Skill Criticalness and its Impact on Capacity Planning

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Resource Management Overview

The managing and assigning of resources to projects has historically been done by either the project manager, the resource's performance manager, or a combination of both. The centralization and standardization of a resource management office is a relatively new concept, but one that has been growing in popularity, as evidenced by trending research by the Resource Management Institute (RMI). This has been partly due to a shift towards the importance and value of taking a more thoughtful and strategic approach to resource management. "Resource Management as a standalone function has been steadily increasing over the past decade, especially across the Professional Services (PS) Industry."[1] This growth is expected to continue as the shift to remote work, and the importance of a work-life balance, become key in attracting and retaining top talent.

Current Resource Management

"The rising importance of services in driving both revenue and value creation has fundamentally changed how organizations must think about managing human capital."[2] As a result, the assigning of resources to projects should be thoughtful and forward-looking, not just a matter of filling open roles.

Just-in-Time Resourcing® is the leading framework for resource management, which enables organizations to get the right person, in the right place, at the right time. But what does it mean? In the most straightforward sense, "the right time" means aligning an individual's skills and their availability to match the project requirements for when the resource is needed on the project. This is an essential component of resource management, but with the challenges resource managers face today "due to a scarcity of qualified candidates"[3] it requires resource managers to think beyond immediate staffing needs and take a proactive strategic approach to staffing.

 "A tactically focused resource manager is one who is primarily managing staffing activities (administration), and the strategically focused resource manager who recognizes that good RM is finding a balance of serving the economic needs of the business while meeting the priorities of our most important assets, people!"[4] The tactical resource manager evaluates the start date of a project, identifies who is available by the requested date, and then who has the skills needed for the project. Strategic resource management is still poorly defined, with much of the focus being on developing the individual resource manager and not on the actual processes that resource managers employ. The goal of this paper is to provide resource managers with clearly defined steps that can be implemented at any organization, to allow them to transition from being a tactical resource manager to a strategic resource manager.

[1] Stephanie Gough, "The Evolution of Resource Management (Professional Services)," accessed February 2nd, 2025, The-Evolution-of-Resource-Management.pdf (resourcemanagementinstitute.com).

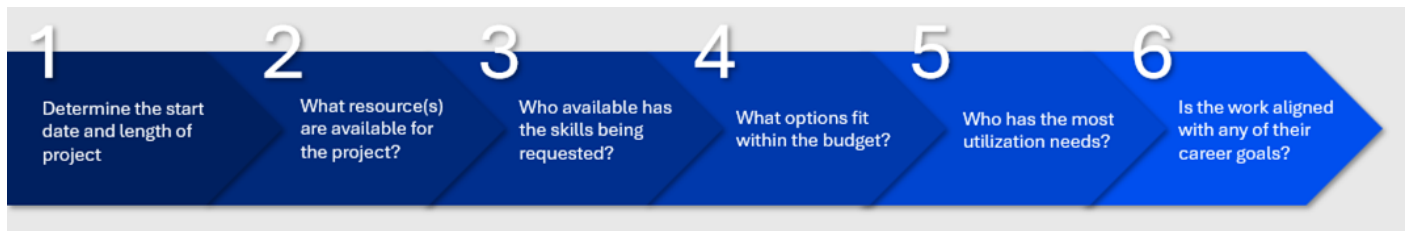[2] "About Just-in-Time Resourcing®", accessed January 7th, 2025, (Just-in-Time Resourcing® - Just-in-Time Resourcing Solutions).

[3] "11th Annual State of Resource Management: Latest Research and Leading Practices," accessed https://resourcemanagementinstitute.com/wp-content/uploads/State-of-RM-2025-VFinal.pdf

[4] "From a Tactical Resource Manager to Strategic Resource Manager: Soft Skills Make the Difference," Resource Management Institute, accessed June 23,2024, RMI-Whitepaper-Tactical-RM-to-Strategic-RM.pdf (resourcemanagementinstitute.com).

Staffing Processes

The more layers added to the resourcing process, the more strategic the approach becomes. For example, a resource manager has a resource request looking for 3 consultants for a project starting in two weeks. The first step would be to identify all resources available by the requested start date, or available close to the requested start date. After identifying who is available for the total length of the project, the next step is to determine which of those available resources have the skills needed at the required proficiency level. If left with multiple resource options, the next step would be to evaluate who out of those resources best meets the project's budget and margin requirements. Finally, if still left with multiple resource options, determine which resource has the greatest utilization needs and should be prioritized over their peers who might be over-utilized. Another layer that can be added to this approach is to identify if the project is aligned with any of the available resources' career development plans and goals.

