

Strategic IT Planning Provider Case Studies 2015

CASE
STUDY



STRATEGIC IT PLANNING PROVIDER CASE STUDIES 2015

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LeadingAge Center for Aging Services Technologies:

The LeadingAge Center for Aging Services Technologies (CAST) is focused on accelerating the development, evaluation and adoption of emerging technologies that will transform the aging experience. As an international coalition of more than 400 technology companies, aging-services organizations, businesses, research universities and government representatives, CAST works under the auspices of LeadingAge, an association of 6,000 not-for-profit organizations dedicated to expanding the world of possibilities for aging.

For more information, please visit LeadingAge.org/CAST

Contents

- 1 Introduction 1**
 - 1.1 Case Study Guidelines.....1
- 2 Lessons Learned and Advice Drawn from the Case Studies3**
- 3 Strategic Technology Planning as a Business Imperative: Process and Impacts.....5**
 - 3.1 Provider: The Francis E. Parker Memorial Home, Inc.....5
- 4 Strategic Outsourcing of IT Helpdesk and Infrastructure 10**
 - 4.1 Provider: RiverSpring Health 10
 - 4.2 Vendor: Lincoln Computer Services 10
- 5 Implementing State of the Art Future-Proof Wi-Fi Network for Business and Resident Needs 14**
 - 5.1 Provider: Garden Spot Village 14
 - 5.2 Vendor: HealthSignals 14
- 6 Taking Campus Redevelopment Opportunity to Develop a State of the Art IT Infrastructure for Business and Residents20**
 - 6.1 Provider: Rose Villa, Inc.....20
 - 6.2 Vendor: DaVinci Digital, LLC.20
- 7 When a Cog Becomes the Wheel: How Enterprise EMR Adoption can Drive Organizational Change 27**
 - 7.1 Provider: Jewish Association on Aging (JAA)..... 27
 - 7.2 Vendor: HealthMEDX..... 27
- 8 Successful Strategic IT Planning: ERP is a Priority 32**
 - 8.1 Provider: Channing House..... 32
 - 8.2 Vendor: ProviNET Solutions..... 32

1 Introduction

The LeadingAge Center for Aging Services Technologies (CAST) is pleased to provide the following six case studies on Strategic Planning and Strategic IT Planning. We hope they will demonstrate for providers the benefits of Strategic Planning and Strategic IT Planning.

These case studies complement the [Strategic Planning and Strategic IT Planning for Long-Term and Post-Acute Care \(LTPAC\) Providers: A “HOW TO” WORKBOOK](#) by highlighting, summarizing and showcasing real-world provider experiences.

1.1 Case Study Guidelines

CAST provided guidance as well as a template for the case studies to help case study contributors. The template included the following required sections:

- **Category (select all applicable):**

Case Study Type

- Strategic Plan with Strong IT Strategic Plan Integrated
- Strategic IT Plan
- Update/ Upgrade/ Implementation of State of the Art IT Infrastructure
- Technology Application Selection and/ or Implementation

- **Primary Project Driver (select all applicable):**

Driver Type

- New Construction
- Expansion
- Renovation
- Repositioning
- Merger/ Acquisition
- Periodic Revisit of the Strategic Plan/ Strategic IT Plan

- **Impact (select all applicable):**

Impacts and Benefits Examples may include:

- New Business Units/ Operations/ Capabilities
- Market Share/ Positioning/ Competitive Advantage
- Functional/ Health Outcomes
- Staff Efficiencies
- Quality of Life/ Satisfaction with Care
- Hospitalization and Hospital Readmissions
- Implementation Costs

