Strategic Planning and Strategic IT Planning for Long-Term and Post-Acute Care (LTPAC) Providers:

A "HOW TO" WORKBOOK

WORK BOOK

LeadingAge™
center for *aging services technologies*
CAST

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1. Introduction and Executive Summary

1.1. Introduction

Every organization, regardless of type or size, should have a strategic plan in place. Strategic planning is an organization's process of defining its strategic direction and making decisions about how it will allocate its resources to pursue this direction. In short, the purpose of strategic planning is to help an organization establish priorities to better meet its mission.

Information technology (IT) is a business imperative in this day and age. Technology has changed every sector, and the aging services field is no exception. Hence, strategic IT planning must be an integral part of an organization's strategic planning and enterprise governance.

Strategic IT planning encompasses an organization's leadership, organizational structures and processes. This planning can help ensure that the organization achieves its strategic goals and objectives. The strategic IT plan should reflect the relevance of technology to each of the organization's strategic business goals, and changes the organization will need to make to its information and communications infrastructure.

An organization's technology environment must be aligned with its long-term strategic plan, goals and objectives. An organization's management and governance board must recognize the critical role of technology in laying the foundation for and enabling its strategic direction and operational goals. For this reason, technology governance is ultimately the responsibility of the board and executive management. This is a piece that is often overlooked. Yet, it is essential to implementing a successful long-term technology plan.

Strategic thinking about technology has never been more critical for aging services providers that are seeking to define their role in the face of a shifting reimbursement landscape, increasing demand for doing more for less, rising consumer expectations for quality, and an increasing need to demonstrate excellence through objective data.

1.2. Executive Summary

LeadingAge CAST's strategic IT planning initiative has four objectives:

1. Raise awareness about the importance of strategic planning and the need to incorporate technology into the strategic plan, and regularly update and adapt this plan.

2. Provide the executive leadership of aging services organizations with an overview of and guidance about approaches to incorporating technology and strategic IT planning into their strategic plans.

3. Provide detailed guidance, tools, recommendations and resources to help an organization's IT leadership conduct strategic and operational IT planning.

4. Share case studies from providers that have successfully conducted strategic IT planning.

This workbook is the first component in a multi-phased initiative that will also include online interactive educational modules and a set of provider case studies. We hope you find this resource helpful in your strategic planning and strategic IT planning endeavors.

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The workbook contains eight sections, including this Introduction. The other sections explore a variety of topics, as outlined below.

Section 2 of this workbook provides a definition and a high-level overview of strategic planning, strategic IT planning and operational planning.

Section 3 focuses on governance structure and the role that chief information officers (CIO) play in strategic planning and strategic IT strategic planning. It also presents options for smaller organizations that do not have a CIO, and presents an example of best practice in IT governance from a LeadingAge member.

Section 4 provides an introduction to strategic planning, starting with questions like:

- When should an organization consider embarking on strategic planning?
- Who should be involved in the process?
- What are the common approaches to strategic planning?

This section also presents a deep dive into the vision/goal-directed strategic planning model, which is the most commonly used approach among aging services providers. This model calls on organizations to develop a vision about a future state, and then work backwards to identify what goals are needed to achieve that vision.

Section 4 emphasizes that technology should be incorporated into the organization's strategic plan from the beginning. An organization should identify a range of technology applications that are relevant to each strategic goal. This technology can help the organization achieve its vision by facilitating strategies designed to help the organization meet each goal efficiently and cost-effectively. This section concludes by identifying strategic planning resources, including resources from CAST, which will help an organization navigate the strategic planning and strategic IT planning process.

Section 5 provides an overview of strategic IT planning, which builds on an organization's strategic goals and the technology applications that are relevant to each of those goals. This section provides strategic IT planning steps to help an organization assess:

- The existing IT infrastructure and how it supports current operations.
- Existing technology applications and future technology-related needs.
- IT competencies among staff and IT teams.
- The need for an IT team to update/upgrade technology applications in order to support new business models and operations, as identified in the strategic plan.

This assessment should include interoperability, integration, interfacing and health information exchange (HIE) needs, including the HIE needs of strategic partners.

Once the assessment phase of the strategic IT plan is completed, the executive team, with the help of IT leadership, should formulate a plan to update the IT infrastructure. That infrastructure should support all potential technology applications needed now and in the future, including applications that support staff, operations and management, as well as those that serve residents/clients. Applications serving residents/clients might include Internet access, telephone, television, social connectedness technology, concierge services, energy management and maintenance requests.

The strategic IT planning process will provide the organization with guidelines it can use to develop detailed specification for the IT infrastructure, as well as for the selection of, and operational planning for, specific technology applications. Section 5 references templates, tools and resources on strategic IT planning that providers may find helpful.

Section 6 provides an overview of current IT infrastructure trends, including cloud computing, wired and wireless IT network topologies, media, speeds and best practices. The section then provides an overview of technology applications commonly encountered in senior living, and covers topics like data backup, disaster recovery, and options for IT infrastructure management and support. This section concludes with relevant IT infrastructure resources from CAST Associates.

Section 7 dives into operational planning and execution of the strategic IT plan, emphasizing the planning and selection of specific technology applications. The section underscores the importance of engaging an array of stakeholders in the planning and selection process, as well as setting measurable project goals and operational objectives.

The section also:

- Explains the importance of engaging stakeholders in identifying desired functionalities and key features of a technology application.
- Reviews workflows and process redesigns, as well as technology selection and implementation. This information will help organizations prepare a request for proposals (RFP).
- Emphasizes the need for ongoing training and support for the new technology applications. This training and support, which must extend beyond the implementation phase, will ensure that the organization successfully meets its strategic goals.

References a number of templates and practical tools that providers can use, including a variety of Technology Selection Tools developed by CAST.

Section 8 acknowledges the workgroup members who contributed to this work, and the writing sub-workgroup who assembled this workbook.

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2. Overview of Strategic Planning and Strategic IT Planning

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2.1. Definition of Strategic Planning

Every organization, regardless what type or size, should have a strategic plan in place. Strategic planning is an organization's process of defining its strategic direction and making decisions about how to allocate its resources to pursue that direction. In order to determine the direction of the organization, it is necessary to understand its current position and the possible avenues through which it can pursue a particular course of action.

Generally, strategic planning deals with at least one of three key questions:

- What do we do?
- For whom do we do it?
- How do we excel?

In many organizations, answering these questions is viewed as a process for determining where the organization is going over the next year or, more typically, over a longer period of 3 to 5 years. Some organizations extend their vision to 20 years.

2.1.1. Purpose of Strategic Planning

The purpose of strategic planning is to help an organization establish priorities to better meet its mission. Strategic planning allows an organization to collaboratively align with its mission in a high-quality, meaningful way in order to create a strategic vision of what the organization is, what it wants to be, and how it can change with times.

In short, strategic planning helps an organization project its desired future. An organization's mission is its purpose and reason for being. It serves as a guiding light. It has no timeframe. If crafted correctly, it can remain the same for decades.

An organization's strategic vision is an image of the future that the organization seeks to create. It is a graphic statement of what the organization wants to be and how it will get there. The strategic vision should reach beyond the organization's current grasp. Yet, it should be concrete enough that the organization can use it to take action. The strategic vision should be revisited regularly.

2.1.2. Characteristics of an Effective Planning Process

An effective strategic planning process should not be rushed. The planning process could be simple, but it must also be practical. It should:

- Result in a flexible, sustainable and integrated strategic vision framework for the years ahead.
- Develop a defined list of strategic goals and objectives, as well as initiatives to position the organization for the near- and long-term.
- Be an inclusive, collaborative and outside-in exploration and decision-making process.
- Generate high-impact strategic vision, goals and objectives to which the team is strongly committed and aligned.
- Illustrate the organization's strategic vision and objectives through data-driven strategic business plans.

Every strategic planning process is uniquely designed to meet a specific need. Good strategic planning develops through an outside-in process, during which the organization moves from "divergence" to "convergence".

Divergence includes the following:

- An external environmental scan, which identifies trends and uncertainties, as well as external forces of change.
- An analysis of market groups, customer characteristics and competitive structures that includes benchmarking of the organization's key competitive capabilities.
- An "as is" assessment of the organization's current competencies/strengths, culture and values.
- Articulation of key success factors and opportunities/capabilities required to help the organization bridge gaps and become a successful, high-quality service provider to the targeted population in the future.

Divergence is followed by convergence, a process that includes:

- Generating a strategic vision for the future, as well as near-, mid-, and long-term strategic options to achieve that vision.
- Synthesizing and clarifying the organization's direction by identifying strategic initiatives that provide a framework for moving forward.
- Developing a detailed business plan for each initiative. These business plans should estimate the magnitude of the economic opportunity, resources, investment and timeframe required to execute the strategic initiative.
- Prioritize and approve the strategic initiatives. Identify resource investments and integrate these investments into the organization's operating and capital budgeting processes.

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2.1.3. Keys to Success

As you embark on your strategic planning process, keep these five keys to success in mind.

1. **Involve your CIO.** Strategic technology and IT planning must be an integral part of strategic planning. For this reason, the organization's chief information officer (CIO) must be a key member of the strategic planning team. The CIO must be involved in the organization-wide strategic planning process so he/she can anticipate how the organization's strategic goals will impact its strategic IT plan.[1]

2. **Take one step at a time.** When developing the strategic plan, be sure to recognize the organization's capacity to lead, fund and implement the prioritized initiatives, as well as the effort required to complete these tasks. Strategic planning is a learning and building process. One step leads to another.

3. **Enlist the help of others.** Since the planning process is an outside-in effort, most organizations engage an outside consulting firm/consultant to lead the effort.

4. **Keep an eye on the external environment.** Organizations need to keep tuned to how changes in the external environment will impact their strategic planning efforts.

5. **Revise periodically.** The strategic plan needs to be revisited and evaluated periodically to make appropriate changes and adjust the course of action as necessary.

2.2. Definition of Strategic IT Planning

Strategic IT planning is an integral part of your organization's strategic planning and enterprise governance. It encompasses your organization's leadership, organizational structures and processes. The planning process must ensure that your organization's technology sustains and extends your organization's strategies and helps the organization achieve its strategic goals and objectives.

The strategic IT plan should reflect the relevance of technology to each of the organization's strategic business goals. It should outline changes that the organization will need to make to its information and communications infrastructure. The plan should include:

*   A list of all the technology applications needed to carry out each of the organization's strategic goals, objectives, initiatives or innovative business models/operations efficiently, cost-effectively and securely.

*   Updates to the existing information and communications infrastructure that will be needed to support the identified technology applications.

*   Business and operational priorities, including a roadmap for technology projects that delineates the resources required for each project.

*   Continuing education and talent management initiatives that will be designed to ensure consistency of IT skills and delivery of customer-focused tech support.

*   A Security Management Plan for your technology infrastructure that aligns with the guidelines outlined by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the National Institute of Standards and Technology (NIST).

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[1] Alwan, Majd (2014). Boosting the Role of Technology Professionals in Aging Services. Available online at: http://www. leadingage.org/Role_of_Technology_Professionals_in_Aging_Services_Organizations_V4N4.aspx.

2.2.1. Technology as a Strategic Asset

There is a growing recognition that providers of aging services need a robust technology environment to meet the changing needs of residents/clients and provide quality of care and quality of life for those residents/clients.

Technology adoption must be viewed as a strategic asset, especially in light of the changing consumer landscape. Aging baby boomers—the future consumers of aging services—are living longer and using more complex health services than former generations. They also tend to be educated, tech-savvy and demanding consumers.

Multiple forces—including heightened government oversight, the patient safety movement, value-based reimbursement, and consumer expectations—are driving the need for aging services organizations to improve their care delivery and performance. Additional forces, including health care reform, have steered the field of aging services toward a vision featuring quality, coordinated care that promotes prevention, achieves population health and cost-containment, and maintains client satisfaction.

Achieving this vision of coordinated care requires that organizations put into place a data-driven framework for quality improvement. This framework should include technologies like interoperable electronic health records (EHR), telemonitoring, and health information exchange. These and other technology applications need an appropriate and robust IT infrastructure if they are going to help the organization achieve its strategic objectives, goals, mission and vision efficiently and cost-effectively.

Aging services providers have traditionally underinvested in technology, compared with other health care and information-intensive industries. But this investment pattern will need to change. Providers can no longer be satisfied with investment levels that allow them simply to "keep up." Instead, they need to view technology as a key enabler of the organization's strategic goals, and plan their technology investments accordingly.

Most organizations pursue technology investments without a guiding road map or strategic IT plan. Creating that plan requires top-down critical thinking about what is appropriate for the setting, and what is important to the organization and its strategic vision, goals and objectives. Engaging the leadership team, staff and other key stakeholders throughout the entire planning process is essential. So is searching out and investing in leaders with strong technology expertise.

An organization's technology environment must be aligned with its long-term strategic plan, goals and objectives. The organization's management and governance board must recognize the critical role of technology in laying the foundation for and enabling the organization's goals, strategic direction and operational objectives.

2.2.2. Linking Technology with the Strategic Plan

How does an organization go about linking technology with the strategic plan and business operations goals? Here are some key steps:

1. **Establish clear objectives and define the role of technology for the organization.** Does the organization want technology to be just a utility-like service with a short-term value? Does it want technology to enable business opportunities that add value to its services over the long term? Or does the organization want technology to be an integral part of its business success and long-term strategic planning? Begin this discussion by conducting some initial benchmarking of your technology strategies and spending levels with peers that are leaders in technology adoption.

2. **Articulate a "future state" technology vision.** This vision should be aligned with your strategic plan and should map out which technology areas need to mature in order for your organization to reach its desired "future state." Those areas might include infrastructure (data, voice and networks); applications (clinical, financial, service and administrative); and training. For example, replacing current applications could provide an opportunity to re-evaluate, standardize and redesign clinical, financial, service and administrative processes to take advantage of the technology's capabilities. In addition, training should become part of the organization's culture as it prepares the workforce for change.

3. **Identify IT process/services and IT governance.** You may want to identify a professional organization to select, implement and maintain your complex portfolio of technology solutions. In addition, decide on the process you will use to make informed decisions and assure the disciplined, effective and efficient implementation of your technology investments, direction and utilization. It is very important that the organization's board/governing body is committed to making required IT investments.

4. **Assess gaps in technology.** Thoroughly evaluate the organization's current state of technology and the gaps that exist between this current state and the organization's desired "future state."

5. **Identify strategic options for filling the gaps.** Make a qualitative assessment of these gaps using specific criteria. Those criteria might include your desire to:

   a. Provide strong support for unmet user needs.

   b. Assume minimum risk.

   c. Achieve a reasonable time-to-value ratio.

   d. Experience minimum conversion trauma.

   e. Incur the lowest possible cost.

6. **Select your best options and outline implementation projects.** Estimate onetime and ongoing costs. Map projects over a multiyear timeframe with the understanding that investment budgets and decisions would come in multiple "leaps." For example, it's necessary to build a foundational infrastructure (Leap 1) before investing in operational excellence (Leap 2) or implementing technology innovations to differentiate yourself in the market (Leap 3). Your 4-year technology roadmap should be organized into three leaps: foundational, operational excellence and innovation.

7. **Set guidelines for software initiatives.** Broadly define your guidelines for building software initiatives internally or buying them externally. Factors influencing this decision:

   a. Staff capabilities.

   b. Customization needs.

   c. Development vs. procurement costs.

   d. Implementation timeframe.

   e. Support needs.

   f. Maintenance costs.

For software solutions, you'll need guidelines to help you determine if the system should be housed in the organization's internal data environment or a web-hosted (cloud) environment. A number of factors will influence this decision, including:

1. The stability of internal environment.

2. The criticality of the application.

3. The redundancy and stability of Internet data lines.

Org. Inc.'s Technology Vision Drives the Roadmap

Vision: Technology will enable Org. Inc.'s strategic vision of being a recognized leader in providing a continuum of aging services.

Org. Inc.'s Technology Vision and Objectives – Five Strategic Themes

Care and Case Management	Expansion and Transformation	Financial Resource Stewardship	Talent Management	Operations Excellence

The Planning Process to Establish the Technology Roadmap

Assessment ⇒ Gaps ⇒ Strategies ⇒ Roadmap

The Technology Roadmap - Disciplines to be Matured

Applications | Processes & Services | Infrastructure

Source: KSA and Parker Analysis

8. **Measure the benefit.** The governing board should have a comprehensive discussion about how to measure the benefit of technology investments. Numerous studies identify three factors that are needed to realize economic value from technology:

   a. IT should not be an end in itself. Instead, it should enable strategic goals and objectives.

   b. Technology must have an added value. It should not be pursued if the organization's strategic goals can be achieved in an unplugged, paper-based environment without such added value.

   c. It is critical to measure strategic goals and objectives before and after technology deployment and to hold management accountable for results.

Most aging services organizations engage an outside consulting firm/consultant to lead them through the eight steps described above. Providers are advised to engage firms that have strong IT expertise, knowledge about aging services, and a track record in long-term and post-acute care.

2.3. Importance of Technology Investments

Technology investments enable efficiency and effectiveness of the organization's core business, while helping it expand into new directions. The *Journal of Health Care Information Management* discourages providers from postponing IT initiatives.

Postponing IT initiatives "will have a negative, long-term impact on a provider's ability to deliver safe, effective and reliable care," writes journal editor Richard D. Lang. "In an environment where less cost and more service seem to be the common public cry, the effective use of IT is the only way organizations can meet these lofty demands."[2]

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[2] Richard D. Lang. 2003. ROI and IT: Strategic Alignment and Selection Objectivity. Journal of Health Information Management. Available online at: http://www.himss.org/files/HIMSSorg/content/files/jhim/17-4/editors_introduction.pdf.

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3. Governance Structure and Role of the Chief Information Officer

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3.1. Governance Structure

Technology governance is often overlooked, but it is essential to successful long-term implementation of a technology strategy. This governance is ultimately the responsibility of the organization's board and executive management.

Why is technology governance so important? Any organization making technology investments is always challenged by project outcomes, timelines and expenditures. A robust technology governance structure is critical to maneuvering through these challenges.

The Francis E. Parker Memorial Home, Inc., currently uses this technology governance structure:

Technology Governance Structure (Example)

Board of Trustees	Review and approve major strategic directions, approve capital forecast and operating budget, approve capital project expenditures in accordance with policy approve capital project expenditures in accordance with policy
Review and Approve ↓ ↑ Ensure and Recommend **Board Quality Committee**	Ensure IT strategic plan aligned with direction, recommend capital forecast and operating budget, approve or recommend capital project expenditures in accordance with policy
Oversee and Approve ↓ ↑ Strategy/Plan **Technology Steering Committee**	Manage IT strategic plan, develop capital forecast and operating budget, approve or recommend capital project expenditures in accordance with policy, oversee strategic initiatives.
Direction / Initiatives ↓ ↑ Information/ Implementation **Care & Case Management Technology Team** **Financial Stewardship Technology Team** **Talent Management Technology Team** **Technology Infrastructure Team**	Teams are brought together around the various technology initiatives. These teams provide perspective to identify, evaluate, justify, prioritize, recommend and monitor all technology / business projects within their domain. Their recommendations are subject to review and approval by the Technology Steering Committee. These teams perform the specific tasks for each project (e.g. requirements definition, Q/A, and implementation)

Source: The Francis E. Parker Memorial Home, Inc.

