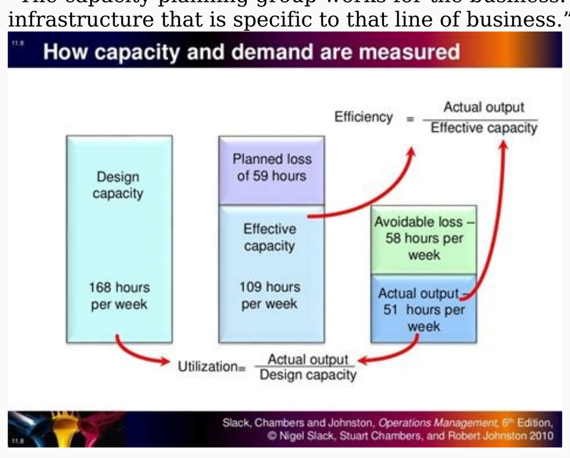
Capacity planning in operations management

Capacity planning is the ability to make informed decisions on whether you have enough resources available for a project. The goal of capacity planning is to optimize service delivery and meet service level agreements (SLAs). Capacity planning is important to overall client satisfaction. The process allows a business to match current capacity with future demands, as analyzing capacity data ensures that teams are productive and projects don't fall behind schedule or run over budget. Richard Gimarc, an independent consultant and author who specializes in capacity management, shares the importance of capacity planning: "If a business is providing a service to its customers, capacity planning ensures the customers are receiving a responsive service and there is a full understanding of the cost of the digital infrastructure required to provide that level of service." Capacity planning provides transparency into what the team is working on, skill sets, and availability. The number one benefit of capacity planning is that it enables teams to deliver on-time, on-budget projects. Below are the top four benefits of capacity planning: Cost Savings: Capacity planning helps identify the most cost-effective way to utilize resources. Resource Availability: Capacity planning helps organizations identify the most cost-effective way of meeting both human and IT resource requirements. Skills Inventory Check: Ensure the team possesses the skills needed to deliver on your strategic initiatives. Talent Acquisition: Data-informed staffing decisions can swiftly address critical talent gaps. Gimarc says, "In the perfect world, capacity planners work with their business partners to predict the impact of business demand on the availability and scalability of their digital infrastructure, and then determine the most cost-effective way to optimize service delivery and meet SLAs. Capacity planning is the single source of truth for the business process in question." He offers the following example: "How well is the digital infrastructure supporting SLAs and application availability, and what does the future look like based on business demand? Are we near a digital infrastructure breaking point, are we introducing new business services, or are we continuing business as usual?" Capacity planning requires collaboration among the business, application, IT, and facilities teams. Communicating across each of these silos tends to be a significant challenge. In their research paper, "The Language of Capacity Planning: Business, Infrastructure, and Facilities," Gimarc and Amy Spellman, Former Global Practice Principal, 451 Research Advisory Services, describe the four key silos to consider as you promote capacity planning and discuss the importance of the capacity planner role in merging communication. "Today's capacity planner must work with all areas of an enterprise's digital infrastructure, which includes the business owners, the application teams, the infrastructure group, and facilities. In a sense, this is good news. As the central point of contact for planning and coordination, the capacity planner is well-positioned to ensure that there is sufficient capacity across the breadth and depth of the digital infrastructure to satisfy business demand cost-effectively." Capacity planning is not a siloed, one-time activity; it is collective and continuous. Business goals and insight into future growth are crucial to managing capacity. To succeed, you need to continually measure, analyze data, and anticipate the future plan.

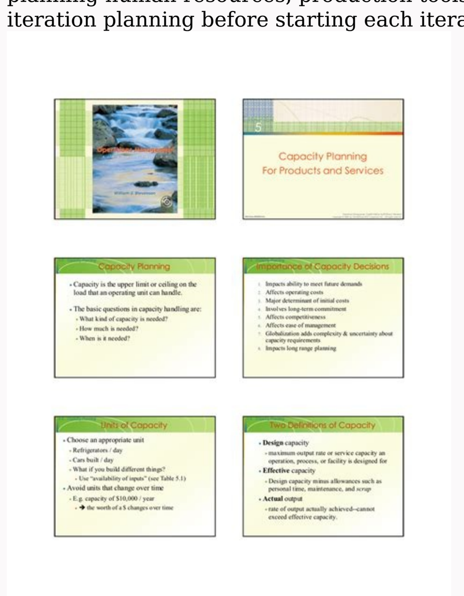
"The capacity planning group works for the business. Consider starting out with a line of business that is directly associated with revenue, such as sales," suggests Gimarc. "The best way to manage capacity planning is to focus on a business owner who is willing to work with you. Once you get the business owner on board, look at metrics and infrastructure that is specific to that line of business." Capacity planning minimizes costly mistakes. Teams can begin by measuring current capacity, then they can forecast demand, analyze gaps, and plan for the future. Measure Current Resource Capacity: Calculate the capacity of your current resources.



