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The Resource Management Maturity Model: A Guide to Defining and Executing an Effective Resource Management Strategy

Introduction	1
Business Drivers and Benefits	3
Business Drivers.....	3
Benefits	4
Model Overview.....	4
Context.....	4
Levels and Dimensions.....	5
RMMM Summary View	7
Interpreting and Using the Model.....	8
Terminology.....	9
Resource Capacity	9
Resource Utilization.....	9
Resource Availability	9
Resource Demand.....	10
Activity	10
Resource Approval Workflow.....	10
Detailed Level Descriptions	11
Level 1. Work Visibility.....	11
Level 2. Controlled Assignment	12
Level 3. Governed Capacity	14
Level 4. Schedule-Driven Availability	17
Level 5. Granular Management	19
Conclusion	21

Introduction

The Resource Management Maturity Model (RMMM) enables organizations to define and execute effective resource management strategies. It accomplishes this by helping stakeholders better align resource-related information needs with their level of project portfolio management (PPM) process maturity and technology enablement.

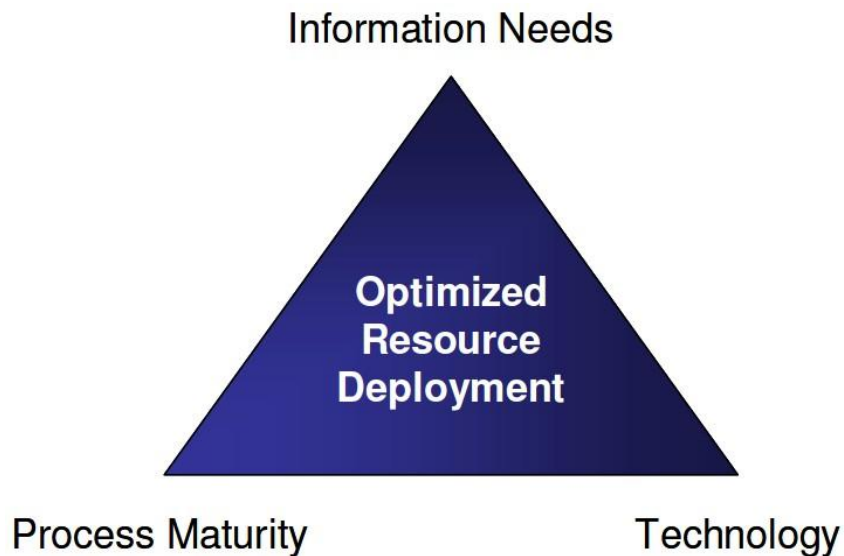


Figure 1. Organizations can use the Resource Management Maturity Model to manage project resources and capacity at just the right level of granularity.

The RMMM identifies a logical progression of resource management process sophistication through five levels of maturity. Each level of maturity is described along seven dimensions. Organizations can use the RMMM to ensure that they can manage project resources and capacity at the “just right” level of granularity for their business.

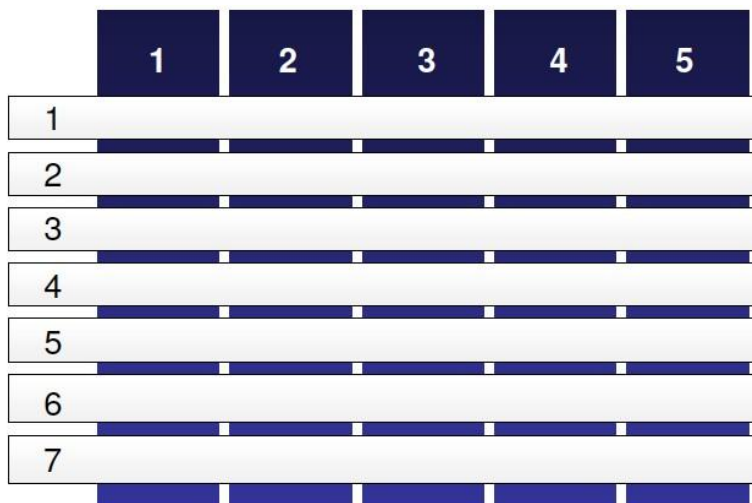


Figure 2. There are five levels of resource management process maturity in the RMMM, and each level is described along seven dimensions.

The original RMMM (Version 1) was developed in consultation with resource management practitioners across multiple industries, internal deployment consultants, and industry analysts. The assertions and conclusions were then refined and/or validated using the results of a global resource management maturity survey in which over 500 organizations participated. As such, this Version 2 of the RMMM represents a blend of:

- 1) Direct observations and data on how organizations manage resources based on significant anecdotal and empirical evidence, and;
- 2) Recommendations of how organizations should manage resources based on this collective experience of successes and failures.

The results of the global study on resource management maturity are available in a separate white paper entitled: IT Resource Management Maturity: Global Study Results.

Business Drivers and Benefits

Business Drivers

The RMMM was developed for a number of reasons, including the following:

Business importance of resource management. Effective resource management is vital for most organizations because resources represent a major, if not the primary, cost of doing business. As a result, maximizing the return on investment in people is critical to achieving strategic business and financial goals.

Track record of resource management initiative failures. Many organizations have launched initiatives to improve their resource and capacity management processes—including implementing resource management software—and failed.

Most such failures stem from a fundamental misalignment between the amounts of information needed to make effective decisions, the maturity of the processes associated with resource assignment and tracking, and the capabilities and influence of the resource management software.

For example, the software may enable a resource management process that is much more sophisticated than that required for a particular organization, or it may assume a level of process maturity that does not exist. Frequently, such mismatches are not apparent until after the software is implemented.

Need for focused guidance. The RMMM fills a void in the project and portfolio management (PPM) shared-knowledge and best-practice landscape. Although several excellent PPM maturity models are available from high-quality sources—such as Gartner, PM Solutions, and the Project Management Institute—the scope of these models is broader than the RMMM. These models provide little guidance focused exclusively on resource and capacity management issues.

Specifically, most organizations have difficulty answering questions such as the following:

- What are these resources working on?
- Why is it so difficult to take on new projects?
- Why are these resources always overbooked; don't you control how work gets assigned to resources?
- Will we have enough available capacity in three months to take on important new projects?
- Do we have the right mix of skills to meet project demand?
- What is the cost of this group of resources for this month on this set of projects?
- How do I de-prioritize work already underway to make room for new work?
- Can you spare this critical resource for this period—it is really important?

