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The Future of Project Workforce Planning

LEARNING OBJECTIVES

- Understand the challenges with a limited workforce
- Understand where the workforce comes from
- Understand how legislation impacts the workforce
- Understand the need for workforce professional development and future shifts

Keywords *Artificial intelligence (AI); Contracted workers; Corporate workforce needs; Labor rates; Resources limitations; Workforce gap analysis; Workforce legislation; Workforce planning models*

Navigating the World of Limited Resources

Today we live in a world of limited resources. Companies are running lean and mean due to uncertain economic conditions, unavailable qualified labor, and rapidly changing customer demands. Yet companies never seem to run out of projects to work on, but they do have a shortage of resources to support all of the desired projects.

Newly appointed project managers often willingly accept project management positions with the mistaken belief that they will have all of the necessary resources for their projects. Executives and sponsors also reiterate these words, namely that you will get all of the workforce support needed when selecting and appointing the new project manager. But then, after a go-ahead, reality sets in and the project manager discovers that he/she is living in a world of limited resources.

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To make matters worse, newly appointed project managers do not seem to have any idea as to the complexities with project resources staffing and estimating. Wanting an army of resources may seem like a good idea at first, but the allocated budget may not even allow you to have the minimum workforce you think you need. In an ideal situation, you would determine the workforce needed first, and then price out the workforce to determine the budget for the project. While this sometimes happens, it is more likely that the budget is established first by senior management when approving the project, often without any involvement by the project manager, and then the project manager must staff the project based upon the available funding. The result is often a project team with a shortage of resources or team members with inadequate skill sets.

For simplicity's sake, companies can be classified as project-driven and non-project-driven. Project-driven companies usually survive on the various projects they manage for external clients through a competitive bidding process. In these companies, the size and type of resources can fluctuate based upon the types and quantities of projects they are asked to manage.

In non-project-driven companies, there are usually standard production lines, and projects exist to support the creation of new products or modifications to existing products as well as ongoing business needs. Workforce management is somewhat easier in this type of company.

Both types of companies must deal with the risks of limited resources and need to adopt a workforce planning model. There are two reasonable solutions expected from workforce planning based upon limited resources:

- Make sure that we assign the right people with the right skills to the right tasks
- Try to increase productivity, efficiency, and effectiveness

With limited resources, it is essential that we have the right people assigned to the right tasks. Project managers may not know the capabilities of the assigned workers and may have to rely upon the expertise of the functional managers who provide the staff. Increasing the productivity of the assigned workers does not mean producing more deliverables or increasing production. Instead, it implies getting workers to perform their assigned tasks more efficiently or more effectively. The proper investment in training and education can make this happen.

For companies that survive on competitive bidding, limited resources are almost always a way of life. Companies tend to bid on more jobs than their resources can support because they know that they will not be awarded all of the contracts they are bidding on. If they were to win more projects through competitive bidding than they can handle, there would still be a reluctance to hire more people for fear that there would be no place to put the people after the projects are completed. Companies that hire when they win a contract and then lay off the workers when the contract is finished may find it difficult to attract talented workers who want

some degree of employment stability and security. This can be devastating to the company's reputation and create havoc with workforce planning.

Principles of Project Workforce Management

Workforce management begins with workforce planning. Workforce planning, also known as human resource planning or manpower planning, is the process of determining the human resources that an organization needs to meet its strategic goals. The three critical elements in the process are the forecasting of future labor demand, analyzing present labor availability, and effectively managing resource supply versus demand. The outcome, if done effectively, should be a plan that ensures that the right people with the right skills are assigned to the projects such that there is a high expectancy of achieving the organization's strategic goals. Effective manpower planning also minimizes the risks of overstaffing, having to pay for excess staff that may not be needed, and loss of productivity.

A simple model for future workforce planning is shown in Exhibit 1.1.

Most of the principles in Exhibit 1.1 apply to workforce planning in any type of company.

The focus of this book is future workforce planning for projects.