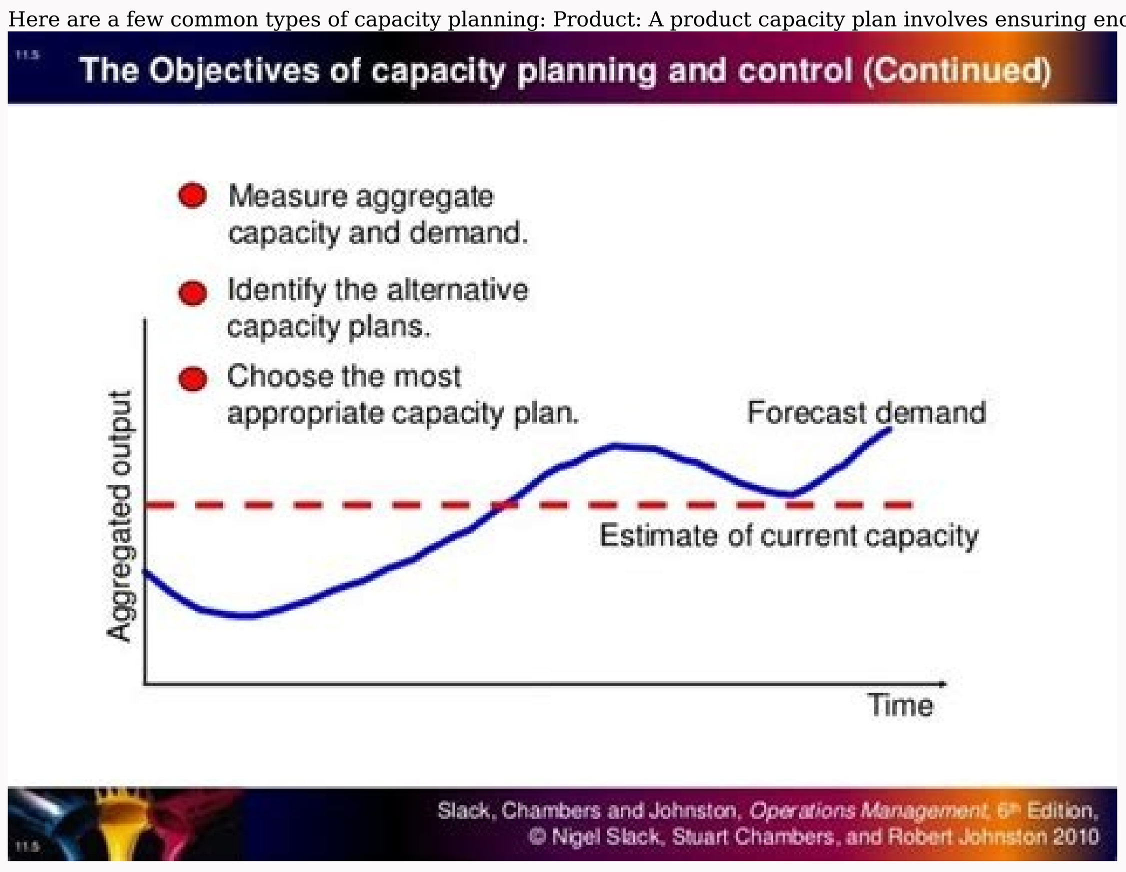
To determine the human resource capacity, multiply the number of hours in a work period by the number of resources, and then subtract the amount of non-work time. Forecast Anticipated Demand: Make an educated estimate on the resource needs of each project. To forecast demand, some organizations rely on past demand, but today's predictive analytics solutions account for unknown variables that can significantly impact demand. Analyze Capacity Requirements: Use the initial measurements to assess whether you have the resources you need to complete the forecasted work.