Organizations need help identifying and answering the most important questions consistently. They also need to understand how to take measured steps in deploying the right level of supporting processes and technology.

Benefits

The benefits organizations can expect to realize by adopting the Resource Management Maturity Model are as follows:

Common language. Provide resource managers, portfolio managers, and business executives in project-intensive organizations with a framework and common language for communicating about resource management objectives, issues, and outcomes.

Roadmap. Deliver a roadmap and a guide that helps stakeholders characterize their current and optimal levels of maturity.

Clarity. Expose the implications and consequences of aspiring to or operating at a particular level of resource management maturity in areas like data gathering and reporting requirements, software technology selection, governance infrastructure, and resulting business benefits. Note that higher is not necessarily better for all organizations.

Software selection. Prepare stakeholders to make better assessments of PPM software options for resource management and choose the solution best able to meet current and projected needs.

Model Overview

Context

The RMMM applies to resource-constrained environments, including organizations that manage a handful of resources as well as those that manage hundreds and even thousands of resources. It is relevant across many industries and a variety of project environments including IT, professional services, and product development and delivery. However, the RMMM is not meant for use in schedule- and/or budget-constrained environments such as construction projects where resource or capacity is not always an explicit business driver.

For the purposes of the RMMM, the resource management discipline is primarily concerned with managing the work assignments, time usage, and costs associated with a set of resources. Work is accomplished via the assignment and completion of project and non-project work, although the emphasis is on project-oriented work. At the project level, project managers (PMs) create a need for individual resources based on project schedules and required roles and skills. Line managers or resource managers control the supply and assignment of resources. A governance structure may be put in place to provide oversight for the entire process at the portfolio and aggregate capacity and demand levels.

Effective resource management enhances project portfolio success by ensuring that projects are staffed with the correct resources (that is, roles and skills) in a timely manner and that adequate resources are available to address current needs and future demand. However, project success also depends on factors outside the scope of the RMMM, such as the definition and delivery of project goals, individual performance and contribution, scheduling best practices, and risk assessment and mitigation.

Levels and Dimensions

The RMMM consists of five maturity levels, the characteristics of which are described along seven dimensions.

TABLE 1. RESOURCE MANAGEMENT MATURITY LEVELS

LEVEL	DEFINING CHARACTERISTICS
Level 1: Work visibility	Organizations can see who is working on what; however, resources are assigned to work without any control or oversight.
Level 2: Controlled assignment	A formal resource approval process is introduced; however, approvals are informed only by resource availability information.
Level 3: Governed capacity	The focus shifts to capacity management, and the introduction of project priority considerations requires more structured governance.
Level 4: Schedule-driven assignment	The resource assignment approval and capacity management processes are driven by project schedules at the phase level.
Level 5: Granular management	Full task-level project schedule details are used to drive the resource assignment and capacity management processes.

Each of the maturity levels defined in the table above is described along the following dimensions:

Assignment granularity. This is the level of detail at which resources are assigned to work. The duration may be driven by dates at the project, phase, or task level. Utilization may be a constant value or may vary by time for a specified duration.

Project roles. These are the standardized and distinct roles played by a resource or group of resources on a given project (for example, project manager, software developer, business analyst, and so on). Roles allow the organization to create attributes and policies for a group of resources, such as cost rates, maximum number of assigned projects per role, and so on.

Resource cost. This is the labor cost of a resource that results from a work assignment. Resource cost may refer to planned or actual cost, and cost may be tracked for a time interval or at the project, phase, and task level.

Resource approval. This is the process of approving the assignment of a resource to work at the particular level of assignment granularity. Note that this is a critical dimension of resource management because it has implications for required governance and process complexity.

Capacity planning. This describes the strategic portfolio-level planning process aimed at ensuring that the most important projects are resourced and that resource utilization is optimized within the constraint of aggregate resource capacity. This involves shifting and removing proposed and ongoing projects, adding or removing resources, and then making the necessary resource assignment adjustments to accommodate higher-priority projects.

Governance. This is the decision-making process and organizational body that oversees the resource approval, portfolio prioritization, demand management, and capacity planning business processes.

Business value. This is the key business value that organizations can expect to realize at a given level of maturity.

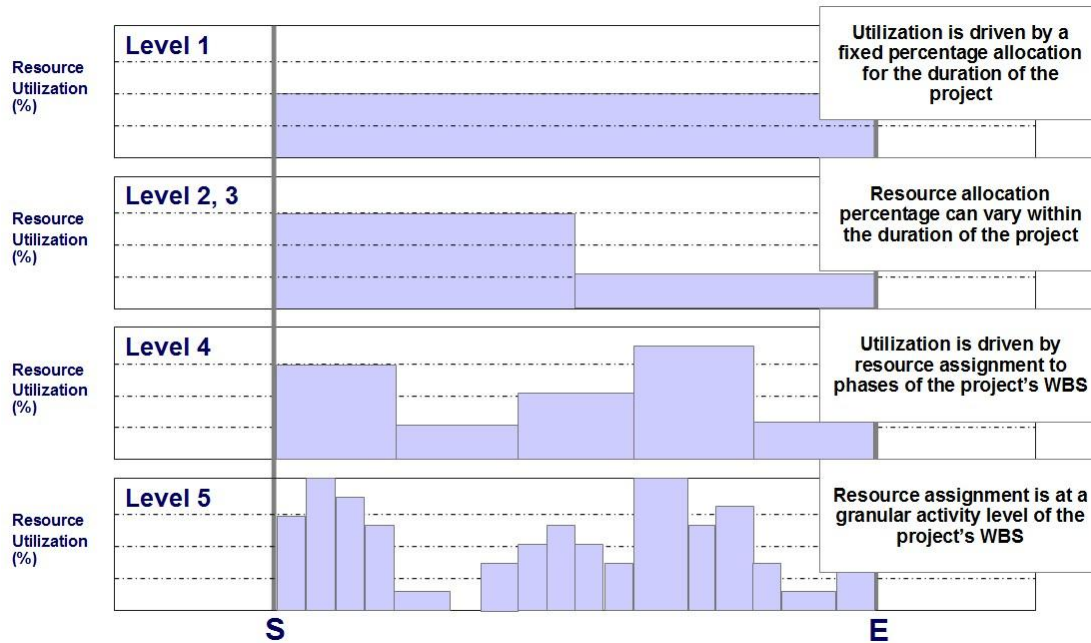


Figure 1. The assignment granularity dimension is a key maturity level driver; the above illustrates its key attributes.

