Healthcare Project Management, Second Edition

With a Brief Guide to Microsoft Project Professional 2016

By

Kathy Schwalbe

and

Dan Furlong

Healthcare Project Management,

Second Edition

Back Cover Photo: Dan Schwalbe

ISBN-13: 978-1976573279

Published by Schwalbe Publishing in Minneapolis, MN, December 2017. Visit ***www. pmtexts.com*** or ***www.kathyschwalbe.com*** for more information on this and other books by Kathy Schwalbe.

Free companion Web site: *www.healthcarepm.com*.

Chapter 1

An Introduction to Project, Program, and Portfolio Management in Healthcare

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Understand the growing need for better project, program, and portfolio management in the healthcare industry
- Investigate the context of healthcare projects, including a brief history of the U.S. healthcare industry, the nature of healthcare projects, characteristics of project team members, and recent trends in healthcare that can affect project management
- Explain what a project is, provide examples of healthcare projects, list various attributes of projects, and describe project constraints
- Describe project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success factors
- Discuss the relationship between project, program, and portfolio management and their contribution to enterprise success
- Describe the project management profession, including suggested skills for project, program, and portfolio managers, the role of professional organizations like the Project Management Institute, the importance of certification and ethics, and the growth of project and portfolio management software

OPENING CASE

Francis (Fran) Anthony, the Chief Executive Officer (CEO) of America's Best Healthcare, Inc., was discussing strategic plans with the board of directors. "Healthcare is currently in an environment of change that seems to be moving at the speed of light. Health information technology, policy changes, cost containment, re-admit penalties, meaningful use, evidence - based medicine, and forming health networks are bearing down on us, and hard. Not to mention our desire to improve quality measures, explore the medical home concept, improve our patient experience, and reach rural communities. Managing a healthcare organization as it existed a few years ago is no longer an option, and at times it is overwhelming."

Everyone in the room took an extra breath as Fran went through the list of strategic initiatives. One of the board members commended Fran on the success of the electronic health records (EHR) implementation completed the prior year as well as the rising success of the new telemedicine service line helping to address emergency department stroke care needs by providing specialist access across their network. Fran responded that the "big guns" were pulled out for those projects, but several new initiatives had not gone so well.

Dr. Kaheed had been on the board for the last ten years, and he understood the climate changes Fran was talking about as well as the various levels of project success. He asked Fran what was so different about these two major projects, particularly since similar projects seem to be struggling at some other organizations.

Fran thought for a few seconds, and then replied, "Excellent question. What has really helped us the last two years is that we have embraced project management and are working to make it a core competency. We now have a project management office staffed with professionals to assist our organization on major projects. We assigned a full-time project manager to work with each of those projects. Don't get me wrong, these projects had major challenges, but we were able to get ahead of the issues to make things work out in the end. "

Fran went on to explain that using good project management ensured that the projects had clear goals, a good plan to follow in order to meet those goals, and a good path for integrating the projects into the organization's regular operations and workflow. "Board members, we need to become a more project-based organization. And believe me, it will not be easy. It's never easy to implement changes. These skills and methodologies need to not just stay with a couple of project managers and selected projects. We need increased capability to successfully manage and execute projects across the organization. We already have the talent and skills to provide quality medical care and maintain operations. If we invest what it takes to further develop the skills and talent to plan and execute projects across America's Best Healthcare, I am very confident that we will be able to navigate the rapid change opportunities and challenges in the current healthcare climate and have continued success in years to come."

INTRODUCTION

The opening case highlights the fact that healthcare organizations have a growing interest in project management. In the past, project management primarily focused on providing schedule and resource data to top management in just a few industries, such as the military and construction industries. Today's project management involves much more, and people in every industry and every country manage projects. The facts below demonstrate the significance of project management:

- Demand for projects continues to increase, with GDP contributions from project-oriented industries forecasted to be US$20.2 trillion by 2017. Employers will need 87.7 million individuals working in project management-oriented roles by 2027, with many supporting healthcare projects. "The talent gap could result in a potential loss of some US$207.9 billion in GDP through 2027."[1]

- Healthcare spending continues to increase. The health share of GDP is projected to rise from 17.8 percent in 2015 to 19.9 percent by 2025. [2]

- Organizations waste $97 million for every $1 billion spent on projects, according to Project Management Institute's (PMI's) 2017 Pulse of the Profession® report. That represents a 20% improvement from the previous year. Organizations realize that excelling at project management definitely affects the bottom line.[3]

- The United States (U.S.) signed The Program Management Improvement and Accountability Act (PMIAA) into law in December 2016 to enhance best practices in project and program management throughout the federal government.

- In 2015, the average salary for someone in the project management profession in U.S. dollars was $108,200 per year in the U.S.; $134,000 in Switzerland, (the highest-paid country); and $19,602 in Egypt (the lowest-paid country). These average salaries do not include bonuses. The average total compensation for project management workers in the U.S., for example, was $130,000. Of the 9,677 people from the U.S. who responded to PMI's salary survey, 81% had the Project Management Professional (PMP®) credential, and their salary was over 22% higher than those without it. This data is based on responses from over 26,000 people in 34 countries. It is also interesting to note that 38% of the salary survey respondents were women, 11% had a degree in project management, and the project management department or Project Management Office (PMO) was the department most listed at 31%.[4]
- Project management is also a vital skill for personal success. Managing a family budget, planning a wedding, remodeling a house, completing a college degree, and many other personal projects can benefit from good project management.

What Went Wrong?

In 2010, the American Health Information Management Association (AHIMA) worked with the American Medical Informatics Association to publish "H.I.T or Miss: Lessons Learned from Health Information Technology Implementations". This collection of 17 vignettes documents real-life situations of health IT projects that did not go well. An important lesson learned in these tales from the trenches is the need to use sound project management principles in health IT projects.

For example, in 2015, Agnesian Healthcare, a Wisconsin-based hospital system paid $300,000 to implement Cerner's revenue cycle software system. After installation, the hospital system noticed widespread issues with patient billing statements. Cerner determined these issues were fixed in 2016. By 2017, Agnesian discovered coding errors, which caused undetected write-offs. Agnesian Healthcare sued Cerner for fraud and breach of warranty. The hospital system claimed that the billing errors damaged its reputation and resulted in losses of more than $16 million. Because of the billing errors, Agnesian could fail to meet the billing requirements mandated by the federal government. Cerner disagreed with all of the allegations and plans to defend the case. Was this a problem with project management, such as not managing risks properly, or was it really due to vendor software problems that could not have been foreseen?

The Standish Group first published an often-quoted "CHAOS" study in 1995 which reported that the overall success rate of IT application development projects in the U.S. was only 16.2 percent. The researchers defined success as meeting project goals on time and on budget. The study also found that more than 31 percent of IT projects were canceled before completion, costing U.S. companies and government agencies more than $81 billion annually (1995 dollars). The authors of this study were adamant about the need for better project management in the IT industry. They explained, "Software development projects are in chaos, and we can no longer imitate the three monkeys—hear no failures, see no failures, speak no failures." [5]

In another large study, PricewaterhouseCoopers surveyed 200 companies from 30 different countries about their project management maturity and found that over half of all projects (not just IT projects) fail, including those in healthcare. They also found that only 2.5 percent of corporations consistently meet their targets for scope, time, and cost goals for all types of projects. [6]

Organizations claim that using project management provides advantages, such as:

- Better control of financial, physical, and human resources
- Improved customer relations
- Shorter development times
- Lower costs
- Higher quality and increased reliability
- Higher profit margins
- Improved productivity
- Better internal coordination
- Higher worker morale
- Reduced stress

The healthcare industry has initiated and completed projects for a long time, but not necessarily using formal project management techniques. New technologies, health reform, evidence-based medicine, health networks, patient-centered care, medical homes, and improved patient experience are some of the many forces that are radically changing the healthcare environment, and where there is change, there are projects! This rate of change, as well as increasing interest in applying business best practices from other industries to healthcare, has prompted the healthcare industry to examine their practices in managing projects. Healthcare organizations are realizing that to remain competitive, they must develop skills to effectively select and manage the projects they undertake. They need to be conversant with and use modern project management techniques and embrace program and portfolio management to address enterprise-level needs.

The main emphasis of this book is to help people in the healthcare industry to improve the success rate of their projects. It does not matter whether the project is adding a new hospital wing, standing up a new specialty, preventing hospital acquired conditions, developing affiliations with other providers, starting up a patient centered medical home (PCMH), creating an accountable care organization (ACO), or advancing new technologies such as mobile medical devices and wearables. Healthcare projects vary in size, cost, and complexity, but they all share a common framework.

Video Highlights

The Yale School of Management and Change Observer created a Web site and several videos about the Mayo Clinic in Rochester, Minnesota, an organization known worldwide for its excellence in healthcare and innovation. One of the videos about project management includes interviews with key members of the Center for Innovation. Barbara Spurrier, Administrative Director, describes how much project management has taken off at Mayo. They prepare project charters, status reports, and other documents to help manage projects and improve communications. Barbara indicates that it is crucial to be very clear regarding project deliverables while also being flexible with stakeholders in executing projects. The project management team uses disciplined processes to co-create. Dan O'Neil, a project manager, explains that project managers are part of a triad with designers and physicians to develop realistic plans that guide the execution of projects.[7]

See *www.healthcarepm.com* for links to this and other videos. For example, the history of project management is a series of videos by Mark Kozak-Holland, author of a book on the subject. There are also links to videos on using PM software in healthcare.

THE HEALTHCARE PROJECT MANAGEMENT CONTEXT

Projects are not run in isolation. They are part of a bigger system, and in order to be successful, project managers must understand that system. The U.S. healthcare system is extremely complex, and many books and articles are available to attempt to explain it. For this text, it is important to understand basic information about the context of healthcare projects, including a brief history of the U.S. healthcare industry, healthcare costs, the

nature of healthcare projects, and recent trends in healthcare that can impact project management.

Brief History of the U.S. Healthcare Industry

For most of American history, the maternal figure was responsible for the health needs of the family, performing the duties today traditionally performed by nurses, physicians, and other healthcare professionals. The mother-as-caregiver health model gradually dissipated with the rise of the American physician, which was based on the English model. The physician was promoted as a profession of learned individuals specializing in medical treatment. The maternal figure in the family or the physician could approach each case of short-term illness or injury as a project.

The model for the current, expansive healthcare industry was partially the result of one hospital's reaction to declining revenue during the Great Depression in 1929. American households faced difficult financial choices during the Depression and many people chose to forgo healthcare. As a result, Baylor University's hospital in Dallas, Texas offered schoolteachers up to 21 days of compensated hospital care for $6 per year. Baylor's modest plan would grow into Blue Cross, one of the most well-known health insurance plans in the industry, which would later merge with Blue Shield in 1982. Adjusting administrative systems to meet changing rules, regulations, and reporting requirements of third-party payers is a classic driving force for healthcare projects.

The creation of "the Blues" is an important part of the healthcare industry because the pair served as the basis for arguably one of the most important pieces of federal healthcare legislation – Medicare. Medicare provides healthcare coverage for U.S. citizens 65 years of age and older as well as other special populations. The same day President Lyndon B. Johnson signed Medicare into law in 1965, he also signed Medicaid, which is a joint venture between federal and state governments to provide health coverage for low-income and disabled individuals. The Medicare and Medicaid systems were designed largely after WWII to treat episodes requiring short-term or acute medical care. Today, the vast majority of expenditures are associated with long-term or chronic care, which requires a more integrated care system between hospitals, providers, patients, and community services. This difference between acute and chronic care health services and meeting the respective needs of each situation is one of the root drivers behind a good number of process-oriented projects today.

Medicare and Medicaid represent the most significant federal legislation to impact the industry, although not for lack of effort. Presidents Theodore Roosevelt, Franklin D. Roosevelt, Harry Truman, and Bill Clinton proposed some form of national healthcare. However, it was not until March 2010 that the Patient Protection and Affordable Care Act (PPACA or just ACA) proved to be the most impactful federal legislation on the healthcare industry since Medicare and Medicaid. The ACA has resulted in incentives and enablers for the implementation of EHRs, associated meaningful use, resultant procedural changes, and Health Information Exchanges. All of these initiatives coupled with movements to patient-

centered care, evidence-based medicine, centers of excellence, and other forces bearing down on the healthcare industry have spawned a current climate of what may be an unsurpassed number of healthcare projects going on within the US and globally.

These initiatives operate in an environment of cost control propelled by rising costs and anticipated increased reductions to Medicare and Medicaid as well as third-party payer reimbursements. To meet these challenges, health and healthcare leaders need to do the following:

- Ensure they are working on the right projects at the right time
- Make investments in IT, infrastructure, and quality changes that will allow them to reduce costs.