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Putting a strategic IT plan into practice requires an investment in the organization's IT capability and capacity. This investment could involve tapping into a combination of in-house staff and outsourced resources.

An organization's IT capability should include the following functions:

- **Vendor management.** Most organizations have relationships with a complex network of vendors, suppliers, customers and business partners. Staff members with expertise in purchasing, contract compliance and coordinated project management should be responsible for managing these relationships.

- **Project management.** This function encompasses enterprise-wide project planning support, project tracking, resource planning and coordination, measurement against the project plan, and project reporting. These roles may, or may not be, formally defined within the organization.

- **Technology business consulting.** The internal technology consulting function involves staff and teams specializing in emerging technologies. These team members work with and offer consulting services to the organization's business units. They also conduct training, facilitation and skills transfer. The team may procure consulting services from outside the organization.

- **Business systems management.** Managing an organization's software applications involves maintaining and enhancing systems, conducting new software development, procuring application packages and managing application vendors.

- **Technology environment management.** This function involves managing an organization's physical hardware and related software platforms, including a data center and related facilities, networks, system software, help desk and communications systems. It also includes the oversight of all security functions linked to the IT environment.

- **Technology champions:** Having a board member who understands and appreciates technology may help an organization's leaders garner board support for technology initiatives during the strategic planning, strategic IT planning and budget processes. A technology champion on the board may be best equipped to lead the board's technology steering committee.

3.2. Role of the CIO

The role of the Information Technology (IT) Department has been evolving within organizational structures for many years.

In most organizations, technology started out as an innovation that warranted a "Research and Development" line item in the annual budget. Technology has since evolved into a critical part of an organization's day-to-day operations. With this evolution came the decision, on the part of many organizations, that the IT department would report directly to the Chief Financial Officer (CFO). Depending on the size of the organization, the leaders of different IT teams (commonly referred to as IT Directors) would report directly to the CFO.

Once it became evident that the life cycle of purchased hardware was dictating capital expenditures, the CEO and CFO decided they needed an executive strategic analyst who had fiduciary accountability for the enterprise's technology vision.

Enter the Chief Information Officer (CIO). This role is sometimes interchangeable with the Chief Technology Officer (CTO). However, most CTOs have a hands-on role on developing, programming or building on a technology of the enterprise.

The typical CIO is a former System Administrator who developed his or her skills in the areas of executive management and worked up the chain of command after showing consistent, successful results.

In many organizations, the CIO still reports to the CFO. This reflects the role's financial emphasis, along with its focus on strategic process implementation and management. In some organizations, the CIO and Chief Operating Officer (COO) report directly to the CFO. Other organizational charts display a dotted line between the CIO and the CEO. This line will depend on the CEO's technical prowess.

3.2.1. CIO's Duties and Accountability

The CIO is charged with helping the CEO and CFO understand all technology considerations and how they will impact processes and costs in each part of the organization. Additionally, the CIO is responsible for providing the organization with a strategic vision, creating IT goals, and developing a path for the organization to reach those goals. Concurrently, the CIO is accountable for the day-to-day operations of IT support for the enterprise.

The CIO, along with other technology professionals, plays a significant role in setting the organization's strategic direction helping it reach operational success. Accordingly, the CIO is a "must-have" for aging services organizations interested in elevating the technology conversation to a strategic level with both the board and the rest of the executive team. Any long-term, broad organizational strategy must take into consideration this larger technological vision.

3.2.2. Realities of Aging Services

Most aging services provider organizations conduct strategic planning. However, conversations with providers and their strategic planning partners indicate that not many provider organizations incorporate strategic IT planning into the strategic planning process. Only a small portion of the LeadingAge membership has a CIO or CTO who leads their strategic IT efforts.

When a technology professional becomes a member of the leadership in an aging services organization, he or she often oversees the implementation of specific and narrowly focused projects or manages a small IT department tasked with keeping the IT infrastructure and day-to-day operations running and in compliance. Only on rare occasions do aging services organizations give technology professionals a meaningful role in the organization's strategic discussions.

Of course, there are exceptions to every rule. A few of the larger multi-site organizations have CIOs who have significant strategic-level responsibilities and conduct strategic IT planning. Some of these CIOs have advanced IT capabilities and occasionally lend strategic planning help, as well as ongoing support, to other providers through outsourcing or shared services programs.

3.2.3. Options for Smaller Organizations

Smaller organizations, including single-site communities, may not see the need for, or have the financial resources to hire, a full-time CIO. These organizations have a number of options for bringing a CIO's expertise to the executive team. They can:

- Pool resources with a number of other aging services organizations to share a CIO or an IT Support Department.

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- Contract with an IT firm to provide a part-time CIO. The level of the CIO's engagement can change according to the needs of the organization, phases of strategic IT planning, or execution of the strategic plan. A few CAST Supporters and Business Associates offer CIO services, IT support, and strategic IT planning services.

3.3. Best Practices from Aging Services

It is not uncommon for nonprofit aging services organizations to be 10 to 20 years behind in their IT solutions. In organizations that are behind the curve, the CIO must continually research new practices and systems, and educate the CFO, CEO and the board. This process involves a complex series of tasks to assess the current IT infrastructure, identify what's not working, and build a long-term strategy for retrofitting the IT infrastructure, all while keeping the existing system online and planning for smooth transitions to newer systems.

In larger national organizations, it is the corporate practice to restrict the IT infrastructure to business administration, while decentralizing and localizing IT services for residents. This is the approach followed by LeadingAge Member American Baptist Homes of the West (ABHOW). Founded in 1949, ABHOW operates 44 communities in California, Arizona, Nevada and Washington, where more than 5,500 older residents live.

4. Strategic Planning Approaches and Steps

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Strategic planning helps an organization establish priorities to better meet its mission. Traditionally, strategic planning allows an organization to create a strategic vision by projecting a desired future.

An effective strategic planning process can be simple, but it must be practical. It should:

- Generate a flexible, sustainable, and integrated strategic vision to which the team is strongly committed.

- Develop a defined list of short-term and long-term strategic goals, objectives and initiatives.

- Feature an inclusive, collaborative, outside-in exploration and decision-making process.

- Contain data-driven, quantitative strategic business plans that manifest the organization's strategic vision and goals.

Every strategic planning process is uniquely designed to meet a specific need, according to Carter McNamara, a strategic planning expert with Authenticity Consulting in Minneapolis, MN. In his online guide to strategic planning models, McNamara suggests that good strategic planning starts with the selection of a planning approach that fits the organization and its reason for planning.[3] The approach you choose, says McNamara, will depend on a number of factors including:

- **The organization's previous experience with strategic planning.** If the organization has not conducted strategic planning before, or if it has not revisited its strategic plan in a long time, then it should start the process by focusing on its vision, mission and value statements.

- **The purpose of strategic planning.** If the organization is adding a new product, service or a campus, then market research is an imperative step in the planning process.

- **The culture of the organization.** Some organizations prefer linear, goal-based planning that comes from vision, mission, values, quantified goals, strategies, action plans, and financial analysis, says McNamara. Others prefer plans that are unfolding and organic.

- **The organization's planning environment.** If the environment is changing rapidly, or if a previous long-term plan was not successful, then the organization should focus its efforts on short-term planning, advises McNamara.

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[3] Carter McNamara, MBA, PhD, Authenticity Consulting, LLC. Basic Overview of Various Strategic Planning Models. Available online at: http://managementhelp.org/strategicplanning/models.htm.

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4.1. When to Conduct Strategic Planning

Carter McNamara advises an organization to conduct strategic planning:[4]

1. **When it is just getting started**. At this stage, says McNamara, the organization's strategic plan, marketing plan, financial plan and operational/management plan will all be part of its overall business plan.

2. **When it is embarking on a major new venture,** like developing a new service program or business line.

3. **At least once a year.** The planning process should be designed to help the organization get ready for the coming fiscal year, says McNamara. Planning that takes place before the fiscal year begins can help the organization identify goals for the coming fiscal year, and the monetary resources needed to achieve those goals. These funds should be included in budget planning for the coming fiscal year. McNamara notes that not all phases of strategic planning have to be completed each year. Most organizations will conduct a full strategic planning process every 3 years and do incremental planning annually. If the organization is experiencing tremendous change, it should conduct a full strategic planning process every year.

Action plans should be updated each year. In addition, please note that the organization's progress in implementing the plan should be reviewed by the board at least on a quarterly basis. The frequency of that review will depend on the extent and rate of change in and around the organization.

4.2. The Strategic Planning Team

A planning team should conduct strategic planning. That team should include the chief executive officer, board chair, board members, and a host of organizational stakeholders, as outlined below.

The organization's Chief Information Officer (CIO) should be a member of the strategic planning team to insure that technology and information technology (IT) are considered during the planning process. Having a technology champion on the board may help insure that technology is ingrained in the strategic planning process. That board member may also oversee the strategic IT planning process.

Carter McNamara recommends that organizations follow these guidelines when creating their planning team:[5]

- **Include the chief executive and board chair on the planning team.** These individuals should drive development and implementation of the strategic plan. In addition, make sure that members of the board are strongly involved in planning. Strategic planning is a primary responsibility of a board of directors and is key to effectively leading the organization.

- **Establish clear guidelines for selecting other members of the planning team.** For example, you may want to include staff members who are directly involved in organizational planning, or individuals who can provide key information to the process. Be sure to involve both board and staff planners in all phases of planning, says McNamara. This helps board members understand the day-to-day issues of the organization, and helps staff understand the organization's top-level issues.

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[4] Carter McNamara, MBA, PhD, Authenticity Consulting, LLC. Basic Overview of Various Strategic Planning Models. Available online at: http://managementhelp.org/strategicplanning/index.htm#anchor3600.

[5] Carter McNamara, MBA, PhD, Authenticity Consulting, LLC. Basic Overview of Various Strategic Planning Models. Available online at: http://managementhelp.org/strategicplanning/index.htm#anchor4293669732.

- **Make sure the planning team is representative of the organization's residents/clients and surrounding community.** If board members don't bring enough diversity to the planning team, bring other people into the planning process, says McNamara. Involve as many stakeholders as possible.
- **Make sure the planning team includes several key members.** At least one person should have ultimate authority to make strategic decisions for the organization, advises McNamara. You should also involve individuals who will be responsible for composing and implementing the plan. Finally, involve someone who will administer the planning process. That person will be responsible for arranging meetings, helping to record key information, and monitoring the status of workgroups.

McNamara suggests that different types of team members may be needed at different times in the planning process. For example, board members may play a large role at the beginning of a planning process, when they will set the organization's strategic direction by developing or revising its mission, vision and values statements. Later on, staff members will ramp up their involvement as they conduct a variety of analyses designed to identify the organization's current issues and goals, and suggest strategies to address those issues and meet those goals.

Have doubts about whether to include specific individuals in the planning process? McNamara suggests that you err on the side of inclusion. "It's worse to exclude someone useful than it is to have one or two extra people involved in planning," he says.

4.3. Common Models and Approaches to Strategic Planning

Carter McNamara outlines six models and common approaches to strategic planning.

4.3.1. Vision or Goal-Based Planning

Goal-based strategic planning is the most common model of strategic planning. But, it is not suited to every organization, says McNamara. Organizations using this model will develop a vision of the organization's desired "future state." Then, they will identify the goals that are needed to achieve that vision.

McNamara recommends the vision-based model for organizations that do not have a large number of current issues to address, have sufficient resources to focus on an ambitious vision, and have external environments that are not changing very rapidly.

The goal-based strategic planning process includes seven steps, according to McNamara:

1. **Identify your purpose.** The board and top-level managers at the organization should work together to develop a mission statement describing the basic purpose of your organization. The statement should describe the needs of residents/clients and how you intend to meet those needs.
2. **Establish your vision.** The vision statement describes the desired "future state" of your organization and the residents/clients you serve.
3. **Select your goals.** Goals are general statements about what you need to accomplish in 3-5 years in order to fulfill your mission, achieve your vision and address major issues facing the organization.
4. **Identify strategies for reaching each goal.** Technology may be one of the strategies the organization uses to achieve certain goals. Or, it could be used as an enabling tool within certain strategies. Note that small organizations might skip this step entirely and move directly to identifying action plans for each goal.

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5. **Develop action plans for each strategy.** Action plans outline specific activities or objectives that each major department must undertake to implement each strategy or achieve each goal. Objectives should be clearly worded so the organization can assess if they have been met. Ideally, top management will create specific committees and give each committee a work plan or set of objectives. These committees can identify specific technology applications and the required IT infrastructure for each objective.

6. **Compile the strategic plan document.** The plan is composed of the work completed in steps 1-5. Upper management should approve the plan at this stage.

7. **Monitor implementation of the plan and update the plan as needed.** It's important to reflect on how well you are meeting goals and implementing action plans, says McNamara.

4.3.2. Issues-Based Planning

While vision-based planning works from the future to the present, issues-based strategic planning works from the present to the future. The organization identifies issues that affect it today and then devises strategies for addressing those issues.

McNamara recommends issues-based planning for organizations that have very limited resources, several current and major issues to address very soon, little success with achieving ambitious goals, and/or or very little buy-in for strategic planning. An organization that undertakes issues-based planning for a year may want to undertake vision-based planning after it strengthens its internal operations, he says.

The issues-based strategic planning process includes four steps, according to McNamara:

1. **Identify major issues that the organization is currently facing.** Include three-to-five major issues that you'd like to address in the next 9-12 months.

2. **Identify reasonable approaches to addressing each major issue.** "It's not important that the ideas be the perfect ideas," says McNamara.

3. **Compile the strategic plan document.** Include each issue and each approach. Upper management should approve the plan at this stage.

4. **Monitor implementation of the plan and update the plan as needed.** It's important to reflect on how well you are meeting goals and implementing action plans, says McNamara.

4.3.3. Alignment Model

The alignment model is designed to ensure that the organization's mission and its resources are in sync so the organization can operate effectively.

McNamara recommends the alignment model for organizations that need to fine-tune their strategies or find out why those strategies are not working. "An organization might also choose this model if it is experiencing a large number of issues around internal efficiencies," he says.

The alignment model of strategic planning includes four steps, says McNamara:

1. **Explore your mission.** Outline the organization's mission and programs. Identify the organization's resources and the areas in which it needs support.

2. **Assess.** Identify what's working well and what needs adjustment.

3. **Devise an action plan.** This plan should identify how the organization will make the adjustments identified in step 2.

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4. **Compile the strategic plan.** The adjustments you identified in step 3 will become the strategies that you will follow as you implement the plan.

4.3.4. Scenario Planning

Scenario planning is defined as the process of visualizing what the future is likely to look like, what the consequences of future conditions or events are likely to be for the organization, and how the organization might respond to or benefit from those conditions or events.

McNamara recommends that scenario planning might be used in conjunction with other strategic planning models to ensure that planners truly undertake strategic thinking. He suggests that this model may be particularly useful in identifying strategic issues and goals.

The scenario-planning process includes four steps, according to McNamara:

1. **Select several external forces and imagine related changes that might influence the organization.** These external forces might include a change in policy and/or regulations, demographic changes, or changing consumer demands and expectations.

2. **Discuss three different future scenarios that might arise within the organization as a result of each change.** Identify the best case, worst case, and reasonable case. Your worst-case scenario could give your organization the impetus to change.

3. **Suggest potential strategies.** Discuss what the organization might do to respond to each change. Planners will soon detect considerations or strategies that must be addressed to respond to possible external changes, predicts McNamara.

4. **Select the most likely scenario and most reasonable strategy.** Select the external changes that you think are most likely to affect the organization in the next 3-5 years. What are the most reasonable strategies to respond to that change?

4.3.5. "Organic" (or Self-Organizing) Planning

The organic or self-organizing planning model is similar to the development of an organism, says McNamara. Rather than following a series of defined steps, this model evolves and unfolds. Self-organizing planning requires that the planning team continually discuss the organization's values and how well those values are reflected in the organization's current processes.

The organic planning process includes a collection of ongoing activities, according to McNamara:

1. **Clarify the organization's cultural values and vision.** Use discussion and storyboarding techniques to articulate the vision and values.

2. **Hold ongoing discussions.** These discussions should be designed to help planners figure out how to align the organization's processes with its vision. McNamara warns that organic planning is an ongoing process that is never really "over with." He recommends that planners focus more on learning and less on which planning method they will use. In addition, the organization may need to educate stakeholders about why it is not conducting a more traditional form of planning.

4.3.6. Real-Time Planning

Real-time planning is designed for those who feel that conventional strategic planning has become outdated in our rapidly changing world.

McNamara recommends this method of planning for organizations operating in rapidly changing environments.

The real-time planning process includes three basic steps, according to McNamara:

1. **Clarify mission, vision and values.** Document these clarifications so you can communicate them to stakeholders within and outside the organization.

2. **Clarify current priorities.** Board and staff members should base their discussions on results from environmental scans, market research, brainstorming sessions and program evaluations. Be sure to document any updated/changed priorities.

3. **Discuss external threats and opportunities.** McNamara recommends that you hold a series of discussions, scheduled about a month apart. Board meeting are an ideal venue for these discussions. During the first meeting, discuss threats and opportunities facing the organization. In the next meeting, discuss the organization's internal strengths and weaknesses. During the third meeting, discuss strategies to address issues that have been identified in previous meetings. Repeat the process, ideally at each board meeting.

Like organic planning, real-time planning will present certain challenges to an organization, says McNamara. For example, the organization may need to explain to investors and funders why it is not following a more traditional strategic planning model.

4.4. High-Level Strategic Planning Resources

In order to carry out true strategic planning, your organization must determine the purpose of its strategic planning process and must understand national, regional, state, and/or local trends that affect the organization. LeadingAge, CAST, and their business partners have created numerous resources to help in your strategic planning efforts. Those resources include:

*   The Long and Winding Road.

*   Strategic Planning Presentation for Provider Boards—CliftonLarsonAllen.

*   Ziegler-LeadingAge Annual LZ 150 Report.

*   Meet Your Next Client: Boomer Women.

*   Housing and Health Partnerships Toolkit.

*   CAST Strategic Scenario Planning.

*   CAST Vision Video.

*   Preparing for the Future: CAST Business Case Studies.

*   A Population Health Management Approach in the Home and Community-based Settings—Philips Home Monitoring.

*   The Importance of Home and Community-based Settings in Population Health Management—Philips Home Monitoring.

