

Modern Resource Management for Projects and Products

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Initiatives: [PMO Evolution for Digital](#)

Resource management models to support a product life cycle require program management capabilities. By implementing a tiered approach that considers the short-, medium- and long-term planning horizons, IT leaders can adapt current models to accommodate product management needs.

Overview

Key Findings

- With the popularity of transitioning to product-centric delivery, organizations are struggling to update their resourcing models to accommodate the new methodologies.
- Organizations that remain focused on maximizing their resource efforts are failing to manage both supply and demand.
- Product teams are responsible for both new development and support activities. The capacity and actual utilization of their teams cloud the resource and funding models.

Recommendations

IT leaders responsible for product-centric transformation and PMO evolution must:

- Prepare an adaptive resource model for projects and products to accommodate both dedicated and nondedicated resources to manage cyclic demands for resources.
- Shift focus from capacity to utilization by fixing capacity and managing utilization.
- Provide visibility of team utilization by recording the progress of scheduled work and analyzing it against forecast velocity.

Introduction

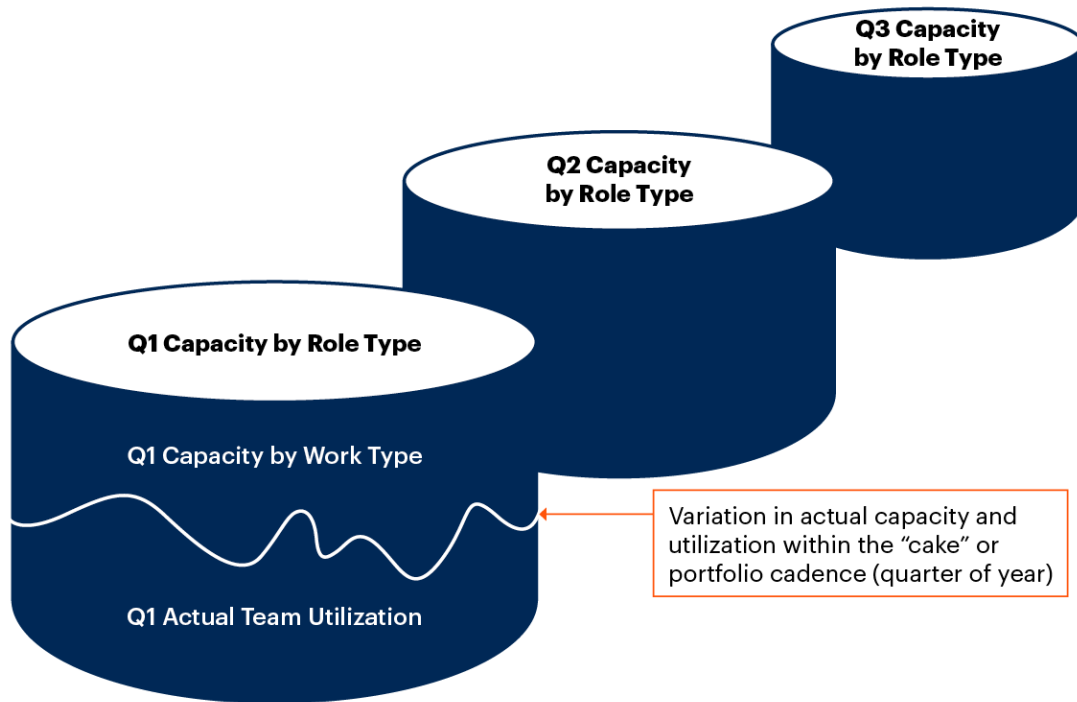
Effective resource management is a challenge to many organizations, and is frequently exacerbated during periods of instability. The transition to product-centric delivery creates additional challenges, often resulting in disruption of the status quo. In recent interactions with Gartner clients, we've heard an array of comments regarding resource management. These range from: "We are managing agile projects and feel it is very difficult to be proactive" to "We are struggling with capacity planning and we have no visibility into resource constraints."

When moving to product-centric delivery, there are a lot of changes in motion; and with so many moving parts, it is easy to fall back into old processes that have always worked well. In a recent Gartner survey, the capability to estimate the costs and resource requirements of planned initiatives was cited as very valuable, but specialized support to allocate and reallocate resources to get initiatives done was in short supply at most organizations. ¹ Organizations grasp that resource management is a critical component of any large initiative. However, getting it right is difficult — more so during an agile transition, where getting it right is paramount.