Healthcare Costs

According to the Centers for Medicare & Medicaid Services (CMS), healthcare spending accounted for nearly 18% of the United States' total GDP in 2015, with the government paying 37% of those costs due primarily to Medicare and Medicaid coverage. Below are statistics from their website:

- National Health Expenditure (NHE) grew 5.8% to $3.2 trillion in 2015, or $9,990 per person, and accounted for 17.8% of Gross Domestic Product (GDP).
- Medicare spending grew 4.5% to $646.2 billion in 2015, or 20 percent of total NHE.
- Medicaid spending grew 9.7% to $545.1 billion in 2015, or 17 percent of total NHE.
- Private health insurance spending grew 7.2% to $1,072.1 billion in 2015, or 33 percent of total NHE.
- Out of pocket spending grew 2.6% to $338.1 billion in 2015, or 11 percent of total NHE.
- Hospital expenditures grew 5.6% to $1,036.1 billion in 2015, faster than the 4.6% growth in 2014.
- Physician and clinical services expenditures grew 6.3% to $634.9 billion in 2015, a faster growth than the 4.8% in 2014.
- Prescription drug spending increased 9.0% to $324.6 billion in 2015, slower than the 12.4% growth in 2014.
- The largest shares of total health spending were sponsored by the federal government (28.7 percent) and the households (27.7 percent). The private business share of health spending accounted for 19.9 percent of total health care spending, state and local governments accounted for 17.1 percent, and other private revenues accounted for 6.7 percent. [7]

The Nature of Healthcare Projects

So what, if anything, makes healthcare projects stand out from other types of projects? In addition to the diversity of projects, some frequent attributes of healthcare projects include the following:

- *Care quality, cost containment, and external review are key characteristics*. Unlike many other types of projects, healthcare projects normally include these three hallmarks.
- *Quality of care for the patient is crucial*. Many healthcare projects are initiated to help people prevent, improve, or deal with a health concern. The successful execution of some healthcare projects can mean the difference between life and death. This means that quality will most often be considered more important than time, cost and other constraints. For example, the use of electronic health records continues to grow, modifying workflow and changing the way healthcare is practiced. First and foremost in managing these projects, however, should be the goal to improve the quality of patient care or, at minimum, not to compromise the existing levels of quality.
- *Government and regulatory agencies often plays a big role*. The government is often the sponsor or reason for a healthcare project (i.e. Medicaid reform, public health campaigns, meaningful use incentive design, etc.) or it creates laws or standards that must be followed in private healthcare projects. For example, International Classification of Diseases (ICD) changes or surveillance of reportable disease projects cannot be ignored. Part of the challenge of this regulatory environment is that changes regularly occur and can impact projects mid-stream. The Health Information Technology for Economic and Clinical Health (HITECH) Act and PPACA are two recent examples of how government intervention can drive project priorities in healthcare organizations.
- *Finances are complex*. In many healthcare organizations it is difficult to easily predict the financial value of projects or calculate projected return on investment for several reasons:
    - Revenues are difficult to estimate. Many healthcare organizations cannot estimate their revenues because of the complex insurance system in the U.S. For example, emergency rooms cannot turn away patients who cannot pay, and most patients honestly do not know how much of their care will be paid for by their insurance companies.
    - Project budgets may be subject to fluctuating conditions. Donations can be a major source of funding: As demonstrated by the Media Snapshot example, many public or community health projects are prompted by donations or rely on them for their continuation. Furthermore, one never knows what regulation is suddenly going to mandate a project or change the scope of a project.
    - Many hospital organizations are not-for-profit and must strive to fulfill their mission in tandem with return on investment. Community assessments and a demonstration of benefits to the communities they

serve are often required for this type of organization to retain their not-for-profit status.

- *Healthcare is very personal.* People have very different attitudes about healthcare, such as how private or open they are about discussing it, how much they are willing to spend on it, and what types of services they will use. Regulations such as the Health Insurance Portability and Accountability Act of 1996 (HIPAA) seek to protect privacy, maintain confidentiality, and ensure that patient data is stored and transported securely. Compliance with HIPAA and generally preserving patient confidentiality, privacy, and security can introduce particularly challenging constraints and creates a high degree of risk for any project that will access, use, or transfer patient information.
- *Healthcare mistakes historically have increased revenue.* No caregiver wants to harm a patient; they commit their lives to improving the health of the patient. However, in the past any mistakes made by caregivers, through oversight, inexperience, or lack of knowledge, resulted in the patient returning for follow up treatment and generating additional revenue. Starting with HITECH and continuing with the PPACA, healthcare providers now have to pay for their mistakes by covering the treatment required to correct errors they made previously. This change is driving projects that reduce errors throughout the system, but these projects are introducing more rigor into a profession that is largely considered more art than science by its practitioners. Therefore, not everyone will agree that a project is a good idea, even though it may seem reasonable to anyone not delivering care.
- *Deliverables and metrics are different*. The end goal cannot always be quantified in a healthcare project. The health of a human is not always measureable in terms of any value metric. In light of this, healthcare generally looks to two types of metrics for healthcare projects – outcomes and process, particularly for quality improvement projects. For example, did a project result in an increase in the percentage of patients who got a certain test on an annual basis (process) and did this result in fewer patients developing a particular complication (outcomes)?
- *Projects are becoming ever more complex*. There are very few projects that take place within a healthcare organization that do not require multiple disciplines serving together on the project team. Nurses, physicians, technology staff, therapists, administration staff, compliance staff, and training staff are all engaged in significant healthcare projects, and most are engaged in smaller projects as well.
- *Collaboration across entities is required.* Projects in the modern healthcare context are requiring increasing degrees of intra (within the organization) and inter (across organization) collaboration. For example, adding a new telemedicine service line (e.g., distance-based speech pathology encounters) may require the IT department, healthcare providers, and hospital administrators at both the hub (specialty care provider – speech pathologist) and spoke (patient location) sites to work together. This may be especially challenging when the hub and spoke sites are not in the same health network or even the same type of organization, such as a speech pathologist providing services remotely to a child in a school.

Media Snapshot

Most people know Nick Jonas originally as part of the Jonas Brothers band and later as a solo artist. Not only is Nick a multi-platinum selling singer, songwriter, actor, and producer, but he is also an avid philanthropist. One of the causes near to Nick's heart is raising awareness for Type 1 diabetes. In 2005, when Nick was just thirteen years old, he was diagnosed with Type 1 diabetes. He has partnered with various organizations to support diabetes care management and education. In 2015, Nick co-founded the nonprofit organization, Beyond Type 1. Nick believes it is important for younger generations to not be ashamed or embarrassed about their diagnosis. The goal of Beyond Type 1 is to provide awareness and better education about Type 1 diabetes worldwide. By using social media, Beyond Type 1 has created a supportive community online. Additional information can be found at https://beyondtype1.org.

Recent Trends in Healthcare

At a 2012 conference panel on "Transforming from Healthcare to Health," senior leaders of various healthcare organizations and academic programs discussed some of the changes happening in the industry. Three executives shared their views of the future.[8]

- Kenneth Paulus, President and CEO of Allina Hospital and Clinics: The healthcare industry is at a proverbial crossroads and needs to change. In five years things will look very different as organizations become more customer-focused. The new generation wants choices and lower costs, and safety and quality will be a commodity like it is for the airline industry. Healthcare organizations will need to attract customers and keep them loyal. A new kind of leader is needed who understands insurance principles, risk management, and population health. Organizations must become lean to reduce costs. They must embrace information technology and make decisions based on data. Healthcare organizations must learn how to do marketing and become patient service oriented.
- Ronald Smith, Principle and Co-founder of Frauenshuh Healthcare Real Estate Solutions: Mr. Smith explained that his company's products keep people out of the hospital. Ambulatory facilities are growing in popularity as patients receive treatment on an outpatient basis. Hospital and physician integration is accelerating, and organizations must use standardized clinical and business models. Important strategies for success include an optimal care environment, brand loyalty, collaborative care models, and partnerships,
- Scott Kozicki, Entrepreneur and Market Manager of mHealth at Verizon Wireless: Entrepreneurs and technologists see huge opportunities for healthcare projects. It's a big business and growing every year. About half of healthcare dollars are spent on chronic diseases such as diabetes, heart disease, and lung disease. People wait too long to see a primary care physician – almost twenty days on average. Better primary care can lower healthcare costs. Healthcare must be more preventive and proactive. Cell phones apps are available to track weight, blood pressure, and other data, and patients can have video chats with nurses or other

medical professionals. The industry needs to embrace new technologies and a different type of customer.

Healthcare Perspective

In 2017, Reach Health conducted the U.S. Telemedicine Industry Benchmark Survey. Through this survey, Reach Health found that 51% of healthcare executives and caregivers who were surveyed ranked telemedicine as a high priority. The survey showed that executives and caregivers thought the most successful telemedicine projects improved outcomes, engagement, and satisfaction.

Reach Health also identified the biggest challenges that hospitals faced with telehealth programs. The top challenges include reimbursements from Medicare, Medicaid, and private payers, along with inadequate telemedicine parity laws, and lack of interoperability. While it is uncertain if the ACA will be repealed or replaced, telemedicine is becoming increasingly more important to help improve outcomes and reduce costs.[9]

Healthcare organizations are also realizing that they have to learn from other industries and use proven practices to identify and manage the many projects they face today and in the future. They also have to understand how to group projects into programs and use portfolio management, as described later in this chapter. However, leaders in this area realize that healthcare has its own unique elements that require a certain level of specification or customization to suit best practices in the healthcare context. There is a lot at stake, which is creating a rising need for the specific study of healthcare project management.

WHAT IS A PROJECT?

To discuss project management, it is important to understand the concept of a project. A **project** is "a temporary endeavor undertaken to create a unique product, service, or result."[10] Operations, on the other hand, is work done in organizations to sustain the business. In the case of healthcare, operations may include such things as admitting patients to a hospital, performing surgery or procedures, caring for patients at the bedside in a hospital, or performing annual patient wellness exams for a primary care provider. An organization that is new to project management may zealously describe all activities as a project and create a lot of organizational confusion and potentially extra work. Projects are different from operations in that they end when their objectives have been reached or the project has been terminated. Operations represent routine activities that are part of the recurring day-to-day routine.

Examples of Public Health and Healthcare Projects

Projects in the healthcare sector can be large or small and involve one person or thousands of people. They can be done in one day or take years to complete. They also can occur in various types of healthcare related entities. Examples of healthcare entities and related projects in various contexts include the following:

Patient/Health Consumer Level:

- A family makes modifications to their home including a ramp to allow entry into the house and remodeling the bathroom to accommodate a wheelchair-bound family member.
- A diabetic designs how she will initiate a structured self-management program using monitoring devices that electronically send her blood sugar level and blood pressure directly to her physician. (Once the program is in place it will hopefully become part of the routine operations in her life).

Sole Providers and Physician Groups

- A physician's office implements an electronic health record (EHR) system.
- A physician group works with a hospital to create a patient centered medical home (PCMH) or accountable care organization (ACO).
- A physician group modifies its billing system from ICD9 to ICD10 in order to meet revised International Classification of Diseases (ICD) code sets used to report diagnoses and inpatient procedures.

Community Clinics

- A community health center brings federally certified moderate complexity lab testing in house to expedite access to test results and minimize the cost of lab testing for uninsured patients.

Assisted Living/ Long-term Care:

- A long-term care organization servicing an elderly population remodels their oldest wing in response to a consumer quality index evaluation of experiences of residents.

Hospital/ Hospital Departments:

- A large hospital develops affiliations with other providers to maximize buying power, improve services to patients, and/or keep competitors out of the area.
- A community hospital launches a women's health initiative.
- A university hospital designs and constructs a new neurology clinic.
- A hospital develops a tele-pathology program to service smaller providers who can't afford or find qualified pathologists in rural areas.
- A hospital develops a physician evaluation program to comply with new standards issued by a regulatory agency, such as The Joint Commission.
- An emergency department develops a formal process for notifying patients of sexually transmitted disease test results in advance of Department of Health notification.

- A hospital develops a program to reduce readmission rates by identifying and monitoring high-risk patient discharges.

Health Networks

- A collection of healthcare providers form an accountable care organization (ACO).
- A hospital network begins a telemedicine service line for stroke patients.

Health Research:

- A research team performs an evaluation of a state health information exchange.
- A cancer center develops an internship program for pre-med students to assist with research studies.
- A research team develops a smart phone application to assist diabetics with self-management and performs usability and field testing.
- A team of medical researchers conducts a clinical trial of a new medical device.

Payers

- A health insurance company establishes a medical call center and web site to help subscribers make decisions regarding medical care options.

Government and Public Health

- A developing country's health department launches a maternal and child wellness program.
- The state public health department develops and launches an immunization campaign.
- A local health agency works with the public health department to develop an educational course to train the public health workforce and other first responders to improve their capacity to respond and provide essential services for natural disasters and bio-terrorists situations.

Not for Profit/Community Health

- A medically supervised camp program for overweight adolescents creates a summer program.
- A not-for-profit hospital conducts a community assessment to determine how to target community benefit activities.
- A tobacco control charity designs and executes a smoking cessation campaign.
- A kidney disease foundation holds a 10K race event.
- A health research-funding agency designs and launches a new grant program.

Healthcare Vendor/Consulting/Auditing

- A consulting company designs and implements a dashboard for hospital executives to monitor key operational indicators for the facility.

- A medical supply and distribution company installs new distribution software that will facilitate just in time inventory levels.
- An audit team conducts an audit of a health organization.
- A healthcare consulting company develops a workforce needs assessment tool that hospitals use to optimize and plan for clinical workforce needs.

As shown in the examples of healthcare projects, there are many types of projects done by many types of healthcare entities. An individual patient can develop a project, as can an entire health network or federal agency.