*   A Roadmap for Health IT in Long-Term and Post-Acute Care 2010-2012.

4.5. 10-Step Vision/Goal-Based Strategic Planning

The 10 steps of strategic planning described in this section come from an online guide to planning by Emily Gantz McKay, president of EGM Consulting, a Washington, DC-based social justice-focused consulting group that provides services to nonprofit organizations, community planning bodies, public agencies, and private philanthropic groups.[6]

McKay suggests that the strategic planning process revolve around a joint board-staff planning retreat. Steps 1-3 of the process should occur before the retreat, she says. Steps 4-7 take place during the retreat, and Steps 8-10 take place after the retreat. Here are the steps that McKay outlines in her paper, which is entitled, "Strategic Planning: A 10-Step Guide."

4.5.1. Step 1: Agree on a Strategic Planning Process

Organizations should begin their strategic planning process during a board meeting with key staff present, says McKay. That's when the organization's key stakeholders will agree on the process they will follow to develop the strategic plan. This important first step can also take place during a special meeting or retreat that includes board members, key staff and some external stakeholders. The session should offer participants the opportunity to:

- Understand what the strategic planning is, how it is done, and how it can benefit the organization by giving it a vision, focus, purpose and approach that is shared by all stakeholders.
- Consider whether the organization is "ready" for long-range strategic planning. An organization that is financially or organizationally unstable may want to postpone a vision-based long-range strategic planning process until it can address immediate problems and needs through a short-term, issues-based planning process. (See section 4.3.2 of this workbook for more information.)
- Consider what procedures or steps can be used to establish and implement a strategic plan.
- Agree on a process and establish responsibilities for the various steps in the process.

4.5.1.1. The Strategic Planning Team

McKay recommends that organizations establish a special committee or task force to manage the strategic planning process. Choose participants who are committed to and willing to devote significant time to the planning process, she says.

The planning team should include:

- A mix of board leaders and members.
- Senior and middle managers.
- Representatives of technical and/or support staff.
- Stakeholders like sponsors, funders, residents/clients and former leaders of the organization.
- An outside facilitator or consultant to assist the team and possibly compile the strategic planning document.

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[6] McKay, Emily G. STRATEGIC PLANNING: A TEN-STEP GUIDE. Available online at: http://siteresources.worldbank.org/INTAFRREGTOPTEIA/Resources/mosaica_10_steps.pdf.

McKay urges organizations to allocate sufficient staff time to the strategic planning process. "It may be necessary to reduce the regular workloads or responsibilities of staff and board members who are expected to play a key role in developing the strategic plan," she advises.

The strategic planning process sometimes works best when facilitated by an outsider knowledgeable about the organization or about community-based organizations in general, says McKay. A facilitator should be someone who is:

- Skilled in group processes.

- Experienced in strategic planning.

- Non-directive.

- Committed to assuring full discussion of issues.

- Task-oriented and able to move the process forward.

Sometimes a former board member or former executive director can fill this role, she says. Some foundations provide management assistance grants that can help pay for a consultant or an in-depth environmental scan.

4.5.2. Step 2: Carry out an Environmental Scan

A scan of the organization's internal and external environment can help to educate the planning team about how the organization relates to the world around it, says McKay. The external scan identifies and assesses opportunities and threats in the external environment. The internal scan assesses the organization's strengths and weaknesses.

4.5.2.1. The External Scan

The external scan should include a review of the organization's service area and the broader environment in which the organization operates, says McKay. The planning team will use the scan to identify the opportunities and threats facing the organization.

Findings from the external scan should describe:

- **Political, economic, social and technological trends in the broader community.** These trends might include changing demographics, consumer expectations, payment and reimbursement streams and applicable regulations. The team should consider how these forces impact the organization and the people it serves. See section 4.4 of this workbook for LeadingAge and CAST resources that can help teams understand community trends.

- **The organization's immediate service area.** The scan should focus on the status and needs of current and potential residents/clients.

- **Opportunities and challenges.** Be sure to include challenges related to technology and the IT infrastructure, payers and funders.

- **Other organizations in the service area.** Who are your competitors? Who are your potential partners? Include organizations that may serve the same markets and/or populations, work with the same referral sources and payers, or seek support from the same funders.

An extensive external scan may involve primary research to assess community needs through interviews, focus groups and surveys, or you may collect data from secondary market research reports available for the target market. A more limited scan may involve holding informal discussions with residents/clients, neighbors, public

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officials, funders and others. The organization may want to incorporate all of these options in the scanning process.

4.5.2.2. The Internal Scan

McKay suggests that the internal scan describe:

- **Current organizational performance.** Be sure to consider financial and human resources; technology and IT infrastructure; and quality outcomes. If you don't have this information on hand, McKay suggest interviewing or surveying residents/clients and stakeholders to find out how they view the organization. Once you have the information you need, she says, be sure to analyze the data to find out the reasons for perceived weaknesses.

- **Identify why the organization is successful.** Factors that impact success might include the organization's relationship with its local community, its programs and use of technology, and its staff.

- **Review or formalize the organization's values and operating principles.** These values and principles guide an organization's decision making and ongoing activities, and can be very helpful in "defining" the organization, says McKay.

4.5.2.3. Conducting the Scan

The organization does not necessarily have to hire an outside consultant to conduct the environmental scan. "An organization that is open in its communications may be able to obtain this information without outside assistance by holding a staff retreat or a series of meetings with staff in various departments and at various levels within the organization," says McKay.

The committee responsible for the strategic plan should work with staff to plan the environmental scan and related market research, and to decide whether the organization's staff or an outside consultant will conduct these assessments. The committee might also help conduct external interviews with community leaders, especially if no outside consultant is hired.

The environmental scan should provide an analysis of organizational strengths and weaknesses and external opportunities and threats. It should also include aspects related to technology-use trends, attitudes and expectations. This information will help the organization develop IT-related strategies and plans. Board and staff members should be familiar with the findings of the environmental scan before strategic planning decisions are made.

4.5.3. Step 3: Identify Key Issues, Questions and Choices

During step 3 in the planning process, the planning team specifies strategic issues or questions that the organization should address, and then prioritizes those issues or questions. If members of the planning team do not agree on general directions and organizational goals, they should take a more in-depth look at issues so they can make critical choices. A good place to start, says McKay, is to identify and prioritize strategic issues that emerged from the market research and environment scan. Those issues might include:

- The need for new programs to address a particular community need.
- Expansion of the organization's target area.
- A shared definition of the organization's constituency.
- The use of technology and the status of the IT infrastructure.
- Whether the organization should consider merging with another group.

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The planning team should emerge from step 3 with a set of high-priority strategic issues that would be discussed during a joint board-staff retreat, says McKay. CAST believes technology should be considered one of the organization's foundational enabling strategies.

4.5.4. Step 4: Define/Review the Organization's Values, Community Vision and Mission

McKay underscores the importance of reaching consensus, during a retreat or special board meeting, on "why the organization exists, what goals or outcomes it seeks to achieve, what it stands for, and whom it serves." She suggests that organizations begin their strategic planning by agreeing on:

- **Organizational core values or operating principles.** These beliefs or principles guide the organization.
- **Community vision.** This is your vision for the community you serve, not your vision of what the organization will look like in 3-5 years, says McKay.
- **Mission.** Mission might be viewed as your organization's public statement of the contribution it promises to make to help the community achieve its vision, says McKay.

The process of reaching consensus on these elements will differ from one organization to the next. Workgroups may draft specific language for the values, mission and vision statements. The strategic planning committee may refine that language before it is brought to the board for approval.

4.5.5. Step 5: Develop a Shared Vision for the Organization

Now it's time to look at where the organization wants to be in 3 to 5 years, or at the end of the period covered by the strategic plan. This vision is often developed after the planning team has discussed a vision for the outside community, because a shared vision of the organization can be dependent on a shared vision of what the outside community should become.

The planning committee might describe a broad vision for the organization that address its mix of programs, reputation, signature initiatives or key accomplishments, says McKay. Alternatively, the organizational vision might be more specific. It could refer to the organization's service area, program scope and depth, funding, governance, staffing and relationships with other entities.

McKay suggests myriad techniques that planning teams can use to arrive at a shared vision. For example, small groups can use drawing and role-playing to identify a vision of the organization's future, and then report their findings to the larger group, which then agrees on a shared vision.

Alternatively, individuals could complete a formal worksheet indicating where they see the organization in 5 years. The worksheet could address broad categories like the organization's programs, resources, status, relationships, institutional development, use of technology, and governance. Or, it could ask questions about specific organizational characteristics like budget, staff composition, or desired technologies and IT infrastructure. The full group would use the responses to reach consensus on a shared vision.

If the organization is small, all of these discussions could take place in full group before that group reached consensus on the organization's shared vision.

4.5.5.1. Participants in Shared Visioning

The development of a shared vision is usually best done with both board and staff involvement. Small organizations may find it practical to conduct a one-stage process involving both board and staff members.

For a large organization, a two-stage process might be useful. First, staff would work together on a vision. Then, the board and key staff members would review and incorporate the staff vision with their own.

Consider using the CAST Vision video, *High-Tech Aging: Improving Lives Today*, as an inspiration to help board and staff members envision the role technology may play in your organization's vision.

4.5.6. Step 6: Develop Statements Describing the Organization's Goals and Future Status

McKay recommends that organizations transform the vision they developed in step 5 into a series of key goals for the organization. These goals can be identified very effectively using status statements describing what the organization will look like in a specified number of years, assuming that the organization is successful in fulfilling its mission. The goals, and the status statements describing them, can cover a variety of categories, including the organization's programs, resources, status, relationships, institutional development and governance.

4.5.6.1. Program Goals

Be sure to consider the role technology can play in your organization's programs. The program status statements might read:

- "Our organization will become a center of excellence in short-term rehabilitation and a preferred referral partner for major hospitals, accountable care organizations (ACO), managed care and physician groups in our market."
- "Our organization will provide comprehensive senior care services to older adults on our campuses and wellness services in the community."
- "Our home health organization will be a resource for effective and proactive chronic disease management, and a preferred referral partner for major hospitals, ACOs, managed care organizations and physician groups in our market."

4.5.6.2. Resource Goals

The resources status statement might read:

- "Our organization will grow its annual revenues to $30 million, with 60 percent of that revenue coming from home and community-based services."

4.5.6.3. Status Goals

The status statement might read:

- "Our organization will be the largest and most respected nonprofit housing with services provider in our region."

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4.5.6.4. Relationship Goals

Consider the technologies, IT infrastructure, or information exchange you will need to support your relationships/partnerships. The relationship status statements might read:

- "Our organization will be represented on major coalitions in its program areas and on the boards of at least three major organizations."
- "Our organization will have contractual agreements and partnership with major hospitals, ACOs, managed care organizations and physician groups in our market."

4.5.6.5. Institutional Development Goals

Consider the major technology applications and technological infrastructure you need to support your institutional development goals. See CAST articles on different technologies, as well as sections 5, 6 and 7 of this workbook for ideas you can incorporate into your status statements. Some suggestions include:

- "Our organization will implement a state-of-the-art IT infrastructure that is capable of supporting all of our technology applications, including data, voice, video, safety, security, social connectedness and clinical applications in a managed environment that is future-ready."
- "Our organization will have a continuous quality improvement framework that is data-driven and takes advantage of electronic documentation technologies, like:
  - o Connected point of care devices.
  - o Advanced electronic health record functionalities like analytics reporting, clinical decision support systems, and health information exchange with partners.
  - o A staff that is empowered by mobile devices and connected with others."
- "Our operations will implement fully computerized financial management and management information and customer relationship management systems."

4.5.6.6. Governance Goals

See section 3.1 of this workbook for help in creating status statements in the area of governance. The governance status statements might read:

- "Our organization's board will take an active role in resource development and will take responsibility for one major special event each year."
- "Our organization's board will establish five active working committees – Quality, Programs, Finance, Technology, and Resource Development – which will meet bimonthly."

4.5.7. Step 7: Agree on Key Strategies

Key strategies will help the organization reach its goals and address issues identified through the environmental scan.

The process of identifying and agreeing on key strategies requires that the organization look at where it is now, where its vision and goals indicate it wants to be, and what strategies will help it get there, says McKay. These strategies should be related to specific goals or address several goals, she says.

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4.5.7.1. The Role of Technology

In this day and age, technology and a robust IT infrastructure should be one of the foundational strategies to support and enable other strategies. Moreover, technology applications may be key elements of different other strategies.

Organizations should use the strategic planning process to re-examine their IT infrastructure and make sure that they are adequate for today, can handle future requirements like increasing demands on data, and can be scaled easily and cost-effectively. McKay suggests that the board provide broad guidance to this effort. The planning group or staff can do much of the detailed analysis, she says.

4.5.7.2. Approaches to Identifying Key Strategies

Organizations can take a variety of approaches to identifying key strategies, according to McKay. These approaches include:

- **Adjusting current strategies.** The planning team has identified the organization's key issues and goals. Now it's time for the team to determine how current strategies will need to change so the organization can address those issues and meet its goals. The environmental scan will be very helpful during this process. The board and key staff must discuss and approve any adjustments proposed by the planning team.

- **Develop alternative approaches.** The planning team might present alternative approaches or scenarios to the board and key staff. For example, the team might ask whether the organization should focus on campus development or growing home and community-based services; whether the organization should adopt a more decentralized or centralized structure; or whether the organization should update its antiquated data center or move to a cloud-based environment. New strategies can be identified, based on discussion of these alternatives.

- **Set criteria for choosing strategies.** It's important to agree on how the organization will evaluate and choose key strategies, says McKay. Strategies can be evaluated, selected or prioritized based on their value, appropriateness, feasibility, acceptability, cost-benefit and timing, she says.

- **Define implementation responsibilities.** The planning team should clearly define responsibilities for implementing the strategies it selects. For example, if a strategic plan goal calls for making care and supportive services available to the organization's target group, regardless of ability to pay, a key strategy might involve establishing a philanthropic fund to support this effort, or advocating for changes in current laws or policies. Someone or some unit within the organization must take responsibility for implementing this strategy.

- **Consider technology.** A range of technology applications may be relevant to each strategic goal. Consider technology that would help the organization achieve each goal more efficiently and cost-effectively. (See section 6.3 for a list of technology applications.) Classify the application, based on how critical they are to reaching your strategic goals. You may classify some applications as "must-haves," while others will be classified as either "nice-to-have" or "maybe down the road." Be sure to consider the IT infrastructure implications, since the IT infrastructure update will probably come before you implement other technology applications (see sections 6.1 and 6.2.) Technology applications might include:
    - Telephony.
    - Email.
    - Financial.
    - Human Resource Management.

- o Scheduling.
- o Donor Management Systems.
- o Customer Relations Management.
- o Electronic Health Records.
- o Enterprise Resource Planning.
- o Facility Management/Maintenance/Concierge Services.
- o Point of Sale.
- o Telehealth.
- o Medication Management.
- o Behavioral Telemonitoring.
- o Personal Emergency Response.
- o Safety Technologies.
- o Wander Management.
- o Security.
- o Social Connectedness Applications.
- o Mobile devices.
  Collaboration platforms.

4.5.8. Step 8: Develop an Action Plan

The action plan should address the goals outlined in the strategic plan, and should include specific objectives and work plans. The action plan should be updated on an annual basis.

The action plan will guide the organization through the implementation process over the short term. McKay recommends that organizations develop detailed objectives only for the first year, as well as annual action plans. The action plan should include:

- **Program objectives.** Be sure to make annual program objectives specific, time-based and measurable, says McKay.

- **Work plans for the board and the organization.** These work plans are as important as program-related work plans, says McKay.

You'll need both board and staff input when developing objectives and annual work plans, says McKay. Staff often will take major responsibility for program-related goals and objectives, she says. The board should develop goals and objectives related to governance.

The board must approve the action plan. However, McKay recommends that staff develop the written plan, since program implementation is a staff function.

4.5.9. Step 9: Finalize a Written Strategic Plan

The written strategic plan should summarize the results and decisions of the strategic planning process. McKay provides a sample format for strategic plan at the end of this document.

Note that the strategic IT plan discussed in section 5 of this workbook should be included in the overall strategic plan. In addition, the organization's major strategies, goals and objectives related to the technology and IT infrastructure should be referenced in the overall strategic plan.

4.5.10. Step 10: Build in Procedures for Monitoring and Modifying Strategies

Be sure you regularly monitor your organization's progress toward reaching goals and objectives. Strategies should be revised and objectives developed each year, based on the organization's progress, the obstacles it has encountered, and changes in the environment, says McKay.

McKay offers a checklist of tasks that organizations should complete each year in order to use their strategic plan as a compass to guide progress. Those tasks include the following:

- The organization's leaders should define annual objectives at the start of each year.
- Board and staff should look back to see its progress in meeting criteria for success.
- The board should review progress and assure that strategies are changed as appropriate.
- Staff should generate ongoing data for the board's review.
- Staff should carry out periodic monitoring and make reports to the board.
- The organization's planning and evaluation unit should play an ongoing role in monitoring the organization's progress toward meeting its goals and objectives.
- This unit should analyze the reasons for shortfalls in the organization's accomplishments.

4.6. Strategic Planning Resources

Organizations in need of outside expertise should consider the following LeadingAge Partners as resources for their strategic planning needs. These partners have an aging services focus and expertise:

- **LeadingAge Gold Partners:**
  - Ziegler.
- **LeadingAge Silver Partners:**
  - CliftonLarsonAllen.
  - Greenbrier.
  - Greystone Communities.
  - LCS.
  - BKD National Healthcare Group.

5. Strategic and Operational IT Planning Steps

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Audience:

Executive Team, IT Leadersihp and the IT Team.

In order to develop the most comprehensive technology plan, organizations must consider multiple steps as they gather information and formulate plans.

Effective strategic information technology (IT) plans should address these elements of the organization:

- Hardware and infrastructure.
- Software.
- Staffing and support.
- Organizational objectives.
- Data analytics.
- Integration.

Organizations often do not take the last three elements—organizational objectives, data analytics and integration—into account early in the strategic IT planning process. That's unfortunate, because these elements are critical to the plan's effectiveness.

5.1. Understanding Organizational Direction, Business Objectives and Strategic Plans

One of the most important steps in strategic IT planning may seem obvious, but many IT leaders often overlook it. The IT Department must support and enable the overarching goals and objectives of the organization. It must ensure that it is not developing its own plans and objectives in a silo. This often happens when the IT leadership is not involved in the organization's strategic planning process or aware of all the organization's strategic goals.

As an IT leader, you should make certain that you understand all of the products or services that your organization offers. You should also be familiar with initiatives that competing organizations are carrying out, especially if your organization wants to carry out the same initiatives. If you are a long-term care and senior living organization, you must know who your customers are, and you must be capable of describing your "typical" resident or the typical older adult you serve. Consider residents' needs, and your organization's business units, and try to determine how they both may evolve in the future.