- **Cost of Care and Return on investment (ROI) to:**
 - Providers;
 - Payers; and/or
 - Consumer.
- **Organization Name:**
- **Organization Type** (Housing with Services, Home Health/Home Care, Hospice, Adult Day Care/Senior Centers, Assisted Living Facilities, Acute Rehab Facilities, Long-term Acute Care Hospitals, Long-term Care Rehab Facilities, Skilled Nursing Facilities, Intermediate Care Facilities, Intellectual Disabilities/ Mental Retardation/Developmental Disabilities (ID/MR/DD) Facilities, Continuing Care Retirement Communities (CCRC), Program of All-Inclusive Care for the Elderly (PACE)):
- **Main Technology/ Consulting Firm Partner:**
- **Other Partners** (Payer/ Health Plan, Physicians' Offices, Emergency Department, Hospital, Accountable Care Organizations (ACOs), Pharmacies, Others):
- **Organization Description (brief):**
- **Project Description** (brief, no more than 6 lines; what the project is about and which business line it was applicable to):
- **Project Type (List Primary Drivers):**
- **Status before the Project Started:**
- **Business Model** (CCRC type, Medicare Reimbursement, Medicaid Waiver Coverage, Private Health Insurance Coverage, Private Pay, Standard of Care, ACA-Related Opportunity (ACO, Hospital Readmission Reduction Program, Bundling of Payment, etc.)):
- **Planning Philosophy/ Approach:**
- **Implementation Approach:**
- **Advantages to the Approach** (from different perspectives: provider, technology partner, stakeholders (care recipient, caregiver, provider etc.).
- **Status after the Project and Outcomes** (New Business Units, Operations or Capabilities; Market Share, Positioning, or Competitive Advantage; Health Outcomes (Blood Pressure, Blood Glucose, etc.); Staff Efficiencies; Quality of Life/ Satisfaction with Care; Hospitalization and Hospital Readmissions; Implementation Costs; Cost of Care and Return on investment (ROI) to **ALL** Stakeholders: Providers, Payers and/or the Consumer, etc.):
- **Challenges and Pitfalls to Avoid:**
- **Lessons Learned:**
- **Advice to Share with Others:**

2 Lessons Learned and Advice Drawn from the Case Studies

Readers can learn many lessons from the following case studies. They offer the following advice:

Planning:

- Treat technology as a strategic asset with top-down critical thinking, well-thought-out plans and a commitment to multi-year investments. Don't delay it!
- Take the opportunities of development, repositioning, upgrade or partnership to update your strategic plan, strategic IT plan and your IT infrastructure. Create a strategic plan and strategic IT plan for the organization, if they do not exist or have not been updated in the last 1-2 years before embarking on such project.
- Focus on your strategic plan, strategic IT plan and vision to guide you in the any development/ redevelopment process.
- Use your strategic plan and your strategic IT plan and vision to articulate the future needs of your organization and plan to make sure your infrastructure can support both your business goals and resident needs.
- Develop a technology roadmap of Applications, Infrastructure, Services/ Processes, and Governance initiatives.
- Plan, plan, and plan again, and document your planning and design process. Having a clear plan, and insuring alignment with the organizations Strategic IT Plan and overall Strategic Plan is critical for the success of outsourcing.
- In redevelopment/ development projects, perform a complete analysis of existing wiring infrastructure and look at pros, cons and ROI of different alternatives. Inferior solutions are not necessarily cheaper.
- There is no such thing as over-preparation or over-communication!

Vendor/ Partner Selection:

- Ensure that the partner/ provider you pick is a good cultural fit and has an understanding of your organization's strategic goal and why you are deploying technology.
- Ask tomorrow's questions instead of focusing only on today's issues.
- Ensure that the technology deployed has room to grow without forklifting installed solution.

Implementation:

- A clear understanding of workflows, forms and reports is critical to successful system selection, build and implementation.
- The staffing of a full-time project manager and technical analyst is highly recommended when implementing technology.
- Key project proponents should also be allocated 10-15% of protected weekly time to focus on implementation.

Operations:

- Having a Service Level Agreement with provider and a long-term maintenance contract is critical to successful management and support.
- Network and application level monitoring of network traffic is not a luxury but a necessity to help the organization identify issues before they become problems and plan for remediation and growth.
- Don't be afraid to go down the path of outsourcing.