Project Attributes

As you can see, projects come in all shapes and sizes. The following attributes help to define a project further:

- *A project has a unique purpose.* Every project should have a well-defined objective. As described in the next chapter, it is important to work on projects for the right reasons, and to manage them well. It should not be difficult to explain the goals or purpose of a project. For example, a long-term care facility may choose to renovate a wing to improve patient experience and attract a market segment capable of paying higher fees. Let's call this project the Expanding Wing Project. Though the long-term care facility may have performed upgrade projects in the past, each renovation project is unique. Remodeling of this wing may involve activities (e.g., adding small social circle spaces), materials (e.g., installation of intelligent device technology to monitor and communicate with residents and their families), a section of the facility, or a magnitude (an entire wing as opposed to a one-room renovation) not previously undertaken as a single initiative.
- *A project is temporary.* A project has a definite beginning and a definite end. For the Expanding Wing Project, senior management of the long-term care facility will usually have a date in mind when they'd like the renovations to start and be completed.
- *A project drives change and enables value creation.* A project is initiated to bring about a change in order to meet a need or desire. Its purpose is to achieve a specific objective which changes the context (a living situation, in this house project example) from a current state to a more desired or valued future state.
- *A project is developed using progressive elaboration or in an iterative fashion.* Project leaders often define projects broadly when they begin and provide greater specificity as time passes and more information is known and the details become clearer. For example, there are many decisions that must be made in planning and remodeling the wing of a long-term care facility. It works best to draft preliminary plans for management to approve before more detailed plans are developed.
- *A project requires resources, often from various areas.* Resources include people, hardware, software, or other assets. The Expanding Wing Project will engage many different types of people, skill sets, and resources.

- *Projects succumb to the theory of scarcity.* Organizations have more wants than they have resources to fill those wants, so not all projects requested may be undertaken. The Expanding Wings Project was chosen because it opens a new market and increases revenue more than other project options at the time.
- *A project should have a primary customer or sponsor.* Most projects have many interested parties or stakeholders, but someone must take the primary role of sponsorship. The **project sponsor** usually provides the general direction for the project as well as funding for the project. In the case of the Expanding Wing Project, the operations manager or chief operating officer might serve as the project sponsor.
- *A project involves uncertainty.* Because every project is unique, it is sometimes difficult to define the project's objectives clearly, estimate exactly how long it will take to complete, or determine how much it will cost. External factors also cause uncertainty. Such things as weather conditions, a supplier going out of business, or a key project team member taking unplanned time off could affect the Expanding Wing Project. Uncertainty is one of the main reasons project management is so challenging, because uncertainty invokes risk.

Projects also have informal or formally designated project managers. **Project managers** work with the project sponsors, the project team, and the other people involved in a project to define, communicate, and meet project goals. A good project manager contributes to a project's success. For the Expanding Wing Project, the facilities manager may be a strong possible choice to serve as project manager to provide detailed project planning and monitor and control the project day-to-day during project execution.

Unfortunately, a surgeon cannot implant a device, as shown in Figure 1-1, to make you a great project manager. You'll have to work at it, or wait until someone completes a project to make this type of surgery an option!

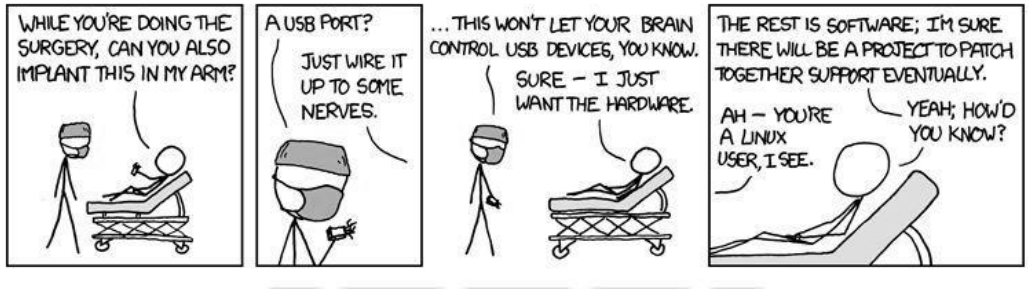

Figure 1-1. Surgery won't help (www.xkcd.com)

Project Constraints

Every project is constrained in different ways. To create a successful project, project managers must consider scope, time, and cost (to name a few) as defined below.

- *Scope*: What work will be done as part of the project? What unique product, service, or result does the customer or sponsor expect from the project?
- *Time*: How long should it take to complete the project? What is the project's schedule? Note that the term schedule is also used instead of time.
- *Cost*: What should it cost to complete the project? What is the project's budget? What resources are needed?

These limitations are sometimes referred to in project management as the **triple constraint**, the project management triangle, or the iron triangle, as shown in the first diagram in Figure 1-2**.** Project managers must balance these three often-competing goals. The act of balancing these goals often results in trade-offs. For example to increase scope, the project's time and/or cost will also increase. To reduce the time, cost may need to increase or scope must decrease. To reduce the cost, scope may need to decrease or time must increase.

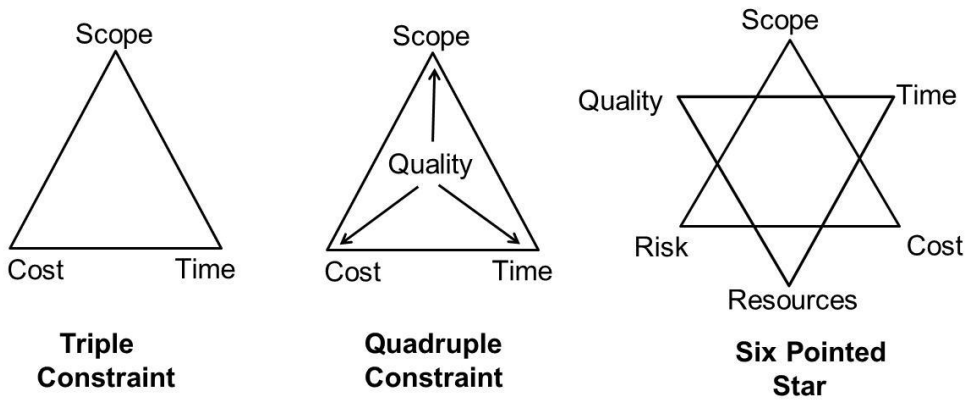

Figure 1-2. Growing Number of Project Constraints

Other people focus on the **quadruple constraint**, which adds quality as a fourth constraint to the model, as shown in the second diagram in Figure 1-2. For example, how good does the quality of the products or services need to be? What do we need to do to satisfy the customer? As described earlier, quality has a special place in healthcare projects. Almost all healthcare projects either directly or indirectly affect the improvement or decrement of the lives of health consumers. If a software developer provides poor coding in an electronic health record system, it could permanently impact an individual's life in a negative way. This high-risk environment creates a constraint and often a lot of bureaucratic processes for healthcare projects given the foremost concern for patient and health consumer safety. If an individual's life could be in danger because of a lack of quality, other constraints may need to be adjusted to support higher quality. In a healthcare project, if you don't take the time to do it right, you may have to do it over to maintain patient quality standards.

The quadruple constraint model is sometimes expanded to suggest a six point star model (or some people prefer a hexagon) that includes the addition of risk and resources. The last diagram in Figure 1-2 shows these six project constraints. Other constraints may also be added, depending on the project.

The triple constraint goals—scope, time, and cost—often have a specific target at the beginning of the project. For example, the sponsor for the Expanding Wing Project might initially define the scope of the project to include adding new social spaces, visitor amenities, minor decorating changes, and moderate upgrades to existing furniture and bathroom fixtures in patient rooms. They might set a goal of completing the renovation in five months and spending about $300,000 on the entire project. The project team will have to make many decisions along the way that may affect meeting those goals. The project leaders might need to increase the budget to meet scope and time goals or decrease the scope to meet time and budget goals. The other three constraints—quality, risk, and resources—affect the ability to meet scope, time, and cost goals.

Projects by definition involve uncertainty and resources, and the customer defines quality. No one can predict with one hundred percent accuracy what risks might occur on a project. Resources (people) working on a project might produce different results than originally expected, and material resources may vary as well. It is very difficult, if not impossible for project planners to define their quality expectations in detail during project initiation when the project details and resource availability may be a bit fuzzy. Quality, risk, and resource constraints often affect each other as well as the scope, time, and cost goals of a project.

To illustrate the interrelationship among the constraints, assume the project budget included replacing the current bathtubs in the facility with new tubs with similar features (e.g., railing, hand shower, and room for a bath chair). The American Disability Act (ADA) Certified contractor may provide a compelling case for an alternatively designed ADA walk-in tub to reduce the potential for injury to either the patient or healthcare worker. The project manager and sponsor can see the potential benefit to increasing the quality of the bathtub. First, it can be a selling point to potential residents and their families. Second, it can increase patient and medical staff safety. The project sponsor and manager will need to make some decisions that can involve project constraint tradeoffs in response to this new information. Changing the planned type of bathtub in favor of an ADA walk-in tub may affect the cost of the project, the schedule (if more time is required to the purchase process or installation), and certainly the scope of the project as the scope includes product characteristics and deliverables. In addition, the project sponsor, manager, and team may encounter other options and issues that could affect project plans.

It is because of such situations and uncertainties that projects rarely finish according to the discrete scope, time, and cost goals originally planned. Instead of discrete target goals for scope, time, and cost, it is often more realistic to set a range of goals that allow for uncertainties. Early Expanding Wing Project plans may best serve the organization by targeting spending between $250,000 and $350,000 and having the

renovation completed within five to eight months. These goals allow for inevitable changes due to risk, resources, and quality considerations.

Experienced project managers know that, due to the tradeoff inherently part of many project decisions, project leaders should decide which constraints are most important on each particular project very early in the project's life. These priorities will guide planning activities as well as decisions made as the project is executed. If time is most important, you may have to change the initial scope and/or cost goals to meet the schedule. Project leaders might have to accept more risk and lower quality expectations in a tight time constraint situation. If scope goals are most important, project leaders may need to adjust time and/or cost goals, decrease risk, and increase quality expectations.

Other constraints may come into play. Understanding and awareness is a critical factor for many healthcare projects. Adhering to a strong communications plan may be a constraint that may cause some schedule delays or introduce some additional costs, such as public awareness campaign materials for a project affecting the community. Procurement constraints include those imposed by Food and Drug Administration (FDA), state and local health department, or American with Disabilities Act (ADA) regulations. Healthcare projects in the U.S. invariably must also take into account the Health Insurance Portability and Accountability Act (HIPAA), The Joint Commission (formally Joint Commission on Accreditation of Healthcare Organizations*, or* JCAHO) standards, Institutes for Healthcare Improvement (IHI) best practices, and American Medical Association (AMA) guidelines.

Though unknowns exist as projects are conceived, sponsors must provide some type of target goals for a project's scope, time, and cost and define other key constraints for a project. How can you avoid the problems that occur when you meet a project's scope, time, cost, and other goals, but lose sight of customer satisfaction? The answer is *good project management, which includes more than meeting project constraints.*

What Went Right?

A major failure that occurred during President Barack Obama's administration was the launch of the Affordable Care Act website, Healthcare.gov on October 1, 2013. The $400 million project was to help Americans receive and compare health insurance coverage plans through the Marketplace. This outsourced IT project made the news for the wrong reasons – bugs and malfunctions. The project was straightforward with plenty of lead time, but many deadlines were missed. Many news stories highlighted the problems with the site.

After the disastrous rollout, Andrew Slavitt, vice president of Optum/QSSI, offered his assistance to right the sinking ship. Slavitt saw this problem as a high-profile opportunity. Optum/QSSI was named as general contractor on October 25, 2013. The team identified, prioritized, and managed the necessary tasks in order to begin making improvements. In order to ensure the project stayed on track, the project team communicated out daily progress reports and kept current schedules. By the end of December, Optum/QSSI had turned the project from disaster to success.

WHAT IS PROJECT MANAGEMENT?

Project management is "the application of knowledge, skills, tools and techniques to project activities to meet the project requirements."[11] Project managers must not only strive to meet specific goals of projects, they must also facilitate the entire process to meet the needs and expectations of the people involved in or affected by project activities.

Figure 1-3 illustrates a framework to help explain project management. Key elements of this framework include the project stakeholders, project management process groups, knowledge areas, tools and techniques, project success, and the contribution of a portfolio of projects to the success of the entire enterprise. Each of these elements of project management is discussed in more detail in the following sections.