It is prudent for the IT department to ask some of the following questions as the technology plan is being developed:

- What are the strategic goals and objectives of the organization?
- What areas of business is the organization looking to improve in the next 3-5 years?
- What is the organization's projected growth over the next year? 3 years? 5 years?
- What are some of the operational issues that concern the organization's leadership?
- What business processes need improvement?
- What key indicators help the leadership team assess performance? Does the leadership team have ready access to this information?
- How does the leadership view the role of technology in the organization?
- Does the organization have a desire to be on the cutting edge of technology?
- How will the evolving regulatory, reimbursement/payment, and competitive landscape affect your organization?
- How will you maintain privacy and security measures to protect your data and systems?

The answers to these questions will likely drive many of the strategic IT objectives in your technology plan. For example, the leadership team's plan to grow a single-site organization into a multi-site organization will have a dramatic impact on the IT plan, including the hardware and software capabilities needed, as well as the scalability of the infrastructure.

It is very important to understand the organization's overall direction so that the technology plan can ultimately support and enable that direction.

Consider using this sample instrument from the Stratis Health Toolkit to understand your organization's readiness for health IT. The instrument was developed for Aging Services of Minnesota.

5.2. Understanding the Existing IT Infrastructure

A comprehensive inventory of IT infrastructure components is critical to developing a technology plan. Knowing the current state of technology today will ensure that its configuration and scalability will sustain the organization into the future.

5.2.1. IT/Technology System Inventory

Many IT leaders maintain some level of inventory for all of the hardware components that make up the organization's wide area network (WAN), local area network (LAN), data center and workstations. As the strategic technology plan is developed, it is very helpful to maintain a current, and detailed, master inventory of any and all systems. As you gather this information, it can be helpful to organize the systems based on the purpose they serve. Some systems may serve a dual role.

In certain situations, taking an inventory will help uncover redundant systems that may be combined, repurposed or eliminated.

5.2.1.1. WAN Technology

Start by documenting what Internet service provider (ISP) connections your organization has today. An ISP is a company that offers access to the Internet and to email, usually for a monthly fee. Specify the type of connection, speed of the connection for both download and upload, and the agreement terms for each connection.

Next, document any hardware that is supporting WAN connectivity. Document the make, model, put-into-service date, and active warranty information for each piece of hardware. Include modems, routers and firewalls.

5.2.1.2. LAN Technology

Next, document the hardware that makes up the internal LAN. Inventory the make, model, put-into-service date, and active warranty of each core switch, edge switch, wireless controller, and access point that you have on your network.

It is also very helpful to develop a site map for each building within your organization. Map out locations of edge switches, access points, and network or phone outlets.

5.2.1.3. Data Center

Evaluate the hardware that is currently in the data center by the role it plays. For each piece of hardware, document the make, model, put-into-service date, operating system, and active warranty information. Common data center equipment may include:

- Storage hardware.
- Virtual server.
- Domain controller(s).
- Email server(s).
- File server(s).
- Application server(s).
- Web server(s).
- Backup server(s) or appliance(s).
- Phone system.
- Life safety systems (Nurse Call, Access Control, Wander Management, etc.).

5.2.1.4. User Devices

User devices include common hardware items like workstations, laptops and printers, as well as mobile devices like tablets, smart phones or other technology devices. For each device, document the make, model, put-into-service date, operating system and active warranty information.

There are information systems available today designed to assist with the deployment, monitoring, inventory and management of devices. These applications can produce reports on hardware make, model, software versions and critical updates, and will be critical in helping you develop the strategic IT plan.

In today's mobile world, more and more information is being made accessible via websites, mobile apps or email. This makes it vitally important to have a mobile device management (MDM) platform in place. MDMs

allow you to remotely manage a device should it get lost or stolen.

Moreover, organizations should have policies governing the use of the mobile devices, and the management of personal devices that employees have permission to use at work. These are known as "bring your own device" (BYOD) policies.

5.2.1.5. Software and Licensing

The hardware components that make up an organization's networks often represent only a small portion of the cost of technology. There are also significant costs (and risks) associated with software licensing. It is important to document and properly license each piece of software installed on servers and user devices.

5.2.1.6. Telehealth and Resident Monitoring

Inventory systems that are designed to promote the use of resident monitoring. These systems include fall prevention devices, motion sensors, and health telemetry devices like scales, blood pressure monitors and pulse oximeters.

Consider using this sample instrument from the Stratis Health Toolkit to help you conduct an IT/technology system inventory. The toolkit was developed for Aging Services of Minnesota.

5.2.2. Staff IT Competencies

Assessing the IT competencies of staff, both inside and outside the IT department, allows organizations to better understand their staffing, training and support needs.

5.2.2.1. Technology Staffing

Perform a critical evaluation of your current IT support staff. Learn what your staff is good at and what they enjoy doing. Most important, determine any gaps in the staff's knowledge or skill sets, and identify alternative resources to fill those gaps.

Common roles of an IT department in senior living and long-term care include:

- **Helpdesk.** The helpdesk is the front line of support for IT users. It should be capable of supporting users with quick-fix issues like password resets, user provisioning, or simple application questions.
- **Desktop support.** Technicians support IT users with hardware solutions related to workstations, printing or mobile devices.
- **Network administrators.** These skilled technical engineers address advanced networking needs and server administration.
- **Application specialists.** Software specialists may support one or more applications, including the organization's electronic medical records, general ledger, or human resource information systems.
- **Database administrators.** Skilled technical engineers maintain databases, run reports and enable interoperability among applications.
- **Software developers.** Skilled software engineers write code, develop software applications, and work on integration and interoperability among applications. Software developers are not commonly found in aging services organizations. They are more common in IT firms and system integrators.

Organizations that have a smaller IT department may find that one person is performing many of the roles listed above. Larger IT departments may delineate these roles and find highly skilled and specialized staff to

fulfill specific responsibilities. In many cases, organizations find a great deal of value in outsourcing some or all of these roles to professionals who are capable of efficiently and cost-effectively fulfilling these responsibilities.

Consider using this sample instrument from the Stratis Health Toolkit to conduct a survey of IT staffing and skills. The toolkit was developed for Aging Services of Minnesota.

5.2.2.2. General IT Competencies (Excluding the IT Department)

IT leaders should understand the competencies of all organization staff members who use information systems on a daily basis. This understanding will help you realistically identify the needs for training and support on existing and new technologies that might be included in the technology plan.

Conduct a competency assessment to identify which employees are "super-users." These employees probably already have some technical competency when it comes to using technology.

As the technology plan is developed, you may want to call on "super-users" to participate on the implementation team, conduct training for other staff members, or play a support role for any and all software applications that the organization is utilizing.

Consider using this sample instrument from the Stratis Health Toolkit to conduct a survey of general computer skills. The toolkit was developed for Aging Services of Minnesota.

5.3. Understanding the Need to Update/Upgrade Technology Applications

It is important to update/upgrade technology applications to support any new business models or operations that are included in the new strategic plan.

5.3.1. Assessing the Needs of all Existing and New Business Units

IT leaders should meet with each operational area of the business to inventory the software applications used, assess the technical competencies of users, and determine gaps in functionality. It may be feasible to meet with each user in the department. However, it may make more sense to identify department managers or super-users from larger departments.

Be sure to meet with each department so you will understand the department's future technology needs. Include departments and business units that are in the formation stage, and departments that may not use technology today. These departments may benefit from using a technology application in the future.

Plan on asking questions related to information/data needs, existing workflows, and operational policies and procedures. Make sure to ask about cross-departmental information/data needs and processes, and use of technology.

Your questions will be different for each operational department. For example, during the Finance Department meeting, you will want to ask questions like:

- How many companies are maintained in the general ledger? Is there a need for inter-company transactions?
- What is the chart-of-accounts structure? Does that structure support reporting requirements?

- How does your department go about preparing annual budgets? What software do you use to prepare the budget?

- Do you have a need to track any statistical information in the ledger?

- What does the process for month-end close look like? How might technology assist in that process?

- What are the monthly reporting requirements? Can you automate monthly reports?

- What policies and procedures are in place to protect sensitive information? Are there any specific guidelines that your department needs to follow?

- What are your greatest challenges related to accounting or the general ledger?

- Do you need help integrating with the electronic medical records or other clinical software? The dining department? Other parts of the organization?

Asking these types of questions will get department members to open up about their workflows and business processes. By the end of each discussion, everyone will have developed a sense of whether or not the department has the right software tools, policies and procedures, and equipment to fulfill its responsibilities most effectively. The discussion will also help you identify needs and develop a plan that will get your organization to the desired state.

5.3.2. Assessing Internal Interfacing, Connectivity, Integration and Interoperability Needs

An IT leader may discover that departments are not sharing data with one another. This is an incredible opportunity for the IT department to create organizational efficiency through data interfacing and interoperability.

As you meet with different departments, take note of the number of times the same data elements are entered into one or more software applications. During one operational assessment meeting, for example, it was discovered that the human resources department was entering employee demographic information—name, social security number, address, and contact information—in 11 different pieces of software.

It is not unusual to uncover this type of manual labor and rekeying of data. While it may only take the user minutes to enter this information, those actions add up over time. They also increase the likelihood of errors during the rekeying process.

Creating an interface between applications can be simple, if the application's database platforms are standardized. If the organization works to select applications that use a common database language, such as the Structured Query Language (SQL), exchanging data elements can be accomplished without much expertise. Depending on the size of your organization, you may want to create a chart that identifies data elements that applications share. This tool can help streamline efforts to integrate disparate systems.

Look for ways to share information that may not necessarily require a data interface. For example, ask the organization's fundraising foundation if it is receiving contact information for every one of the organization's constituents. Information about residents and related parties can be mined from the resident management platform. Vendor information can be mined from the general ledger software's accounts-payable module. Employee information can be mined from the human resources software. These contacts can be used to create campaigns for marketing or fundraising.

5.3.3. Assessing the IT Needs of Strategic/External Partners

Today's organizations are being asked to exchange information with external vendors or partners, including hospitals, pharmacies, clinical laboratories, and state/regional health information exchange (HIE) entities. That's why it is important to look at any external interoperability needs, in addition to the interoperability of applications within the organization.

If you exchange patients with a hospital and you're planning to implement an electronic health record (EHR), it is advisable to obtain information about your partner's EHR, if it uses one. For example, where did your hospital partner purchase its EHR? What interoperability standards does its EHR implement? What long-term and post-acute care EHR vendor can your partner's EHR interface to exchange information? This information may help you select an EHR for your organization.

Consider using this sample instrument from the Stratis Health Toolkit to assess HIE readiness. The toolkit was developed for Aging Services of Minnesota.

5.3.3.1. Information Security

Ensuring the data security and privacy of your organization's information is paramount as you look to exchange information with external vendors or partners. This is a two-fold process that involves putting into place:

- Physical, technical information security measures.
- Procedural measures.

When looking at technical measures for exchanging information, consider many of the conventional security standards for data encryption, Secure Socket Layer (SSL) certificates and Virtual Private Networks (VPN) technologies. In addition, there are new HIE engine technologies available specifically to protect health information. These technologies allow you to bundle specific data elements and securely exchange information with other information exchange engines.

Organizations no longer batch information in an Excel or comma-separated values (.csv) file and email that information to external vendors and partners. At a minimum, data should be shared using a secure file transfer protocol (SFTP) mechanism.

Keep in mind that technical security measures can only go so far. Having a good set of policies and procedures around sharing information is essential. Identify each department's existing policies and procedures, and compare those with the policies and procedures that exist within the IT department. Policies should include a procedure for any new information exchanges as well as emailing Protected Health Information (PHI).

Stored and/or shared PHI should comply with all applicable privacy and data security regulations stipulated under the Health Information Portability and Accountability Act (HIPAA) and the more stringent Health Information Technology for Economic and Clinical Health (HITECH) Act. An organization's strategic IT plan should ensure that these technical measures are in place and that they align with other policies and procedures. Organizations may benefit from having their IT infrastructure audited for privacy and security, and evaluated and tested to ensure that they are robust.

5.3.3.2. Benefits of External Information Exchange

There are valuable benefits to exchanging information with external vendors and partners. Information exchange can help organizations increase their efficiency and the quality of care they provide to residents.

Care providers participating in a health information exchange (HIE) are able to share health information quickly and easily. For example, if a resident at a long-term care community has a need for immediate acute care, any medical information charted for that resident can be quickly sent to the acute care provider through the HIE. This way, everyone on the resident's care team has a comprehensive picture of that resident's health.

Organizations that accept referrals for post-acute care can also establish HIEs to receive notification of potential referrals from the acute care provider, as well as the medical records of post-acute care residents.

Look for potential avenues to share information electronically with external vendors and partners. Consider the return on investment for the organization and its constituents, particularly in light of emerging business models like bundled payment programs, hospital readmission reduction programs and accountable care organizations (ACO).

5.3.4. Assessing the Needs of Management

One of the greatest benefits of technology and information systems is their ability to give the organization on-demand business intelligence (BI). Dashboards and other analytic tools can provide a picture of the organization's performance that can help managers and executives make decisions and plan interventions. A variety of vendors offer this type of technology. Many of them have successfully integrated BI tools into variety of existing software, including electronic health records.

Plan to meet with the leadership of your organization to determine what analytics, reporting and dashboards are in place today and what is desired for the future. Executive teams may benefit from tools that work across multiple sites and business units, in addition to working with individual business units or sites. To determine the need for these tools, ask questions like:

- What are the five most important reports used to manage aspects of the organization?
- What are the key performance indicators?
- What existing reports could be improved upon?
- How is information—such as budget reports, occupancy and readmission rates—communicated from the leadership team to department managers and other decision makers?
- How is information—including census reports and budget variances—communicated from department managers to the leadership team?
- Is there a need for particular data elements—such as days of cash on hand—to notify management proactively if a threshold is exceeded?

Keep in mind that it is possible to overload individuals with data from multiple data sources and reports from different software applications. Many leaders could benefit from an efficient tool that presents them with basic analytical information but also gives them the ability to drill down for more detailed information if they need it. You may want to evaluate, select and implement a reporting tool that has the ability to do this.

There are vendors in today's market that can conduct data analytics for your organization. In addition, there are some great tools on the market that allow you to create your own customized analytics. These tools connect multiple data sources and report on data elements across different software applications, bundle the reports into dashboard tools, and present data through a secure website.

5.3.5. Implications for the Selection of Technology Applications

Many organizations worry that integrating different software applications will be costly and complicated. Many of these fears can be laid to rest by establishing a list of criteria that best of breed software vendors must meet. It is possible to connect software packages together, and create import and export processes, by adhering to the following list of criteria:

- Is the application based on Structured Query Language (SQL), the special-purpose programming language?

- Is the application web-based?

- Can the application be delivered through a presentation gateway, such as remote desktop or Citrix?

- Does the application support an integration interface? If so, what is that integration interface?

- Can the application run on a virtual server or in a virtual environment?

- Does the application support data standards for interoperability? If so, what are those standards?

- Is the application certified for interoperability? If so, what is that certification and what body certified it?

- Is the software HIPAA and/or HITECH compliant? Can the vendor demonstrate this? What interfaces has the vendor already created that can be easily used free of charge? These interfaces might include the regional health information exchange, National Council for Prescription Drug Programs (NCPDP), Logical Observation Identifiers Names and Codes (LOINC), or Continuity of Care Document (CCD).

Keep in mind that you may need to involve system integrators who specialize in building middleware interfaces and integration engines.

5.3.6. Implications for the Information and Communication Infrastructure

As your organization begins to evaluate new information systems, be sure to consider the new applications' impact on users and on the organization's existing technology.

First, evaluate the communication method that the new system or software will use. For hardware systems, be sure to identify the new system's networking standards (wired or wireless), built-in remote management capabilities, and bandwidth requirements.

If the new system is a client-server application, it may be necessary to consider some sort of a presentation gateway (such as Citrix or Remote Desktop Protocol) to deliver the application. This will be especially important if the client and server are not on the same physical local area network (LAN).

If the application is a web-based application, consider how much traffic the new application is going to generate. Weigh that against current wide area networking speeds. For web-based applications, or applications hosted in "the cloud," you also need to plan for the possibility that the organization may lose connectivity to the Internet. If the organization will need to use the application all the time, there may be a need for some redundancy around Internet connectivity and critical networking components like the firewall.

If the organization is evaluating software that will be hosted in-house, be sure that any current or future hardware will be able to sustain the application and its growth from a performance and storage standpoint. Do not hesitate to ask the manufacturer what the recommended system requirements are today, and what they are likely to be in the future. If an application has a database, ask the manufacturer what you can expect in terms of database growth and disk space usage.

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As you look at putting more and more traffic on a LAN, consider the internal bandwidth requirements. If the LAN or wireless network currently supports legacy speeds, it may be time to upgrade to gigabit or 10-gigabit networking technology in order to sustain LAN traffic.

See section 6 of this workbook for more detailed discussion of the IT Infrastructure and applications.

5.4. Create the Strategic IT Plan

The information-gathering process can be arduous, and can result in endless pages of notes and spreadsheets. Sifting through all of this information is no small task. Take some time to reread notes and review the information you gathered.

Use your collected information to begin formulating initiatives that can be included in the strategic IT plan. Some of the initiatives might be easy to identify.

For example, you might decide to maintain an active hardware rotation for end-user devices. This would involve:

- Calculating the amount of hardware that you will need to replace each year using the inventory of workstations and devices.

- Identifying a standard for hardware replacement. You might decide that the organization will replace 20-25 percent of its total user devices each year.

- Develop a cost for that initiative and include that cost in the budget. For example, if the organization has 100 workstations, and the plan is rotate 20 percent each year, then plan on purchasing 20 new workstations each year for the next 5 years. Establish a budget number for those 20 workstations, and put that budgeted amount in the technology plan for each of the upcoming years.

It may be more difficult to identify budget and resources needed for larger projects like information system improvement or replacement. Begin by documenting what the need is, and then begin researching viable solutions. Depending on the urgency of the initiative, the organization may seek a formal quote from a vendor. That information can be included in the plan. If the initiative won't be implemented for several years, put a budget placeholder in the plan with the understanding that the amount may be more or less than the budgeted amount.

Consider the internal resources needed for some initiatives. If the strategic IT plan calls for a large software implementation, consider the impact of that implementation on staffing. For an electronic health record implementation, for example, be sure the plan specifies that the project may take several months to complete and may involve staff members from various departments. You may need to budget for additional staff to fill the responsibilities of those working on an implementation.

Your goal is to develop a short summary of the objectives contained in the strategic IT plan. Identify how each objective correlates with an organizational priority. Include a description of the initiative, a list of responsible parties, the estimated timeline and the projected budget. Consider putting this information in a spreadsheet or a table that can be easily and efficiently presented to others in the organization.