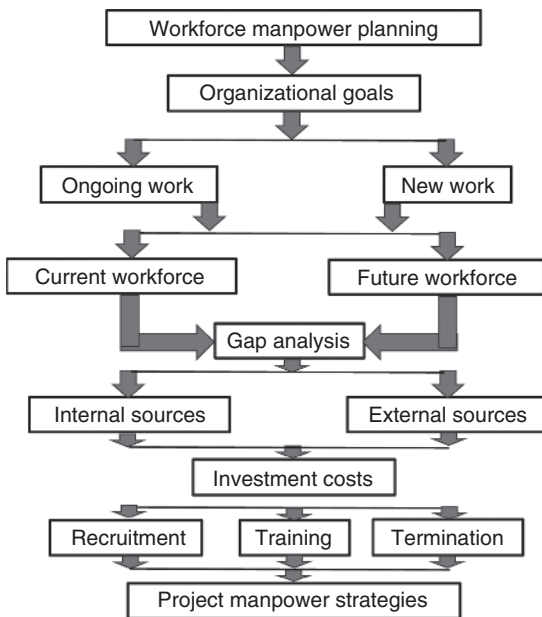


Exhibit 1.1 Future Workforce Planning Model

Workforce planning begins with an understanding of the organization's business goals now and possibly in the future. Forecasting future manpower needs requires answering the following questions:

- What ongoing or new types of projects will be worked on in the future?
- How many people will be required to meet the needs of present and future projects?
- What skill sets will the employees need?

Gap analysis, as identified in Exhibit 1.1, is more than identifying a potential shortage of resources. It also includes answering the following questions:

- Will the organization be required to work on new types of projects?
- Will new skills be required?
- Will training be a necessity for existing or newly hired personnel to develop the skills needed?
- How long might it take for employees to develop the new skills?

Gap analysis is more than making sure you have the right number of resources. It also provides guidance for making sure you have the best possible employees assigned to the best possible activities.

Developing either organizational or project manpower strategies includes the following¹:

- **Organizational restructuring:** this may include organizational redesign to fit a potentially new business model, regrouping activities, and improving efficiency.
- **Training and development:** this may include providing the current staff with training and development opportunities to encompass their new roles and responsibilities as well as training newly hired workers in the new skills needed.
- **Recruitment activities:** this may include the recruiting of new hires who already have the skills or are willing to learn new skills.
- **Outsourcing activities:** this may include teaming with other individuals or organizations that possess the needed skills for the tasks.

People come and go for a variety of reasons. Long-term workforce planning for projects must consider the risks of replacing workers if needed and how they will be trained. People usually find working on projects challenging and rewarding. This is especially a critical attraction point for the next-generation workforce that enjoys exploring new outcomes. Proper investment in human resources helps retain talented workers and reduces employee turnover.

¹ Adapted from Wikipedia, The Free Encyclopedia: strategic human resource planning.

Human resource planning must also include ways to retain talented employees and keep them motivated. Some techniques include:

- Engaging employees effectively when they are assigned to a new project
- Making sure they are assigned to challenging work
- Providing a recognition program for excellent performance
- Providing training that is aligned with their career goals

If we look at the principles of human resources management and project objectives together, we can define project staffing as the process that ensures that the organization has the correct number of people with the correct skills doing the right activities at the right time to achieve the project's objectives. But human resources management on a project is more than simply getting people assigned to the project team. It also involves:

- **Compensation:** Even though project managers may not have any responsibility for wage and salary administration, they might still provide rewards for the team members, whether they are tangible or intangible, and monetary or non-monetary. They may also be asked to provide informal feedback to the functional managers as to how the workers are performing.
- **Safety and health:** These are things that the project manager must do to protect the employees from on-the-job injuries and work-related illnesses. This also involves providing the workers with a suitable place to work assuming that they are removed from their functional area as would be the case with a co-located team.
- **Training and development:** Companies must recognize the return on investment in employee education and provide people the opportunity to attend classes or other educational opportunities related to improving productivity. This also involves allowing the workers to take time away from the project for education related to their career development opportunities. If the costs of training are directly related to the project, then the project may incur the training costs. If the employees are attending college classes, such as for graduate degrees, then the project manager must allow these people to continue attending classes. This may require adjusting the times when the worker will be performing his/her project tasks.
- **Labor relations:** Project managers should not violate corporate labor relations policies established by their company. This involves fairness in treating employees, discipline, promotions, layoffs, and termination. If the company is unionized, then there are corporate expectations on how the project manager should interact with employees of the union. For example, the union may not want their members assigned to tasks above what their pay grade indicates, especially if the workers are willing to accept the assignment believing they will be immediately promoted.