FIGURE 1.
Stages of the capacity planning process

You can do this in a spreadsheet or another tool that will calculate the difference between your current capacity and expected demand. Align Capacity with Demand: If your team cannot meet the anticipated demand, use the capacity planning spreadsheet or tool to determine whether more team members, overtime, or shift work will help get the projects done. Use these capacity planning templates to measure, forecast, and analyze capacity. Below you will find a capacity planning checklist to guide you through the six main capacity planning considerations. Use this any time you need to plan for future capacity. Check Current SLA Levels: It is crucial to understand the current capacity and SLAs before looking ahead. Analyze Existing Capacity: Review how well your systems meet your current needs. Understand Future Needs: What skills are necessary for future projects, and do you have the essential resources in place? Identify Consolidation Opportunities: Capacity planning is an ideal time to consolidate workloads. Make Recommendations: Use current capacity data to inform decisions on future initiatives. Execute on the Plan: Create an actionable plan with an eye on the future to keep your organization on track. Download Capacity Planning Checklist — Adobe PDF Capacity planning is a valuable practice, regardless of industry or company size, as it helps with planning human resources, production tools, and IT resources. Below is a worksheet for new practitioners. Use this example Agile capacity planning worksheet from Nicole Eiche, a senior Agile consultant and solution engineer at Method, to balance team capacity to iteration load and arrive at team velocity. Eiche suggests that the team "conduct iteration planning before starting each iteration where your team determines goals based on the amount of backlog they can commit to." A business can use capacity planning to ensure critical resources are available to meet project demands.



Here are a few common types of capacity planning: Product: A product capacity plan involves ensuring enough products are available to meet deliverables. Workforce/Team: An effective workforce capacity plan can ensure that you've scheduled an appropriate number of team members and work hours for the project.



Tool: A tool capacity plan ensures that you have the necessary tools for a project. Requirements: Capacity requirements planning (CRP) helps you to establish, measure, and adjust limits or levels of capacity.

Agile: Agile capacity planning helps teams determine the number of available, productive hours for an upcoming sprint. You will find Agile capacity planning templates in this template roundup. IT: Capacity planning for IT involves balancing costs and capacity, followed by supply and demand.

ITIL: Capacity planning for ITIL services aims to deliver the agreed service level targets under budget and on deadline. Rough-Cut Capacity Planning: Rough-cut capacity planning (RCCP) verifies that you have enough capacity to meet the master production schedule requirements. Project management capacity refers to the maximum amount resources can produce or accomplish in a given timeframe. Capacity planning in project management aims to adjust resources to meet demand, with the goal of improving capacity while minimizing cost. Capacity and resource planning are related and complementary.

Capacity planning balances the future need for resources against the capacity of resources. Resource planning process functions to allocate people and teams to meet the demands of your projects and programs. Visit this resource planning guide to learn more. Companies can benefit from capacity planning, particularly when available resources continually don't meet the demands of project work. To adequately plan, you must first gain insight into current capacity and future demand. Below, industry experts share their advice from practical experiences. Cindy VanEpps, a principle consultant at Project and Team, suggests that capacity planning take place as a team: "Capacity planning is more than just the addition of estimates by each team member. Combining the estimates with building high-performing teams that focus on the same product or outcome helps the team collaborate and identify disruptors." VanEpps offers a quote from Donald G. Reinertsen's book, The Principles of Product Development Flow: Second Generation Lean Product Development: "Operating a product development process near full utilization is an economic disaster." Of this statement, VanEpps says, "Reinertsen is correct; planning at 100 percent capacity is an economic disaster. The team must understand the work enough to account for variability imposed by learning. By working in smaller, more manageable batches, the team can allow for potential variability." Additional tips for capacity planning include the following: Business Alignment: Align work with business goals to maintain your teams' focus on what matters most. Team Forecasting: In order for role-based planning to add up to meaningful teamwork, forecast total demand at the team level. Understand Current Capacity: Analyze current capacity to plan and know if you can meet current and future requirements more accurately. Evaluate Potential Scenarios: Scenario planning can home in on the most valuable combination of investments and types of work that align with your organization's strategic goals. Consider Distractions: Remain aware of distractions that sneak into the mix. Consistent monitoring can help your teams stay focused on critical work.