5.5. Phasing of Planning and Implementation

Your final planning step will be to assign some level of priority and phasing to each technology initiative. This can be one of the most challenging steps in the planning process.

Almost every organization has finite resources to accomplish a seemingly infinite number of projects, initiatives and objectives. IT initiatives are constantly competing against the needs of other departments, especially when budgets are limited. That's why it is important to ensure that all appropriate stakeholders share the desire to move forward with the initiatives as quickly as possible. Going through the process of identifying gaps and developing solutions will create the desire for something better for nearly every user and department.

You can move this process along by:

- **Looking at the impact of the initiatives.** Trends and recurring themes will begin to surface as you gather information about these initiatives. It may be wise to prioritize initiatives that solve problems or create efficiencies for a large group of users.

- **Weigh the impact of all the initiatives against the budget.** It may not make sense to prioritize two initiatives that are resource-intensive in the same fiscal year. Instead, spread the projects over multiple years to minimize budgetary impact.

- **Consider the urgency of an IT initiative.** Prioritize initiatives relating to regulatory demands or systems that need to be replaced to maintain the ongoing operation of the organization. These should have a higher priority than projects aimed at improving technology or information systems. For example, if one initiative calls for replacing a 20-year-old life safety system containing hard-to-find replacement parts, and one project involves upgrading the wireless infrastructure from 802.11n to 802.11ac, it makes sense to prioritize the replacement of the life safety system because of its critical nature.

Once budgeting, resource planning and prioritization of all of the initiatives is complete, circulate the summary of initiatives to other organization leaders and solicit their feedback. The leadership team may have some valuable input regarding the urgency of some initiatives or the validity of some projects.

5.6. Strategic IT Planning Resources

If you need outside expertise, consider the following LeadingAge CAST Supporters and Associates as resources for your strategic planning needs. These partners have an aging services focus and expertise:

- **CAST Supporters**:
    - ProviNET Solutions.
    - HP Healthcare.
- **CAST Patrons**:
    - Asbury Services
    - Bethesda Health Group.
- **CAST Business Associates**:
    - The Asbury Group.
    - DaVinci Digital.
    - Prelude Services.
    - HealthSignals.
    - CDW Healthcare.
    - PC Connection.

6. IT Infrastructure

Contributors:

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Audience:

Executive Team, IT Leadership, and the IT Team.

The IT infrastructure includes a variety of inter-related components, including:

- Servers.
- Network (wired and wireless).
- Routers.
- Switches.
- Wireless access points.
- Beacons.
- Wiring closets.
- Workstations.
- Thin clients.
- Desktops.
- Phone system.

Once the assessment phase of the IT strategic plan is completed, the organization's IT leadership should help the executive team consider updating the IT infrastructure to support all of the organization's potential technology applications, including applications that support staff and operations and residents/clients. Applications supporting residents/clients might include Internet access, telephone, television, social connectedness technology, concierge services, energy management software and programs that facilitate maintenance requests.

6.1. Virtual Cloud Servers vs. Local Server

Cloud computing should be considered whenever an organization updates its infrastructure and applications. Organizations that do not have data centers in place should seriously consider going directly to the cloud for most of their applications.

No infrastructure decision receives more discussion than an organization's choice between hosting its IT system "in the cloud" or on a dedicated local server. Om Thoke, a web hosting expert, addressed this decision in

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a recent article entitled, "Cloud Hosting or Dedicated Hosting: What Should You Prefer?"[7]

6.1.1. Dedicated Server

Thoke describes a dedicated server as "the traditional, reliable and highly recommended way of hosting websites and web apps." The dedicated server works like this: A user buys or leases a server from a provider and pays a monthly charge. That charge will vary, depending on the features included in the server package, and the organization's hosted applications, memory needs and traffic demands.

Once a customer purchases a server package, a vendor must install the server before it is becomes operational.

6.1.2. Cloud Computing

In cloud computing, explains Thoke, dedicated servers run software for many virtual servers. To the user, these virtual servers appear to operate just like a single, dedicated server. But the virtual servers are actually running on many different dedicated servers. The user does not know what hardware his or her server is currently using.

Cloud hosting requires no installation. Once a virtual server is created on the cloud, the user can access it within a matter of few minutes, says Thoke.

6.1.3. Comparison

6.1.3.1. Cost Differences

Monthly cost for dedicated web-hosting servers may vary. Packages are available for as little as $50 a month, but Thoke maintains that these configurations are usually not that useful. The basic standard package for a dedicated web server usually starts at $100 a month. Packages can go as high as $1,000 a month.

Cloud hosting customers are charged for the amount of storage they use and the time it takes to transfer data. Monthly fees normally start at $50, says Thoke. There is no upper limit on monthly fees, since this is a "pay-as-you-use" model. As with dedicated servers, an organization's actual costs would vary, depending on its hosted applications, size, memory needs and traffic demands.

The best part about cloud storage is that there are no storage caps, says Thoke. This means that scaling up is easy. In addition, customers don't have to estimate and pay in advance for anticipated capacity. Nor do they have to reinvest in new or additional servers because they can never outgrow the capacity of a cloud server. As a result, cloud storage yields significant savings for the organization, especially because the cost of cloud hosting has been declining over the past few years.

6.1.3.2. Performance

The performance of dedicated servers and cloud computing are comparable, says Thoke. Dedicated servers are as fast as their cloud counterparts. But Thoke warns that computers on a dedicated sever may slow down over a period of time due to the presence of unwanted programs and temporary files. This can occur with cloud servers too, but cloud customers can correct the situation more easily, says Thoke.

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7 Thoke, Om. Cloud Hosting or Dedicated Server Hosting: What Should You Prefer? Available online at: http://webhosting. about.com/od/Dedicated-Hosting/a/Cloud-Hosting-Or-Dedicated-Server-Hosting-What-Should-You-Prefer.htm.

6.1.3.3. Reliability

The biggest difference between a dedicated server and cloud computing is reliability, says Thoke. Data is stored on and retrieved from multiple servers on the cloud. So, even if one server crashes unexpectedly, it is unlikely that a hosted website or web app will crash, says Thoke.

Dedicated servers don't have back-up systems that kick in when the server crashes. So when the server crashes, the website or web app stops working until the server is repaired. No interim solution is available until the server is up-and-running again, says Thoke.

Thoke recommends virtual private servers (VPS), which he says offer a mid-way solution between these two extremes. A VPS is a virtual machine sold as a service by a hosting service provider. A VPS runs its own copy of an operating system. Customers can install almost any software that runs on that operating system.

6.1.3.4. Security

In a related article[8] on "Security Benefits of VPS," Thoke maintains that because a VPS runs as its own copy of an operating system, it doesn't affect the other virtual private servers in the system. This means that an attack on one application or website does not put all the applications or sites hosted on that shared server at risk.

In addition, managed VPS systems can reduce the technical complexities of managing information.

When choosing a web hosting solution, aging services organizations should consider:

- Choosing VPS for hosting financial, email, clinical and other applications that require high security levels.
- Selecting a managed VPS environment for flexibility and reduced management burden.
- Selecting a cloud vendor that has expertise with health care clients and are:
  - Compliant with the Health Information Portability and Accountability Act (HIPAA) and the Health Information Technology for Economic and Clinical Health (HITECH) Act.
  - Are willing to execute business associate agreements.

6.2. Networks and Their Architecture

Health care and aging services organizations are driven by high service standards and are seeking to transform themselves by providing higher quality care, becoming safer and more efficient, and providing better experiences for consumers, families and staff.

Network infrastructure has always played a critical, yet inconspicuous, role as the highway over which data flows within an organization and between organizations. Software applications must run efficiently on this network highway using data in countless ways to give care providers the tools they need to improve the quality of care.

It is important to understand the factors that support critical business applications in both data centers and campus environments. Today's organizational leaders must align costs, simplicity, scalability and redundancy to ensure environments can meet and exceed resident/patient safety and end-user demands.[9]

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8 Thoke, Oh. Security Benefits of VPS. Available online at: http://webhosting.about.com/od/Dedicated-Hosting/a/Security-Benefits-Of-Vps.htm.

9 Roberts, M (2013). Healthcare Data Center and Campus Network Architecture: Primer Introduction. Available online at: http://community.brocade.com/t5/Healthcare-Solutions/Healthcare-Data-Center-and-Campus-Network-Architecture-Primer/ta-p/36619.

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## 6.2.1. Basic Data Network Topologies and their Attributes

The term "data network" refers to a collection of devices connected with each other by communication channels with defined rules for data exchange. Important network properties include redundancy, scalability, manageability and maintainability.

6.2.1.1 Redundancy

Redundancy is an important property in bigger networks, according to Ondrej Kiss, a network consulting engineer at Cisco Systems. A failure of a single device or a link could make the network unavailable for hundreds of users in a local area network (LAN) or millions of users in a Wide Area Network (WAN). Implementing redundancy in networks within health care settings is a very important task to achieve required reliability, says Kiss.

Kiss points out that there is no redundancy in the Line, Bus, Tree and Star topologies presented below.
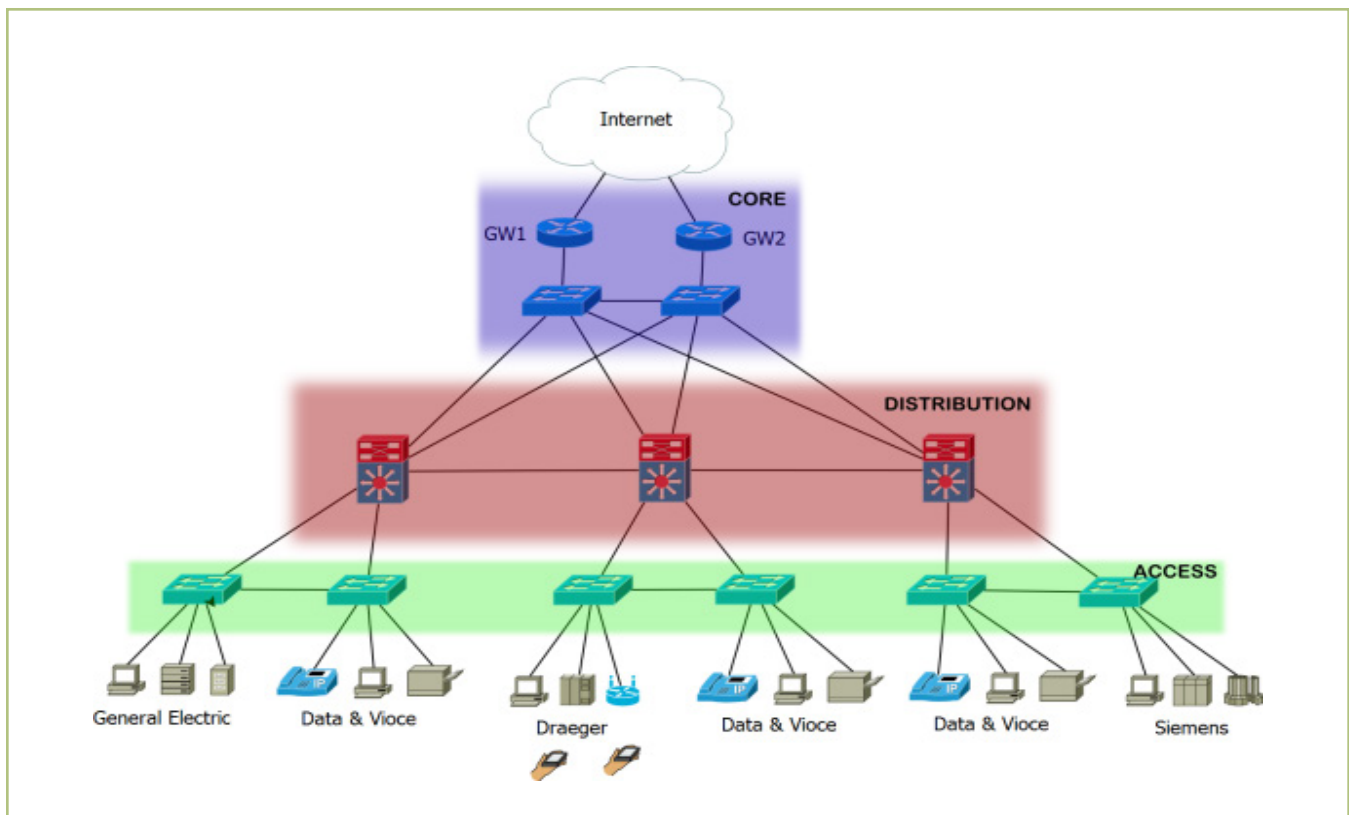
- The Ring topology presents simple redundancy. When one link fails, there is another way around the ring.

- The Mesh topologies feature planned redundancies. Redundant links are added to the topology. In the Mesh topology, each node has a connection to all other nodes. This is called Full Connected or Full Mesh.[10]
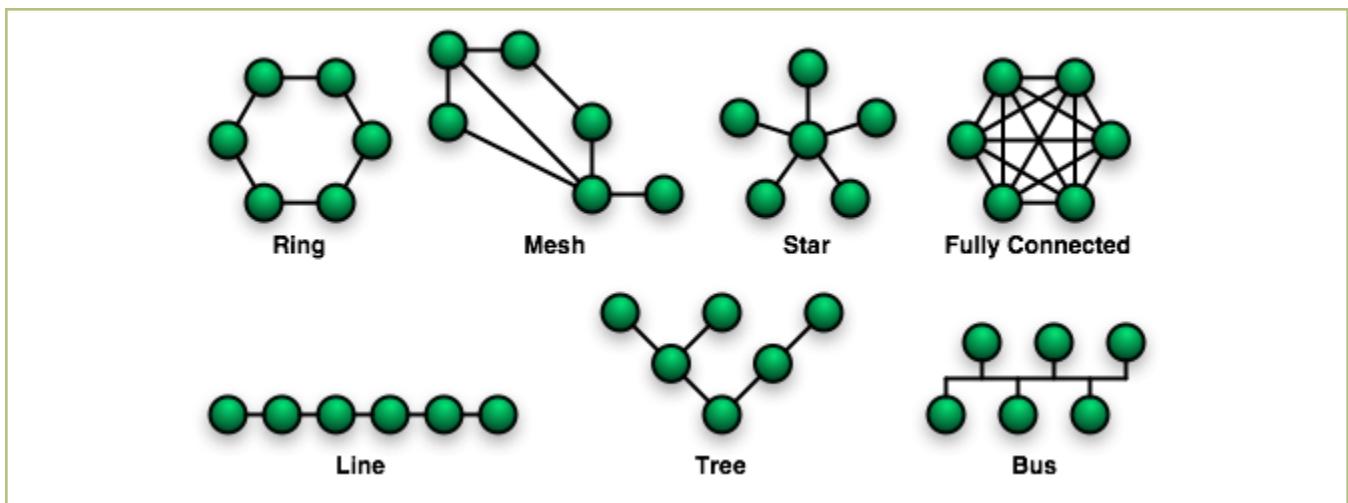
Hierarchical network models represent the easiest solution for designing redundancy, says Kiss. This model creates a systematic and structural template that is deployed when designing the network. The model divides the traffic handling devices into three layers. These are:

1. **Access layer.** This is the place where the standalone stations/devices connect to the LAN. Kiss advises organizations to provide the network access control at this layer. However, this is not always possible because of other preferences.

2. **Distribution layer.** This layer aggregates the data received from the access layer and connects it to the core layer. Kiss says it is important to plan this layer's transfer capacity, redundancy and load balancing. While the access layer controls network access, the distribution layer filters data transmission.

3. **The core layer.** This layer connects distribution layer segments by using simple, but high performance, data forwarding. Plan for transfer capacity and redundancy when building this layer, says Kiss.

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[10] Wired and Wireless Data Networks. Available online at: http://mednet.sk/?show=general_netw&N.

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6.2.1.2 Scalability

Scalability is a network's ability to handle growing amounts of work or to be readily enlarged. It is a desirable property in a network. Networks that are based on a hierarchical model are more scalable because of their defined roles, performance requirements, and throughput, says Kiss.

6.2.1.3 Maintainability

Maintainability is defined as the ease with which a network can be modified to correct faults, improve performance or other attributes, or adapt to a changed environment, says Kiss.

6.2.1.4 Manageability

Manageability is defined as how efficiently and easily a network can be monitored and maintained to keep it working and secure, says Kiss. Because modern networking devices are highly configurable, they offer the user freedom to choose the best solution to meet all requirements.

6.2.2. Basic Network Standards and Classifications

Kiss identifies three types of network devices defined by the IEEE 802 standard:

- **Network access devices.** This includes switches and wireless access points.
- **Inter-networking devices.** This includes routers and application routers.
- **Security devices.** This includes firewalls and Intrusion Detection Systems.

Networks can also be categorized by the area they cover. Different technologies and protocols are used for different-sized coverage areas, says Kiss.
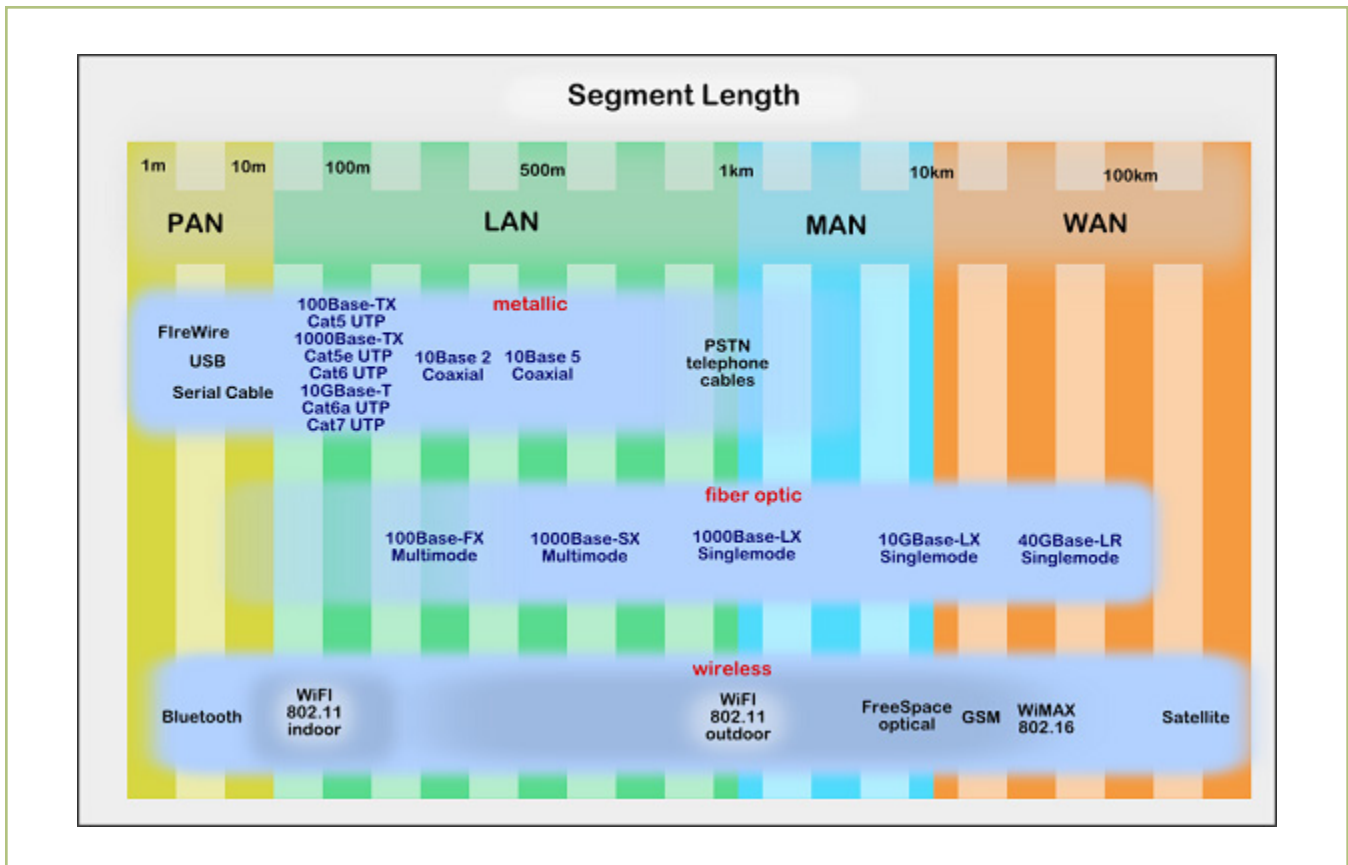
Copper wire or wireless technologies are primarily used for short distances, including:

- **The personal area network (PAN).** This network uses Bluetooth or Wi-Fi technology. Bluetooth-based telemetry is an example of a PAN.