3 Strategic Technology Planning as a Business Imperative: Process and Impacts

3.1 *Provider: The Francis E. Parker Memorial Home, Inc.*

Contributors:

Roberto Muñiz, President/CEO

Donna Lazartic, Chief Operating Officer

Rick Mallia, Sr. Director - Support Services

Case Study Type

Strategic Technology Plan Development

Primary Project Driver

Strategic Business Plan with significant expansion goals

Impact

New Service Lines, Operations and Capabilities; Provisioning of Quality Care and Services; Resident, Participant and Staff Satisfaction with Quality of Life and Care

Organization Type

Long-term Care Provider with Continuum of Services, including Skilled Nursing Care and Assisted Living Residences, Adult Day Care and Health and Wellness Programs

Organization Description

Founded in 1907, The Francis E. Parker Memorial Home's mission is to provide transformative and charitable long-term care services in home-like settings while advancing learning opportunities for nurses, other health care professionals and caregivers. Parker offers a continuum of residential and home and community-based long-term care services for over 400 seniors in Central New Jersey. Guided by the Eden Alternative® principles of person-directed care, Parker embraces and nurtures aging as a natural stage of life.

Project Description

In late 2008, Parker board and management embarked on an eight month process of developing an organization-wide Technology Strategy and Roadmap of prioritized programs and projects. The purpose of the Strategic Technology Plan was to enable successful achievement of the organization's long-term Strategic Business Plan with six major imperatives, including advancing Parker's continuum of care services expansion, quality care and operational excellence, talent management and development, financial stewardship, and long-term care education and research.

Project Type

The primary driver of the project was Parker's ten-year strategic plan to position Parker for the near and long-term with new programs to serve more individuals with a broader continuum of care and support services. In 2008, Parker's executive team and board embarked on an intensive strategic business planning effort that considered how the senior care industry and services were changing, which culminated in a new ten year strategic plan with a high-impact portfolio of strategic initiatives to position Parker Home for the near and long-terms. Parker worked to make the strategic plan a reality through programs, called strategic initiatives, designed to successfully plan, introduce, grow and stabilize operations for new programs to serve more individuals with a broader continuum of care and support services. In parallel, Parker focused on development of best-practice capabilities and foundational competencies, the key success factors needed to support the expanded continuum of care and enable the next phase of growth. One of the key success factor identified was Technology.

Status before the Project Started

In 2008, like most long-term care providers, Parker was pursuing technology absent a guiding road map, absent a strategic technology plan. Technology was functioning as a utility and viewed as a cost center with a short-term focus. IT services were limited to a part-time contractor and minimal use of communications, data and applications technologies, with an annual IT operating expense of less than one percent of total operations expense. IT capital investments were also very limited with less than five percent of capital investment focused on IT. Parker management and board identified technology as a key success factor to achieving its strategic business plan goals of growth and performance excellence. They recognized the need to treat technology as a strategic asset requiring engaging board, staff, and other key stakeholders in top-down critical thinking, the development of well-thought-out plans and implementation processes, and a commitment to multi-year capital and operating investments.

Business Model

Primarily Private Pay with some Medicaid Waiver and Private Health Insurance Coverage.

Planning Philosophy/ Approach

To address the technology foundational gap, in late 2008, Parker management and board convened a technology task force led by a Trustee and a Senior Executive, both of whom had IT experience. The task force included key stakeholders - Parker senior managers, a geriatric physician, and a physician trustee. A task force charter was drafted to align stakeholders on an articulated technology mission, objectives, and milestones with associated deliverables, timeline, and resources. An external consultant with health care IT expertise was engaged to facilitate the technology planning process.

The task force defined the desired role of technology for the organization, namely for technology to be a strategic business partner integral to the business success and viewed as an investment center, strongly integrated into long-term strategic planning. A good input to this discussion was the completion of benchmarking of technology strategies and spending levels with best-in-class peers. Best-in-class benchmarks included annual IT services spend at 4% of operating expense, IT capital investment at 20-25% of total capital investment, an IT operations function with a mix of own and outsourced resources and expertise, and a rigorous IT project planning and management process.

The consultant led the organization in an articulation of a future state technology vision aligned with the strategic plan and mapped out how technology disciplines needed to mature to a future state. Technology roadmap disciplines to be matured were identified in the areas of infrastructure (data, voice, network foundation),

applications (used daily by clinical, financial, administrative operations), IT process and services (professional organization to select implement, maintain complex portfolio of technology solutions), and IT governance (process of making informed decisions and assure disciplined, effective and efficient implementation about technology investments, direction, and utilization). This last discipline of governance was very important to gaining board commitment to the multi-year, one time and ongoing investments required.