Anticipate Change: Expect change and anticipate adjustments down the line, often as a result of inaccurate estimates. You may need to reassign resources to stabilize workloads and stay away from bottlenecks regularly. Continuous Planning Flow: Continuous planning is necessary because change is inevitable. Capacity planning should also be a proactive process. Proactive Planning: Remain proactive in reducing multitasking, minimizing distractions, and streamlining processes to increase productivity. Lack of historical information and business insights leave capacity planners without the necessary data to make intelligent decisions, and planning will fail without data. Below, industry experts share their advice on mistakes to avoid when creating a capacity plan. Joao Natalino De Oliveira, Regional Chair and International Officer at Computer Measurement Group, says that the first mistake he sees with startups is the failure to build a capacity plan. "Eighty-five percent of startups fail because they don't analyze and plan for demand," he says. "Enterprise companies have dedicated capacity planners. In the early days, these companies preferred to work with large server farms and disk subsystems to sustain during peaks. After several outages, they turned to capacity planning." He gives a specific example: "I visited a digital bank with a large number of cloud resources, but without a dedicated capacity planner. They started seeing elevated costs. They saw drastic improvement with a capacity planner that focused on better appropriation." Working in silos is another avoidable mistake.

As Gimarc says, "Capacity planning should be a point of intersection for the business, application, IT, and facilities teams. Ignoring technology advances is another mistake. Capacity planners should utilize observability information rather than depending on ad hoc documentation and outdated flow diagrams.

Finally, a capacity planner must speak the proper language, translating from the business to applications, infrastructure, and facilities." Other mistakes to avoid include the following: Not Having Historical Data: Always ask for historical information, not just current requirements. Not Understanding Business Objectives: A solid understanding of your organization's capacity is crucial. Not Understanding the Impact of Change: Even small changes matter, so plan carefully to minimize employee stress. Not Correctly Defining Timelines and Scope: A solid grasp on both timelines and scope will negate the risk of running over time and budget. There are four main strategies for capacity planning. You will choose a lag, lead, match, or dynamic approach to helping optimize capacity. Here's how each strategy works: Lag: Adding capacity only when the actual demand is observable.

Lead: Adding capacity in anticipation of high demand for the product. Match: Adding small amounts of capacity to the anticipated demand signals and current market potential of the product.

Dynamic: A forecast-driven approach to capacity planning that involves adjusting production in advance. Having the right resources on hand to forecast and manage customer demand is not a new concept. Capacity planning is more crucial than ever. Fortunately, AI tools are available to accurately bill, optimally staff, and effectively plan for future projects. Modern tools geared toward capacity planning promise greater visibility into projects, resources, and teams, along with the effective prioritization and management of workloads. Gimarc would not be surprised if a new term arises for capacity planning: "The terms capacity planning and capacity management were introduced over 50 years ago, and they do not always garner positive opinions." As for what the future holds, De Oliveira says, "in the near future, capacity planning means saving money, surviving, and winning in the IT jungle." He expects to see more AI, deep learning, and machine learning to automate capacity planning: "The instrumentation of business applications that targets capacity and capacity planning will continue to expand from the mainframe arena to other platforms, even edge computing." Experts contend that there is no gold standard tool for capacity planning. Some consider capacity planning to be old and outdated. Still, here are three commonly used tools for capacity planning: Kanban boards, critical path, and Gantt charts. Kanban Board: A Kanban board visually displays progress and reduces waste by keeping track of workflow. Kanban boards also help with capacity planning by showing the number of tasks a team has taken on. Critical Path: The critical path method can determine how much computing capacity is necessary to support a service or group of services. The tool aids in analyzing critical application performance and capacity requirements. Gantt Chart: A Gantt chart is a bar graph for project scheduling and planning to outline task information. Connect the chart to Google spreadsheets. The tool will pull in data and display it for information sharing, collaboration, or discussion with others. From simple task management and project planning to complex resource and portfolio management, Smartsheet helps you improve collaboration and increase work velocity -- empowering you to get more done. The Smartsheet platform makes it easy to plan, capture, manage, and report on work from anywhere, helping your team be more effective and get more done. Report on key metrics and get real-time visibility into work as it happens with roll-up reports, dashboards, and automated workflows built to keep your team connected and informed. When teams have clarity into the work getting done, there's no telling how much more they can accomplish in the same amount of time. Try Smartsheet for free, today. Try Smartsheet for Free Get a Free Smartsheet Demo Capacity planning is a process that helps operations managers determine the capacity of their resources and plan for future growth.