RMMM Summary View

Figure 2 provides an at-a-glance summary of all the levels and dimensions of the RMMM.

	Level 1	Level 2	Level 3	Level 4	Level 5
	Visibility	Assignment	Capacity	Availability	Management
Assignment Granularity	Allocation at project level, fixed % Non Project work: fixed % of capacity	Allocation at project level, possibly non fixed % Non Project work: project placeholder	Allocation at project level, possibly non fixed % Non Project work: multiple project placeholders	Assignment at project schedule, phase level. Non Project work: phases in placeholder project	Assignment at project schedule, granular activity level Non Project work: ITSM integration, activities in placeholder project
Project Roles	Resources have differentiated roles	Resources have differentiated roles; roles have properties for cost rate etc.	Resources have differentiated roles, possible inclusion of skills	Resources have differentiated roles and skills	Role to activity typing with RACI model; Training, certification tracking
Resource Cost	Planned cost at project level; Actual cost from timesheets at project level	Planned cost at project and time level; Actual cost from timesheets at project level	Also, plan vs. actual comparison, budget constraints	Planned cost at phase level; Actual cost from timesheets at phase level; EVM	Planned cost at granular activity level; Actual cost from timesheets at activity level; Full EVM; activity level budget constraints
Resource Approval	None, ad-hoc, first come first served; line manager only	Resource Approval Workflow (RAW) at project, proposal level; approval based on availability and importance	RAW at project level, possibly multiple per project; approval based on priorities	RAW at phase level	RAW at all activity levels
Capacity Planning	None	Balanced utilization across resources	Resolve availability constraints by delaying, cancelling proposals, projects based on priority	Project phase schedules drive more detailed resource availability views; capacity planning can delay projects at phase level	Resolve availability constraints by delay/shift at activity level with PM involvement
Governance	<i>de facto</i> by line manager	Resource or line manager; mostly FIFO demand management	Governance body prioritizes portfolio. Oversees capacity planning and demand mgmt.	Governance body actions rely on up-to-date project phase schedule information	Governance body actions rely on up-to-date full project schedule information
Business Value	Who is working on what; Over-utilization made visible	Controlled and balanced resource utilization, availability.	Higher priority projects preferentially resourced; resourcing responsive to changing business priorities	Enhanced ability to resource excess demand with existing capacity	Maximized ability to resource excess demand with existing capacity

Figure 2. Determine where your organization is in terms of resource management process sophistication by scanning this table.

Interpreting and Using the Model

For every maturity level, the characteristics at each dimension (in terms of assignment complexity, governance, desired business value, and so on) describe those used by successful organizations to achieve their resource management goals. For example, at Level 1 the absence of resource approval implies the absence of a capacity planning and governance process. At Level 3, a governance body is required to decide project priorities, which in turn are a prerequisite to implement capacity planning. For this reason, it's best to implement all of the processes and dimensions associated with each maturity level before pursuing the next level.

However, some organizations may be at one level of maturity along some dimensions while at other levels of maturity along other dimensions. And they may continue to operate at different levels of maturity. For example, some organizations may be operating at Level 3 in terms of assignment granularity, but are better characterized as Level 2 organizations because they have no governance structure.

A key value of the RMMM is in helping organizations determine whether these variances from the best practices represented by the model are:

- The result of conscious and valid organizational decisions (based on unique organizational factors such as corporate culture, industry context or other considerations); or
- Symptomatic of issues or areas of dysfunction that need to be addressed. For example, it makes little sense for an organization to invest heavily in a capacity planning process without putting in place a governance structure that can also perform demand management.

A fundamental tenet of the RMMM is that higher is not necessarily better. Most organizations will find Level 3 to be the optimal target. Organizations need to be careful before setting their sights on Level 4 because it entails additional process complexity that may not be justified by the business benefits. Few organizations will find Level 5 to be optimal level because of the potentially onerous information and supporting technology complexity and process maturity demands. Typically, this level of maturity is only appropriate for resource-intensive scenarios where resource-scheduling sophistication is critical.

Finally, it is important to note that the RMMM makes clear what an organization needs to do to operate successfully at each level. However, by itself, it cannot prescribe the right level of maturity for your organization. That will depend on a number of factors such as industry context, organizational culture, leadership style, and technology experience. The probability of successful implementation of these processes must be the first guide to selecting the desired level. The target business value at that level must be aligned with the desired benefits. If not, the organization can take measured steps to implement the process and organizational changes necessary to get to the next level.

Terminology

The following subsections describe some key terms and definitions used in the RMMM.

Resource Capacity

Resource capacity refers to the total potential work time for a given resource under management. The units of capacity are time per duration (for example, 40 hours per week) or a percentage (for example, 50 percent) of a full-time equivalent (FTE) employee. Typically, organizations subtract a fixed fraction of the capacity “off the top” for nonproject work and track in detail the utilization for project work. For example, a 40-hour-per-week employee who has 20 percent of his or her capacity set aside for nonproject work has capacity designated as 32 hours per week. Alternatively, an organization might view capacity as 40 hours per week and track the utilization for both project work and non-project work in this 40-hour-per-week capacity. Organizations may also choose to reduce resource capacity by time not available for nonproject work such as vacations and holidays. Resource capacity can be aggregated across a group of resources (for example, by organization or role).

Resource Utilization

Resource utilization represents the sum total of a resource's work assignment for a given duration. The work includes only project work if capacity is defined to exclude nonproject work. Utilization includes units of time per duration (for example, hours per day) or a fraction of capacity (for example, a resource may be used 20 hours per week, or 50 percent of capacity, on a project). Utilization may be specified as effort spread evenly over the given duration (for example, a resource is used for 100 hours for the *duration* of the project or 20 hours for a *phase* of a project). At a further level of detail, the effort specified may be uneven (for example, a resource is used 10 hours in Week 1 and 40 hours in Week 4).

The Resource Assignment dimension describes the granularity of per-project utilization typical for each maturity level.