The consultant led the organization to thoroughly evaluate the current state of technology and completed a future-to-current state gap analysis. Several strategic options for filling the gaps were identified and assessed qualitatively against decision criteria, such as strong support of unmet user needs, minimum risk, time-to-value, minimum conversion trauma, and lowest possible cost. Best options were selected and implementation projects with estimates of one-time and ongoing costs were outlined. Projects were mapped over a multiyear timeframe with the understanding that investment budgets and decisions would come in multiple leaps. The resulting technology road map detailed initiatives through four years, organized into three leaps: foundational, operations excellence, and innovation. Leap 1, building a foundation, was necessary before Leap 2, investing in operational excellence, and Leap 3, technology innovations to differentiate in the market.

The board committed to the Technology Strategic Plan in late 2009 and implementation began in earnest in 2010.

Advantages to the Implementation Approach

It is very beneficial to take on this effort in partnership with board and management and with the chartering of a formal task force. Boards and senior management teams that have at least one member with IT expertise will be well served in this approach. Engaging a consultant to facilitate the planning process not only is essential to an efficient and effective outcome but also provides expertise and experience to guide and develop the plan. Enrolling and engaging key stakeholders in the planning process will ensure robust and aligned deliverables.

Status after the Project and Outcomes

As of 2015, five years after Parker began implementing the Strategic Technology Plan and project roadmap, the organization has achieved solid and secure technology infrastructures, IT support services and IT solutions across Parker's continuum of long-term care services. The annual IT services spend has grown to and now leveled off at 3.5% of operating expense, while the annual IT capital investment is at 20% of total capital investment.

The ongoing and one-time investments, made in the "three leaps", have delivered a best-practices IT environment (infrastructure, applications, organization and governance) which has driven efficiencies, scale and cost avoidance, improved levels of service and is enabling innovations to continue differentiating Parker in the marketplace.

As the strategic technology plan was being implemented, the strategic growth plan was also being implemented. The organization doubled in size and complexity while effectively meeting increasing demands from market and regulatory environments. During this period of growth and change, resident/participant and employee satisfaction has remained high at 90th percentiles, employee turnover remains low at 10%, and quality care as measured by regulatory compliance is in top 1% of providers. In addition, Parker continues to have a robust and growing waitlist of individuals desiring Parker services and, as a result, the organization is actively planning for its next phase of growth.

Challenges and Pitfalls to Avoid

- Parker board and management were challenged with how to think about measuring the benefit of technology investments. After much discussion, they aligned on three principles in this regard. First of all, IT should not be an end in itself, but should enable strategic goals and objectives. Secondly, if strategic goals can be achieved in an unplugged, paper-based environment and technology does not

add any value, then technology should not be pursued. And thirdly, it is critical to measure strategic objectives before and after technology deployment and to hold management accountable for results. Ultimately, the board and management came to a common understanding that postponing IT initiatives until hard dollar savings can be proven will have a negative long-term impact on Parker's ability to deliver safe, effective, and reliable long-term care services.

- Technology governance is ultimately the responsibility of executive management and the board. This is the piece that is often overlooked and is essential to successful long-term execution of technology. Establishing a structured IT governance process was critical to making the case to shift technology spending in the face of the perpetual challenges of uncertain external and constrained internal resource environments. Setting and committing to live up to a rigorous IT governance process was the final piece that was needed for the board and management to commit to the technology plan with multi-year operating expense and capital investment impacts totaling millions of dollars.
- Any organization making technology investments is always challenged by the project outcomes, timelines, and expenditures, thus a robust technology governance structure is critical to maneuvering through those aspects. Parker's technology governance process included three guiding principles adopted to navigate through uncertain waters, while keeping focused on the strategic vision. The three guiding principles are:
 - Each technology initiative is sponsored by an accountable Parker operations manager.
 - Expenditure requests must be supported by a documented business case and value proposition of resident-focused outcomes.
 - A bedrock commitment to invest in foundational technology initiatives.
- In addition, operationalizing a strategic IT plan requires investment in IT organizational capability and capacity, which for Parker was a combination of in-house staff and outsourced resources. Best practice IT organizational capability should include the functionalities of vendor management, project management, technology business consulting, business systems/applications management and technology environment management.

