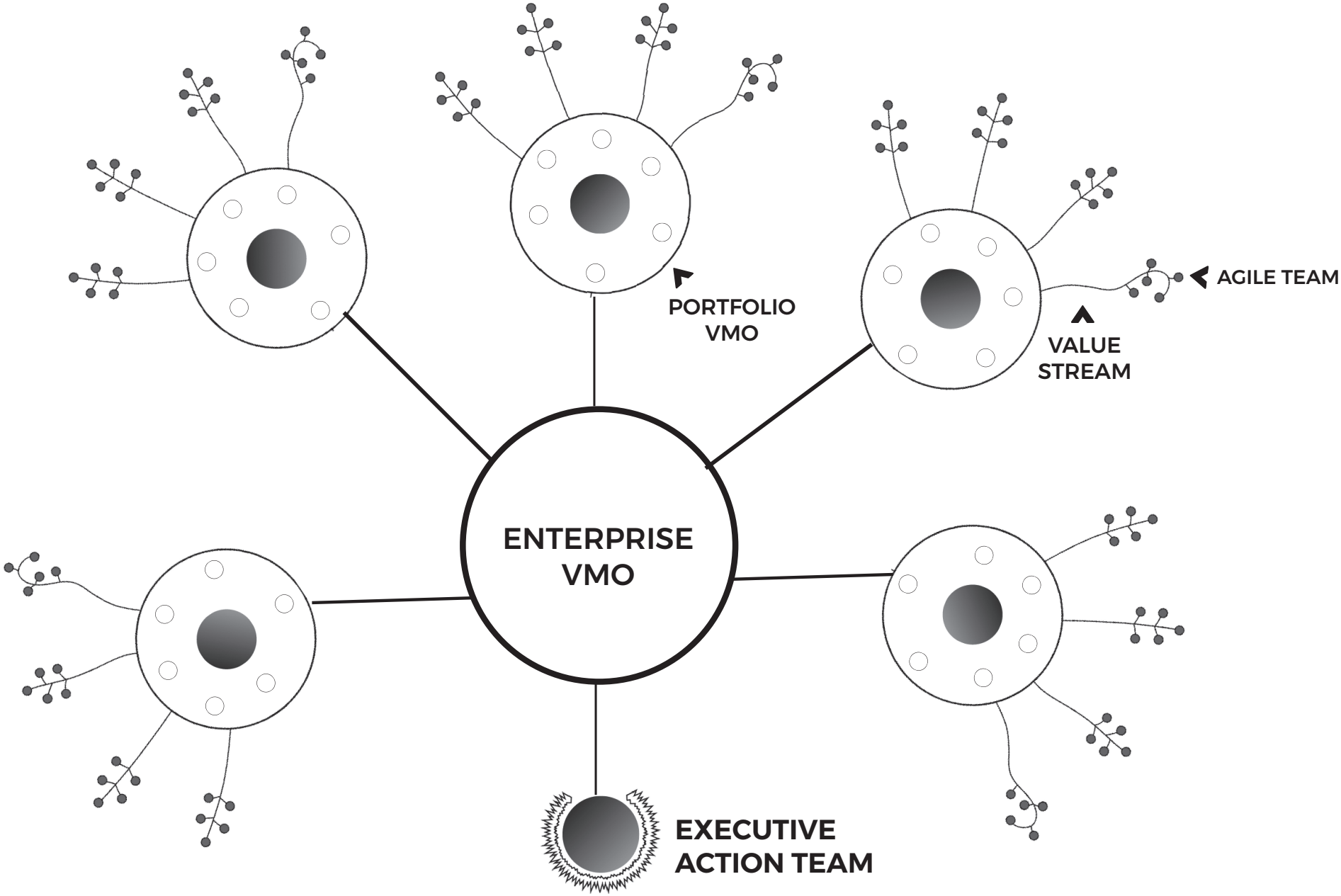


Figure 9.3: *Scaling Up the VMO to multiple levels with an enterprise VMO*

Table 9.5. ***VMO Responsibilities and Approaches***

Agile VMO Function	Responsibilities
Defining an agile process	• Establish high discipline as the driving goal for all your agile processes • Take a calibrated approach to defining your agile processes • Define metrics that support and drive dynamic transformation • Develop process controls as natural outputs of the process
Organizing around value streams	• Organize as adaptive networks of teams • Define flexible value streams by customer journeys • Establish the VMO as a team of teams • Fund experience-aligned teams by value stream
Adaptive planning	• Conform to value, rather than comply to plan • Plan, deliver, and measure in small batches • Measure business outcomes, not stage outputs • Sense and respond to business conditions • Apply adaptive planning at multiple levels • Conduct strategy planning • Conduct portfolio planning • Conduct product and release planning • Conduct Sprint/iteration and daily planning
Tracking and monitoring program flow	• Understand visual management systems • Track and monitor program flow with visual management systems • Measure and improve flow • Drive continuous learning and adaptation
Prioritizing and selecting MMPs	• Plan for a fundamental shift from project to MMP delivery • Select MMPs for maximum financial impact • Use weighted shortest job first to prioritize and select the most impactful options • Deliver the MMP and learn

Table 9.5. (*continued*)

Agile VMO Function	Responsibilities
Evolving a funding and governance strategy	• Keep your funding model flexible • Provide fixed funding for value streams • Strategize more frequently; annual is not enough • Monetize at the feature level • Devise a fixed-cost model for your stable agile teams • Adopt business outcomes as key governance controls • Utilize a lean business case • Require frequent delivery, and measure incremental business results • Recognize that it is fundamentally about the time value of money
Managing organizational change	• Recognize that change is extraordinarily difficult • Design and set up a holistic change management system • Position the VMO to drive the change