Resource Allocation

Resource allocation is the association of a resource to a project without specific assignment to a particular element of the project's work breakdown structure (Phases or Tasks etc.). The units of allocation are percentage of resource capacity. Allocation is typically performed by the resource manager. Allocation may be fixed for the duration of a project or may change over the duration of a project. Specifying resource allocation only without specifying specific association with the work breakdown structure allows for a de-coupling of resource management from project management.

Resource Availability

Resource availability denotes the difference between capacity and utilization for a given duration. This is the time available for a resource to be assigned to more work. Availability includes units of time per duration (for example, hours per week) or fraction of capacity.

Resource Demand

Resource demand refers to the incremental potential work assignment for a given duration for a resource driven from proposed projects or incremental work requests associated with ongoing projects. Demand may be greater or less than the availability for a given duration.

Activity

Activity refers to any level of project work identified in a project work breakdown structure (WBS). The highest-level activity in a WBS is referred to here as a *phase*. Phases may be broken into a series of lower-level activities such as tasks and deliverables.

Resource Approval Workflow

Resource approval workflow denotes the process by which a resource is assigned to work for a given duration. The assignment may be for a proposed project (also known as a proposal) or for incremental work associated with an ongoing project. Broadly, the process has the following workflow:

Request parameters. The project manager makes a request for resources. That request contains the following parameters:

Start and end dates (defining potential request duration). Depending on the maturity level along the Resource Assignment dimension, the duration may be determined by project start and end dates (or other significant project dates) or tied to project phase or (lower-level) activity.

Effort (in units of hours, days, weeks, and so on) required from resource during request duration. The effort may be represented as the average percentage of time that the resource is expected to be used for the requested duration. The effort may also be represented by specific hours, days, or weeks

Resource request flexibility with regard to (1) a specific named individual vs. anyone matching the role and skills requirement; and (2) availability requirements (for example, only full-duration availability is acceptable).

Request routing. The request is sent to the resource manager. In many organizations, this role belongs to the resource's direct line manager. There may be a distinct resource manager for a set of roles or a set of resources.

Resource approval/denial. The resource manager may consult a "heat map" of the requested resource to determine availability. He or she may also consult project prioritization information. The criteria to approve or deny requests vary by maturity level. The response may be a simple "approved/denied" or may have nuances such as the ability to provide for partial approval or a hard vs. soft commitment.

Project manager next steps. If the request is approved, the project manager uses the resource as desired for project execution. If the request is denied, the project manager may have various actions available to them depending on maturity level.

Detailed Level Descriptions

Level 1. Work Visibility

Most organizations struggle with answering even the basic question “What are my people working on?” At Level 1, the focus is on answering that question. At this level, the first step is to make a comprehensive list of projects underway in the organization. Once this is done, resources are associated with projects—an exercise that typically reveals that resource time is being consumed by work outside of projects (“keep-the-lights-on work”). Nonproject work is treated as a fixed fraction that is removed from the resource’s capacity for project work.

The minimal expectation is that projects have planned start and end dates and that per-project utilization is a constant percentage for the duration of the project. If project dates are accurate and up to date, organizations can create reasonably complete, if not granular, pictures of the aggregate resource utilization at this level of PPM maturity. Since resource costs are known, organizations can also determine planned resource costs by project. Actual costs are captured using time sheets, which record time spent by a resource on a project.

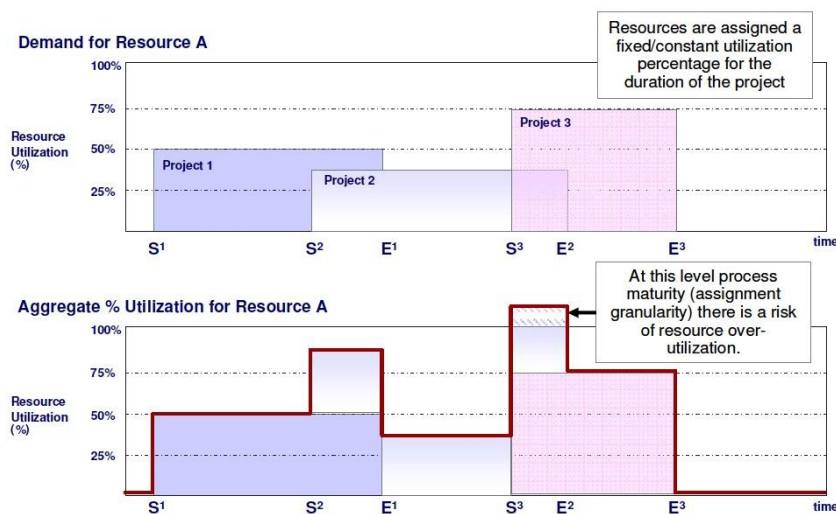


Figure 3. The above diagram illustrates the assignment overutilization risk at Level 1.

A defining characteristic of Level 1 operation is that there is no formal and transparent process for allocating resources to projects. Instead, resource allocation is ad hoc or simply by the line manager’s approval. But with no holistic view of all resources, overbooking can occur—potentially burning out a given resource (see Figure 3). This can result in project failure because resources are not available for the project. Likewise, it is possible to underuse some resources while overusing others.

TABLE 2. LEVEL 1—WORK VISIBILITY

DIMENSION	DESCRIPTION
Assignment granularity	<input type="checkbox"/> A simple (but complete) list of projects and resources is created. <input type="checkbox"/> An association of resources to projects is created in the form of resource allocations. <input type="checkbox"/> A resource's utilization is assumed to be a constant percentage for the duration of the project. <input type="checkbox"/> Nonproject work is modeled as a non-time-varying percentage of each resource's capacity.
Project roles	<input type="checkbox"/> Project managers and certain key roles on projects are identified
Resource cost	<input type="checkbox"/> Only aggregate resource costs are planned. <input type="checkbox"/> Allocation of planned costs to projects is possible. <input type="checkbox"/> Timesheets capture actual costs of resources by project.
Resource approval	<input type="checkbox"/> There is no resource approval process
Capacity planning	<input type="checkbox"/> There is no capacity planning process.
Governance	<input type="checkbox"/> Line managers allocate resources to work with no formal governance.
Business value	<input type="checkbox"/> Answers the question "Who is working on what?" Simple resource utilization and availability "heat maps" can help identify at-risk projects, resource burnout situations, cost reduction opportunities or availability for additional projects.