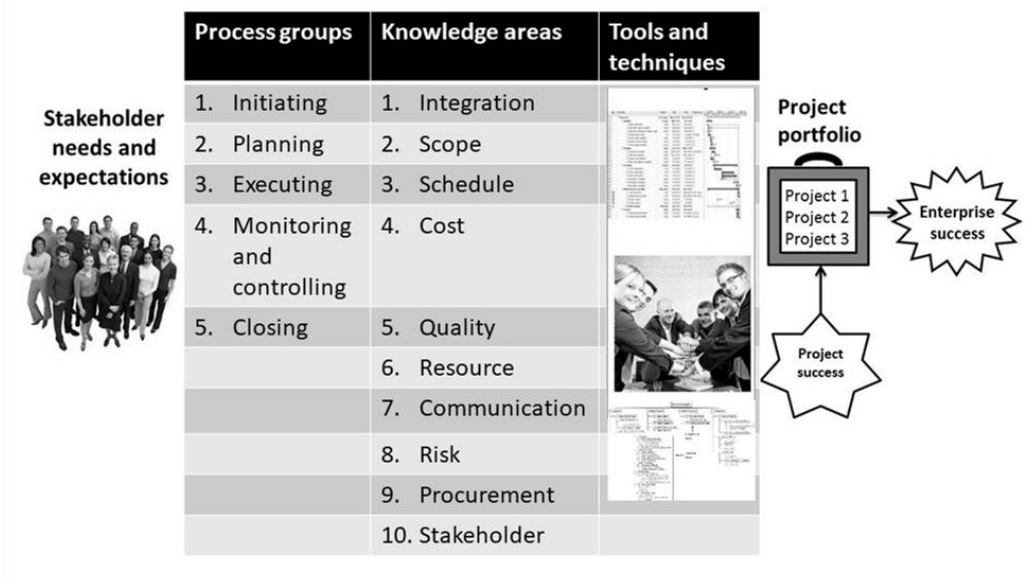

Figure 1-3. Project management framework

Project Stakeholders

Stakeholders are the people involved in or affected by project activities and include the project sponsor, project team, support staff, customers, users, suppliers, and even opponents to the project. These stakeholders often have very different needs and expectations. For example, there are several stakeholders involved in the Expanding Wing Project to renovate the long-term care facility.

- The project sponsor might be the divisional director of operations. The Operations Division would be the organizational unit funding the renovation to the long-term care facility and could be on a very tight budget. The project sponsor would have to make important decisions to keep the costs of the

project within the budget approved by the CEO and CFO. As a result, the sponsor would expect the contractor to provide accurate estimates of the costs involved in renovating the wing. The sponsor would also need a realistic idea of when the remodeled wing will be ready for occupancy so the organization could begin marketing its availability, hiring staff if required, and ordering required furniture and equipment. Current residents of the wing would need to be either temporarily or permanently relocated.

- The project manager in this example might be the facilities manager, who is responsible for the maintenance and upgrade of the long-term care facility's structure, furniture, and fixtures. He or she needs to work with all the project stakeholders to meet their needs and expectations. If necessary, an assistant may be required to take over some of the operational work normally done by the facilities manager.
- The project team for the Expanding Wing Project would include an ADA certified general contractor, construction workers, electricians, carpenters, and so on to perform the actual remodeling. The administrative side of the team would include, but may not be limited to, a marketing manager (to brand and market the new facilities), the medical director (to provide patient care guidelines and needs for the new facility), and the director of nursing (to coordinate patient transition and relocation from the current facility to temporary or permanent new locations). Both the administration and construction stakeholders would need to know exactly what work they must do and when they need to do it. Each project team member's work would need to be coordinated with other team members' activities because there are many interrelated factors involved in remodeling the wing.
- Current and proposed long-term care facility residents are very important stakeholders in this project. The renovation design and project decisions need to consider their needs, physical conditions, and financial capabilities. The project team should use timely and well-crafted communications to explain how the renovation project may temporarily (e.g. relocation and noise) and permanently (e.g. upgraded room) affect existing residents. In the spirit of patient-centered care, project team members may seek feedback from targeted residents of the new facility at various points during the progress of the project as a factor in various project decisions.
- Support staff might include the regular maintenance staff, the general contractor's administrative assistant, and other people who support other stakeholders. The general contractor's administrative assistant would support the project by coordinating meetings between the buyers, the contractor, suppliers, and other stakeholders. The facilities manager might expect maintenance staff to focus on their routine operations work but allow some flexibility so they can visit the new wing site and provide their thoughts on progress or future maintenance needs.
- Renovating a long-term care facility wing will likely require many suppliers. The Expanding Wing Project suppliers may provide the furniture for new

social spaces, materials for the bathroom (floor and wall tiles, bathtub, toilet, sink, lighting, etc.), and electronic monitoring equipment and software. Suppliers would expect exact details on what items they need to provide, where and when to deliver those items, and similar information.

- Healthcare is a regulated industry. A long-term care facility that holds a very high rating from the Centers of Medicare and Medicaid (CMS) would want to maintain this rating. As such, team members may communicate with a CMS regulatory auditor on the details of this project that involve increasing and maintaining resident care quality and the patient experience. They may also consult with patient experience and quality experts. There are also state and local health departments that oversee the construction work and issue the final certificate of occupancy before patients may move into the space.
- Additional stakeholders might include the healthcare providers that serve residents, third-party payers (insurance companies, AARP, Medicaid, and Medicare), and medical device safety officials. The providers would use any proposed communication or monitoring equipment, and their skill level and past experiences in working with patients could provide valuable information. In addition, there may be regulations to ensure the safety of the items installed as part of the renovation project that could affect equipment choices. The local housing inspector would also be a stakeholder, concerned with ensuring that everything meets specific codes and regulations.
- There may or may not be opponents to a project. In this example, some existing residents of the wing may not be able to afford occupancy in the remodeled wing and their families might band together to oppose the project to assure their family member is not displaced.

As you can see from the Expanding Wing Project example, there are many different stakeholders on projects, and they all have different interests. The following example describe a national public health project situation that demonstrates stakeholders' needs and expectations are important in the beginning and throughout the life of a project. Successful project managers develop good relationships with key project stakeholders to understand and meet their needs and expectations.

Characteristic of Healthcare Project Team Members

A special group of project stakeholders are the team members that actually drive, plan, and execute the project. Instead of just one leader, different people, who play very important, yet very distinct roles, might lead projects:

- A designer/idea generator provides ideas to improve current processes, address a requirement, or seize an opportunity. These designers are often viewed as being very optimistic and freethinking, yet often unaffected directly by the results of projects that are implemented. Aside from idea generator this initial project leader may be instrumental in creating initial project momentum and interest. In some cases, the designer/ idea generator (particularly if in a management position) may evolve to become the project sponsor.

- A project manager works with all of the various stakeholders to develop a realistic scope, schedule, and budget for the project and facilitates its completion. In many healthcare environments, project managers must be especially sensitive to the needs of other team members and share the leadership role. The project manager should communicate with the sponsor throughout the project to make sure the project meets his or her expectations.
- A physician, nurse, therapist, technician, or other medical expert is required on many healthcare projects to make sure the project follows sound medical practices and will not cause harm to patients. Healthcare providers may feel overworked and overwhelmed by the many changes facing their field. If a project requires a physician leader (and those involving patient care often do), it is up to the project sponsor and project manager to make a clear connection and case for patient and/or physician benefit and the importance of physician involvement in the project process.

Best Practice

The Center for Innovation (CFI), established in 2008, serves a liaison between medical practice and human-centered design thinking. CFI uses a design thinking model inspired by the IDEO design consultancy firm philosophies. According to Tim Brown, CEO of IDEO, "Design thinking can be described as a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity." [12]

A major challenge for healthcare projects is ensuring the team operates as a cohesive unit to achieve its stated goal. The Center's interdisciplinary teams exemplify a design thinking (or creative problem solving) task force where team members come together to connect, prototype, adapt, explore, and solve in a Design Research Studio. Teams provide "sensibility to a problem" through empathy, creativity, ambidextrous thinking, and systems thinking. These teams may involve clinical professionals, non-clinical professionals (e.g., communications and user-centered design specialists), clerical staff, support staff, administrators, or external stakeholders, like a non-patient community member. A prime example of engaging internal and external stakeholders to achieve a stated goal is the Center's collaboration with primary care physicians, the payer, and patients to provide telemedicine consults for patients in remote areas of Minnesota.

Other team members who might be assigned to a project on an on-going or temporary basis might include:

- administrators, such as a hospital director
- a head nurse and nursing staff
- a lab manager, staff managers, and marketing managers
- information technology experts, such as systems analysts or programmers;
- other physicians
- patient advocates and patient representatives
- community relations or benefits staff

- a quality officer
- a medical informatics officer
- legal counselors
- accounting, purchasing, or operations staff
- equipment technologists, etc.

There is also often a need for multiple champions representing different roles (e.g. physician champion) or different units (e.g., champions from both a hospital and a clinic in a health network that a project may affect) to help healthcare projects succeed. Project champions may use their experience, resources, organizational rank, charisma, or reputation to facilitate the success of the project. These champions may have either a formal or an informal role on the project team.

Conflicts often arise as project team members and other stakeholders disagree on what should be done, when, and how. Given the diversity of stakeholders in most healthcare projects, project managers must be especially sensitive to the perspectives and needs of various stakeholders to create an environment where people can work together to achieve common goals. Although most projects include stakeholders with diverse backgrounds and skills, healthcare is somewhat unique in that each stakeholder group typically has its own reporting hierarchy. Physicians may report to an executive medical director and yet not actually work for the hospital. In an academic medical center, the physicians may serve as faculty members, working for the university, even though they treat patients in the hospital. They most likely also belong to practice plans, which bill their professional services. Physicians alone may introduce three different chains of command! Nurses typically work for the hospital and report to a chief nursing officer (CNO) while at the same time reporting to service line administrators. Administration staff often report to the chief operating officer (COO), accounting and finance report to the chief financial officer (CFO), and technology staff may report to the chief information officer (CIO). These last three professional groups are primarily there to support the staff providing direct patient care, often creating a pseudo-customer relationship. Last of all, throw in a chief medical information officer (CMIO) and a chief nursing information officer (CNIO), who may fit into more than one of the above chain of commands, and you have the perfect recipe for confusion. Healthcare is a complex industry!

Skilled project managers working in the healthcare domain know when to hand off control, enlist a champion that a particular group may favor, and negotiate differences among various factions to direct the project towards success. They also understand the five project management process groups and ten knowledge areas, as described next.

Project Management Process Groups and Knowledge Areas

The five **project management process groups** include initiating, planning, executing, monitoring and controlling, and closing activities. Chapter 3 provides more information on the process groups and how they relate to the ten project management knowledge areas.

Project management knowledge areas describe the key competencies that project managers must develop. The center of Figure 1-3 shows the ten knowledge areas of project management. Project managers must have knowledge and skills in all ten of these areas, briefly described as follows:

- Project integration management is an overarching function that coordinates the work of all other knowledge areas. It affects and is affected by all of the other knowledge areas.
- Project scope management involves working with all appropriate stakeholders to define, gain written agreement for, and manage all the work required to complete the project successfully.
- Project schedule management includes estimating how long it will take to complete the work, developing an acceptable project schedule given cost-effective use of available resources, and ensuring timely completion of the project.
- Project cost management consists of preparing and managing the project budget.
- Project quality management ensures that the project will satisfy the stated or implied needs for which it was undertaken.
- Project resource management is concerned with making effective use of the people and physical resources involved with the project.
- Project communications management involves generating, collecting, disseminating, and storing project information.
- Project risk management includes identifying, analyzing, and responding to risks related to the project.
- Project procurement management involves acquiring or procuring goods and services for a project from outside the performing organization.
- Project stakeholder management focuses on identifying project stakeholders, understanding their needs and expectations, and engaging them appropriately throughout the project. Note that PMI added stakeholder management as a tenth knowledge area to the *PMBOK® Guide, Fifth Edition* in 2013.

Project Management Tools and Techniques

Thomas Carlyle, a famous historian and author, stated, "Man is a tool-using animal. Without tools he is nothing, with tools he is all." As the world continues to become more complex, it is even more important for people to develop and use tools, especially for managing important projects. **Project management tools and techniques** assist project managers and their teams in carrying out work in all ten knowledge areas. For example, some popular time-management tools and techniques include Gantt charts, project network diagrams, and critical path analysis. Figure 1-4 lists some commonly used tools and techniques by knowledge area. You will learn more about these and other tools and techniques throughout this text. Note that the *PMBOK® Guide* refers to some of these items as outputs.

A sample of project managers directed respondents to rate tools on a scale of 1–5 (low to high) based on the extent of their use of the tool and the potential of the tool to

help them improve project success. "Super tools" were defined as those with high use and high potential for improving project success. The tools defined as "super tools" included: project management software, scope statements, work breakdown structures, requirement analyses, lessons-learned reports, status and progress reports, well-planned kick-off meetings, Gantt charts, and change requests. The last four items have long been found to improve project performance, while the others need to become more common. You will learn how to use all of these super tools plus several others throughout this text. The super tools are bolded in Figure 1-4.[13]

Knowledge Area/Category	Tools and Techniques
Integration management	Project selection methods, project management methodologies, project charters, project management plans, **project management software, change requests**, change control boards, project review meetings, **lessons-learned reports**
Scope management	**Scope statements, work breakdown structures**, mind maps, statements of work, **requirements analyses**, scope management plans, scope verification techniques, and scope change controls
Schedule management	**Gantt charts**, project network diagrams, critical-path analyses, crashing, fast tracking, schedule performance measurements
Cost management	Net present value, return on investment, payback analyses, earned value management, project portfolio management, cost estimates, cost management plans, cost baselines
Quality management	Quality metrics, checklists, quality control charts, Pareto diagrams, fishbone diagrams, maturity models, statistical methods
Resource management	Motivation techniques, empathic listening, responsibility assignment matrices, project organizational charts, resource histograms, team building exercises
Communications management	Communications management plans, **kickoff meetings**, conflict management, communications media selection, **status and progress reports**, virtual communications, templates, project Web sites
Risk management	Risk management plans, risk registers, probability/impact matrices, risk rankings
Procurement management	Make-or-buy analyses, contracts, requests for proposals or quotes, source selections, supplier evaluation matrices
Stakeholder management	Stakeholder registers, stakeholder analyses, issue logs, interpersonal skills, reporting systems

Figure 1-4. Common project management tools and techniques by knowledge area

Project management best practices and tools may be new or just emerging in some healthcare industry contexts. In these contexts, project managers may want to introduce project management structure incrementally and focus on "super tools" that align with project needs and circumstances. As with any tool, there has to be a fit to the situation.