Businesses can avoid capacity issues and ensure smooth operations by estimating future demand and providing enough capacity to meet that demand. In this blog post, we will discuss what capacity planning operations management is and how it can benefit your business!What Is Capacity Planning in Operations Management?Operations management is the process of planning, organising, and controlling the resources needed to produce goods and services. Capacity planning is a vital part of operations management that determines how much capacity is required in order to meet future demand.It further strengthens the company's operations by ensuring that there is the capacity for future growth. Additionally, it also allows the firm to avoid overcapacity and the associated costs, such as idle resources and underutilised capacity. There are various capacity planning operations management methods, but they all aim to answer the same question: what is the right amount of power needed to meet future demand?The capacity planning process begins with forecasting future demand. Once the forecast is complete, capacity can be planned based on the expected demand. The goal is to have enough capacity to meet customer demand without incurring high costs.Depending on their products, services, and operations, different businesses will have additional capacity needs. Capacity planning is a vital part of operations management that should be tailored to the specific needs of each company.When done correctly, capacity planning can help businesses avoid the costs of over- or under-capacity and ensure they have the resources required to meet future demand.It is always better to start your professional journey on a resourceful note. That's why we have brought an insightful certificate course that will make you adept in operations management.

Check out our Advanced Certificate in Ops, SCM, and PM to know more. Types of Capacity Planning In Operations ManagementCapacity planning determines the production capacity needed by an organisation to meet changing demands for its products or services. The purpose of capacity planning is to ensure that the necessary resources are available when they are needed.There are four types of capacity planning in operations management: Resource Capacity Planning Project Capacity Planning Team Capacity Planning HR Capacity PlanningResource Capacity PlanningResource capacity planning determines the number of resources (e.g. machines, labour, materials) required to meet future demand. It is a crucial part of operations management as it ensures that the necessary resources are available when they are needed. With resource capacity planning, organisations can avoid over-utilisation or under-utilisation of resources, leading to inefficiencies and higher costs.

Most organisations use capacity planning operations management to calculate future production capacity needs.Benefits of Resources Capacity Planning:Avoid over-utilisation or under-utilisation of resources: Capacity planning helps organisations avoid over-utilisation or under-utilisation of resources, leading to inefficiencies and higher costs.Improve decision making: Capacity planning helps in creating a clear and concise understanding of production capacity needs. Organisations can invest in the right resources by understanding future capacity requirements and better using their existing resources.Reduces production costs: Capacity planning assists in reducing production costs by ensuring that the necessary resources are available when they are needed. By avoiding over-utilisation or under-utilisation of resources, organisations can save on costs such as labour, materials, and energy.Helps to meet future demand: Capacity planning helps to ensure that the necessary resources are available when they are needed. Organisations can invest in the right resources by understanding future capacity requirements and better using their existing resources.Project Capacity PlanningProject capacity planning is determining the amount of work a team can complete within a specific time frame. This process includes estimating the number and type of resources required and the amount of time needed to complete the project.Operations management capacity planning is the process of determining the amount of work that an organisation can complete within a specific time frame. This process includes estimating the number and type of resources required and the amount of time needed to complete the project.With capacity planning, organisations can better understand the resources required to complete a project and plan for future projects accordingly. This process can also help identify potential bottlenecks and capacity constraints within the organisation.Overall, capacity planning is a critical process in operations management that can help organisations optimise their resources and better plan for future projects.Benefits of Project Capacity PlanningImproved resource utilisation: By understanding the resources required to complete a project, organisations can better utilise their resources and avoid over- or under-utilisation.Increased efficiency: Capacity planning can help identify potential bottlenecks and capacity constraints within the organisation, leading to increased efficiency.Better project planning: With capacity planning, organisations can better plan for future projects by understanding the resources and time required to complete the project.Capacity planning is a great place to start if you're looking to improve your operations management.

This process can help you optimise resources and plan for future projects. Take a look at our Advanced Certificate in Ops, SCM, and PM to get a head start.Team Capacity PlanningTeam capacity planning is the process of matching your team's capacity to the amount of work that needs to be done. This planning ensures that you have the right number of people with the right skills to work on different objectives.Operations management capacity planning is a bit different. In operations capacity planning, you are trying to match the capacity of your resources to the demand for your product or service.