Organizations are ready to move on to the next level of PPM maturity when they need to proactively monitor resource utilization—in other words, when there's a recognized need to better balance work among available resources to avoid burnout or project risks associated with inadequate resourcing. The creation of a resource approval process is the key enabler in progressing to the next level of maturity.

Level 2. Controlled Assignment

Resource approval is the critical dimension at Level 2. By introducing a process for assigning resources such as a resource approval workflow (RAW), organizations help their resource management processes mature along several other dimensions. Most importantly, a resource approval process eliminates the ad hoc nature by which resources are associated with projects at Level 1.

For the newly introduced resource approval workflow, the assignment granularity of requests is kept at the project level. This means that each request includes project start and end dates. These requests generally use a fixed average percentage utilization over the project's duration, but in some instances can have varying utilization over the project's duration. The resource manager performs approvals by consulting a "heat map" indicating the availability of each resource and providing approvals only when availability exceeds demand. Some organizations may choose to define availability policies for resource managers to follow (for example, a resource's availability should never be less than 10 percent).

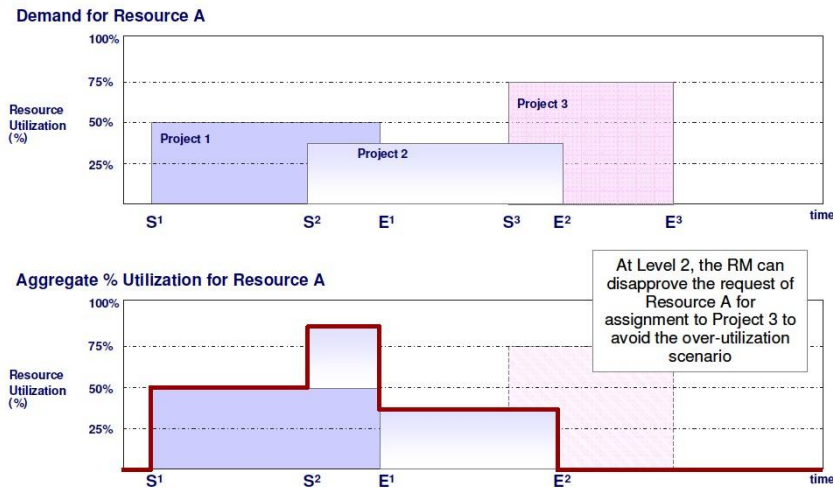


Figure 4. At Level 2 the resource approval workflow ensures that Resource A is not over utilized.

Note that at Level 2, the resource manager approves or denies resource requests based on resource availability and informal consideration of project importance. Resource managers considering multiple simultaneous requests for the same resource do not have the objective information required to make a decision based on business value or priority. As a result, “squeaky wheels,” personal favors, and informal ad-hoc assessment of project importance drive resource approval rather than formal prioritization and rank-ordering of the collection of projects.

TABLE 2. LEVEL 2—CONTROLLED ASSIGNMENT

DIMENSION	DESCRIPTION
Assignment granularity	<input type="checkbox"/> Resources are allocated at the project level, and project start and end dates are managed with rigor. <input type="checkbox"/> Per-project utilization is often, but not necessarily a fixed percentage for the project duration.
Project roles	<input type="checkbox"/> Differentiated roles on projects are clearly identified. <input type="checkbox"/> A project team is defined consisting of specific roles and attributes (for example, cost rates and standard percentage utilization per project). <input type="checkbox"/> Standard project team templates (by project type) may exist.
Resource cost	<input type="checkbox"/> Organizations are able to track planned resource costs by time and project. <input type="checkbox"/> Actual costs are based on timesheets at the project level. <input type="checkbox"/> There is no control of actual costs based on budgeted (planned) costs.
Resource approval	<input type="checkbox"/> A RAW process is used to assign resources to projects after a formal request is approved. <input type="checkbox"/> The resource manager approves requests based on availability of the requested resource or resource type (that is, matching role, skill set).

	<input type="checkbox"/> Project importance is informally considered; requests may be approved on a first-come first-served basis.
<hr/>	
Capacity planning	<input type="checkbox"/> Existing aggregate-capacity total (by role and resource) and aggregate utilization are visible and evenly balanced with relatively few instances of over- or underutilization. <input type="checkbox"/> There is no assurance that resources are being utilized on the highest business-value projects. <input type="checkbox"/> There is no easy way accommodate new resource demands from higher-value projects by de-prioritizing in-flight projects.
<hr/>	
Governance	<input type="checkbox"/> There is no governance structure to manage relative project priorities.
<hr/>	
Business value	<input type="checkbox"/> The RAW process ensures that resources are not over- or underutilized, and that existing capacity is actively managed to a desired availability and work is evenly distributed across the resources. <input type="checkbox"/> It becomes clear if new demand can be resourced from existing availability or if additional resources are needed.

At Level 2 an organization reaches a pain threshold and is compelled to mature to the next level as a result of an inability to

- Focus on the projects with greatest business impact
- Dynamically respond to changing business priorities
- Fulfill new demand by reprioritizing existing projects instead of simply adding new resources

Level 3. Governed Capacity

The critical dimension at Level 3 is a governance structure that performs project prioritization, approves proposed projects and is able to delay or cancel existing projects. This process includes an updated and accurate picture of the resource utilization and resource availability in the organization. This resource capacity information is used as an added dimension to drive the governance decisions.. A resource- or portfolio-governance committee or some similarly named committee is made up of stakeholders from the demand (projects ideas, requests, and proposals) and supply sides (resources), as well as the business executives who are responsible for the success of the project portfolio. This structure, coupled with the previously discussed RAW process, results in the ability to implement a “governed” capacity planning process.

The prioritization process involves determining the priority of existing projects and new proposals, as well as multiple concurrent projects. Key elements of this prioritization process include setting up and standardizing assessment criteria in high-level categories like benefits, financial costs, and risks. Benefits criteria may include, for example, strategic alignment, and opportunity costs. Risks might be financial-, implementation- or market-related. Project proposals are scored using consistent criteria, and approvals are made through a comparative assessment.

New proposals for projects must follow a resource approval workflow process, but at Level 3 the resource requests can be more effectively managed by financial return, and customer satisfaction. Cost may have sub-elements such as project costs the resource managers based on the project prioritization information.