- **The local area network (LAN).** This network operates within a department, building or building complex. LANs usually have a coverage distance of hundreds of meters. Wi-Fi is the most-used wireless LAN technology with distances ranging from tens of meters for indoor usage up to thousands of meters for outdoor deployment.[11] Single-campus providers of health care and senior living typically have a LAN infrastructure. Multi-site organizations usually have a Wide Area Network (WAN).

- **The Wireless Body Area Network (WBAN).** This network is used for very short distances and is considered a special network for the patient/resident/client and his/her close environment. Kiss describes the WBAN as a set of mobile and compact intercommunicating sensors that are either wearable or implanted into the human body. These sensors monitor vital body parameters and movements. They communicate through wireless technologies and transmit data from the body to a home base station that forwards the data, in real-time, to a hospital, clinic or other location.
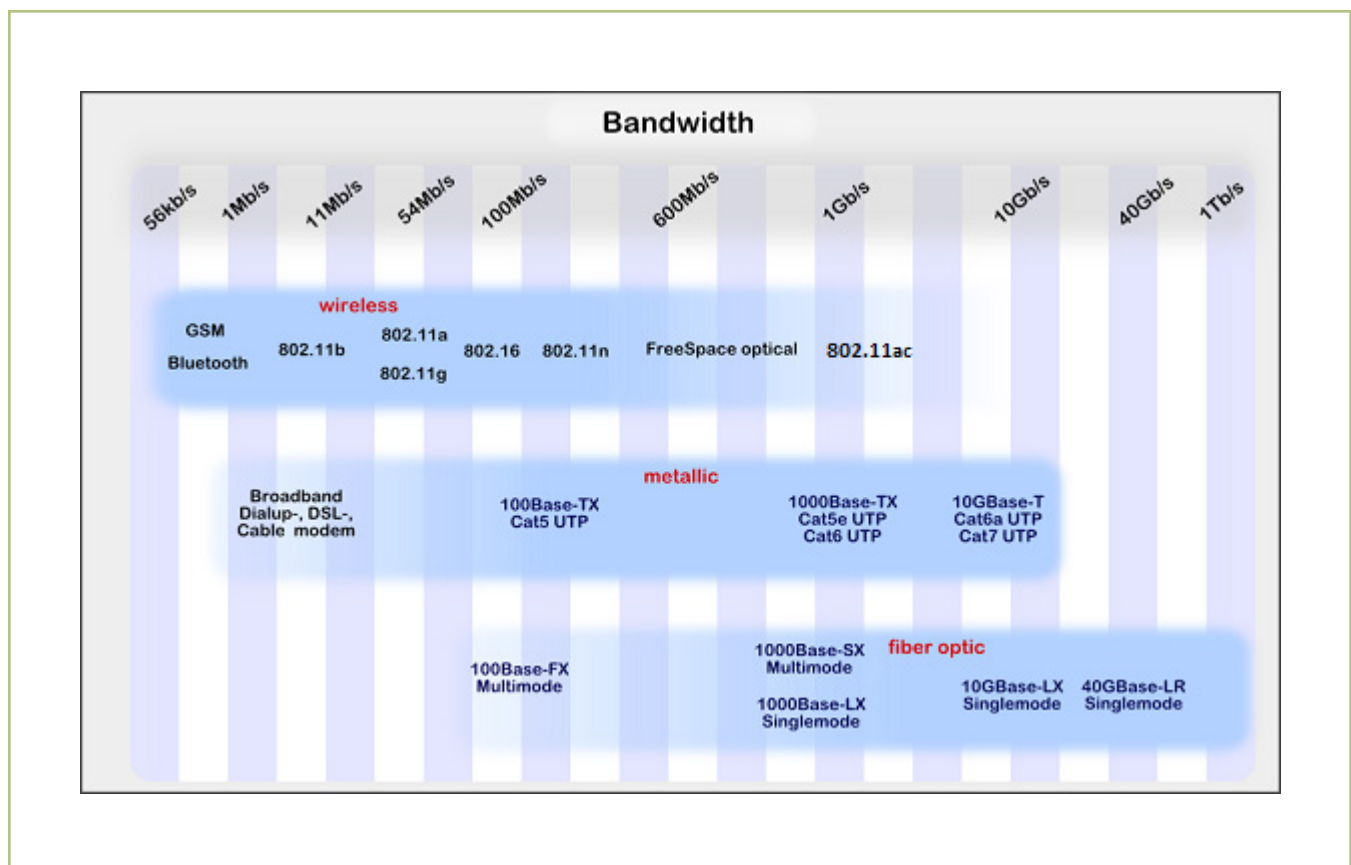
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[11] Today's most common LAN technology is Ethernet covering all LAN distances (100Base-TX called FastEthernet, 1000Base-TX, 10GBBase-T for unshielded twisted pair cables and 100Base-FX, 1000Base-SX, 10GBase-LX and 40GBase-LR for single or multimode optical fibers).

6.2.2.1 Ethernet and Wi-Fi Communication

Ethernet technology is most commonly used for wired technologies using both copper wire and optical fiber. Wi-Fi technology is most commonly used for wireless communication. Wireless networks with short segment distances (like WBAN or PAN) are not commonly used in senior living.

Kiss describes Ethernet as the most efficient solution for wired network technologies. Ethernet meets the bandwidth, reliability, and implementation cost requirements of single-site senior living organizations. Optical fiber may be used to connect the single site to other sites or to the cloud. Wi-Fi could meet the requirements of wireless technologies deployed in hospitals and other health care settings as long as certain requirements are satisfied during implementation, says Kiss.

Bandwidth in the local area network varies from tens of megabits per second (Mbps) to tens of gigabits per second (Gbps), says Kiss. Bandwidth-intensive devices and applications tend to use fiber optic links. Historically, the fiber optic technology has provided faster data transfer than copper wires. However, today's copper technologies are providing inexpensive bandwidth of 1-to-10 Gbps. This compares favorably with the optical fiber solution. A real-time, high-definition, video-based telemedicine application is an example of applications that need large data transfers and require a high bandwidth.

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6.2.3. Wired vs. Wireless Networks

The world around us is increasingly going wireless, according to Steve Evans, a writer with *Computer Weekly*. But many offices remain wired.[12]

There are many reasons for this reliance on wired connectivity, says Evans:

- **Control and security:** "If a physical connection is needed to access the corporate network, the business is in full control of who gets access and what gets accessed," writes Evans. "It also means your network will not be overloaded with non-business critical traffic."

- **Cost:** Physical connections are relatively inexpensive, since cables don't cost very much.

There are disadvantages to a wired system too, says Evans:

- Wires are unsightly.

- Wires can be costly. Wiring an older building can be expensive, particularly when there are no suitable conduits, he says.

- Wires are awkward to maintain. Wired connections need to be set up manually and cable breaks will need to be fixed manually, says Evans.

A wireless network, on the other hand, adds mobility, flexibility and location tracking to an organization, says Evans.

Employees working in a wireless environment can bring their own devices to work. An organization that allows these devices to access the corporate network will have more productive workers, says Evans. But their IT departments will also have huge headaches:

- **Malware.** "The threat of malware getting onto the corporate network via a compromised device is one particular concern," writes Evans. "If the mobile device or tablet is owned by the business, security is obviously easier to address. But employee-owned devices are another question, since most are not protected." Evans recommends that organizations make employees aware of the risks before allowing them to connect to the wireless network. Consider updating security policies too.

- **An expanded coverage area.** "Your network will now extend beyond the physical walls of the office, giving attackers another potential route into the business," writes Evans. If your wireless network is not secure, your data could end up in the wrong hands. To address this issue, Evans recommends that organizations change the default service set identified (SSID) and password to a more secure one. In addition, include these elements in the system's security set-up:

  o Authentication.

  o Intrusion detection.

  o Prevention.

  o Reporting and security event management.

- **Slower speed and fading signals**. Wireless speeds are slower than a wired connection, says Evans. Walls, floors and other electronic items can adversely affect signals. Signals can fade if there are not enough wireless access points around the building. Adding enough points to provide reliable coverage will drive up installation costs, he says.

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[12] Evans, Steve. Wired vs. wireless in the enterprise. Available online at: http://www.computerweekly.com/feature/Wired-vs-wireless-in-the-enterprise.

6.2.3.1. Overcoming the Security Disadvantages of Wireless Networks

Can wireless networks for the business, residents and guests co-exist without compromising the security and performance of the business network? Here are three suggestions to meet this goal:

- Create a separate resident wireless network and connect it to a separate local area network (LAN) and a separate Internet Service Provider (ISP). Segregating the resident network from the business network will enhance security.

- Eric Geier, a writer for *PCWorld*, recommends using business class access points (AP) to create multiple logically separate wireless networks on the same LAN using the same Internet service provider (ISP) connection. This is far more cost effective. These APs will have multiple SSID names and allow the creation of multiple Virtual LANs (VLANs). A provider might set up three VLANs that are separated and secured logically: one for business, one for residents and one for guests. In addition, the business network should use password-protected access and should implement Wi-Fi Protected Access II (WPA2) encryption at a minimum. WPA2-Enterprise with Remote Authentication Dial-In User Service (RADIUS) service further enhances the security of these VLANs. RADIUS is a networking protocol that provides centralized authentication, authorization, and accounting (AAA) management for users who connect and use a network service.[13]

- Configure and manage the wireless network remotely in the cloud to reduce the burden of configuration and management of access points. Be sure to ensure that the Business VLAN traffic is given priority over resident or guest VLAN traffic, especially for medical and safety applications.

- Make sure to use Medical Grade wireless networks for mobile medical devices that require high reliability and coverage. These networks have higher density of access points. Survey your buildings and generate heat maps to help you determine the number and locations of access points you will need to provide sufficient coverage and reliability while eliminating dead zones. This is particularly important for safety applications like Personal Emergency Response Systems.

For more on health care wireless networks, see this whitepaper from HP.[14]

6.2.3.2. Legacy Infrastructure and Mixed Environments

Wireless connectivity is far from becoming the norm in the business setting. In many organizations, there is simply too much legacy infrastructure in place. It would be too difficult to discard this infrastructure and replace it with a wireless set-up.

A combination of wired and wireless connectivity seems to be the way forward, at least for now. This combination allows a business or provider to satisfy the needs of its mobile workers while ensuring that it is meeting security, control and reliability requirements.

Maintaining a mixed environment does not need to be a management nightmare. For example, Cisco's Unified Access platform brings wired and wireless connections together in one switch. Juniper Networks integrates wireless LANs with existing wired infrastructure. These types of technology allow the organization to manage wireless connections on top of an existing wired infrastructure. This means that businesses will see the benefit of having both while, hopefully, reducing the negatives associated with either installation.

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[13] Geier, Eric (2013). How to Set Up Public Wi-Fi at your Business. Available online at: http://www.pcworld.com/article/2031443/how-to-set-up-public-wi-fi-at-your-business.html.

[14] HP FelxNetwork for Healthcare. Available online at: http://h20195.www2.hp.com/v2/getpdf.aspx/4AA5-0529ENW.pdf?ver=1.0.

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6.2.4. Recommended Minimum Bandwidth Speeds

It is critical to have the broadband capabilities to support technology applications, cloud computing and web applications (including electronic health records) that you'll run on your network and Internet highway. The Federal Communications Commission (FCC) recommends the following minimum bandwidth speeds for different health care settings:[15]

Single Physician Practice – 4 megabits per second (Mbps)

- Supports practice management functions, email, and web browsing.
- Allows simultaneous use of electronic health record (EHR) and high-quality video consultations.
- Enables non real-time image downloads.
- Enables remote monitoring.

Small Physician Practice (2-4 physicians) – 10 Mbps

- Supports practice management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables non real-time image downloads.
- Enables remote monitoring.
- Makes possible use of HD video consultations.

Nursing Home – 10 Mbps

- Supports facility management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables non real-time image downloads.
- Enables remote monitoring.
- Makes possible use of HD video consultations.

Rural Health Clinic (approximately 5 physicians) – 10 Mbps

- Supports clinic management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables non real-time image downloads.
- Enables remote monitoring.
- Makes possible use of HD video consultations.

Clinic/Large Physician Practice (5-25 physicians) – 25 Mbps

- Supports clinic management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables real-time image transfer.
- Enables remote monitoring.
- Makes possible use of HD video consultations.

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[15] What is the Recommended Bandwidth for Different Healthcare Providers? Available online at: http://www.healthit.gov/providers-professionals/faqs/what-recommended-bandwidth-different-types-health-care-providers.

CCRC/Hospital – 100 Mbps

- Supports hospital management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables real-time image transfer.
- Enables continuous remote monitoring.
- Makes possible use of HD video consultations.

Large CCRC/ Academic/Large Medical Center – 1,000 Mbps

- Supports hospital management functions, email, and web browsing.
- Allows simultaneous use of EHR and high-quality video consultations.
- Enables real-time image transfer.
- Enables continuous remote monitoring.
- Makes possible use of HD video consultations.

Bandwidth Factors to Consider

The Health Resources and Services Administration shares these factors to consider when carrying out the complex task of estimating bandwidth requirements:

- Number of users.
- User locations.
- Real-time transactions.
- Applications used simultaneously and their need for bandwidth.
- Hardware.
- Storage technology.

These are just general guidelines indicating the minimum bandwidth requirements. When estimating your bandwidth requirements, be sure to ask your vendors about the recommended bandwidth requirements of the applications you'll run on your network or the Internet.

6.3. Technology Applications in Senior Living

The IT and network infrastructure in senior living provides connectivity to staff and residents, and serves as the foundation and the highway for a broad array of technologies applications. These applications support:

- Administrative and business back-office operations.
- Clinical and care services documentation.
- Safety and security.
- Health and wellness.

- Resident connectivity.

- Entertainment and social connectedness.

- Campus/facilities management.

These separate systems should ideally be on a unified network to simplify integration, monitoring and management. However, some of these application systems may require different wired/wireless communications networks and protocols from your standard data or Wi-Fi networks.

As mentioned in section 6.1 of this workbook, many applications are now offered as cloud-hosted, web-based applications or software as a service (SaaS). The reduced cost and simplified management associated with cloud-based applications makes them viable and appealing options for senior living organizations.

There is an increasing need to integrate an organization's different applications so that they can pass along shared data elements and reduce duplicative data entry. Data analytics, management dashboards and reporting capabilities are also gaining significant importance in senior living.

6.3.1. Administrative and Business Back-Office Applications

Administrative and back-office application systems support core business services and basic communication. They include applications to support:

- Billing and finance.

- Point of Sale (PoS).

- Enterprise Resource Planning (ERP).

- Asset Tracking, when applicable.

- Customer Relations Management (CRM).

- Donor Management. These systems could be implemented within CRM systems.

- Human Resources. These systems facilitate new-hire onboarding, benefits enrollment, scheduling and payment. Some systems allow staff members to self-schedule or manage their schedules online.

- Communication and collaboration. These applications include Voice over Internet Protocol (VoIP) phone systems, instant messaging, video conferencing, email and basic document creation and sharing. Cloud-based solutions like Office 365, Salesforce, Google Documents, GoToMeeting and screen sharing applications can facilitate collaboration by offering staff members the opportunity to work on shared data records and documents in real-time.

6.3.2. Clinical and Care Services Documentation

Electronic health record (EHR) and charting systems help organizations document clinical and care services. EHRs include many functionalities and features that allow the storage and retrieval of information about the health patient/resident/client. These systems allow staff to document an individual's:

- History.

- Diagnoses.

- Allergies.

- Functional assessments.

- Care plans.

- Medications.

- Therapies.

- Care and support services.

- Interventions/interactions with other providers.

Many EHRs interface with point-of-care devices like touch screens, laptops and tablets. These devices allow the documentation of assessments, vitals and medication administration at the point of care. Several EHRs offer advanced functions like clinical decision support systems, quality tracking and reporting, and health information exchange. See CAST's Electronic Documentation Technologies and the CAST EHR Initiatives for more information.

6.3.3. Safety and Security Systems

Safety technologies fall into the following categories:

- Emergency nurse call and Personal Emergency Response Systems (PERS).

- Fall detection and prevention.

- Environmental monitoring of temperature, carbon monoxide, flood, smoke and fire alarms.

- Access control.

- Wander management.

- Unattended stove shut-off systems.

- Closed-circuit television security cameras.

- Security alarms also belong in this category.

See the CAST's guide to Safety Technologies for more information.

6.3.4. Health and Wellness Applications

Health and wellness technologies are used in health promotion and include:

- Mobile applications.

- Behavioral and health status monitoring systems.

- Telehealth and telemedicine systems.

- Medication management.

- Physical and occupational therapy technologies focusing on the physical health and wellness of older adults.

- Cognitive assessment technologies, reminders systems and cognitive stimulation technologies focusing on the mental health and wellness of older adults. Some computer-based cognitive stimulation technologies have an entertainment value, while others provide physical stimulation as well as sensory and cognitive stimulation.

For more information, see CAST's guide to Health and Wellness Technologies, and the CAST Telehealth and Medication Management.