Some tools may be better suited or have more of an impact in some situations than others. It is crucial for project managers and their team members to determine which tools will be most useful for their particular projects.

The *PMBOK® Guide – Sixth Edition* now lists tools and techniques based on their purpose, as follows:

- *Data gathering*: benchmarking, brainstorming, check sheets, checklists, focus groups, interviews, market research, questionnaires and surveys, statistical sampling
- *Data analysis*: alternatives analysis, assessment of other risk parameters, assumption and constraint analysis, cost of quality, cost-benefit analysis, decision tree analysis, document analysis, earned value analysis, influence diagrams, iteration burndown chart make-or-buy analysis, performance reviews, process analysis, proposal evaluation, regression analysis reserve analysis, risk data quality assessment, risk probability and impact assessment, root cause analysis, sensitivity analysis, simulation stakeholder analysis SWOT analysis, technical performance analysis, trend analysis, variance analysis, and what-if scenario analysis
- *Data representation*: affinity diagrams, cause-and-effect diagrams, control charts, flow charts, hierarchical charts, histograms, logical data models, matrix diagrams, matrix-based charts, mind mapping, probability and impact matrix, scatter diagrams, stakeholder engagement assessment matrix, stakeholder mapping/representation, and text-oriented formats
- *Decision making*: multi-criteria decision analysis and voting
- *Communication*: feedback and presentations
- *Interpersonal and team skills*: active listening, communication styles assessment, conflict management, cultural awareness, decision making, emotional intelligence, facilitation, influencing, leadership, meeting management, motivation, negotiation, networking, nominal group, observation/conversation, political awareness, team building
- *Ungrouped*: advertising, agile release planning, analogous estimating, audits, bidder conferences, bottom-up estimating, change control tools, claims administration, colocation, communication methods, communication models, communication requirements analysis, communication technology, context diagram, contingent response strategies, cost aggregation, critical path method, decomposition, dependency determination and integration, design for X, expert judgment, financing, funding limit reconciliation, ground rules, historical information review, individual and team assessments, information management, inspections, knowledge management, leads and lags, meetings, organization theory, parametric estimating, pre-assignment, precedence diagramming method, problem solving, product analysis, project management information system, project reporting, prompt lists, prototypes, quality improvement methods, recognition and rewards, representations of

uncertainty, resource optimization, risk categorization, rolling wave planning, schedule compression, schedule network analysis, source selection analysis, strategies for opportunities strategies for overall project risk, strategies for threats, test and inspection planning, testing/product evaluations, three-point estimating, to-complete performance index, training, virtual teams

These long lists of tools and techniques can be overwhelming. This text will focus on those used most often and with the most potential, providing the context and detailed examples for using them. It is crucial for project managers and their team members to determine which tools will be most useful for their particular projects. Selecting the appropriate tools and techniques (as well the processes, inputs, outputs, and life cycle phases, discussed later in this book) is part of project tailoring. Project management should be tailored to meet the unique needs of projects, organizations, and most importantly, people. After all, projects are done by, and for, people.

Despite its advantages, project management is not a "cure-all" that guarantees success on all projects. Some projects, such as those involving new technologies, have a higher degree of uncertainty, so it is more difficult to meet their scope, time, and cost goals. Project management is a very broad, often complex discipline. What works on one project may not work on another, so it is essential for project managers to continue to develop their knowledge and skills. It is also important to learn from the mistakes and successes of others.

Project Success

How do you define the success or failure of a project? There are several ways to define project success. The list that follows outlines a few common criteria for measuring project success as applied to the example Expanding Wing Project for remodeling the long-term care facility wing:

- *The project met scope, time, and cost goals*. If the planned renovation work was completed within five months and cost under $300,000, we could call it a successful project based on these criteria.
- *The project satisfied the customer/sponsor*. Even if the project met initial scope, time, and cost goals, the divisional director of operations sponsoring and funding the renovation might not be satisfied. Perhaps the project manager made important decisions without the sponsor's approval. Perhaps the quality of some of the construction or materials was not acceptable. If the targeted residents to occupy the remodeled wing were not happy about important aspects of the project, it would be deemed a failure based on this criterion. Many organizations implement a customer/user satisfaction rating system for projects to measure project success.
- *The results of the project met its main business or clinical objective*. Business or clinical objectives in this example could include improving patient experience ratings or providing a good return on investment through increased occupancy or increased fees for rooms in the new wing. Scores on customer assessments of

healthcare providers and systems are becoming increasingly important for healthcare organizations to maintain market share and avoid losing payer reimbursement. If the long-term care facility gained greater market share and increased its patient satisfaction scores as a result of the renovation, even if it cost more or took longer to build, it would be a successful project based on this criterion. As another example, suppose the owners of the long-term care facility wanted to sell the facility in the next three to four years and for a good return on investment (ROI). If that happened, the owners would deem the project a success, regardless of other factors involved.

For healthcare projects, all three measurement techniques are important. When dealing with projects that involve patient safety and outcomes, however, it is typically the last technique that matters most. That is not to say that projects may overrun their budget by 200% and be called successful! You may, though, assume that any project that harms a patient will be called a failure, regardless of it meeting all other typical success measurements. For many projects with ROI objectives, financial success cannot be determined until well after the project is completed. It is also true that success cannot be measured for many healthcare projects targeted to improve health outcomes until well after the project is complete.

Project managers play a vital role in helping projects succeed. Project managers work with the project sponsors, the project team, and the other people involved in a project to meet project goals. They also work with the sponsor to define success for that particular project. Good project managers do not assume their definition of success is the same as the sponsors' definition. They take the time to understand their sponsors' expectations. For example, if you are in charge of renovating a long-term care facility wing, find out what is most important:

- meeting scope, time, and cost goals of the project to renovate the wing
- satisfying other needs, such as target customer approval
- being sure the project delivers a certain result, such as increased occupancy or improved patient satisfaction scores

The success criteria should help you to develop key performance indicators needed to track project progress. It is important to document this information in enough detail to eliminate ambiguity.

PROGRAM AND PROJECT PORTFOLIO MANAGEMENT

As mentioned earlier, about one-quarter of the world's gross domestic product is spent on projects. Projects make up a significant portion of work in most business organizations or enterprises, and successfully managing those projects is crucial to enterprise success. Two important concepts that help projects meet enterprise goals are the use of programs and project portfolio management. Both of these extensions of project management have a place in the healthcare industry.

Programs

A **program** is "a group of related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually."[14] It is often more economical to group projects together to help streamline management, staffing, purchasing, and other work. Programs are not large projects; a **megaproject** is a very large project that typically costs over US $1 billion, affects over one million people, and lasts several years.

The following are examples of programs in healthcare:

- A government agency has a program for children's services, which includes a project to provide pre-natal care for expectant mothers, a project to immunize newborns and young children, and a project for developmental testing for pre-school children, to name a few. Figure 1-5 illustrates the program structure.
- A health network is expanding its telehealth services. It will create a teledermatology service line, a telestroke service line, and a telepsychology service line. Each telemedicine service line is a separate project involving potentially different sets of providers and locations, but each service line is part of a program. There would be several benefits to managing these projects under one telehealth program. For example, the program manager could advertise the comprehensive telehealth services together and purchase equipment with functionality that could be used across the telemedicine service lines to save money.
- A healthcare consulting firm has a program to analyze healthcare customer-buying patterns for plastic surgery. Projects under this program might include one to send out and analyze electronic surveys, one to conduct several focus groups in different geographic locations with different types of buyers, and a project to develop an information system to help collect and analyze current healthcare customers' buying patterns.

A **program manager** provides leadership and direction for the project managers heading the projects within the program. Program managers also coordinate the efforts of project teams, functional groups, suppliers, and operations staff supporting the projects to ensure that project products and processes are implemented to maximize benefits. Program managers are responsible for more than the delivery of project results; they are change agents responsible for the success of products and processes produced by those projects.

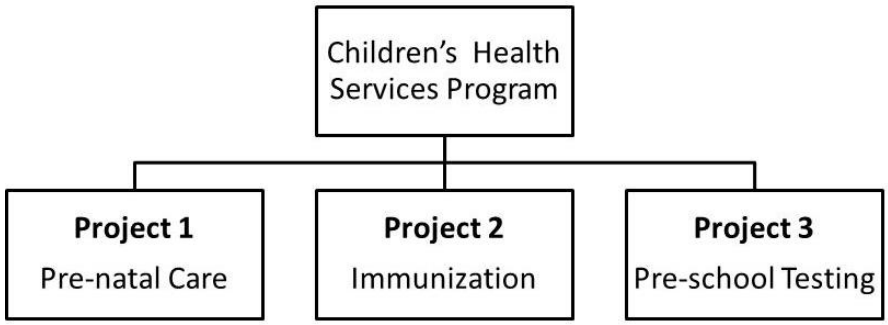

Figure 1-5. Example programs

Program managers often have review meetings with all their project managers to share important information and coordinate important aspects of each project. Many program managers worked as project managers earlier in their careers, and they enjoy sharing their wisdom and expertise with their project managers. Effective program managers recognize that managing a program is much more complex than managing a single project. They recognize that technical and project management skills are not enough. In addition to skills required for project managers, program managers must also possess strong business knowledge, leadership capability, and communication skills.

Project Portfolio Management

In many organizations, project managers also support an emerging business strategy of **project portfolio management** (also called just **portfolio management** in this text), in which organizations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success. A **portfolio** is defined as "projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives."[15]

PMI published the *Standard for Portfolio Management, Third Edition*, in 2013. PMI members can download this and other standards, such as the PMBOK® Guide, for free from www.pmi.org. Topics included in this standard include:

- Understanding the role of portfolio management in relation to an organization's structure and strategy
- Streamlining operations through portfolio management
- Improving the implementation and maintenance of corporate governance initiatives
- Designing and implementing metrics to demonstrate and improve return on investment through portfolio management.
- Reporting information to make the most of an organization's projects and programs

Portfolio managers need to understand how projects fit into the bigger picture of the organization, especially in terms of organizational strategy, finances, and business risks. Portfolio managers create portfolios based on meeting specific organizational goals, such as maximizing the value of the portfolio or making effective use of limited resources. In the case of a healthcare organization, the organization's mission and regulatory mandates would also influence the composition of the portfolio. Portfolio managers may or may not have previous experience as project or program managers. It is most important that they have strong financial and analytical skills and understand how projects and programs can contribute to meeting strategic goals.

The main distinction between project or program management and portfolio management is that project and program managers are focused on meeting tactical versus strategic goals. Individual projects and programs often address tactical goals, whereas portfolio management addresses strategic goals. Tactical goals are generally more specific and short-term than strategic goals, which emphasize long-term goals or mission of an organization.

Project and program management address questions like:

- Are we carrying out projects well?
- Are projects on time and budget?
- Do project stakeholders know what they should be doing?

Portfolio management addresses questions like:

- Are we working on the right projects?
- Are we investing in the right areas?
- Do we have the right resources to be competitive?
- Are we doing projects that help to fulfill our organizational mission?

There can be portfolios for all types of projects. For example:

- A government agency for children's services could group projects into a portfolio based on key strategies such as improving health, providing education, and so on to help make decisions on the best way to use available funds and resources.
- In a healthcare consulting firm, strategic goals might include increasing profit margins on large projects, decreasing travel costs, and improving skill levels of key workers. Projects could be grouped into these three categories for portfolio management purposes.
- In a hospital, strategic goals might include expanding to rural communities, improving patient experience, decreasing costs, and being recognized as a center of excellence for primary areas of specialty care. These might be the main categories for their portfolio of projects.

Figure 1-6 provides a comparative overview of project, program, and portfolio management. **Organizational project management** is a "framework in which portfolio, program, and project management are integrated with organizational enablers in order to achieve strategic objectives." [16]

Organizational Project Management

	Projects	Programs	Portfolios
Definition	A project is a temporary endeavor undertaken to create a unique product, service, or result.	A program is a group of related projects, subsidiary programs and program activities that are managed in a coordinated way to obtain benefits not available from managing them individually.	A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.
Management	Project managers manage the project team to meet the project objectives.	Programs are managed by program managers who ensure that program benefits are delivered as expected, by coordinating the activities of a program's components.	Portfolio managers may manage or coordinate portfolio management staff, or program and project staff that may have reporting responsibilities into the aggregate portfolio.
Monitoring	Project managers monitor and control the work of producing the products, services, or results that the project was undertaken to produce	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor strategic changes and aggregate resource allocation, performance results, and risk of the portfolio.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	A program's success is measured by the program's ability to deliver its intended benefits to an organization, and by the program' efficiency and effectiveness in delivering those benefits.	Success is measured in terms of the aggregate investment performance and benefit realization of the portfolio.