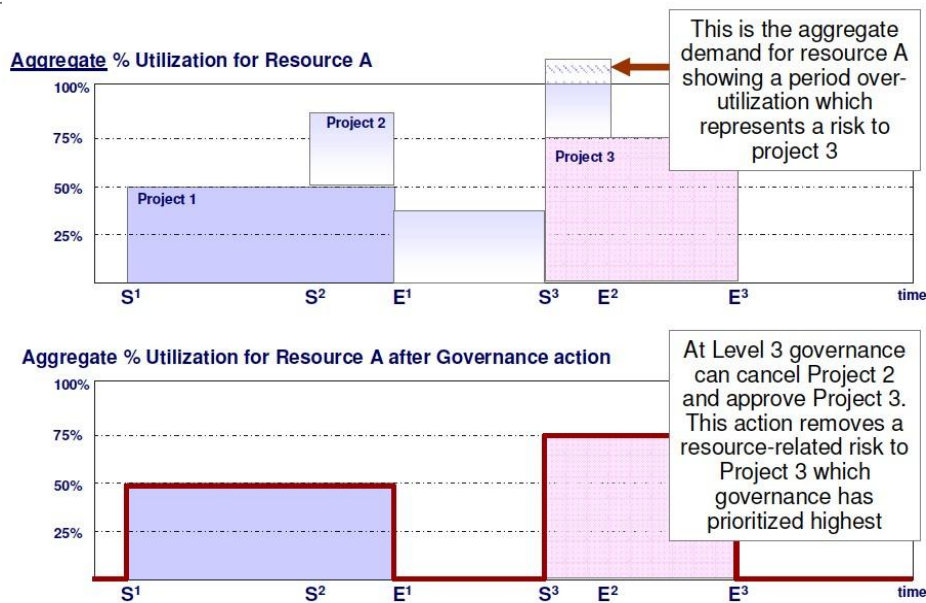


Figure 5. Level 3 introduces a governance structure that considers project priority when approving project plans.

At Level 3, a governance committee oversees the capacity planning process. This committee has full visibility into aggregate utilization from existing projects and incremental demand from new proposals (relative to aggregate capacity). This visibility should encompass any subsets of projects, roles, and resources of interest. Based on priority and resource availability information, the governance body can dynamically launch, suspend, delay, and/or cancel projects to balance capacity with demand. This is an ongoing and iterative process that reacts to prioritization changes as business conditions dictate. Software should be used to provide dynamic “what if” scenario planning that allows examination of the resource availability implications of different prioritization decisions. The committee also decides whether resource capacity for a particular role needs to be adjusted up or down.

Level 3 represents the sweet spot of resource management maturity for most organizations because it enables organizations to better align resources with strategic priorities in the immediate term and over the course of a planning horizon. At the same time, assigning resources at project-level granularity (as opposed to a lower level) avoids many of the pitfalls associated with Level 4 and Level 5 resource management, which drive resource management from the project work breakdown structure.

TABLE 2. LEVEL 3—GOVERNED CAPACITY

DIMENSION	DESCRIPTION
Assignment granularity	<ul style="list-style-type: none"> <input type="checkbox"/> Resources are still allocated at the project level. <input type="checkbox"/> Project start and end dates are managed with rigor because these points bound resource allocations. <input type="checkbox"/> Per-project resource utilization within projects can be adjusted up or down (that is, it does not need to be constant from beginning to end). <input type="checkbox"/> Nonproject work may be planned using placeholder projects and multiple start/end-date intervals with variable-percentage utilization. <input type="checkbox"/> Systems can be integrated to track nonproject work to better inform utilization calculations.
Project roles	<ul style="list-style-type: none"> <input type="checkbox"/> Differentiated roles on projects are clearly identified. <input type="checkbox"/> A project team is defined consisting of specific roles and attributes (for example, cost rates and standard percentage utilization per project). <input type="checkbox"/> Standard project team templates (by project type) are used.
Resource cost	<ul style="list-style-type: none"> <input type="checkbox"/> Planned resource costs by time and project can be tracked. <input type="checkbox"/> Total costs and per-resource costs can be computed for each project—for a project portfolio and for a given duration. <input type="checkbox"/> Actual costs are computed from timesheets at the project level. <input type="checkbox"/> The governance committee may institute a process to ensure that actual resource costs do not exceed planned costs.
Resource approval	<ul style="list-style-type: none"> <input type="checkbox"/> The RAW process is not limited to a single request for the entire project duration. <input type="checkbox"/> Multiple requests/approvals—each with different start/end dates and percentage utilization—can be accommodated. <input type="checkbox"/> The resource manager approves or denies requests based on availability of requested individuals or suitable alternatives (for example, matching skill set, location, cost rate, and so on). <input type="checkbox"/> The resource manager can decide between competing resource requests based on clearly defined project priorities. <input type="checkbox"/> The project manager may use the additional assignment granularity detail to request the resource for only part of the project's duration. <input type="checkbox"/> Alternatively, the project manager may appeal to the governance committee to invoke a capacity planning exercise.
Capacity planning	<ul style="list-style-type: none"> <input type="checkbox"/> Existing aggregate capacity (by role and resource) and aggregate utilization are visible. <input type="checkbox"/> Utilization is greater on higher-priority projects with the most business impact. <input type="checkbox"/> Higher-priority new demand is resourced ahead of lower-priority new demand. <input type="checkbox"/> If new demand exceeds availability, existing projects can be reprioritized, delayed, or canceled to fill that demand (without adding resources). <input type="checkbox"/> What-if scenarios can be used to simulate the impact of reprioritizing, delaying, and canceling projects.
Governance	<ul style="list-style-type: none"> <input type="checkbox"/> A governance structure oversees demand management, proposal and project prioritization, and capacity planning.

Business value

- Organizations are better prepared to support business strategic objectives currently and within the planning horizon because they can free resource capacity to accommodate higher-priority projects as well as anticipate resource demand.

Organizations should aspire to Level 4 when their need to understand project schedule-driven resource utilization outweighs issues with process and data complexity.

Level 4. Schedule-Driven Availability

The key to transitioning from Level 3 to Level 4 maturity is using the project schedule to drive project resource utilization. Thus Level 4 goes to a resource *assignment* to drive the resource utilization view, compared to Level 3 where a resource *allocation* was used. This is a material and significant difference because it means that resource management is now driven by information provided at a much more granular level, and the underlying utilization now comes from project managers who manage the resource assignments in the project schedule.