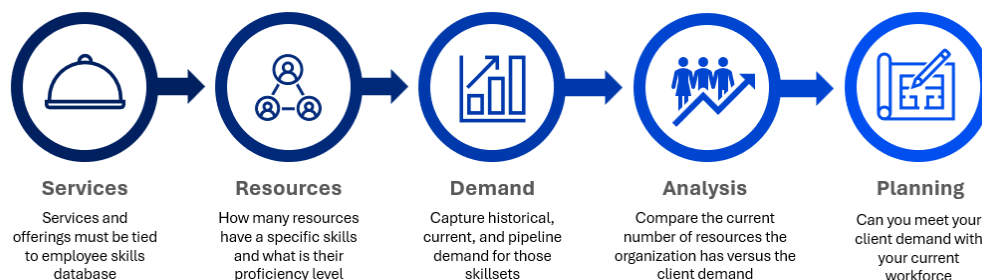| 1	2	3	4	5	6
Determine the start date and length of project	What resource(s) are available for the project?	Who available has the skills being requested?	What options fit within the budget?	Who has the most utilization needs?	Is the work aligned with any of their career goals?

The above proposed approach to staffing a project should be the standard process for all resource managers. This approach decreases the likelihood of burnout, it increases employee satisfaction, minimizes disparity of utilization across employees, and reduces turnover and attrition. This approach is still mostly tactical in nature.

The Shift to Proactive Capacity Planning

For resource managers to be truly strategic, capacity planning must be incorporated into their approach. But what exactly is capacity planning, and how can it be approached strategically? Capacity planning, simply defined, is determining how much capacity you have in order to meet demand. A large part of this is performing a skill gap analysis. A skill gap analysis requires that you have a clearly defined list of skills that are also tied to your organization's demand and services offered. Skill gap analysis should be done annually or biannually, and when done correctly, a key finding from the analysis will enable resource managers to take a proactive approach to capacity planning.

Skill Gap Analysis Components

A skill gap analysis will enable you to determine your organization's critical skills. Skill criticalness is typically not evaluated and should always be considered when making staffing decisions, and alongside a skill gap analysis, it can inform the business on investments and developmental areas.

Services	Resources	Demand	Analysis	Planning
Services and offerings must be tied to employee skills database	How many resources have a specific skills and what is their proficiency level	Capture historical, current, and pipeline demand for those skillsets	Compare the current number of resources the organization has versus the client demand	Can you meet your client demand with your current workforce

The Missing Piece

The one aspect that continues to be missing from how most resource managers staff projects is the consideration of skill criticalness when evaluating available resources. This brings us back to the concept of "the right time." "The right time" is not solely about matching skills and schedules, it requires a strategic timing of assigning an individual's unique skillset. If an individual has a niche or scarce skill, assigning them to a project that does not require that scarce skill, or to a project that there are other available options for, does meet the traditional definition of "the right time" but it is not the optimal time for the deployment of that resource. As a result, the definition of "the right time" should be expanded to include the prioritization of scarce skills to ensure capacity and guarantee the availability of individuals with critical expertise.

This paper defines skill criticalness as how scarce a skill is relative to how much demand there is for that skill. Scarcity, unlike rarity, implies that there is some demand for the thing in question. Skill criticalness is not related to the project or the resource request, but it is defined by a holistic and overarching view of all skills at your organization. In the previous list of staffing criteria, the evaluation of skill criticalness should be prioritized right before considering utilization needs (depending on the length of the project).

Let's reexamine the prior example of a resource manager needing 3 consultants in two weeks for a project. Say the resource manager looks at available resources with the skills needed and determines that there are 5 possible options. Out of those 5 options, one of the employees has a very niche skill that almost no other employees have. That skill, while maybe not requested often, is occasionally needed on a project. If the resource was chosen as one of the 3 options for the resource request, the capacity to staff a project in the near future that needs that niche skill will be greatly reduced. Therefore, limiting the organization's ability to meet that demand.

Now the proposed process does not supersede the importance of utilization needs, it just takes into consideration a new layer and aspect of the process. If the resource with the niche skill was extremely below their utilization target, and the project was short-term and quick, staffing them on the project would be the recommendation. Although, if the project was a long-term commitment, it would not be advisable to use the resource with the niche skill. There are two approaches to assigning skills a criticalness rating, a manual, and a mathematical approach.

Manual Approach to Determining Skill Criticalness

The manual approach to assigning criticalness ratings to your skills is best suited for organizations that have less data that needs to be analyzed, a less defined sales cycle and demand data, or have situations where special circumstances need to be taken into consideration. The first step to the manual approach is taking your skills and assigning them a rating for three different categories: capacity, demand, and win ratio.