Lessons Learned

- Determine what's driving the need for technology. Ensure alignment with long-term strategic business plan.
- Treat technology as a strategic asset with top-down critical thinking, well-thought-out plans and a commitment to multi-year investments.
- Engage board, staff, and other key stakeholders throughout the process.
- Learn from benchmarking other organizations with IT best practices.
- Articulate strategic technology vision and map out how technology disciplines need to mature (future state). Assess technology current state and gaps.
- To bridge the gaps, develop a technology roadmap of Applications, Infrastructure, Services/ Processes, and Governance initiatives.
- For each IT initiative, define the benefits/value proposition and expected ROI.
- Develop a multi-year forecast of IT capital and ongoing costs. Define each "Leap" forward, including Foundational, Operations Excellence, and Innovation investments.
- Establish process to govern implementation of technology roadmap
- Execute with discipline. Follow the roadmap and governance practices. Assess progress, learn and adjust.

- Insure effective change management and basic technology education is introduced, monitored and reinforced.

Advice to Share with Others

No time like the present to take on the effort of developing a Strategic Technology Plan, which is a business imperative for aging services providers in today's competitive environment. Aging services providers generally are behind the curve and have traditionally underinvested in technology as compared to other health care and information-intensive industries. The investment curve to simply 'keep up' must shift, let alone considerations of investing in technology as a strategic enabler of strategic business goals and objectives. And, providers who step up to the challenge are encouraged to share their experience with their peers, so that the aging services field continues to grow in quality and impact.

4 Strategic Outsourcing of IT Helpdesk and Infrastructure

4.1 Provider: RiverSpring Health

Contributor:

David Finkelstein, CIO

4.2 Vendor: Lincoln Computer Services

Case Study Type

Technology Application Planning, Selection and/or Implementation

Primary Project Driver

Repositioning and Periodic Revisit of the Strategic Plan / Strategic IT Plan

Impact

New Business Units / Operations / Capabilities

Market Share / Positioning / Competitive Advantage

Staff Efficiencies

Organization Type

Housing with Services (ALP) & Independent Housing, Certified Home Health Care, Licensed Home Health Care, Inpatient Hospice Care, Outpatient Hospice Care, Adult Day Care – Social Model, Adult Night care – Alzheimer’s Care, Skilled Nursing Facility, Post-Acute Care and Short-Term Rehabilitation Care.

Main Technology / Consulting Firm partner

Lincoln Computer Services – Managed IT Services

Organization Description

RiverSpring Health is an internationally recognized non-profit geriatric care organization offering a full continuum of senior care ranging from modern apartments for independent seniors to the most intense level of nursing care, serving more than 10,000 older adults in greater New York.

Since its founding in 1917, RiverSpring Health has grown to include a long-term residential elder care facility located on 32-acres along the Hudson River, a senior housing community with both luxury independent living apartments and assisted living, and a community services division offering a full spectrum of in-home geriatric care, supportive services, and managed care plans for people living at home.

Project Description

Due to increased pressure to provide 24x7 service and support for the IT help desk, and more comprehensive technology support to the growing staff and departments relying on IT for their job, an RFP was developed to outsource the IT help desk, network monitoring, server management and monitoring, and network support for the main campus and remote offices. Lincoln Computer Systems was selected as our outsource partner for this project.

Project Type

Repositioning – As the organization has grown in size and complexity, it became increasingly difficult to balance the cost, complexity, and staffing necessary to appropriately support the organization's systems and staff. While many of the newly implemented systems utilize a Software as a Service (SaaS) model, vendor hosted and supported, the internal infrastructure, LAN and WAN design and support, and internally hosted systems and applications require additional attention. Support for 24x7 EMR applications and an always connected workforce required a change in approach.

Periodic Revisit of the Strategic Plan / Strategic IT Plan – The updating of the organizations strategic plan, and corresponding update of the IT Plan was required. Upon review of the IT priorities, current situation, and upcoming business and regulatory changes required an increased reliance upon IT services to be successful.