Figure 1-6. Organizational project management framework (parts of figure)
Source: Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Sixth Edition* (2017).

Organizations group projects into portfolios to help them make better investment decisions, such as increasing, decreasing, discontinuing, or changing specific projects or programs based on their financial performance, risks, resource utilization, quality impact, and similar factors that affect business value. For example, if an electronic health record

vendor has much higher profit margins with private hospitals than university hospitals, for example, it might choose to pursue more private hospitals. The firm might also create a new project to investigate ways to increase profits for university hospital projects. On the other hand, if the organization has too many projects focused on financial performance and not enough focused on improving its work force, the portfolio manager might suggest initiating more projects to support the strategic goal to improve its workforce. As with a personal financial portfolio, a project portfolio should be diversified to account for risk and balance the organization.

Project and portfolio management work hand-in-hand. By grouping projects into portfolios, organizations can better tie their projects to meeting strategic goals both before the project launches as well as during project execution. Portfolio management can also help organizations do a better job of managing its human resources by hiring, training, and retaining workers to support the projects in the organization's portfolio. For example, if the healthcare consulting firm needs more people with experience with health IT, they can make necessary adjustments by hiring or training current workers in the necessary skills.

THE PROJECT MANAGEMENT PROFESSION

As you can imagine, good project managers should have a variety of skills. Good program and portfolio managers often need additional skills and experience in managing projects and understanding organizational strategies. This section describes some of the skills that help you manage projects, and you will learn many more throughout this text. If you are serious about considering a career in project management, you should consider becoming a certified Project Management Professional. You should also be familiar with some of the project management software products available on the market today.

Suggested Skills for Project, Program, and Portfolio Managers

Project managers and their teams must develop knowledge and skills in the following areas:

- All ten project management knowledge areas
- The application area (domain, industry, market, etc.)
- The project environment (politics, culture, change management, etc.)
- General business (financial management, strategic planning, etc.)
- Human relations (leadership, motivation, negotiations, etc.)

An earlier section of this chapter introduced the ten project management knowledge areas, as well as some tools and techniques that project managers use. The application area refers to the application to which project management is applied. For example, a project manager responsible for building houses or apartment buildings should understand the construction industry, including standards and regulations important to that industry and those types of construction projects. A project manager leading a large software development project must know a lot about that application area. A project manager in education, entertainment, the government, healthcare, and other fields must understand those application areas. The application area is defined by the product, service,

or result. Many organizations have defined their approach to creating specific products. The project is about applying that approach, i.e., the product defines the project.

The project environment differs from organization to organization and project to project, but there are some skills that will help in most project environments. These skills include understanding change, and understanding how organizations work within their social, political, and physical environments. Project managers must be comfortable leading and handling change, since most projects introduce changes in organizations and involve changes within the projects themselves. Project managers need to understand the organizations they work in and how products are developed and services are provided. Furthermore, healthcare is a field with its own terminology and acronyms. Health IT projects further complicates the potential for language barriers by adding host of computer terminology and acronyms to the communication mix. If you plan to work on a lot of projects in the healthcare field, you should make sure you understand the language and culture of healthcare and potentially basic IT terminology as well.

Project managers should also possess general management knowledge and skills. They should understand important topics related to financial management, accounting, procurement, sales, marketing, contracts, manufacturing, distribution, logistics, the supply chain, strategic planning, tactical planning, operations management, organizational structures and behavior, personnel administration, compensation, benefits, career paths, and health and safety practices. On some projects, it will be critical for project managers to have substantial experience in one or several of these general management areas. On other projects, project managers can delegate detailed responsibility for some of these areas to a team member, support staff, or even a supplier. Even so, the project managers must be intelligent and experienced enough to know which of these areas are most important and who is qualified to do the work. They must also make and/or take responsibility for all key project decisions.

Achieving high performance on projects requires human relations skills, also known as soft skills. Some of these soft skills include effective communication, influencing the organization to get things done, leadership, motivation, negotiation, conflict management, and problem solving. Healthcare is uniquely filled with very distinct silos of subspecialized clinicians, administrators, others that must come together for a common purpose, the patient. However, they often do not initially come together easily and it is the job of the project manager to bring everyone together. This is the only way projects succeed and are well implemented in health care is with good communication. Project managers must lead their project teams by providing vision, delegating work, creating an energetic and positive environment, and setting an example of appropriate and effective behavior. Project managers must focus on teamwork skills in order to use their people effectively. They need to be able to motivate different types of people and develop *esprit de corps* within the project team and with other project stakeholders.

PMI Talent Triangle and the Importance of Leadership Skills

PMI developed a talent triangle to emphasize the types of skills project managers need to continuously develop. The talent triangle includes:

1. *Technical project management skills:* Understanding the knowledge areas, process groups, and project management tools and techniques fall into this category.
2. *Strategic and business management skills:* Topics include strategic planning (described in more detail in Chapter 2), financial management, accounting, marketing, and other topics listed in the previous section.
3. *Leadership skills*: Leadership and management are terms often used interchangeably, although there are differences. Generally, a **leader** focuses on long-term goals and big-picture objectives, while inspiring people to reach those goals. A **manager** often deals with the day-to-day details of meeting specific goals. Some people say that, "Managers do things right, and leaders do the right things." "Leaders determine the vision, and managers achieve the vision." "You lead people and manage things."

Leadership is a soft skill, and there is no one best way to be a leader. Peter Northouse, author of a popular text called *Leadership: Theory and Practice*, says, "In the past 60 years, as many as 65 different classification systems have been developed to define the dimensions of leadership."[17] Some classification systems focus on group processes, while others focus on personality traits or behaviors. For example, the *PMBOK® Guide – Sixth Edition* briefly describes the following leadership styles:

1. **Laissez-faire**: Meaning "let go," this hands-off approach lets teams determine their own goals and how to achieve them.
2. **Transactional**: This management by exception approach focuses on achieving goals or compliance by offering team members appropriate rewards and punishments.
3. **Servant leader**: People using this approach focus on relationships and community first and leadership is secondary.
4. **Transformational**: By working with others to identify needed changes, these leaders empower others and guide changes through inspiration.
5. **Charismatic:** These people can inspire others based on their enthusiasm and confidence.
6. **Interactional**: This leadership style is a combination of transactional, transformational, and charismatic.

There are many different leadership styles in addition to the six listed above, and the one thing most experts agree on is that the best leaders are able to adapt their style to the needs of the situation.

Daniel Goleman, author of *Emotional Intelligence*, also wrote a book called *Primal Leadership*, which describes six different styles of leadership and situations where they are most appropriate:

1. *Visionary*: Needed when an organization needs a new direction, and the goal is to move people towards a new set of shared dreams. The leader articulates where the

group is going, but lets them decide how to get there by being free to innovate, experiment, and take calculated risks.
2. *Coaching*: One-on-one style that focuses on developing individuals, showing them how to improve their performance. This approach works best with workers who show initiative and request assistance.
3. *Affiliative*: Emphasizes the importance of team work and creating harmony by connecting people to each other. This approach is effective when trying to increase morale, improve communication, or repair broken trust.
4. *Democratic*: Focuses on people's knowledge and skills and creates a commitment to reaching shared goals. This leadership style works best when the leader needs the collective wisdom of the group to decide on the best direction to take for the organization.
5. *Pacesetting*: Used to set high standards for performance. The leader wants work to be done better and faster and expects everyone to put forth their best effort.
6. *Commanding*: Most often used, also called autocratic or military style leadership. This style is most effective in a crisis or when a turnaround is needed.

"The goal for leaders should be to develop a solid understanding of the different styles of leadership and their implications, and reach the point where choosing the right one for the situation becomes second nature to them."[18]

Project managers often take on the role of both leader and manager. Good project managers know that people make or break projects, so they must set a good example to lead their team to success. They are aware of the greater needs of their stakeholders and organizations, so they are visionary in guiding their current projects and in suggesting future ones.

As mentioned earlier, program managers need the same skills as project managers. They often rely on their past experience as project managers, strong business knowledge, leadership capability, and communication skills to handle the responsibility of overseeing the multiple projects that make up their programs. It is most important that portfolio managers have strong financial and analytical skills and understand how projects and programs can contribute to meeting strategic goals.

Companies that excel in project, program, and portfolio management grow project leaders, emphasizing development of business and leadership skills. Instead of thinking of leaders and managers as specific people, it is better to think of people as having leadership skills, such as being visionary and inspiring, and management skills, such as being organized and effective. Therefore, the best project, program, and portfolio managers have leadership and management characteristics; they are visionary yet focused on the bottom line. Above all else, they focus on achieving positive results!

See the Resources link on the companion website (www.healthcarepm.com) for additional readings related to leadership as well as other important topics, including project management certification, as discussed in the following section.

Project Management Certification

Professional certification is an important factor in recognizing and ensuring quality in a profession. The **Project Management Institute (PMI)** is a global professional society for

project and program managers. PMI provides certification as a **Project Management Professional (PMP®)**—someone who has documented sufficient project experience, agreed to follow the PMI code of professional conduct, and demonstrated knowledge of the field of project management by passing a comprehensive examination.

The number of people earning PMP® certification continues to increase. In 1993, there were about 1,000 certified project management professionals. By the end of December, 2016 there were 745,891 active certified project management professionals. There were also 32,868 CAPM®s (Certified Associates in Project Management).[19]

Figure 1-7 shows the rapid growth in the number of people earning project management professional certification from 1993 through 2016. Although most PMP®s are in the U.S. and Canada, the PMP® credential is growing in popularity in several countries, such as Japan, China, and India. There are also requirements to maintain active certification status by continuing to develop expertise related to the PMI talent triangle of technical project management, strategic and business management, and leadership.

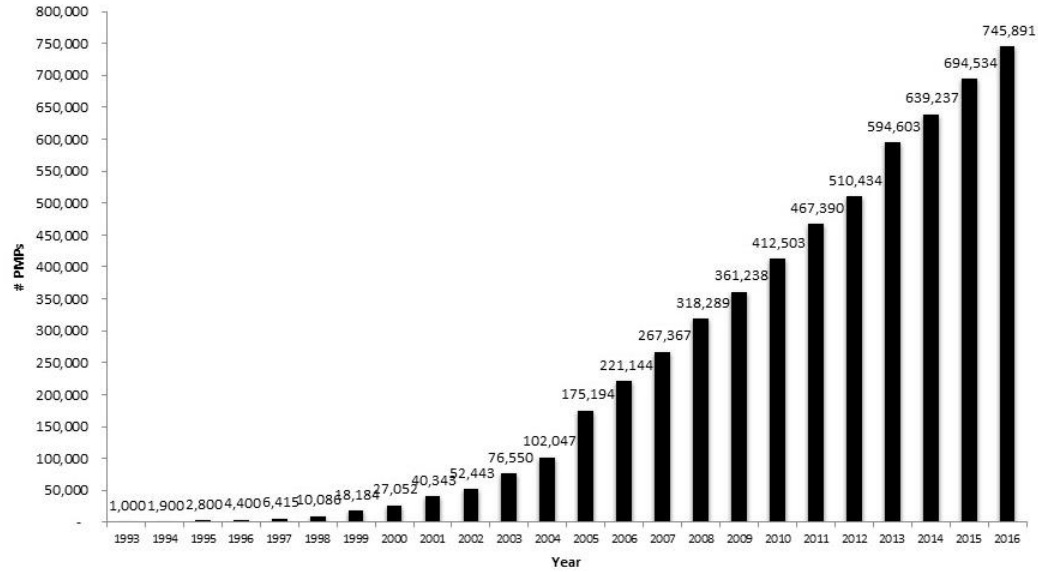

Figure 1-7. Growth in PMP® certification, 1993–2016

Some companies are requiring that all project managers be PMP® certified. Project management certification is also enabling professionals throughout the world to share a common base of knowledge and terminology. For example, any person with PMP® certification can list, describe, and use the ten project management knowledge areas. Sharing a common base of knowledge and set of terminology is important because it helps advance the theory and practice of project management.

Many colleges, universities, and companies around the world now offer courses related to various aspects of project management. You can even earn bachelors, masters, and doctoral degrees in project management. PMI reported in 2008 that of the 280

institutions it has identified that offer degrees in project management, 103 are in mainland China. "When Western companies come into China they are more likely to hire individuals who have PMP® certification as an additional verification of their skills. In our salary survey, the salary differences in IT, for example, was dramatic. A person with certification could make five to six times as much salary, so there is a terrific incentive to get certified and work for these Western companies." [20] Today, there are even more degree programs in project management. A recent gradschools.com search for "project management" found 370 campus and online accredited graduate, certificate, and doctoral programs from all types of institutions. PMI also manages a Global Accreditation Center (GAC), listing 110 GAC accredited programs in 2017.