Categories Defined

- *Capacity Rating* is determined by how many employees your organization has with a specific skill. This can be department specific, or companywide. Depending on your skills' proficiency rating scale (i.e. basic, proficient, advanced, and expert) only employees that have the minimum proficiency level required to be placed on a project should be considered in the capacity rating.
- *Demand Rating* is determined by how frequent that skill is requested in your sales data. Is this a skill frequently requested by clients? Is it moderately requested by clients? Or is it rarely requested by clients?

- *Win Ratio* reflects how often opportunities tied to a skill are successfully won by your organization. Or are there a lot of opportunities requesting a specific skill that end up being closed lost and never materialize?

Once each skill has been assigned their capacity rating, demand rating, and win ratio rating, you can then assign the skill its skill criticalness rating. An example of what this rating scale could look like is provided below. In the example, a three-scale rating system of least/low to most/high was used. The number of levels used in a rating scale is flexible and can be specific to your organization.

Example: Skill Rating Table

Skill Name	Resource Capacity	Demand Rating	Win Ratio	Skill Criticalness
Skill Example A	High Capacity	Most Requested	Low Win Ratio	Least Critical
Skill Example B	Low Capacity	Least Requested	High Win Ratio	Most Critical
Skill Example C	Medium Capacity	Moderately Requested	Average Win Ratio	Moderately Critical

One organization may rate a skill less critical than another organization would rate that skill, as this rating system is subjective and unique across organizations. When determining a skill's criticalness rating, you may have other things to consider that are not captured in the data set, such as maybe a specific skill has a seasonal aspect to it, and so it might be less critical at one point in the year and more critical at a different point in the year. Or perhaps a skill requires onsite travel to deliver the work, and your employees open for travel are limited. So, while your resource capacity may seem high, in reality, depending on the location of the work your resource pool is much more limited.

Mathematical Approach to Determining Skill Criticalness

The mathematical approach is great for organizations that have very straightforward demand and skill data, as well as a large set of data to analyze. The process is very similar to the manual approach, with some differences. The equation is illustrated below, and it details how to calculate a skill's criticalness rating.

Skill Criticalness Equation

$$\text{Resource Capacity} = \frac{\text{\# of resource who are proficient in the specific skill}}{\text{Total \# of resource at the organization or \# of resources in a specific department}}$$

$$\text{Demand Rating} = \left(\frac{\text{\# of won opportunities that requested a specific skill}}{\text{Total \# of opportunities that requested a specific skill}} \right) + \left(\frac{\text{\# of won opportunities that requested a specific skill}}{\text{Total \# of all opportunities}} \right)$$

Skill & Capacity Criticalness Rating =

$$\frac{\text{Resource Capacity}}{\text{Skill Demand}}$$

Note: The higher the skill criticalness score, the more capacity that specific skill has and the less critical it is. The lower the score, the lower the capacity and the more critical the skill is.

Example Equation

To following example demonstrates how the skill criticalness equation can be applied and utilized.

An organization that provides technology consulting services has 50 back-end developers employed. 40% of the back-end developers are .NET developers and 60% are Java developers. The majority of the work the organization delivers is Java or .NET development. Out of the 50 back-end developers, 2 of them have experience coding in Golang (4% of the developers).

When examining historical demand data, let's say there were 60 won opportunities that required Java, out of a total of 170 opportunities that required Java, resulting in a win ratio of 35%. Java opportunities made up about 50% of the organization's pipeline, so using the above equation the skill and capacity criticalness of Java can be calculated like so:

Java Skill & Capacity Criticalness Calculation

Resource Capacity (60% capacity):
- 30 Java developers / 50 total developers = 60%

Skill Demand (52.9% rating):
- Won Java opportunity ratio: 60 won Java opportunities / total of 170 Java opportunities = 35.3%
- Won Java total pipeline ratio: 60 won Java opportunities / total of 340 opportunities = 17.6%
- Skill demand rating: 35.3% + 17.6% = 52.9%

Skill Criticalness Score: Resource Capacity divided by Skill Demand
- 60% / 52.9% = 113.4%

Golang Skill & Capacity Criticalness Calculation

Resource Capacity:
- 2 Golang developers / 50 total developers = 4%

Skill Demand (10.3% rating):
- 1 won Golang opportunities / total of 10 Golang opportunities = 10%
- 1 won Golang opportunities / total of 340 opportunities = 0.3%
- 10% + 0.3% = 10.3%

Skill Criticalness Score: Resource Capacity divided by Skill Demand
- 4% / 10.3% = 38.8%

After each skill has had a criticalness rating assigned to it, the skills should then be labeled according to their score as either highly critical, moderately critical, and least critical.