There are many types of workforce planning models like Exhibit 1.1. Examples include:

- Manpower planning at the corporate level
- Manpower planning at the division or section level
- Manpower planning at the project level
- Short-term manpower planning
- Medium-term manpower planning
- Long-term manpower planning

Each type of plan may have different requirements, different personnel, and constantly changing goals and objectives.

Workforce planning models, as shown in Exhibit 1.1, have been used quite extensively for functional organization human resource planning. Only recently, has the model been applied to project organizations.

In the past, most projects relied heavily upon functional organizations to provide the necessary resources and, when the project was completed, the resources would return to their respective functional units. Today, many of our projects are longer in duration and many projects are treated as temporary functional units requiring complex workforce modeling. As such, models as shown in Exhibit 1.1 are being modified for applicability to project workforce planning, regardless of the size and length of the project.

Workforce Management in the External Environment

On short-term projects, the project manager relies upon the line managers, project sponsors, and the corporate human resources organization to worry about how the external environment influences staffing. But on long-term projects, especially those that require the use of contracted resources during the project, the project manager must be aware of the external environment. This is extremely important if the project is being executed in another country. Some examples include:

- **Economic health:** This includes the economic conditions in the host country as well as economic conditions in the parent country. During favorable economic times, quality resources, which may be limited, are in high demand. In some emerging markets, people may change companies quickly, without notice, and with little regard for the project. Also, in favorable times, companies work on more projects making the best resources in high demand throughout the company. During unfavorable conditions, there is a larger than normal risk that the project might be canceled.

- **The labor market:** During favorable economic conditions, people in the labor market will be seeking higher pay than perhaps what you budgeted for in your proposal. Also, a senior engineer in one country may not have the same skills as a senior engineer in another country.
- **Competitors:** If competitors monopolize the market where you are executing the project, you may be unable to obtain qualified resources. You also stand the risk of losing qualified resources to the competition.
- **Technology:** Technological advances as well as organizational process assets may be limited in the host country. If you have contracted labor, they may not be knowledgeable with these processes.
- **Unions:** Both internal and external unions have tremendous power. Seniority is important and the union may dictate who will work on your project. The union can limit productivity increases and remove people off of your project at the most inopportune time. The union can also prevent employees from working overtime.
- **Society and politics:** Politics and culture in projects for a host country other than yours may create problems. The decision-making process may be quite slow, and staffing may be based upon membership in the right political party. The local government may require that procurement contracts be given to companies within the host country just to keep people employed even though more qualified resources exist elsewhere.

Workforce Management and Legislation

Corporate human resources personnel and most functional managers either understand staffing legislation or are trained in it. Project managers, on the other hand, are often placed into project management roles with little knowledge of staffing legislation, and the results can create serious problems for the parent company. The situation becomes more complicated if contracted labor is used, especially from countries in which the project manager has limited knowledge of the culture and the laws.

For example, in some countries, the workers have a right to hold a job and do not believe that they can be fired even if their performance is subpar on the project. Project managers may not be able to have these people removed from the project. In the United States, as well as in other countries, there have been several laws enacted over the past several decades that can affect staffing practices. Many of the laws discuss hiring and firing practices, discrimination, worker rights, and the use of overtime. It is essential for the project managers to develop a proper degree of awareness, and as needed, supplement their understanding gaps with the right experts dependent on the specific global setting of the project.

TIP With the world of work becoming more global, invest in yourself and expand your view of the staffing practices and the dynamics of the global marketplace.

Professional Development for Project Teams

In the early years of project management, worker career development was the responsibility of the worker or the worker's supervisor. Project managers viewed the workers as if they were contracted labor that was leased from the functional departments and treated as merely a cost to the project to be removed as soon as possible. Today, project managers are expected to help the team improve their performance as well as assist the team members with personal career development opportunities.

Today, project managers are expected to:

- Identify workers that have the potential to improve through additional training
- Provide workers with time away from the job to attend training classes
- Identify workers whose performance warrants promotion or assignments with added responsibility
- Identify workers whose performance warrants a demotion, lateral transfer, a position of lesser responsibility, or even termination
- Determine the need for disciplinary action
- Provide the functional managers with performance appraisal information on how the workers are performing on the job

Project managers may not possess formal reward or penalty power. Project managers may be able to identify each of the above items, but the functional managers may be the only people fully authorized to make the final decisions. The best that the project manager can do might be to provide recommendations to the functional managers.