Traditional resource allocation, that is, creating a plan and naming individuals on specific tasks months out from the start date, will damage the agility your organization is trying to achieve. So how can IT leaders responsible for portfolio and program management (PPM) support the journey to greater enterprise agility but still ensure that resources are managed efficiently?

As with all other processes in the agile journey, resource management needs to be viewed differently at the organization, team and individual levels to progress in maturity along with the other agile processes. The secret to successful resource management is to view it as being like a never-ending production line for cake (see Figure 1). The top strategic icing layer requires a long-term approach (as icing is the last thing to go on the cake) and the cake layers need to work with each other to ensure the cake is homogeneous and smooth.

Figure 1: Resource Management Cake Model

Resource Management Cake Model

Source: Gartner
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Gartner

Analysis**Prepare an Adaptive Resource Model for Projects and Products**

IT leaders responsible for portfolio and program management need to prepare an adaptive resource model for projects and products to accommodate both dedicated and nondedicated resources. They must plan at the portfolio level for the varying demands on resources, aligning strategic and operational plans. Long-term forecasting of the role types/skill sets required to support work efforts decreases the probability of bottlenecks without the administrative overhead of work allocation at the individual (named) level.

A product-centric delivery model is built on the concept that dedicated teams learn and grow with the product from creation to disposal. Research shows that in this model, teams — and even teams of teams — can be sized to fit demand and the number of products they are responsible for.

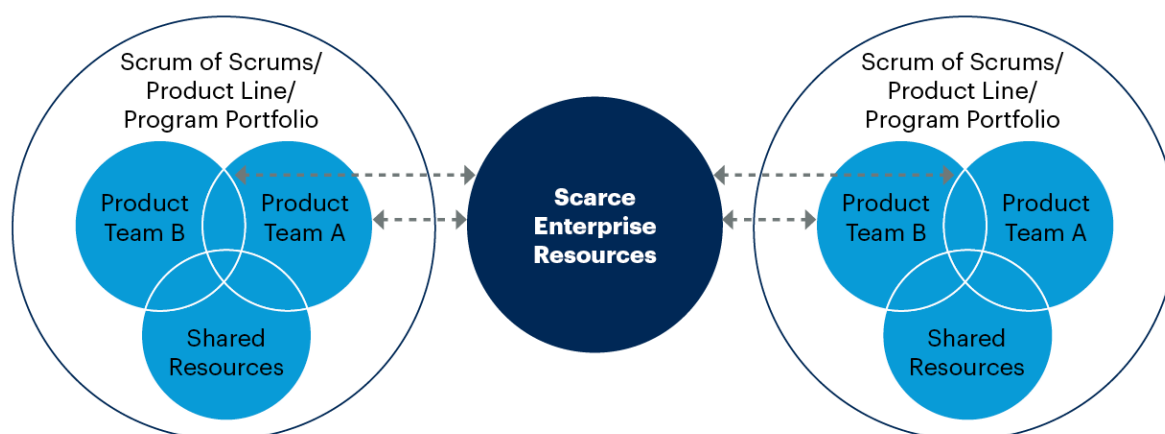
Agile teams often fail to acknowledge these fluctuations, as their focus is on the midterm and short-term planning horizons rather than the longer-term strategic roadmap. IT leaders focus on the long-term planning horizon, and thus they have the visibility and experience to plan for this from the outset. Management at the portfolio/strategic level enables the funding process required to approve additional expenditure to acquire resource skill sets and can be agreed on well in advance of actual need.

IT leaders must ensure product managers start their dedicated product team small and allow it to grow in size to satisfy demand driven by value. Multiple small teams can be added to a product line to increase the capacity of that product line (or product family) if the original teams are overwhelmed by either the amount of work or throughput desired by customers (internal and external).

In addition to the dedicated product teams, IT leaders must support product managers by identifying the scarce or highly demanded skill sets for both projects and products. They need to create a potential “dynamic” team (see Figure 2) to accommodate fluctuations in skill set demand. While the team is permanent, the members of it are not. The members of the team should be determined by the demand for skill set, and the mission of the team should be to provide coaching and mentorship to those product teams in need of its skills. We recommend forming a dynamic team of highly skilled, or scarce resource types, that can be allocated to a particular product family or value stream for a period. This prevents any “team” from hoarding or constraining a skill set for just one product or project.