At Level 4, project resources are assigned using high-level (for example, phase-level) activity information delineated in the project's WBS. Each phase has an associated utilization that results from the phase start date, phase end date, and percent of capacity spent on the phase or total effort on the phase. The sum of these attribute values over all phases is aggregated to arrive at the resource utilization for a given project.

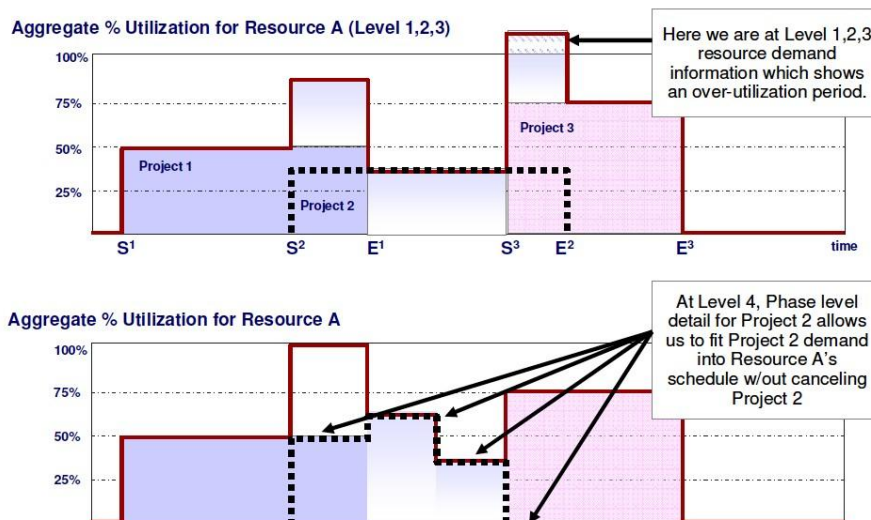


Figure 6. At Level 4, phase-level demand information can lead to better resource utilization and assignment decisions

An organization may choose to be at Level 4 when this greater detail can have a material impact on capacity planning decisions. For example, Project 1 used a resource for 40 hours one month; however, in Week 4, that resource appeared to be over utilized because a new project (Project 2) required that same resource for 40 hours in Week 4. However, what appears to be an overutilization of that resource is not, because a phase-based assignment in Project 1 reveals that the resource's use comes entirely in

Week 1—meaning that in Week 4 the resource is available, and Project 2's request can be approved. In this situation, the extra detail provided in Level 4 eliminated a false-positive overutilization situation.

A second benefit of this maturity level is that the capacity planning process can operate at the phase level rather than the project level. In the above example, an alternative resolution for the over- utilization could be that the phase of Project 2 needing the resource in Week 4 could be delayed without delaying the project as a whole. Another benefit of the WBS-driven resource management starting at Level 4 is that nonproject work items can also be tracked at the same level of granularity as project work. A placeholder project for nonproject work can be created with each placeholder activity corresponding to each work item and representing its duration and effort. This enables a unified view of the detailed project and nonproject work items that consume the time of each resource.

It is important to note that this places a significant burden on the organization as a whole for much more information to be kept up to date. Project managers now must maintain and update their phase dates accurately in order to correctly assign individual resources to relevant phases and provide utilization requirements by phase. For example, a portfolio of 100 projects—with five phases per project and five resources per phase—requires that 7,500 pieces of information ($100 \times 5 \times 5 \times 3$) be kept up to date and accurate. If the organization does not possess adequate process maturity, the dependent capacity planning and governance processes will be driven from a mass of unreliable information. Worse yet, the demands for continuously keeping this information up to date often results in abandonment of the process by the organization. The software that is required to be updated with this information is deemed too overbearing and ends up not being used.

A key challenge at Level 4 is the conflict that can arise because the time horizon of the strategic capacity planning process does not match the day-to-day changes made by project managers at the phase level. For example, the governance committee might decide that a severe resource shortage exists during a particular timeframe and reassign resources, or delay or cancel projects to relieve this shortage. It may then turn out that the project manager coincidentally rearranges the project schedule, freeing up resources that appeared in short supply—but the governance committee is not able to react to this information until it meets at a later time.

TABLE 5. LEVEL 4—SCHEDULE-DRIVEN AVAILABILITY

DIMENSION	DESCRIPTION
Assignment granularity	<ul style="list-style-type: none"> <input type="checkbox"/> Resources are assigned at the phase level in the project WBS. <input type="checkbox"/> The per-project resource utilization is an aggregate of the underlying per-phase utilization. <input type="checkbox"/> Per-phase utilization attributes are phase start and end dates, percentage utilization, or phase-level effort. <input type="checkbox"/> Nonproject work may be planned using placeholder projects, each of which represents an item of nonproject work.
Project roles	<ul style="list-style-type: none"> <input type="checkbox"/> Resource skills, capabilities and training is used to inform the RAW process and to identify suitable replacement resources to fulfill resource requests. <input type="checkbox"/> Roles and resource skills are used during project phase assignments.

Resource cost	<ul style="list-style-type: none"> <input type="checkbox"/> Resource costs are planned at the phase level. <input type="checkbox"/> Each phase has a total resource cost based on the WBS level assignment. <input type="checkbox"/> Phase level costs are totaled to determine project costs. <input type="checkbox"/> Actual costs are derived from timesheets, and actual time spent on each phase can be tracked. <input type="checkbox"/> Additional processes may be used to control actual costs at a per-phase level to be limited to the planned costs. <input type="checkbox"/> Earned Value Management is possible.
Resource approval	<ul style="list-style-type: none"> <input type="checkbox"/> The RAW process is performed at the phase level. <input type="checkbox"/> Each assignment to a phase must be approved through the RAW process along with the phase-level dates and percentage or effort information. <input type="checkbox"/> Approvals are informed by resource availability and project priority.
Capacity planning	<ul style="list-style-type: none"> <input type="checkbox"/> Aggregate utilization is the sum of all project phase-level resource utilization rates from individual projects. <input type="checkbox"/> Underlying data for all projects and phase schedule changes must be timely and accurately estimated to enable effective capacity planning.
Governance	<ul style="list-style-type: none"> <input type="checkbox"/> A governance structure oversees portfolio management processes such as demand management, project/proposal prioritization, and capacity planning. <input type="checkbox"/> There is a potentially undesirable interplay between a project manager's level of detail and granularity and the high-level governance committee strategic viewpoint.
Business value	<ul style="list-style-type: none"> <input type="checkbox"/> It may be possible to accommodate incremental demand with the same set of resources as a result of more detailed phase-level information. <input type="checkbox"/> This greater detail may be vital in particular project-intensive and highly resource-constrained scenarios (for example, maximizing billing rates in service delivery organizations).