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6.3.5. Resident Connectivity, Entertainment and Social Connectedness

Connectivity and entertainment applications include

- Internet service.
- Phone Services.
- Television Services, including Video on Demand and HDTV.
- Computer Rooms/Clubs.
- Online Communities.
- Social Networking.
- Online activities, websites and calendars.

For more information, see CAST's guide to Social Connectedness Technologies.

6.3.6. Campus/Facility Management

Campus/facility management technologies may include:

- Facility management.
- Heating, ventilation and air conditioning control.
- Energy management.
- Maintenance management.

6.4. Data Backup, Disaster Recovery and Off-Line Operation

Like other businesses, aging services providers generate large amounts of data. These data files change throughout the workday. Data can be lost, corrupted, compromised or stolen through hardware failure, human error, hacking and malware. Loss or corruption of data could result in significant business disruption.

TechTarget Editor Anne Steciw[16] advises entities covered by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) to have a contingency plan in place. This plan must ensure that the entity:

- Will have continued access to electronic protected health information (ePHI) in the event of a system failure.
- Has an ePHI data backup plan, a disaster recovery plan, and an emergency mode operation plan.
- Has a plan for moving sensitive health care data without violating HIPAA privacy and security requirements.

Steciw suggests that organizations follow these steps to meet HIPPA requirements:

- Conduct a business impact analysis for different disaster scenarios, including loss of power or Internet connectivity. Identify all of your systems and applications, and then determine the impact to the business if they were to fail. Health care organizations should determine the impact to patients and care delivery.

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[16] Steciw, Anne. FAQ Disaster Recovery Planning for Healthcare Data. http://searchhealthit.techtarget.com/FAQ-Disaster-recovery-planning-for-health-care-data.

- Identify possible points of failure and develop a plan to address those vulnerabilities. Your plan might include:
    - Accessing emergency power.
    - Having a backup Internet Service Provider (ISP) connection.
    - Establishing a remote data center.
    - Working with EHR vendors to determine service level agreements in the event of a disaster or system failure.
- Examine different data replication strategies available to determine which best suits your organization.

6.4.1. Data Backup

Ready, a national public service campaign to educate and empower Americans to prepare for and respond to emergencies, has developed a helpful guide to data backup and recovery, which it suggest should be an integral part of an organization's business continuity plan and information technology disaster recovery plan.[17]

According to *Ready*, developing a data backup strategy involves:

- Identifying what data to back up.
- Selecting and implementing hardware and software backup procedures.
- Scheduling and conducting backups.
- Periodically validating that data has been accurately backed up.

6.4.1.1. Developing the Data Backup Plan

Ready recommends that organizations begin the planning process by identifying data that must be backed up. This includes data on network servers, desktop computers, laptop computers and wireless devices. Don't forget other hard copy records and information.

The backup plan should include these regularly scheduled backups:

- Back up wireless devices, laptop computers and desktop computers to a network server.
- Back up the data on the server.
- Scan paper copies of vital records into digital formats. Then, back up those digital files along with other digital data.

6.4.1.2. Options for Data Backup

Ready recommends that your backup plan address the:

- Frequency of backups.
- Security of the backups.
- Secure off-site storage.

Backups should be stored with the same level of security as the original data, says *Ready*. You can use a variety of backup media:

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[17] IT Disaster Recovery Planning. Available online at: http://www.ready.gov/business/implementation/IT.

- Tapes, cartridges or large-capacity USB drives with integrated data backup software.
- Online data backup services, including storage in the "cloud." This is a cost-effective solution for businesses with an Internet connection. Software installed on the client server or computer is automatically backed up.

Back up your data as frequently as necessary. Your goal should be to ensure that business can recover easily from a data loss. *Ready* suggests that organizations conduct a business impact analysis to evaluate the potential for lost data and outline recovery strategies.

6.4.2. Disaster Recovery Plan

As health care and aging services providers move toward the adoption of electronic health records (EHRs) and become dependent on electronic data systems, the need for solid backup procedures and disaster recovery planning (DRP) becomes more important, according to *TechTarget* Editor Anne Steciw.[18]

An information technology disaster recovery plan (IT DRP) should be developed in conjunction with the business continuity plan. During the business impact analysis, be sure to develop priorities and recovery time objectives. Outline how you will restore hardware, applications and data in time to meet the needs of the business recovery.

Recovery strategies should be developed for information technology (IT) systems, applications and data. This includes networks, servers, desktops, laptops, wireless devices, data and connectivity. Priorities for IT recovery should be consistent with the priorities for recovery of business functions and processes that were developed during the business impact analysis.

The disaster plan should include:

- IT resources required to support time-sensitive business functions and processes.
- The Recovery Point Objective (RPO). This refers to the point in time before the disaster to which you will recover data.
- The Recovery Time Objective (RTO). This refers to the point in time after the disaster when you will be up and running again. You will lose data/transactions between the disaster strike and your RPO. The RPO is determined by the intervals between backups that the system performs.

The time between the disaster and your RTO represents your downtime.[19] The recovery time for an IT resource should match the recovery time objective for the business function or process that depends on the IT resource.

Information technology systems require hardware, software, data and connectivity. Without one component of the "system," the system may not run. Therefore, says *Ready*, recovery strategies should be developed to anticipate the loss of one or more of the following:

- Computer room.
- Hardware, including networks, servers, desktop and laptop computers, wireless devices and peripherals.
- Connectivity to a service provider.

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[18] Steciw, Anne. FAQ Disaster Recovery Planning for Healthcare Data. http://searchhealthit.techtarget.com/FAQ-Disaster-recovery-planning-for-health-care-data.

[19] Nolting, Daine. RPO, RTO, PTO and RaaS: Disaster recovery explained. Available online at: http://www.bluelock.com/blog/rpo-rto-pto-and-raas-disaster-recovery-explained/.

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- Software applications, including electronic data interchange, email, enterprise resource management, and office productivity software.
- Data and restoration.

Ready warns that some applications cannot tolerate any downtime. Larger companies avoid this downtown by implementing an expensive solution involving dual data centers that run in parallel to avoid data loss. *Ready* suggests that small- to medium-sized businesses might protect critical business applications and data by using less expensive applications that can work offline when Internet or network connectivity is lost. These applications sync when nonworking systems are restored.

6.4.2.1. Internal Recovery Strategies

Businesses that have more than one site may have another option to avoid losing data in a disaster. The business can configure hardware at the alternate facility so it will run critical applications when needed. This will work, says *Ready*, as long as data is backed up off-site or data is mirrored between the two sites. When data is restored at the alternate site, the systems can be synced.

6.4.2.2. Vendor-Supported Recovery Strategies

Ready also suggests that organizations investigate vendors that provide "hot sites" for IT disaster recovery. These data centers have commonly used hardware and software products that can handle the data needs of subscribers in an emergency. Subscribers can provide their unique equipment or software, either when the disaster occurs or beforehand so it is ready to use when disaster strikes.

Organizations can also seek out vendors to host and manage data streams, data security services and applications. *Ready* explains that subscribers to this type of service can access information either at the primary business site or they can use a web browser to access information from an alternate site. If the vendor detects an outage at a client site, that vendor automatically holds data until the client's system is restored. Vendors can also provide data filtering and detection of malware threats. This enhances cyber security.

6.4.2.3. Developing an IT Disaster Recovery Plan

Ready recommends that businesses develop an IT disaster recovery plan by following these steps:
- Compile an inventory of hardware, software applications and data.
- Develop a strategy to ensure that all critical information is backed up.
- Identify critical software applications and data and the hardware required to run them.
- Use standardized hardware that will help you replicate and re-image new hardware.
- Make sure copies of program software are available so you can reinstall or replace equipment.
- Prioritize hardware and software restoration.

Ready advises that you include the IT disaster recovery in the business continuity plan. Test the plan periodically to make sure that it works.

6.4.2.4. Disaster Recovery Planning in Virtual Environments

Some organizations are turning to virtualized disaster recovery to restore access to health care data in the event of system downtime. There are many benefits to using virtualized disaster recovery. However, it is crucial that health care organizations maintain HIPAA compliance.

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In a virtual setting, disaster recovery planning should also include procedures for restoring backups to virtual hardware. Be sure to specify the conditions for using virtual machines.

6.5. Support of the IT Infrastructure: In-House vs. Outsourcing

IT can be performed either in-house or outsourced to a vendor. AhelioTech, a Columbus, OH, IT firm, suggests that it might seem counterintuitive for a company to outsource highly visible or important services like IT. But, says AhelioTech, "understanding the things a company must do to handle a service in-house (and keep it running continuously), it becomes more evident why many companies choose outsourcing versus operating a service in-house."[20]

AhelioTech illustrates its point by listing the myriad tasks involved in providing in-house services:

- Locating qualified employees.
- Training and certifying those employees, including employees needing IT certification.
- Paying employee wages and benefits.
- Providing a physical workspace.
- Providing required technology items, including computers, phones, Internet access, copiers and fax machines.
- Paying telecommunications costs.

A 2012 AhelioTech blog weighs a variety of pros and cons to determine if it makes sense for businesses to hire full-time IT professionals or outsource their IT needs. The blog comes down on the side of outsourcing. Following is an overview of its comparison.

6.5.1. In-House IT Support

- **Pros:** A staff person will address your IT issues immediately. In addition, his or her salary will remain the same, even as your technology needs change.
- **Cons:** The costs of providing a full-time IT professional with a salary, benefits, computer, desk and telephone will add up. In return, you may get limited technological expertise. "Your IT specialist may be good with Excel and handy when it comes to figuring out why the printer isn't working, but may not be as savvy when it comes to diagnosing network security issues or upgrading the Exchange server," says AhelioTech.

6.5.2. Outsourcing IT Support

- **Pros:** Outsourcing can be less expensive since an IT agency tends to spread overhead costs over several clients. You won't have to train and certify IT staff. And you'll get 24/7 access to tech support specialists.
- **Cons:** If you choose offshore outsourcing, you may run into communication issues, warns AhelioTech. In addition, you won't be able to bring your outsourced professional onsite when necessary. You may also spend extra time bringing an outside expert up to speed when issues arise or when you want help to plan for the future. Ahelio Tech suggests that hiring locally and signing an ongoing "managed services" contract could address both issues.

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[20] AhelioTech: Pros and Cons of Outsourced vs. In-house IT Support. Available online at: http://www.aheliotech.com/blog/pros-and-cons-outsourced-vs-in-house-it-support/.

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CAST believes that it is best to outsource to a local IT service provider that has significant understanding, expertise and clients in aging services.

6.6. Interconnectivity, Interoperability and Exchange of Information

Jennifer Bresnick of *HealthIT Analytics* suggests that health care organizations face a daunting task when they attempt to develop an interoperable health IT infrastructure that meets the data exchange needs of post-acute care providers. "Providers need to choose carefully when investing in an electronic health record (EHR) platform and building health information exchange capabilities into a complex ecosystem running everything from laptops to iPods," she cautions.[21]

During a recent interview with Bresnick, Mark Crandall, chief information officer at Consulate Health Care, a large post-acute care provider in Maitland, FL, provided these salient points about interconnectivity, interoperability and exchange of information:

- A cloud-based infrastructure for an EHR platform could be best choice from an analytics standpoint, and will ensure that the system is stable and avoids downtime.

- Having a mobile platform for an EHR is essential, especially in settings where third-party physicians use their iPhones during their rounds. Crandall maintains that mobile devices will soon outnumber laptops among these physicians.

- By the time residents and patients arrive at a long-term and post-acute care (LTPAC) setting, they will have interacted with many different providers along the continuum of care. "So one of the biggest challenges right now is how we become interoperable with all of these different providers," says Crandall.

- There has been a federal push for health information exchange and the meaningful use of EHRs. However, not all EHRs can exchange all the needed information that should flow between LTPAC and acute care providers. This will get better with time, as we get deeper into Stage 2 and as we move forward with Stage 3 and 4 of the meaningful use program, which is driving interoperability standards and HIE.

In the meantime, providers are encouraged to:

- Choose and work with EHRs that implement interoperability standards.

- Seek opportunities to participate in state and regional Health Information Exchange (HIE) entities. These have the advantage of connecting your organization to multiple acute care providers.

- Consider utilizing third-party solution providers, like eHealth Data Solution's CareWatchConnect, to receive and send continuity of care documents (CCD) or consolidated clinical document architecture (CCDA).

- Consider exchanging health information through the Direct project, which is administered by the Office of the National Coordinator for Health Information Exchange. Using secure email, participants in the Direct project exchange documents, including CCDs; CCDAs; transfer summaries; and status, background, assessment and recommendations (SBAR).

- Consider using the KeyHIE Transform Tool to send functional assessment data (MDS, and OASIS) to other providers, even when you don't have an EHR.

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[21] Bresnick, Jennifer. Interoperability, Data Exchange Help Transform Post-Acute Care. http://healthitanalytics.com/2014/10/21/interoperability-data-exchange-help-transform-post-acute-care/#.

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Remember that HIE is not just about exchanging information. It also involves working on communications to reach agreement about critical data elements to be exchanged, workflows, protocols and expectations regarding follow up.

6.7. IT Infrastructure Resources

If you need outside expertise, consider reaching out to the following LeadingAge CAST Supporters, Patrons and Associates as resources for your strategic planning needs:

- ProviNet Solutions.
- HP Healthcare.
- DaVinci Digital.
- HealthSignals.
- The Asbury Group.
- CDW Healthcare.
- Prelude Services.
- PC Connection.

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7. Overview of Operational Planning, Selection, Implementation and Support

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Audience:

General readership, including Executive Leadership, and Team leaders and members.

7.1. Project Planning

Project planning is essential to understanding the depth and scope of an organization's information technology (IT) system and the resources needed to select and implement that system. Most organizations will not have project planners who are experienced or certified. These organizations can engage a consultant to assist them during the selection and/or implementation process. Consideration should be given to how the project will be staffed, the level of commitment that the organization's staff must give to the project, and steps the organization will take to maintain its daily operations during the implementation process.

7.1.1. Project Team

Successful implementation of IT depends on having a wide array of stakeholders represented on the project team. The most successful project teams incorporate the organization's day-to-day operations staff and its leadership staff. Be sure that the team has a clear set of goals, timelines, resource requirements and deliverables.

7.1.2. Goal Setting

The goals of the planning process should reflect the mission, vision, values and goals of the organization as it relates to the specific project and expected project outcomes. Define a business case for the project and be sure the expectations of the team are in sync with that business case. This information will be used to determine the scope of the project.

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7.1.2.1. Importance of Goals

All stakeholders in the strategic IT planning process must identify and commit to achieving specific, measurable goals. These goals will establish the expectations for learning about technology solutions that support the organization's operations, and help the organization:

- Prepare for change.
- Select a suitable product.
- Ensure solid implementation and training.
- Optimize the use of technology.
- Sustain the project after it is operational.

7.1.2.2. Writing Goals

Many organizations recognize the importance of S.M.A.R.T. goals. The acronym can take on many meanings to fit specific organizations' needs. Here are a few suggestions from Visioning, Goal Setting, and Strategic Planning for EHR and HIE, a toolkit from Stratis Health that was developed for Aging Services of Minnesota:

- **Specific:** Goals should identify who, what, where, when and why. They should be well defined and clear to anyone who has a basic knowledge of how the organization works. Some experts suggest that the goals also need to be *Significant* enough to make the investment in achieving the goal and that they should *Stretch* the organization to continuously strive for improvement.

- **Measurable:** Goals should answer the questions "how much?" and "how many?" That way, you can determine when a goal has been accomplished. To be measurable, goals must contain specific *Metrics*, be *Meaningful*, and be *Motivational*.

- **Attainable and Agreed upon:** The "A" in S.M.A.R.T. can refer to the need to develop attitudes and abilities to reach goals. However, it's also critical to gain consensus on *Acceptable* goals and commit to *Achieving* those goals.

- **Realistic, Relevant, Reasonable, Rewarding and Result-oriented:** Goals must reflect the availability of resources, knowledge and time so they can be achieved.

- **Timely, Tangible and Trackable:** Devote time necessary to acquire and learn to use health IT to achieve goals. Once you've determined what time is adequate, assign target dates to key deliverables so the project has a sense of urgency as well as a transparent way to track progress toward meeting goals.

7.1.2.3. Templates for Tracking Goals

Long-term and post-acute care (LTPAC) provider organizations may be concerned about writing S.M.A.R.T. goals because those organizations lack baseline data, or fear results will be difficult to achieve. These issues are actually part of the problem, not a reason for inaction.

If baseline data are not available today, now is the time to start collecting current data for the organization's most important functions. Cultivating a culture of quality measurement, reporting and improvement is often more important than implementing IT.

It is essential to engage end users in:

- Setting expectations.
- Providing the commitment and support to achieve your goals.

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- Measuring and reporting.
- Celebrating success.

End-user engagement after IT implementation will help to ensure project success. It can also help the organization identify additional opportunities for continuous quality improvement.

Consider using the home health template from the Stratis Health Toolkit to help write goal statements. The toolkit was developed for Aging Services of Minnesota.

The Stratis Health Toolkit suggests that organizations start out with a general goal statement. Then, the toolkit says, take these steps:

- Dissect the organization's goal to determine how IT can help achieve it.
- Identify sources of data and applications—within information and communication technology (ICT), health IT or your electronic health record (EHR)—that will help you make improvements.
- Define metrics so you have a clear understanding of what data to collect.
- Record your current baseline data.
- Set your goal by summarizing the results or improvements you think can be achieved within a realistic timeframe. Include target dates when possible for using the new ICT, health IT or EHR application.
- Record the rationale for setting the goal. Note any obstacles that might keep you from achieving the goal. For example, some expected outcomes might be set for you by regulations or contract. Or, your pharmacy's inability to implement electronic prescribing may keep you from fully achieving your ePrescribing goals until the pharmacy adopts the technology.
- Record results periodically until the target date for achieving your goal is reached. If you wait until the targeted time, you will not know whether you are on course to meet the goal and you will not be able to implement corrective action to meet your deadline. While the deadlines are self-imposed, timeliness is a key motivator. A goal to "eliminate Adverse Drug Events" may sound impossible, but one nursing home that set this goal expected to achieve it, and got very close within the first 6 months of implementing an ePrescribing system.

7.2. Understanding the Impact on Workflow and Operations

When you change any process, it often changes the way work is done. That's why it is a good idea to identify areas that will be affected by system implementation and document workflow. This will minimize risk and increase staff acceptance and successful implementation.

7.2.1. Workflow and Process Redesign

Workflow is the step-by-step process of how the job is currently being performed. A complete understanding of workflow is needed to evaluate the impact of system changes on the current process.