Figure 2: Scaling and Evolving Resource Management With Agile Approaches

Scaling and Evolving Resource Management With Agile Approaches



Source: Gartner
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Research shows that adding expert or high-demand skill sets to the team to coach/mentor or help individuals, rather than just to complete tasks, has been shown to increase project or product value with highly utilized teams. ² It also shows that having the ability to dynamically move an expert or scarce resource into a team improves the value that the team produces by approximately 40%. This is because it deals with the root cause of a constraint, rather than the surface issue; as per Goldratt's Theory of Constraints: "We should strive to reveal the fundamental causes, so that a root treatment can be applied, rather than just treating the leaves — the symptoms." ³

The quarterly or 90-day allocation time box provides the informal dynamic or expert team members time to learn about the new team and product and to execute their skills/mentor others without the permanence of a formal team move. Dynamic resources should always expect to return to their original product teams unless continued input is required in another product line other than their original team.

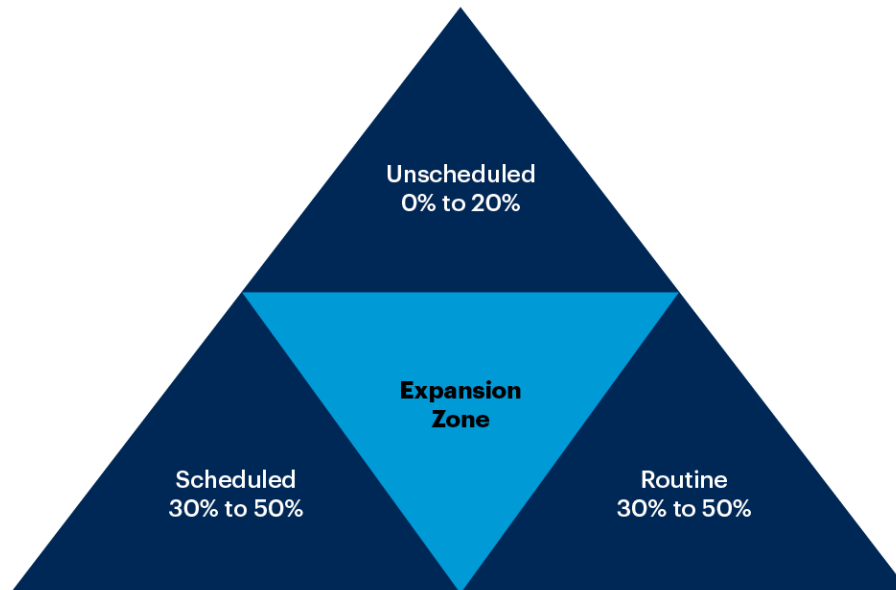
Action points:

- Acknowledge that your product team size will vary over time and plan for that at the portfolio level for the peaks and troughs.
- Start your dedicated product team small and allow it to grow in size to satisfy demand driven by value.
- Identify the scarce or highly demanded skill sets for both projects and products. Create a dynamic team to accommodate fluctuations in skill set demand and increase value.

Shift Focus From Capacity to Utilization by Fixing Capacity and Managing Utilization

IT leaders need to ensure that product managers and agile teams provide a fixed capacity forecast to the portfolio committee by resource type/skill set for each dedicated team. This capacity forecast must take into account that product teams will have all three types of work activity within the portfolio time frame (see Figure 3).

Figure 3: Work Types and Average Capacities

Work Types and Average Capacities

Source: Gartner
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Gartner

Any resources will work on any of these three categories at any one point in time. Thus, IT leaders need to acknowledge capacity for all three types of activities:

- **Routine activities**, such as stand-ups, meetings, and administration, are unpredictable to forecast from a capacity viewpoint. It is difficult to know just how much time will be spent in meetings and checking emails, but they are core components of an organization's routine. Although these activities are deadline-driven and repeatable elements of an established workflow, they vary greatly in nature and by season (there are more routine activities in finance toward and after a financial year-end for instance).
- **Scheduled activities**, such as working on a project or designing a new feature for a product, are also deadline-driven but time-boxed. There are usually dependencies upon these activities and work will stop if they are not completed. The portfolio investment is funding these activities and they need to be monitored.
- **Unscheduled activities**, such as emergency events, paid time off (PTO; there's always a chance that resources will not book it when expected), and inability to work (transport, health issues), need to be acknowledged as constants in each resource's potential capacity.