In the future, this could be one of those major transformations in the role of project managers. With the continual move toward projectized organizations, there is a direct impact on how the design of the future organization will be done. This is coupled with the impact of Artificial Intelligence (AI) and other aspects of digitalization that could directly affect the need for classical business functions and result in more project focus in the design. This would be a turning moment in what is expected of the project manager in the future in relation to the project workforce planning aspects.

TIP The future role of the project manager in workforce development is changing. In a digitally-driven workplace, project managers are able to make better strategic choices.



Figure 1.1 The Future of Professional Development

In addition to the role of driving professional development, recommendations by the project manager in this potential future transformation, as depicted in Figure 1.1, are changing. There is a highly changing nature to professional development. This is driven by the intersection of the real and digital worlds at the center of it. Future professional development will also shift to a strong focus on creativity and innovation. This is stemming from the dominating projectized way of working. Project managers will be the most fitting leaders to recommend what capabilities are critical to nourish for the future workforce.

Labor Rate Structures

The labor rate structure of the company is critical when staffing projects and estimating the associated manpower costs. The greater the number of pay grades in each functional area, the greater the complexity in determining the labor costs, especially if several pay grades can perform the required activity. Although most companies have four or five pay grades per functional area, some companies may have up to ten pay grades with job descriptions that may or may not overlap. As an example, consider an engineering department with the following pay grades:

- Engineering apprentice
- Engineering aide
- Engineering mathematician/statistician
- Engineering technician
- Junior engineer
- Engineer

- Research engineer
- Senior engineer
- Engineering consultant

Assuming these pay grades are listed in ascending order of importance, the difference in yearly salary between the top and bottom pay grades could be more than \$100,000 and yet several pay grades may be qualified to perform a given task.

In a digitally enabled future, this is getting even more complicated. Some of the classical roles that will be easily handled by AI might have a negative or a positive impact on labor rates depending on the types of redesigned future jobs to be done. The increasing shift toward focus on value in projects also adds an important dimension to what will be prioritized in considering adjustments to pay grades and the associated labor rates.

The Role of Contract and Temporary Staff

Companies often find themselves in positions where they have a shortage of resources and, instead of hiring permanent employees, they hire temporary workers. This occurs when:

- A company has a need for a specialized skill for a few months and the company does not believe that they will need this skill in the future.
- A company has a need for a specialized skill but only sporadically over the next few years. The cost of hiring someone full-time with this skill is not cost-effective.
- A company has a common activity that requires several engineers. If the company has a shortage of five engineers, then they may hire five temporary engineers to perform this common task.

Temporary workers are hired under a contract that guarantees them employment for a period, usually not less than three months. The temporary workers may find it necessary to pay their own health care costs, taxes, and retirement costs. The contracts usually have a clause that allows for extension of the contract if both parties agree.

Full-time employees generally dislike temporary workers because they soon discover that the temporary worker may be earning a higher base salary than they are. As an example, consider a worker who is earning \$60/hour and discovers that the temporary worker is earning \$80/hour. The permanent worker may be upset at this difference because he/she did not consider the fully loaded cost.

If the permanent worker has an overhead rate of 150%, then the permanent worker is fully loaded at \$150/hour, which includes medical benefits and retirement plan contributions. The temporary employee, on the other hand, must pay for his/her own medical and retirement plans and may have to pay his/her own relocation expenses as well. The temporary employee may not be paid for sick

days taken. The temporary employee also risks the chance of unemployment when the existing contract expires.

Project work, in the expanding gig economy, by its temporary nature, opens the door to this type of contract work. In addition to dealing with organizational political aspects, such as the example above, this provides an upside of injecting new areas of expertise into the workforce. Some of the objectivity brought in by those workers could have a direct impact on the bottom line and could be factored into future project estimating.

TIP The impact on culture and culture fit are two valuable aspects of the gig economy. Contractors with diverse expertise and views enrich the culture of the organization.

Another valuable aspect of the contract workers is providing an option for testing cultural fit that would safeguard the higher opportunity of success for these workers if they turn into part of the permanent staffing of the organization. With more people opting for contract work, there have been great development in the platforms that simplify this contract work. Both workers and organizations are gaining the flexibility and freedom highly valued by the future workforce.