7.2.1.1. Importance of Workflow and Process Improvement

The Stratis Health Toolkit's section on "Workflow and Process Redesign for EHR and HIE" begins by reinforcing the importance of actively managing change that comes from IT implementation. Managing change will help individuals overcome their concerns about the technology and successfully adopt that technology. It will also help ensure that the change brought about by the technology is the right change for the organization, says the

toolkit. Specifically, the toolkit suggests that:

- **Workflow and process changes** must be understood and managed. Making these changes will help you take advantage of IT and identify the control points that must be present or should be added to the systems for optimal results.
- **Professional judgment** must be applied when using any tool, including all forms of IT. Workflow and process changes should aid professionals, but are not substitutes for them.

7.2.1.2. Process Mapping as a Means to Manage Change

How can you ensure that potential new users of information systems don't resist change? The Stratis Health Toolkit recommends that organizations demonstrate the quality efficiencies and patient safety of computer systems and engage users in making their own changes.

7.2.1.3. Workflow and Process Mapping

Process mapping is a fairly well defined science, says the Stratis Health Toolkit. A number of tools and techniques can be deployed to understand current workflows and processes, and identify opportunities for improvement.

7.2.1.4. Mapping Current Workflow and Processes

The following steps should be used to map current workflow and processes, according to the Stratis Health Toolkit:

1. Identify processes to be mapped. Include processes that will be impacted by the new IT.
2. Use individuals who *actually* perform the process. They know it best and they need to own the coming change.
3. Instruct persons on why and how the process mapping is being done.
4. Map *current* processes. The toolkit cautions organizations not to identify opportunities for improvement now. You may overlook critical controls built into current processes.
5. Validate maps to ensure they reflect current processes, all variations, and all the information needed. The Stratis Health Toolkit urges organizations to be candid about how processes and workflow really occur within the organization. Be sure to address workarounds, says the toolkit. That way, the new health IT-supported processes can be developed in ways that are most productive and helpful.
6. Collect all policies, procedures, forms and reports that are part of processes to be automated through IT.
7. Obtain benchmark data. Use that data to define expectations for change, and to study the benefits that will come from that change.

Consider using and/or adapting this sample instrument for chart conversion from the Stratis Health Toolkit. The toolkit was developed for Aging Services of Minnesota.

7.2.1.5 Workflow and Process Redesign

The Stratis Health Toolkit suggests that organizations map how workflows and processes will be performed with IT. Identify potential problems in current workflows and processes and determine their root cause. Look for:

- Bottlenecks.

- Sources of delay.

- Rework due to errors.

- Role ambiguity.

- Unnecessary duplications.

- Unnecessary steps.

- Long cycle time.

- Lack of adherence to standards.

- Lack of information.

- Lack of quality controls.

Various tools may be helpful in identifying root cause for these problems. A process flow chart template and a sample systems flow chart from the Stratis Health Toolkit can be found here. The toolkit was developed for Aging Services of Minnesota.

7.3. Identifying Desired Functionalities and Features

So far in the project planning process, the organization has:

- Completed the visioning and strategic planning exercise.

- Assessed organizational readiness.

- Assembled the project team.

- Set the project's goals.

- Designed the program.

Now, it's time for the team to develop a set of criteria that it will use to review and select an appropriate technology solution that can help the project achieve its desired goals and meet the organization's needs.

This involves the important step of identifying desired functionalities and features, and categorizing those desires as either something you need ("must have") or something you want (nice-to-have). This exercise will help you clarify what features and functionalities are most important and identify which functionalities and features may need to be eliminated due to budget constraints.

For each technology application, identify key desired functionalities and features (needs) and also identify the less desired functionalities and features (wants). By prioritizing and listing the important functionalities and features, your purchasing decision process and vendor evaluation will be more focused and efficient.

7.4. Comparing Products to Create a Shortlist of Vendors

Using the prioritized list of needs and requirements, review and compare multiple product offerings. Identify products that meet those needs.

LeadingAge CAST has developed online selection tools to help organizations create a shortlist of vendors based on their most important and required features and functionalities. Check out selection tools for the following product categories: Electronic Health Records, Telehealth and Remote Patient Monitoring Technologies and Medication Management Technologies. CAST regularly updates these tools and adds more tools.

It is important to research the vendors on the shortlist to understand each company, its strengths and weaknesses. Consider searching the Internet, viewing the vendor website, and talking with current clients.

7.5. Vendor Evaluation and Selection

7.5.1. Objective Scoring

It is important to develop an objective method of selecting a vendor. Organizations that use such a method will help reduce confusion when gathering information and observing product demonstrations. Relying on an objective method can also help organizations evaluate technology solutions with functionalities that meet one department needs but not the needs of another department.

LeadingAge CAST developed product matrixes that highlight over 250 functionalities and features within each product category. Check out the most current product matrixes:

- Electronic Health Records.
- Telehealth and Remote Patient Monitoring Technologies.
- Medication Management Technologies.

These product matrixes will help you compare products on your shortlist. Prioritize, weigh and use the matrix elements, and your own criteria, to develop your own objective scoring tools for the products, vendor demonstrations, Requests for Proposals (RFP) and references.

(See section 7.6 of this workbook for more information.)

7.5.2. System Demonstration

It is important for staff and other stakeholders to see and use the technology solutions you are evaluating. These system demonstrations will help you decide which product will be the best fit for the organization. Participants can complete objective score cards to help determine which vendors will become finalists. Please click here for a score card template and vendor demonstration evaluation form example.

Invite the shortlist of vendors—typically no more than four vendors—to provide a product demonstration. Let them know any specific features or functionalities you need to see during the demonstration. Agendas should be developed for the demonstration to allow time for specific items that you would like the vendor to demonstrate.

List the items that you want to see demonstrated. Use your defined S.M.A.R.T. goals to create scripts for the demonstration session. Incorporate an objective method to score the system's functionality. Select a small team of staff members to conduct that scoring.

Ask the vendor to provide devices for the staff to "play with" so staff members can actually see the system's functionality. This experience will help staff members score the system's performance.

7.6. Shortlisting and Requests for Proposals

Once you have completed your shortlist of finalist vendors, you are ready to invite each vendor to respond to your Request for Proposal (RFP). During the RFP stage, the vendor will want to talk with you as it prepares

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a bid. Take advantage of this opportunity to engage with the vendor's staff so you can learn more about its product and organization.

7.6.1. Creating an RFP

An RFP can be the start of the final selection process and also an opportunity to share with the vendor information about your organization. This information will help the vendor gain an understanding of your organization's characteristics, including the number of sites and beds, levels of care, staff and unique services. The vendor will need this information to ensure that its product supports the organization's work, mission, vision, values and goals.

Make sure the vendor has information about the organization's current IT infrastructure. This is particularly important if that infrastructure is expected to support the new software.

Create an objective method of scoring specific items on the RFP that are important to your organization. Organize a team of readers from the various stakeholders to evaluate and score each vendor's proposal. Ask the vendors to supply the appropriate number of copies for the readers.

Vendors that are unable to meet your organization's needs may be eliminated during the process of evaluating proposals. Consider including the list of "must-have" functionalities, features and evaluation criteria in the RFP to help you choose vendor finalists.

An example of a health IT RFP template provided by The National Learning Consortium (NLC) can be found here. Another helpful tool is the Vendor RFP Process Tool from Stratis Health developed for Aging Services of Minnesota, available here.

7.7. Infrastructure Implications

The final selection of specific technology should take into consideration the IT-related decisions that were made during the strategic IT planning process. The organization could select an application that meets its criteria but requires changes in the IT infrastructure. The implications of making these changes should be factored into the decision-making process, and the IT infrastructure should be updated accordingly. For more information, see section 5.3.6 of this workbook.

7.8. Implementation, System Integration, Data Migration and Change Management

7.8.1. Implementation Phase

During the implementation planning phase, the organization takes the information it gained during the assessment phase and begins to develop answers to who, how, and when questions. During this phase, it's a good idea to identify members of the project's executive steering committee and create a project charter.

Implementation planning is involved and detailed. Be sure to set aside enough time to:

- Agree on project scope and goals.
- Develop a communication plan.

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- Identify project team member and the individuals who will actually implement the system. The project implementation team should be an interdisciplinary team consisting of relevant staff, including:
  - Clinicians (physician, nurse, pharmacist, therapist), if applicable.
  - IT staff.
  - Residents/patients/families, if appropriate.
- Develop a project plan identifying milestones, resources, tasks and timeline. Identify additional staff resources that will be needed to fill in for staff participating in the implementation phase.

Contingency planning should be part of the overall planning process. This involves assessing and identifying potential risks and making plans for addressing those risks as quickly as possible. Risk will not necessarily impact a project severely. But the steering committee should be made aware of risks that could impact the project's timeline, budget, or goals so it can make appropriate decisions to keep the project moving forward.

7.8.1.1. System Build

The vendor usually guides the process of configuring a system to meet the organization's unique needs. This can include:

- Building tables.
- Creating user-defined assessments.
- Mapping the flow of information to various areas of the system.

The workflows developed earlier in the process can be used in this phase. In addition, consider reviewing and editing current organization policies and procedures that are affected by the system implementation. This will help prepare the staff for workflow changes. Include policies and procedures needed for any new hardware being introduced.

7.8.1.2. Staff Training

Staff training is important for successful system implementation and post-implementation success. Staff members need to know:

- How the system should function.
- How to appropriately navigate through the system
- How to enter and retrieve information in the system.
- Who can answer their questions.
- Where to report system issues.

Issues and questions related to workflow, table builds and functionality can be uncovered during system training. Resources should be available to address questions and issues.

You may need to create training materials and user manuals that staff can reference after the application goes live. Incorporate workflow changes into the training to prepare staff for the expected adjustments to their daily processes. Use new hardware during training sessions to increase staff comfort and acceptance of future changes. Consider how software training can be incorporated into new employee orientation.

Finally, consider selecting a core team of users, representing all shifts, to serve as trainers and offer support to end users.

Further information on staff training and support is addressed in section 7.9 of this workbook.

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7.8.1.3. System Testing

It is important to test the system before it goes live. This will ensure that the system performs as expected and that project goals have been met. Testing can include:

- Modular/application testing to ensure proper data flow.
- Data migration testing to ensure data populates the correct fields.
- Interface testing to ensure proper flow of data to and from the interfaced systems.
- End-to-end system testing to ensure that all functionalities work from start to finish.
- System performance testing to determine how much time it takes to access the system and for screens to change.

The scripts developed during system demonstration could be used in the testing phase.

7.8.1.4. Down Time Plan

Talk with the vendor about how it will address an unexpected loss of system access. Put a plan in place, before the system goes live, to address how the organization will maintain continuity of care if the system goes down. This can include the use of back-up paper documentation forms, on-call lists, and other measures. For more information on backup and disaster recovery planning, off-line operation and business continuity, see section 6.4 of this workbook.

7.8.1.5. System Audits

As an organization moves from paper to electronic documentation, the processes that supported the paper record needs to transition to support the electronic system. Ask the software vendor about how audits can occur in the system. Workflows related to supporting the paper record should to be identified and evaluated to determine if they are needed or if they need to be changed. For example, paper records may no longer need to be ordered, stocked and stored. Health information management audits, and processes to assure signatures and document completion, will need to occur electronically.

7.8.2. Post-Implementation Phase

Once the project is complete, continue to monitor and evaluate the project to ensure that critical success factors are achieved and a safe, effective and efficient environment is created. Be sure to:

- Transfer knowledge from the implementation team to those who will be using the system. This transfer is critical to system sustainability.
- Incorporate end users in system builds and training. This will aid knowledge transfer and give you a knowledgeable group of end users.
- Conduct refresher training. This is important because there is so much to learn during training and workflow change.
- Create an internal user group. This ensures that users are aware of the system's new features and functionality as they are developed. This group can also offer feedback and input for system and workflow improvement. This feedback can be incorporated into the organization's continuous quality improvement plan.

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7.8.3. System Integration and Interoperability

Interoperability means that two disparate systems are able to communicate with one another to exchange data. This means every product works together seamlessly. Unfortunately, this is an expectation that has not yet been achieved, even by the most highly integrated suite of products.

Integrated modules or components generally have been built by the same developers. They have similar design characteristics, and they can exchange most data. In general, the components or modules in highly integrated suites of products work well together. However, they will not work with products from other vendors without the help of specialized interfacing.

What are the options when a single vendor system does not meet required needs? There are several:

- Acquire a complementary product that meets the more critical needs. For example, an acute care electronic health record might be used for clinical and health information exchange needs.

- Wait. The state of interoperability has been improving for the last several years. This raises the expectation that more products will soon demonstrate interoperability standards and achieve certification.

- Acquire a different product altogether and adopt one or more of the following strategies:

    o Work on integration and interoperability with the vendors of the different components.

    o Attempt to interface with other organizations for exchange of minimum essential information. Health care organizations that want to interface directly with another organization should also consider whether this is necessary or only desirable. The volume and type of data that actually needs to be exchanged between most organizations may not warrant full interfacing or integration, but merely the ability to gain access to view or retrieve print files.

    o Use a secure portal to provide access to information. In some cases, use a partner organization's applications directly.

7.8.4. Data Migration

Margaret Rouse of WhatIs.com defines data migration as "the process of transferring data between data storage systems, data formats or computer systems." A data migration project, writes Rouse, usually replaces or upgrades servers or storage equipment when an organization is consolidating its website, conducting server maintenance, or relocating a data center. [22]

Rouse suggests that organizations consider these factors when designing a data migration project:

- How long the migration will take.
- The amount of downtime required.
- The risk to the business. Those risks might come from technical compatibility and application performance issues, data corruption, and missed data or data loss.

Rouse outlines three primary tools that organizations can use to move data:

- **Host-based software:** Rouse recommends this software for application-specific migrations like platform upgrades and for database replication and file copying.

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[22] Data Migration. Available online at: http://searchstorage.techtarget.com/definition/data-migration.

- **Array-based software:** This software is used primarily to move data between systems that are alike, she says.
- **Network appliances:** These appliances migrate volumes, files or blocks of data depending on their configuration, says Rouse.

Finally, Rouse recommends that organizations use these practices to protect data during a migration:

- Understand the data you are migrating. Pay attention to where that data lives, the form it takes in its original location, and the form it will take at its new destination.
- Extract, transform and duplicate data before moving it.
- Implement data migration policies. This will help you move data in an orderly manner.
- Test and validate the migrated data to ensure its accuracy.
- Audit and document the entire data migration process.

7.8.5. Change Management

Information Technology (IT) departments often face many challenges when they introduce new initiatives. The biggest challenges involve engaging staff members who are most affected by the change, according to Henry Hornstein, assistant professor of Human Resources Development and Organizational Behavior at Algoma University in Ontario Canada.[23]

These staff members are "exactly those who often feel quite threatened by these kinds of initiatives," writes Hornstein in an *Ivey Business Journal* article entitled, "Using a Change Management Approach to Implement IT Programs."

"They have these emotional reactions because they often have insufficient information about the scope of the change, the training implications, and the potential impact on role changes," writes Hornstein. "The information vacuum is often filled with rumors instead of integrating and engaging all employees with the technology and business process improvement activities."

Hornstein recommends addressing these challenges by:

- Engaging all staff in a visioning process that encourages them to participate, understand, and contribute to the organization's future goals.
- Creating internal change-agent groups that facilitate communication between staff and management.
- Encouraging the development of participative leadership practices within organizations with hierarchical structures.

Hornstein reports that a growing number of organizations are incorporating change management into their major initiatives, including the introduction of IT software packages to business process. He lauds the contribution of effective change management to achieving positive results.

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[23] Hornstein, Henry (2008). USING A CHANGE MANAGEMENT APPROACH TO IMPLEMENT IT PROGRAMS. Available online at: http://iveybusinessjournal.com/topics/strategy/using-a-change-management-approach-to-implement-it-programs#.VK7OcdLF8ms.

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7.8.6. Success Factors for any Project

Hornstein explores several factors that lead to more favorable project outcomes:

- An emphasis on project results, rather than specific deliverables.
- Clear and well communicated expectations and outcomes.
- Visible executive/senior management support.
- An adaptation to organizational readiness.
- An up-front investment in learning the organizational environment.
- The identification of incremental successes.
- Partnerships between consultants and employees.

Hornstein suggests that organizational change efforts that are coupled with IT implementations are most successful when they empower employees to take community action. Organizations can accomplish this by:

- Encouraging staff members to become change agents.
- Bringing staff together to engage one another and the leadership in dialogue about the organization's vision moving forward.
- Integrating human system impacts into IT interventions, rather than treating those interventions solely as technology implementations.

This type of community action increases employee pride and commitment to the organization. It also underscores the belief that everyone in the organization has "great ideas about how the organization can improve," says Hornstein. It also sends managers the encouraging message that they don't have to take full responsibility for ensuring the organization's progress.

Hornstein warns that any effort to engage employees can be a two-edged sword. Organizations run the risk of creating a cynical workforce if they fail to follow through on achieved progress or delay that follow-through. There are ways to reduce that threat, says Hornstein:

- Focus explicitly on the change process as a way to establish that process as the norm.
- Identify key individuals to support the change initiative. Use these individuals to promote a shared organizational understanding during any transition.
- Provide employee training on the newly developed business processes and technology.
- Actively leverage a project's findings through leadership commitment and implementation.
- Establish an accountability framework that reviews the organization's progress on a semi-annual basis.
- Establish a process to include employees in planning and decision making.
- Establish an organizational process to engage employees with external contributors. Together, they can identify opportunities to make the new technology/business process solution more responsive and efficient.

"The challenge for organizational leadership is to continue the momentum generated in any change initiative," concludes Hornstein. "It is critical that management follow through on the key change enablers: organizational structure, policies, information dissemination, training and development, performance evaluation and recognition."

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7.9. Training and Support

7.9.1. Training

Section 5 of this workbook describes the assessment tools that you can use to understand the IT competencies of your organization's staff. Use the results of these assessments to guide your training strategy. Some strategies to consider include the following:

- Employ several different types of training, including facilitator-lead group trainings, training manuals, and hands-on training. Individuals learn from different training styles.

- Make sure training is an ongoing endeavor. It is not just for the post-implementation period.

- Make good use of peer training. If the technology initiative is client-facing, training should be provided by a peer. In addition, consider recruiting peer technology ambassadors to help facilitate the training.

- Assign IT staff to facilitate the training. However, be aware that not all IT staff have the skills to effectively train others.

7.9.2. Support

Support should also be an ongoing endeavor and will not always be provided by the technology vendor.

You may need to add new technology support staff to the IT team. You might reduce the demands on IT staff, and reduce the need to hire additional staff, by identifying non-IT staff members who could serve as in-house ambassadors for your technology initiative or as go-to persons when peers need assistance. You might even consider incorporating aspects of the IT ambassador role into job descriptions of appropriate staff members.

Keep in mind that the implementation of a software system does not end when that system goes live. Technology implementation must become an integral part of the organization's total infrastructure and should be incorporated into operations and future strategic plans.

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8.2. Workgroup

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