This includes things like machines, materials, and labour. The goal is always looking for the right amount of capacity to meet customer demand without overproducing or underproducing.There are a few different capacity planning methods, but they all have the same goal: to ensure you're meeting customer demand without overspending on capacity. The most common forms are capacity utilisation, bottleneck analysis, and capacity planning tools.Benefits of Team Capacity PlanningImproved communication between managers and employees: Capacity planning helps ensure everyone is on the same page regarding capacity. This can help to avoid miscommunication and misunderstanding.Better utilisation of resources: Capacity planning can help ensure you're using your resources in the most efficient way possible. It is beneficial to expedite your growth towards success. More clarity on the work: Capacity planning can help to give you a clear picture of work to be done to meet customer demand. This can help you to prioritise and stay organised.HR Capacity PlanningHR capacity planning is the process of forecasting future demand for human resources and designing a plan to meet that demand. HR capacity planning aims to ensure that an organisation has an adequate number of employees with the right skills to reach the business objectives.Operations management capacity planning is critical, as it helps organisations avoid both understaffing and overstaffing. Understaffing can lead to decreased productivity and quality while overstaffing can lead to increased costs.The first step in HR capacity planning is forecasting future human resource demand. It can be done using different methods, including trend analysis, market research, and customer surveys. Once the future demand has been forecasted, the next step is to design a plan to meet that demand.The plan should consider the number of employees needed, the skills they will need to possess, and the locations they will need to be in. The goal is to have the right number of employees with the right skills in the right place at the right time.Benefits of HR Capacity Planning: Helps organizations avoid understaffing and overstaffing: As mentioned above, capacity planning helps organizations avoid the negative consequences of both understaffing and overstaffing. Increases productivity and quality: By ensuring that the right number of employees with the right skills are in the right place at the right time, capacity planning can help increase productivity and quality. Decreases costs: By avoiding the need to hire and train new employees, capacity planning can help decrease costs. Ensures the right workforce: By forecasting future demand and designing a plan to meet that demand, capacity planning can help ensure that an organization has the right workforce.Capacity Planning ProcessOperations managers use capacity planning to forecast future demand for a company's products or services and ensure the necessary resources are available when demand increases.Step One: Determine Current CapacityThe first step is to determine the current capacity of the company's resources. It is about determining how much output the company can currently produce with its existing resources. Current capacity will be affected by factors such as the number of employees, available space, and the type of equipment being used.Step Two: Forecast Future DemandThe second step is forecasting future demand for the company's products or services. This includes estimating how much demand will increase in the future and what new products or services the company will need to meet this demand.Step Three: Identify Gaps in CapacityThe third step is to identify any gaps in capacity. It is about identifying any areas where the company's resources will be unable to meet future demand. The gaps may be due to a lack of employees, space, or equipment. With capacity planning, operations managers can identify these gaps and take steps to address them.Step Four: Develop a Plan to Fill the GapsThe fourth step is to develop a plan to fill the gaps in capacity.

It involves hiring new employees, renting additional space, or purchasing new equipment. By creating a plan to address the capacity needs of the company, operations managers can ensure that the company is prepared for future demand.Step Five: Implement the PlanThe final step is to implement the capacity planning process. It puts the plan into action and ensures all the necessary resources are in place. By following the capacity planning process, operations managers can ensure that their company is prepared for future growth.How Does Capacity Planning Help in Operations Management?Capacity planning operations management is a crucial part of operations management. It ensures that an organisation has the necessary resources to meet its demand. By understanding the capacity of both the organisation and its resources, capacity planning can help avoid problems such as overproduction or underutilisation of resources.There are two main types of capacity planning: strategic and tactical. Strategic capacity planning is long-term and looks at an organisation's overall direction and goals.

Tactical capacity planning is shorter-term and looks at how to best use an organisation's resources.Both types of capacity planning are essential for ensuring that an organisation's resources are best used to meet its goals. Capacity planning can help avoid problems such as overproduction or underutilisation of resources.When planning capacity, it is essential to consider the organisation's short-term and long-term needs. By considering the big picture and the specifics, capacity planning can help ensure that an organisation possesses all the resources to meet its goals.The absence of capacity planning can lead to a number of problems, such as: Overproduction: This occurs when capacity exceeds demand. This can lead to wasted resources and excess inventory. Underutilization: It is a situation where capacity is less than demand leading to lost sales and unhappy customers. Poor utilization: This occurs when capacity is not used efficiently leading to wasted resources and inefficient operations.The Bottom LineOperations capacity planning is the process of determining the number of resources required to meet future demand. It is a vital part of ensuring that an organisation can meet its goals and objectives. By understanding capacity requirements, organisations can better utilise their resources and avoid problems associated with over or under capacity. Want a career in operations management but not sure where to start? Check out our operations management programs and courses. We offer the comprehensive education you need to start your operations management career. Take a look at the Advanced Certificate in Ops, SCM, and PM to discover more.