PMI Student Membership and Certification Information

As a student, you can join PMI for a reduced fee ($32 vs. $139 in 2017). Consult PMI's website (*www.pmi.org*) for more information. You can network with other students studying project management by joining a local chapter. Many welcome students to attend free events, including job networking. You can volunteer to help develop your skills and serve your community. Students should consider earning the Certified Associate in Project Management (CAPM®) credential from PMI. If you complete a bachelor's degree, you do not need any work experience to earn the CAPM®. However, if you have enough work experience, the PMP® is more marketable. See the companion website (www.healthcarepm.com) for more information on certification and several other topics.

Ethics in Project Management

Ethics, loosely defined, is a set of principles that guide our decision making based on personal values of what is "right" and "wrong." Making ethical decisions is an important part of our personal and professional lives because it generates trust and respect with other people. Project managers often face ethical dilemmas, as do medical professionals. For example, several projects involve different payment methods. If a project manager can make more money by doing a job poorly, should he or she do the job poorly? No! If a project manager is personally opposed to certain types of life support, should he or she refuse to manage a project that promotes extended life support measures? Yes! Ethics guide us in making these types of decisions.

PMI approved a new Code of Ethics and Professional Conduct effective January 1, 2007. This code applies not only to PMP®s, but to all PMI members and individuals who hold a PMI certification, apply for a PMI certification, or serve PMI in a volunteer capacity. It is vital for project management practitioners to conduct their work in an ethical manner. Even if you are not affiliated with PMI, these guidelines can help you conduct your work in an ethical manner, which helps the profession earn the confidence of the public, employers, employees, and all project stakeholders. The PMI Code of Ethics and Professional Conduct includes short chapters addressing vision and applicability, responsibility, respect, fairness, and honesty. A few excerpts from this document include the following:

"As practitioners in the global project management community:

2.2.1 We make decisions and take actions based on the best interests of society, public safety, and the environment.

2.2.2 We accept only those assignments that are consistent with our background, experience, skills, and qualifications.

2.2.3. We fulfill the commitments that we undertake—we do what we say we will do.

3.2.1 We inform ourselves about the norms and customs of others and avoid engaging in behaviors they might consider disrespectful.

3.2.2 We listen to others' points of view, seeking to understand them.

3.2.3 We approach directly those persons with whom we have a conflict or disagreement.

4.2.1 We demonstrate transparency in our decision-making process.

4.2.2 We constantly reexamine our impartiality and objectivity, taking corrective action as appropriate.

4.3.1 We proactively and fully disclose any real or potential conflicts of interest to appropriate stakeholders.

5.2.1 We earnestly seek to understand the truth.

5.2.2 We are truthful in our communications and in our conduct."[21]

In addition, PMI added a new series of questions to the PMP® certification exam in March 2002 and continues to include this topic to emphasize the importance of ethics and professional responsibility.

The topic of ethics may be more comprehensive for those working in the healthcare sector. Medical doctors take oaths that assign moral, psychological, social, and cultural responsibilities to protect patients from harm and injustice. Healthcare projects that involved patient care must acknowledge this ethical bond. Projects should be vetted based on whether or not they are ethically appropriate for patient care, in addition to profitability. If projects are unethical but produce a high profit margin, the organization is likely not being true to its mission to care for patients. Issues of patient privacy and quality of care are not always readily identifiable and clear. It is well worth the effort of those who wish to engage in healthcare projects to review the words of the Hippocratic Oath as well as the World Medical Association's Physician's Oath to use as an ethical pillar for guiding ethically challenging healthcare project decisions.

Project Management Careers

How does one become a project manager? In the past, many people became project managers by accident. They had never heard of the job title, and their organizations did not have a real career path for project managers. They may have led a small project part-time and then been thrown into the role of project manager on a larger project. Today, individuals and organizations often take a more proactive approach. Some people study project management in college and enter the field upon graduation, often as a project

coordinator. Others gain expertise in a certain industry and/or application area in a more technical capacity and then move into project management when they believe (or their bosses believe) they can lead a team. Some people earn the CAPM® or PMP® certification to move into project management roles within their own companies or at different ones.

The need for project managers is evident in recent studies and job postings.

- Between 2010 and 2020, 15.7 million new project management roles will be created globally across seven project-intensive industries. Along with job growth, there will be a significant increase in the economic footprint of the profession; the project management profession is slated to grow by USD$6.61 trillion.[22]
- Indeed.com, a popular job search site, listed over 354,000 jobs in the U.S. when searching for project manager in March 2017. Cities with the most openings included New York City, Chicago, Seattle, San Francisco, and Washington, D.C.
- Sixty percent of hiring managers say interest in project management careers among younger job applicants has grown over the past decade. Suggestions for young people interested in breaking into and succeeding in project management include earning a certification (such as the PMP® or CAPM®), volunteering for leadership roles, speaking up for a position, and learning to delegate and empower team members.[23]

What is a typical career path for project managers? Being a project manager is a demanding yet rewarding profession, for the right person. Many people start off leading a small project related to their current job, part-time, to make sure they are cut out for and enjoy the work. Some organizations require their people to have a few years of experience before they let them lead any projects. Others hire entry-level people with the title of project coordinator or project manager.

Many organizations realize that they need to provide a structured career path to develop and maintain their talent pipeline for project managers. After leading a small project, many people go on to lead multiple small projects, larger projects, or become program managers. Some organizations have different levels of project managers, often based on knowledge and experience.

What if you do not want to stay in a project management career path? You can often go back to your former, more technical position, and move along that career path. Or, many ex-project managers move into higher level management positions, such as director, vice president, or even CEO. Some become consultants, educators, or entrepreneurs. Their experience leading projects makes them marketable in several different careers.

Project Management Software

The project management and software development communities have definitely responded to the need to provide more software to assist in managing projects. There are hundreds of tools available, ranging from free online or smart phone apps to enterprise tools costing thousands of dollars to implement and high monthly fees per user. Deciding which project management software to use has become a project in itself. Microsoft Project continues to lead the Project Portfolio Management (PPM) market with 35% of the $874 million market, followed by Oracle (19%), ServiceNow, Inc. (7%), and SAP and Autodesk (5% each).[24]

See Appendix A for details on the various configurations available for Microsoft Project and detailed instructions for using Project Professional 2016, the product available for a free trial. This section provides a summary of the basic types of project management software available and references for finding more information.

Free Trials and Information on Using Project 2016, MindView, Basecamp, and Other Software

A free evaluation copy of Microsoft Project is available from Microsoft's website. Note that the trial is for Project Professional 2016, which requires Windows. You can also access a 30-day trial version of MindView software for PCs, Macs, or an online version at *www.matchware.com*. Basecamp is a totally online project management tool. Educators can request a free Basecamp account without a time restriction from *www.basecamp.com*. See Appendix A for a guide to using Project 2016 and the companion website (www.healthcarepm.com) for information on MindView and Basecamp. There are many other tools available, and most offer free trials.

Many people still use basic productivity software such as Microsoft Word and Excel to perform many project management functions, including determining project scope, schedule, and cost, assigning resources, and preparing project documentation. People often use productivity software instead of specialized project management software because they already have it and know how to use it. However, there are hundreds of PPM tools available, ranging from free online or smart phone apps to enterprise tools costing thousands of dollars to implement and high monthly fees per user. Deciding which project management software to use has become a project in itself. Software does not take the place of strong project management skills and processes. The software is a tool that can make certain project management tasks and communications easier or more efficient in the hands of a skilled project manager and project team members. Inexperienced project managers who try to let the software "manage their projects" may be very disappointed in the project results. These project management software tools can be divided into three general categories based on functionality and price:

- *Low-end tools*: These tools provide basic project management features and generally cost less than $200 per user or a low monthly fee for online software.

They are often recommended for small projects and single users. Most of these tools allow users to create Gantt charts, which cannot be done easily using current productivity software. Some of these tools are available online while others are stand-alone desktop applications. There are also several smart phone applications, and many online tools include smart phone integration. Examples of popular low-end tools include BaseCamp (described further in Appendix B), Smartsheet, and Trello.

- *Midrange tools*: A step up from low-end tools, midrange tools are designed to handle larger projects, multiple users, and multiple projects. All of these tools can produce Gantt charts and network diagrams, and can assist in critical path analysis, resource allocation, project tracking, status reporting, and other tasks. Prices range from about $200 to $600 per user or require a monthly fee per user. Microsoft Project (Professional, to be specific) is still the most widely used project management software today in this category and in general. Figure 1-8 provides a screen shot from showing a Gantt chart for a project that you can create by following the steps in Appendix A. There is also an enterprise or PPM version of Microsoft Project, as described briefly below and in more detail from Microsoft's website.

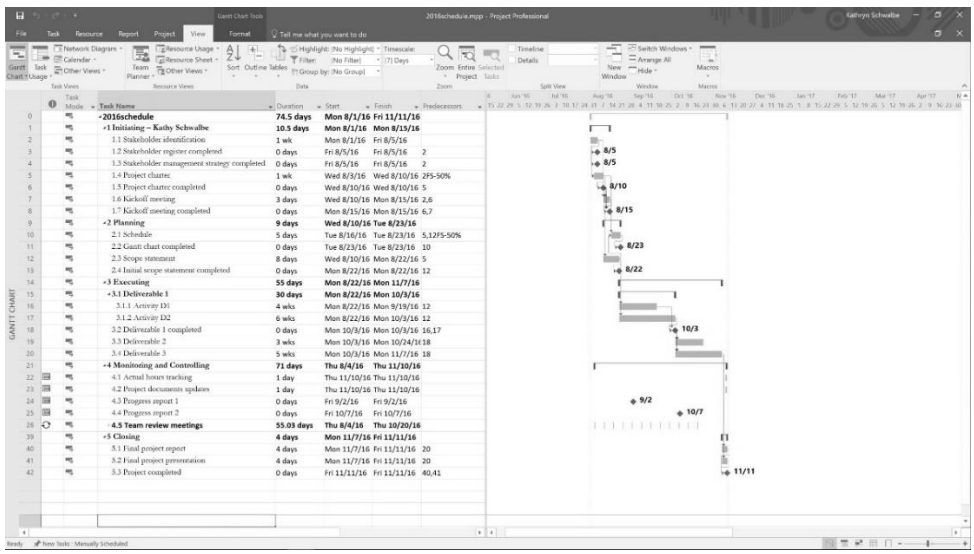

Figure 1-8. Screenshot from Microsoft Project Professional showing a Gantt chart

- *High-end tools*: Another category of project management software is high-end tools, sometimes referred to as PPM or enterprise project management software, as described earlier. These tools provide robust capabilities to handle very large projects, dispersed workgroups, and enterprise and portfolio management functions that summarize and combine individual project information to provide an enterprise view of all projects. These products are generally licensed on a per-user basis, integrate with enterprise database

management software, and are accessible via the Internet and smart phones. In mid-2002, Microsoft introduced the first version of their Enterprise Project Management software, and in 2003, they introduced the Microsoft Enterprise Project Management solution, which was updated several times since then. In 2008, Oracle acquired Primavera Software, Inc., another popular tool for project-intensive industries.

Several free or open-source tools are also available. For example, ProjectLibre, LibrePlan, and OpenProject are all free open-source project management tools. Remember, however, that these tools are developed, managed, and maintained by volunteers and may not be well supported.

By the end of the twentieth century, people in virtually every industry around the globe began to investigate and apply different aspects of project, program, and portfolio management. The sophistication and effectiveness with which organizations use these concepts and tools today is influencing the way companies do business, use resources, and respond to market needs with speed and accuracy. As mentioned earlier, there are many reasons to study project, program, and portfolio management. The number of projects continues to grow, the complexity of these projects continues to increase, and the profession of project management continues to expand and mature. Many colleges, universities, and companies now offer courses related to various aspects of project, program, and portfolio management, including healthcare project management courses. The growing number of projects and the evidence that good project management really can make a difference continue to contribute to the growth of this field.

CASE WRAP-UP

Another board member asked Fran, the CEO of America's Best Healthcare, to describe specific actions they could take to help their organization become more successful at managing projects. Fran began to explain his vision. "Overall, we have to dramatically improve our ability to quickly select and implement projects that help us succeed and cancel or redirect others. We have to respond quickly to market changes and take advantage of new technologies. Health systems that are not able to do this simply will not last."

Fran went on to explain how he would like to formalize a corporate Project Management Office (PMO), with a strong person at the VP level. The new Chief Project Officer (CPO) would oversee the many smaller PMOs currently dispersed throughout the organization. Fran said this new group could be formed at no additional cost by consolidating and reorganizing the current PMOs, and he got board approval to move forward with creating this new group.

"We also need to set goals and then develop timelines with deliverables and people committed to getting things done. Three key initiatives of the corporate PMO should include education, incentives, and tools. First, we need to educate employees in project management and develop a mentoring program for part-time or full-time project managers. For example, a nurse is leading a major phase of a project at one of our academic hospitals to reduce the occurrence of ventilator associated pneumonia. She is being mentored by a senior PMO member, and the project is going great. Second, we also need to develop project-based reward systems to get everyone fully engaged in changing our approach to projects. Third, we need to find and implement a user-friendly, web-based PPM tool across the enterprise."