At any point in time, either routine or scheduled activities will take priority and spread into the “expansion zone” (see Figure 1). Gartner clients often attempt to monitor the percentage of routine activities driven by the futile pursuit of understanding accurate capacity breakdown between the two activity types, rather than protecting time for scheduled activities. As routine activities fluctuate, or are not time-boxed and constant, it is futile to try to estimate them. It is the amount of actual time or utilization of the team on these activities that impact the capacity forecast for scheduled activities. Unless, of course, the scheduled activities are prevented by the third type – an unscheduled activity such as an emergency.

It is, therefore, important to acknowledge that any capacity plan needs to ensure that 15% to 20% is reserved for “unscheduled activities.” Reserving this capacity will help prevent overloading your team and creating constraints via unseen events. This protects your workforce for both scheduled and routine activities and prevents overloading, which is the primary cause of bad multitasking and delays in projects. Assume capacity is known to be a maximum of 80% without overburdening your team. ² Product managers, in conjunction with agile team leaders, need to decide in advance how much of this capacity needs to be reserved for scheduled activities and report this amount to the PPM leaders for each quarter or portfolio cadence.

The product manager is responsible for the midterm planning horizon of quarterly or team-level capacity management. Product team capacity for a quarter should be provided to the PPM leaders responsible for the portfolio, with at least a quarter between forecast and start date.

Action points:

- Ensure that accurate capacity forecasts are provided to the portfolio committee by resource type/skill set.
- Acknowledge that maximum capacity for any resource is 80%, not 100%, allowing for unscheduled activities.
- Cease the futile attempt to forecast capacity for all types of work; focus on protecting scheduled activities, ensuring that the team utilization is managed.

Provide Visibility of Team Utilization by Recording the Progress of Scheduled Work and Analyzing It Against Forecast Velocity

IT leaders need to ensure agile team leaders are measuring capacity for scheduled activities by understanding utilization levels on nonscheduled activities. This must be measured by recording expected versus actual progress on scheduled activities, not by deploying timesheets. Timesheets kill the morale of a product team. ⁴ In the product-centric delivery model, teams are dedicated to a product or product family and have a remit to prioritize work that brings value to that product (whether routine or scheduled).

Agile teams should use the utilization table shown in Table 1 to understand team utilization levels and manage workloads if acceptable levels are exceeded for any particular role. The team's lead time management is based on Little's Law, ⁵ which, simply put, states that work in progress equals delivery rate multiplied by lead time (or the amount of time it takes to deliver the inventory). This is impacted heavily by utilization, as the higher levels of utilization an individual has, the longer the wait time for other inventory to be serviced. ⁶ Since higher wait times increase the overall lead time, this needs to be managed.

Table 1: Lead Time Versus Utilization

(Enlarged table in Appendix)

Percent Team Utilization	Average Service (Effort) in Days				
	0.25	0.5	1	2	3
5%	0.0	0.0	0.1	0.2	0.2
10%	0.0	0.1	0.2	0.3	0.5
15%	0.1	0.1	0.3	0.5	0.8
20%	0.1	0.2	0.4	0.8	1.1
25%	0.1	0.3	0.5	1.0	1.5
30%	0.2	0.3	0.6	1.3	1.9
35%	0.2	0.4	0.8	1.6	2.4
40%	0.3	0.5	1.0	2.0	3.0
45%	0.3	0.6	1.2	2.5	3.7
50%	0.4	0.8	1.5	3.0	4.5
55%	0.5	0.9	1.8	3.7	5.5
60%	0.6	1.1	2.3	4.5	6.8
65%	0.7	1.4	2.8	5.6	8.4
70%	0.9	1.8	3.5	7.0	10.5
75%	1.1	2.3	4.5	9.0	13.5
80%	1.5	3.0	6.0	12.0	18.0
85%	2.1	4.3	8.5	17.0	25.5
90%	3.4	6.8	13.5	27.0	40.5
95%	7.1	14.3	28.5	57.0	85.5
99%	37.1	74.2	148.5	297.0	445.5

Source: Gartner

For example, a scrum team will be able to roughly equate a story point to an amount of effort. In this example, a story point is estimated at three days' effort, but the number of calendar days taken to complete the task was nine days. Given that the scrum has been together for a while and the product is well known, estimation would be quite accurate. We can therefore conclude that the nonscheduled work (routine and unscheduled) utilization levels would have been between 65% and 70%, causing increased wait time to deliver the work. Corrective measures would have to be taken unless capacity for the team had been reported as 30% for the quarter a (90-day cadence). At this point, three days of work would be expected to take nine days of effort.