Proactive Approach to Capacity Planning

Now that your organization's skill gap analysis has been performed and critical skills have been identified, you can incorporate both of these concepts into your everyday resourcing decisions to take a more proactive approach to capacity planning. The approach is very simple and straightforward and can be summed up in just a few words: "staffing with the least qualified resource." Least qualified does not equate to unqualified, it essentially means utilizing the individual who is qualified for the project but also has the least number of total skills out of the other available resource options. Incorporating this into resourcing decisions can be done by using a skill matrix in which proficiencies are categorized as numbers.

In the example provided, you can see the skills are organized in the columns, with the proficiencies as values in the row, and critical skills being denoted with an asterisk. Using the example of the technical consulting firm in the mathematical approach section of this paper, if a request were to come in for a Java developer, the best resource option for the project would be Jamal Johnson. Jamal has no critical skills, and also the least number of skills out of the available resources. By incorporating the method of staffing with the "least qualified resource," you will increase your organization's overall capacity and simultaneously increase the volume of demand your organization can take on.

Available Resource	Job Level	Java	C#	Golang*	JavaScript	React*	Total	# of Skills
John Smith	Junior Associate	1	4	0	1	0	6	1
Jane Doe*	Associate	4	0	1	5	4	14	3
Aisha Patel*	Senior Associate	4	1	4	3	2	10	3
Carlos Rodriguez*	Manager	5	0	3	0	0	8	2
Mei Lin*	Senior Manager	2	0	2	5	3	14	2
David Kim	Senior Associate	3	4	0	1	1	9	2
Erica Wilson	Junior Associate	1	5	0	0	0	6	1
Jamal Johnson	Associate	4	0	1	3	0	8	2

Informing the Business

While incorporating skill criticalness and staffing with the "least qualified resource" enables resource managers to take a strategic approach to resourcing, it does not mean that they are truly strategic. In order to be considered a strategic resource manager, resource managers need to be viewed as a strategic partner by the business. This will be an easy task to accomplish as you will be able to provide crucial insights into a key aspect of the business: investment strategies.

The insights you will have gained into investing strategies are primarily centered around employee development and demand pursuits. For employee development, you have already determined what skills and service areas are critical to the business, so now you can also determine what individuals can be quickly upskilled and trained in that area. For example, say there is a resource request that comes in for a project that is centered around a highly critical skill that there are limited resources with, resource managers should prioritize adding resources who have the critical skill at the basic proficiency level as shadows to the project, so they can get hands-on experience. Basic proficiency implies the employee has some foundational understanding and knowledge of the skill, so upskilling them to proficient will be less time-intensive and easier to do. This results in an increase in your organization's capacity and ability to meet future demand.

The second area, demand pursuits, involves using the insights you have gained when performing a skill criticalness analysis which will allow you to inform the business on what areas they should increase or limit investments in. Using the Golang example, suppose instead of 1 won opportunity out of a total of 10 opportunities, there were 0 won opportunities out of a total of 30+ opportunities. As there is a 0%

conversion rate for that type of work, and there are limited resources at the organization who can deliver it, the business should most likely pull investments in Golang and stop pursuing opportunities that require it. Hiring external resources who are subject matter experts in Golang should also be halted. You will be able to clearly show the business, backed by data, that there are more profitable and lucrative services and skills that the organization should focus on when determining their budgets and strategic vision.

Incorporating a skill criticalness framework allows resource managers to take a proactive approach to capacity planning, improve day-to-day staffing decisions, and reduce long-term organizational risk. When highly critical skills are concentrated in a single individual or a small group of employees, the business becomes vulnerable to attrition, burnout, or skill gaps. By identifying these critical skills, resource managers can inform the business on the best approach to targeted upskilling, or even strategic hiring. Furthermore, a data-informed understanding of skill demand and win ratios allows organizations to prioritize learning and development investments where they'll have the highest ROI. Over time, this leads to improved win rates, increased capacity, and more consistent delivery margins, turning resource management from a reactive function into a strategic business partner.

Conclusion

Ultimately, skill criticalness represents the missing link between tactical staffing and strategic resource management. Organizations that fail to identify these critical skills risk underutilizing their talent, overcommitting skilled resources, and weakening their ability to meet future demand. Whether you're a resource manager, project manager, or part of a leadership team, the question should no longer be *"Who is available?"* but rather, *"What's the cost of using this skilled resource now, and what could we be sacrificing later?"*

About the Author

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Amy Little has experience working at small, mid-size, and large professional services organizations. She has extensive experience in developing processes that balance business priorities with the development and prioritization of employees and their goals. She recently presented on skill criticalness and capacity planning at the Resource Management Global Symposium, and this paper serves as a complementary thought piece and follow-up to that presentation, to provide resource managers with a 'how-to" in order to shift from being tactical resource managers to strategic business partners.