Organizations aspire to Level 5 when even more schedule detail is necessary for effective resource management.

Level 5. Granular Management

At Level 5, the complete and full levels of WBS activity detail drive resource management and capacity planning. Each activity has an associated utilization that results from the activity start and end dates as well as the percent of capacity spent on the activity or total effort on the activity. The sum of these values over all phases is aggregated to arrive at the resource utilization for a given project.

This level of maturity may be necessary when the phase-level information about resource utilization is too coarse and full project schedule detail is necessary and meaningful to the business. Another benefit is that nonproject work items can be tracked at fuller detail with a placeholder activity representing each work item's duration and effort. This enables a unified view of the project and nonproject work items consuming each resource's time; however, it also places a significant burden on project managers to maintain and update activity dates so that they can assign individual resources to relevant activities and provide accurate utilization requirements by activity.

For example, a portfolio of 100 projects, with 30 activities per project and two resources per activity, requires that 18,000 pieces of information ($100 \times 30 \times 2 \times 3$) be kept up to date and accurate. For most organizations, it is extremely difficult to accurately maintain this amount of information. As a result, most organizations attempting to operate at this level fail under the burden of additional process complexity (unless only a small number of projects and resources are involved).

Many resource management software solutions require organizations to supply this granular detail to feed the higher-level capacity planning and governance processes. This is a key reason why these software implementations are not successful.

TABLE 6. LEVEL 5—GRANULAR MANAGEMENT

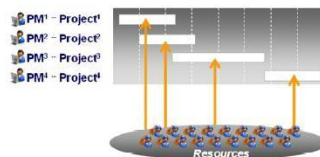
DIMENSION	DESCRIPTION
Assignment granularity	<ul style="list-style-type: none"> <input type="checkbox"/> The complete WBS activity detail feeds into the per-project utilization. <input type="checkbox"/> Nonproject considers information derived from IT service management system integration (for example, trouble tickets) and granular nonproject work item visibility.
Project roles	<ul style="list-style-type: none"> <input type="checkbox"/> The RACI (Responsible-Accountable-Consulted-Informed) model may be used to further classify the types of activity-resources assignments. <input type="checkbox"/> This may have implications for activity-resource demand. For example, resources designated as “responsible” for a project activity assignment may trigger a level of resource (time/effort) utilization while a resource designated as “informed” may not.
Resource cost	<ul style="list-style-type: none"> <input type="checkbox"/> Resource costs are planned at the detailed resource-activity level. <input type="checkbox"/> Each activity has a total resource cost based on the WBS level assignment, and the activity level costs are totaled to determine project costs. <input type="checkbox"/> The RACI model may be used to further specify different cost rates based on assignment type. <input type="checkbox"/> Actual costs are derived from timesheets and actual time spent on each activity can be tracked. <input type="checkbox"/> Additional processes may exist to control actual costs at a per-activity level limited to the planned costs or a specified not-to-exceed planned cost.
Resource approval	<ul style="list-style-type: none"> <input type="checkbox"/> Resource approvals are performed at the individual activity level and are informed by resource availability and project priority.
Capacity planning	<ul style="list-style-type: none"> <input type="checkbox"/> Aggregate utilization is driven by the sum of all project activity-level resource utilization. <input type="checkbox"/> The underlying data for all projects on all phase schedule changes must be accurately estimated and timely to enable effective capacity planning.
Governance	<ul style="list-style-type: none"> <input type="checkbox"/> The governance process and body needs to be prepared to react to more dynamic and constantly changing project schedule details.
Business value	<ul style="list-style-type: none"> <input type="checkbox"/> It may be possible to accommodate even more demand with the same set of resources because of the more detailed activity level information.

Conclusion

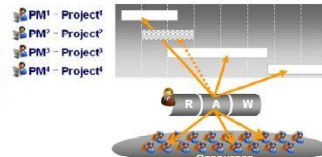
The Assignment Granularity dimension is the key driver for the RMMM. The level of granularity at which an organization plans and tracks effort largely determines that organization's placement along other maturity model dimensions. However, a chasm exists between Maturity Levels 3 and 4: Many organizations rush prematurely to Level 4—which includes activity-level effort roll ups—and fail. For most organizations, Level 3 is the sweet spot to strive for, providing “just right” process sophistication given the level of information needed by the business to make effective resource-related decisions. Systems should be configured to align with process maturity and not encourage IT organizations to bite off more functionality than they can chew.

RMMM Pictorial Summary

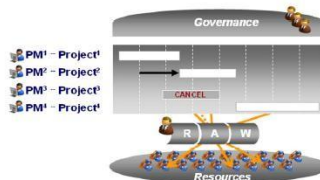
At Level 1 there is an uncontrolled resource grab



Level 2 introduces a resource approval workflow



At Level 3 a governance body considers project priority



Level 4,5 considers project activity-level demand

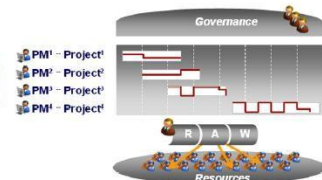


Figure 7. For most organizations, Level 3 is the sweet spot to strive for in the RMMM.

- To ensure that your organization can manage project resources and capacity at the right level of granularity, you should take the following steps:
- Assess your company's current process maturity and see where it fits in the RMMM. You may do this internally by benchmarking with other companies or with the help of a consulting firm.
- Examine the business benefits at your company's maturity level.
- If the additional business benefits of going to the next level are important, perform a gap analysis and identify what critical dimensions need to progress at your level of maturity.
- Communicate the findings to others in your company and get buy-in to fix the gaps.
- Lay out a roadmap of how your company should get to the next level and work toward getting there.
- Contact Oracle if you need software technology to help with your resource and capacity management initiative.



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