Table 1 provides a rough indication of utilization for an agile team on the various activities. It is important to ensure that the unit of measure for the inventory (i.e., story point) is the same unit of measure for the lead time. So if a story point usually equates to a day, then the lead time should be measured in days.

Reporting a low capacity for scheduled work, say of 30%, at the portfolio level is not only possible but also necessary at points during the product life cycle. With a dedicated product model, there will be times where some of the work or backlog is for support or maintenance of existing features. This work should be classified as routine rather than scheduled work, and the product manager will be responsible for ensuring that this routine work is accomplished. In each and every increment, there is a potential 20% of capacity for routine activities, as the unscheduled activity or emergency may not occur. This allows for that constant flow of routine activities to take place.

Capacity reported to the portfolio should be 0.8 utilization reserved for routine or scheduled activities per full-time equivalent (FTE).

Here's an example showing how utilization management works:

- A product manager knows that the new product version will be launched in October.
- Since July and August are popular months for paid time off, the product manager can assume that each team member will take two weeks of leave during the third quarter. But the product manager does not need to factor this in because two weeks represents 0.11 utilization (2 weeks = 10 days $[90 - 10]/90 = 0.89$). Thus, the assumed maximum capacity of 80% per resource is not exceeded.

- By reporting capacity for the product team as 70% for the third quarter, the product manager is securing all of the team activities for the development, testing and acceptance of the new work rather than any maintenance or production support. The product manager is also allowing 10% capacity for nonscheduled activities such as stand-ups and reporting.
- In a 7.5-hour day, 10% of routine activities represent 45 minutes — a reasonable assumption for stand-ups and administration such as email. The product manager has also protected the 20% of unscheduled activities, whether the product manager's team takes two weeks of PTO or not. Thus, the product manager is protecting the team's utilization for scheduled activities.

Agile teams allocating work among skilled individuals must ensure that there is enough allocation for unscheduled activities as well as scheduled activities. Using Table 1, agile team leaders can measure the impact of routine activities on any individual by measuring a predetermined story point's progress via the progress updates in a stand-up. Any potential overburden that could cause a constraint must be eliminated or shared by the talent pool rather than by an individual.

Action points:

- Measure utilization by recording expected versus actual progress on work done, not by deploying timesheets.
- Use Table 1 to understand individual utilization levels and manage workload if acceptable levels are exceeded.
- Allocate work among skilled individuals, ensuring that any constraint is carried by the talent pool rather than by an individual.

Evidence

¹ An Outside-In View on Project and Portfolio Management Capabilities for Digital Business in 1Q20 was conducted via an online survey platform with a total of 500 panel participants.

The survey was developed collaboratively by a team of Gartner researchers and was reviewed, tested, and administered by Gartner's Quantitative Analytics and Data Science.

² [Finding the Sweet Spot in Resource Workload: Algorithm Combines Efficiency and Effectiveness for Project Management](#), ISE Magazine.

³ E. Goldratt, "The Goal Paperback: A Process of Ongoing Improvement," North River Pr., 1992.

⁴ [6 Causes of Burnout, and How to Avoid Them](#), Harvard Business Review.

⁵ [Little's Law](#), CFI Education.

⁶ [The Kingman Formula – Variation, Utilization, and Lead Time](#), AllAboutLean.

⁷ [No-Nonsense Guide to Measuring Productivity](#), Harvard Business Review.

Acronym Key and Glossary Terms

Resource Capacity Planning	Capacity planning includes the ability to aggregate resources, categorize by role, set thresholds and use these resources to constrain the inventory of investments, programs, projects or small work items.
Resource Utilization	The amount of available time for an activity compared with the total amount of available time.
Productivity	Productivity is output divided by input. So the job of productivity measurement is to highlight how to get more units of output (goods produced or services rendered) for each unit of input (materials, labor hours, machine time) than your competitors are able to deliver. Effective productivity measurement, therefore, takes a multifactor perspective: It identifies the contribution of each factor in production, and then combines the factors to create an understanding of productivity trends. ⁷

Document Revision History

[How PPM Leaders Can Help Resource Management in Product Teams - 30 October 2019](#)

Recommended by the Author

Some documents may not be available as part of your current Gartner subscription.

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How PPM Leaders Can Best Staff Initiatives in a Matrixed Environment

How PPM Can Coordinate Resource Teams as Agile Transformation Evolves

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