After a review of on-going and completed major projects over the last two years, board members were convinced that effectively selecting and managing projects was crucial to their future. The board and the organization's shareholders were ready to move forward with Fran's ideas and extending project management best practices throughout the organization.[25]

CHAPTER SUMMARY

There are many reasons to study project, program, and portfolio management, especially in the healthcare field. The number of projects continues to grow, the complexity of these projects continues to increase, and the profession of project management continues to expand and mature. Using a more disciplined approach to managing all types of projects can help organizations succeed. The healthcare industry has to make changes to meet government and markets demands as well as seize opportunities to increase the quality of patient care and decrease costs; applying good project management is an important step in meeting the many challenges ahead.

The context of healthcare project management has unique characteristics. It is important to understand the healthcare environment, the nature of healthcare projects, and recent trends in healthcare that can affect project management for project management practices to achieve the greatest impact in advancing healthcare projects towards success.

A project is a temporary endeavor undertaken to create a unique product, service, or result. Projects are developed incrementally; they require resources, have a sponsor, and involve uncertainty. The triple constraint of project management refers to managing the scope, schedule, and cost dimensions of a project.

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Stakeholders are the people involved in or affected by project activities. A framework for project management includes the project stakeholders, project management knowledge areas, and project management tools and techniques. The ten knowledge areas are project integration management, scope, schedule, cost, quality, human resource, communications, risk, procurement, and stakeholder management.

A program is a group of related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually. Project portfolio management involves organizing and managing projects and programs as a portfolio of investments that contribute to the entire enterprise's success. Portfolio management emphasizes meeting strategic goals while project management focuses on tactical goals.

The profession of project management continues to grow and mature. Project, program, and portfolio managers play key roles in helping projects and organizations succeed. They must perform various duties, possess many skills, and continue to develop skills in project management, general management, and their application area, such as IT, healthcare, or construction. Soft skills, especially leadership, are particularly important for project managers. The Project Management Institute (PMI) is an international professional society that provides certification as a Project Management Professional (PMP®) and upholds a code of ethics. The number of people earning PMP® certification continues to grow. Demand for project managers is high, and several organizations provide defined career paths. Hundreds of project management software products are available to assist people in managing projects. Microsoft Project is the most popular.

QUICK QUIZ

Note that you can find additional, interactive quizzes at www.healthcarepm.com

1. Which of the following statements is false?
   A. Demand for project managers continues to increase.
   B. Employers prefer college graduates with the ability to work as part of a team.
   C. Organizations waste $97 million for every $1 billion spent on projects, according to a 2017 PMI report.
   D. According to PMI's salary survey, professionals with a PMP® credential earned 22% more than those without it.

2. Approximately what percentage of global projects fail, according to PricewaterhouseCoopers?
   A. 50%
   B. 30%
   C. 15%
   D. 75%

3. A _____ is a temporary endeavor undertaken to create a unique product, service, or result.
   A. program
   B. process
   C. project
   D. portfolio

4. Which of the following is not an attribute of a project?
   A. projects are unique
   B. projects are developed using progressive elaboration
   C. projects have a primary customer or sponsor
   D. projects involve no uncertainty

5. Which of the following is not part of the triple constraint of project management?
   A. meeting scope goals
   B. meeting schedule goals
   C. meeting communications goals
   D. meeting cost goals

6. _____ is the application of knowledge, skills, tools and techniques to project activities to meet project requirements.
   A. Project management
   B. Program management
   C. Project portfolio management
   D. Requirements management

7. Project portfolio management addresses _____ goals of an organization, while project management addresses _____ goals.
   A. strategic, tactical
   B. tactical, strategic
   C. internal, external
   D. external, internal

8. Several individual housing projects done in the same area by the same firm might best be managed as part of a _____.
   A. portfolio
   B. program
   C. investment
   D. collaborative

9. Which of the following skills is not part of PMI's project management talent triangle?
   A. technical project management
   B. strategic/business
   C. application area
   D. leadership

10. What is the popular certification program called that the Project Management Institute provides?
   A. Microsoft Certified Project Manager (MCPM)
   B. Project Management Professional (PMP®)
   C. Project Management Expert (PME)
   D. Project Management Mentor (PMM)

Quick Quiz Answers

1. D, 2. A 3. C, 4. D, 5. C, 6. A, 7. A, 8. B, 9. C, 10. B

DISCUSSION QUESTIONS

1. Why is there a new or renewed interest in the field of project management, especially in the healthcare industry?
2. What is a project, and what are its main attributes? How is a healthcare project different from routine operational activities in a healthcare organization?
3. What is the triple constraint? What is the quadruple constraint? What are other project constraints? Which of these constraints seems to have special meaning for the healthcare context?
4. What is project management? Briefly describe the project management framework, providing examples of stakeholders, knowledge areas, tools and techniques, and project success factors that are often found in the healthcare setting.
5. Describe the context of project management in the healthcare industry. How do things like history, costs, or recent trends affect healthcare project management?
6. Discuss the relationship between project, program, and portfolio management and their contribution to enterprise success.
7. What are the roles of the project, program, and portfolio managers? What are suggested skills for project managers? What additional skills do program and portfolio managers need to be successful in the healthcare industry?
8. What role does the Project Management Institute (PMI) play in advancing the profession? What role can PMI's Healthcare Community of Practice play in advancing project management in the healthcare industry?
9. What are some of the features of project and portfolio management (PPM) software? What are some of the popular and recommended tools on the market?
10. What are some common criteria for measuring a project's success? Give some examples of the types of "super tools" that can improve project performance.

EXERCISES

Note: These exercises can be done individually or in teams, in-class, as homework, or in a virtual environment. Learners can either write their results in a paper or prepare a short presentation or video to show their results.

1. Find at least three Web sites that provide interesting information about project management in general and in the healthcare industry, including the Project Management Institute's Web site (*www.pmi.org*). Summarize key information about these three Web sites, including at least two articles you find on the sites. See the companion Web site for some suggested sites and articles.
2. Find an example of a real project with a real project manager in the healthcare industry. Describe the project in terms of its scope, time, and cost goals and each of the project's attributes. Try to include information describing what went right and wrong on the project and the role of the project manager and sponsor. Also describe whether you consider the project to be a success or not and why. Include at least one reference and proper citations.
3. Review information from.toptenreviews.com about online project management software. Read at least four reviews and visit the supplier Web sites for their

products. Also investigate examples of how healthcare organizations are using project management software, and summarize your findings.

4. Watch the videos mentioned in the Video Highlights. The direct links are available on the companion Web site. Summarize key points from the videos. How does May Clinic use project management? What are some famous projects in the history of project management? Summarize your responses and impressions of the videos.

TEAM PROJECTS

Note: These team projects can be done in-class, as homework, or in a virtual environment. Learners can either write their results in a paper or prepare a short presentation or video to show their results.

1. Interview people who work as project managers or team members on at least two different project teams in a healthcare environment. Use the following interview guidelines, and then ask the questions in person, via the phone, or via the Internet. Discuss the results with your team, and then prepare a paper, presentation, or video to summarize and compare your findings.

Project Manager Interview Guidelines

Please note that these are guidelines and sample questions only. Use only the questions that seem appropriate, and feel free to add your own.

Note: If the interviewee wants to remain anonymous, that's fine. If not, please include his/her name and place of employment as a project manager in your paper. Let him/her know that you are doing this interview for a class assignment and that the information may be shared with others.

The main purpose of these interviews is for students to gain more insight into what project managers really do, what challenges they face, what lessons they've learned, what concepts/tools you're learning about that they really use, and what suggestions they have for you and other students as future team members and project managers. People often like to tell stories or relate particular situations they were in to get their points across. To this end, here are a few sample questions.

1) How did you get into project management or on a project team?
2) If you had to rate the job of project manager on a scale of 1-10, with 10 being the highest, how would you rate it?
3) Briefly explain the reason for your rating. What do you or would you enjoy most and what do you or would you like least about being a project manager?
4) Did you have any training or special talents or experiences that qualified you to be a project manager or team member? Are you certified or have you thought about becoming certified as a PMP?
5) What do you feel is the most important thing project managers do in the healthcare industry? On what task do you spend the most time each day?
6) What are some of the opportunities and risks you have encountered on projects? Please describe any notable successes and failures and what you have learned from them.

7) What are some of the tools, software or otherwise, that you use, and what is your opinion of those tools?
8) How have you introduced project management skills, tools, and techniques to healthcare stakeholders?
9) What are some steps a project manager can take to improve the effectiveness and efficiency of a team? How does a new project manager gain the respect and loyalty of team members? Can you share any examples of situations you faced related to this topic?
10) What suggestions do you have for working with sponsors and senior managers? Can you share any examples of situations you faced related to this topic?
11) What suggestions do you have for working with clinical providers? Can you share any examples of situations you faced related to this topic?
12) Do you have any suggestions for someone who may manage future healthcare projects, such as any specific preparations they should make, skills they should learn, etc.?

2. Go to *www.monster.com* or a similar site and search for jobs as a "project manager" or "program manager" in three geographic regions of your choice. If possible, focus on jobs in the healthcare industry. Summarize what you found, especially related to position in healthcare organizations.
3. As a team, discuss projects that you are currently working on or would like to work on to benefit yourself, your employers, your family, or the broader community. Come up with at least ten projects, and then determine if they could be grouped into programs. Summarize your results.
4. Review information on project management certification. As a team, discuss your findings and opinions on earning PMP, CAPM, or other certification for someone intending to work in the healthcare industry. Document your findings, citing your references.

KEY TERMS

ethics — A set of principles that guide our decision making based on personal values of what is "right" and "wrong".
leader — A person who focuses on long-term goals and big-picture objectives, while inspiring people to reach those goals.
manager — A person who deals with the day-to-day details of meeting specific goals.
megaproject — A very large project that typically costs over US $1 billion, affects over one million people, and lasts several years.
organizational project management — A framework in which portfolio, program, and project management are integrated with organizational enablers in order to achieve strategic objectives.
portfolio — Projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.
program — A group of related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually.

program manager — A person who provides leadership and direction for the project managers heading the projects within the program.
project — A temporary endeavor undertaken to create a unique product, service, or result.
project management — The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
project management process groups — Initiating, planning, monitoring and controlling, and closing.
project manager — The person responsible for working with the project sponsor, the project team, and the other people involved in a project to meet project goals.
Project Management Institute (PMI) — International professional society for project managers.
project management knowledge areas — Project integration management, scope, time, cost, quality, human resource, communications, risk, and procurement management.
Project Management Professional (PMP) — Certification provided by PMI that requires documenting project experience, agreeing to follow the PMI code of ethics, and passing a comprehensive exam.
project management tools and techniques — Methods available to assist project managers and their teams; some popular tools in the time management knowledge area include Gantt charts, network diagrams, critical path analysis, and project management software.
project portfolio management — The grouping and managing of projects and programs as a portfolio of investments that contribute to the entire enterprise's success.
project sponsor — The person who provides the direction and funding for a project.
stakeholders — People involved in or affected by project activities.
triple constraint — Balancing scope, time, and cost goals.

END NOTES

[1]Project Management Institute, "Project Management Job Growth and Talent Gap 2017-2027," (2017).

[2]Centers for Medicare & Medicaid Services (CMS), "2016-2025 Projections of National Health Expenditures Data Released," Press Release (Feb. 15, 2017).

[3]Project Management Institute, "Pulse of the Profession®: Success Rates Rise: Transforming the High Cost of Low Performance" (2017).

[4]Project Management Institute, Earning Power: Project Management Salary Survey Ninth Edition (2015).

[5]Standish Group, "The CHAOS Report" (*www.standishgroup.com*) (1995).

[6]PriceWaterhouseCoopers, "Boosting Business Performance through Programme and Project Management" (June 2004).

[7]Centers for Medicare & Medicaid Services, "National Health Expenditure (NHE) Fact Sheet, (*www.cms.gov*) (access 2017).

[8]Association of University Programs in Health Administration (AUPHA) Annual Meeting & Global Symposium, "Transformation Panel & Reception," Minneapolis, (June 1, 2012).

[9]Bill Siwicki, "87% of healthcare execs rank telehealth as a priority, study finds," Healthcare IT News (September 21, 2017).
[10]Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Sixth Edition* (2017).
[11]Ibid, p. 6.
[12] Center for Innovation, "Design Thinking," Mayo Clinic (2013).
[13]Claude Besner and Brian Hobbs, "The Perceived Value and Potential Contribution of Project Management Practices to Project Success," PMI Research Conference Proceedings (July 2006).
[14]Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Sixth Edition* (2017).
[15]Ibid.
[16]Ibid.
[17]Peter Northouse, Leadership: Theory and Practice, Seventh Edition, SAGE Publications, Inc. (2015) p. 5.
[18] Bendelta, "Goleman's 6 leadership styles – and when to use them," Fast Company (December 9, 2014).
[19]The Project Management Institute, "PMI Today" (February 2017).
[20]Vanessa Wong, "PMI On Specialization and Globalization," Projects@Work (June 23, 2008).
[21]The Project Management Institute, "PMP® Credential Handbook," (August 31, 2011).
[22]The Project Management Institute, "Project Management Talent Gap Report," (March 2013).
[23]Rachel Bertsche, "How to Break Into Project Management—and Succeed," PM Network (March 2015).
[24]Albert Pang, "Top 10 Project Portfolio Management Software Vendors and Market Forecast 2015-2020,"Apps Run The World (June 30, 2016).
[25]Note: Chapter 1 was co-authored with Cynthia LeRouge, Ph.D.