Impact of Artificial Intelligence on Future Workforce Planning

As we focus on improving the planning for the future workforce and to tackle many of the challenges and potential risks highlighted above, it would be beneficial to look at project workforce planning from an organizational development angle. Organizational development could be the vehicle that creates the effectiveness roadmap organizations need to be more productive in the future and become more predictable in assessing the fluid future demands on the workforce. There are multiple areas to organizational development that should be looked at and integrated to provide the utmost value to enhancing workforce planning and utilization. This development is now coupled with the inclusion of the impact AI could be bringing into the equation.

To explore some of these areas that directly contribute to the success of workforce planning, let us focus on assessments, leadership, change management, learning, team dynamics, and driving toward excellence.

As we tackle assessing the organization, we recognize that data is the key to leading in the future. Conducting proper diagnosis of the current state of the organization is key to understanding the various strengths, weaknesses, opportunities, and threats. As shown in Figure 1.2, there is a need to have as much objectivity in the



Figure 1.2 Diagnosing the Organization

assessment as possible. This could be done using surveys, polls, interviews, and as many ways as needed to get a clear and holistic view of how ready the organization is to support staffing decisions for projects in the various types of organizations. Culture is a crucial component of this assessment.

Understanding the culture allows for a better view of the true needs of the workforce. This increases the chances of finding the right fitting resources. This is not merely focused on skillsets and capabilities. This has much to do with personality, attitude, and driving values. Proper diagnosis could get into multiple areas of details that would enhance the likelihood that the resource estimates are meaningful. The diagnosis could also illustrate the organizational ability to use AI. Whether AI is in the mix to increase efficiencies, speed of accomplishing long-duration tasks, or conducting routine reviews, this enhancement has a direct impact on how workforce demands look like. AI could also be an instrument for speeding up research and development activities and thus contributing to shortening product lifecycles and directly affecting the type and amount of future workforce needed.

The potential outcomes of properly assessing the organization could be:

- Enhancing the chances for proper workforce fit
- Designing the future organization in the most aligned way with the project needs
- Increasing the likelihood of project workforce estimating accuracy
- Improving the motivation, morale, and productivity of the workforce
- Clear understanding of readiness for the use of AI

Leadership is also drastically changing in the future organization design. Leading in the digital era is not the same as its predecessor models. Not only are

TIP The design of the future organization that is highly digital will result in enhancing the selection and estimating of the future workforce.

Learning as a cornerstone of the future organization will empower the project estimating of the future workforce. This is an area where one could tremendously expedite and improve the planning process. Using data and patterns from across different sizes and complexities of projects to more accurately estimate is a difference maker in the future organization. Leaning organizations have unique cultures that naturally require different sets of workforces. This is seen in those attributes of the workforce beyond the classical functional and role fit, and this requires hiring managers to pay extra attention to how this learning value is embedded in the DNA of the staff that is joining the organization as a temporary or a permanent workforce.

Team dynamics remain a critical element to organizational health. There continues to be research and investment in peeling the onion on what the secret sauce is for the high-performing future workforce, yet the basics remain the same. Trust is a critical ingredient. Patrick Lencioni addressed the five dysfunctions of teams and how to overcome them. In his work, protecting the trust foundation requires the ability of the workforce to see healthy conflict as a positive quality that is necessary to build the future culture of strong ownership. Figure 1.4 reflects the highly digital team environment of the future. This is also an environment that will continue to struggle with finding the right balance between face-to-face and



Figure 1.4 Team Dynamics

virtual work environment thus leading most organizations of the future becoming increasingly accepting of hybrid being the *modus operandi*.

Driving toward excellence is another attribute of the future organization design. Powered by AI, organizations will continue to have the ability to make the strive toward excellence a dominating ingredient for how work is done and where time and energy are being spent. With the free time created by the proper use of technology, the future workforce has the ability to think again for a change.

This has a direct impact on the quality of work delivered and will ultimately contribute to the learning gained, which enhances the future project resource estimating. Excellence is a science and an art mix for marching toward the maturing of organizations and their project management practices. Being intentional in the future design in making this a priority and supporting it with the right culture, leadership, and workforce increases the likelihood of its achievement.