Status before the Project Started

The IT department was run as a business hour only help desk, networking, server, and application support team. There was limited support available in the evenings, none overnight, and one tech covering weekends. The team supported one main campus and several offsite programs. There was no formal on call process and few monitoring tools to proactively manage and maintain the systems. Lean staffing, sick call out, vacations, and special projects taxed the limited resources and many preventive maintenance tasks were delayed. There was little opportunity for employee training on new technology and systems, or incorporating industry best practices.

Business Model

A mix of Medicare, Medicaid, Private Pay, Private Insurance, Managed Care and Philanthropy.

Planning Philosophy/ Approach

In support of the strategic IT plan, and industry best practices, an overall assessment was performed of the existing systems, platforms, staff, workload, functions, and responsibilities of the IT team. It was determined the best and most cost-effective approach was to outsource the helpdesk function, as well as the server, storage, network, LAN, WAN, and monitoring responsibilities to a Managed Services vendor with experience in providing this type of service to other healthcare organization of similar size and scope. The remaining IT team, comprised of application support staff, project managers, and web developer, who are all responsible for end user applications, reporting and support, was kept in-house. These support staff positions need to be embedded in the business, and have a high level of cross training.

Implementation Approach

1. Engage IT consulting firm to document current state of all infrastructure, systems, equipment, and processes. Engage stakeholders from all business units to participate in the evaluation and selection of outsource partner.
2. Handle all IT staff turnover with agency techs prior to outsource transition.

3. Develop comprehensive scope of work in RFP to reduce risk of increased costs due to out of scope outsource responsibilities.
4. Prepare for minor business interruptions during outsource transition.
5. Wind down and complete major technology upgrades and projects prior to outsource engagement to insure smoother transition.

Advantages to the Implementation Approach

Any transition that has the potential to impact everyone across an enterprise must be well thought out, planned with attention to details, with many opportunities along the way for review, regrouping, and restarting. Having a detailed transition plan built in conjunction with the vendor and business unit leaders reduces the transition risk. A staff transition plan is also critical for this type of transition. Institutional knowledge, experience with current systems, and familiarity with staff are important to remain intact. Cooperative staff transition plans, including the possibility of transferring some existing staff to the vendor, and/or a severance incentive plan will help normalize the changes and easing staff fears.

Status after the Project and Outcomes

The design of the outsourcing agreement provided for multiple levels of redundancy and coverage, unable to be built with an internally managed team:

- The 24x7x365 offsite managed helpdesk, which over time, has been achieved over a 50% first-call resolution for service requests, freeing up onsite staff to respond to local issues and manage onsite infrastructure.
- The 24x7x365 remote monitoring and management of key infrastructure, including servers, storage, networking gear, LAN, WAN, and communication links insures immediate notification and response to issues, often resolving before the next business day.
- Leveraging the Managed Services vendor bench of cross trained and qualified technicians insured coverage for vacations, sick days, staff turnover, and insure full staffing on a daily basis and avoid pulling staff for projects and incidents. Establish periodic checkpoints to evaluate and correct service offering mix, often weekly during the first few months of the engagement.

Challenges and Pitfalls to Avoid

By having a detailed scope of work and solid RFP response, we were able to identify up front, and clearly contract for the correct level of service and support necessary for our organization. There are projects that come up unexpectedly, and business initiatives which require IT services and support, which have been outside the scope of the initial agreement, and a good working relationship with your Outsourced Partner can help you avoid surprises in terms of cost and timing needed to complete these projects. Certain technology platforms that the vendor is not experienced or certified in may lead to delayed support and/or additional support costs. Additional risks related to IT security and governance may require reviewing and supplementing cyber liability and other business line insurance coverage to adequately protect the business.

Lessons Learned

Plan, plan, and plan again, and document your planning and design process. Having a clear plan, and insuring alignment with the organizations Strategic IT Plan and overall Strategic Plan is critical for the success of this type of outsourcing.

Advice to share with others

Don't be afraid to go down the path of outsourcing. Let the organization's strategic plan and strategic IT plan guide you, and create them if they do not exist or have not been updated in the last 1-2 years before embarking on such project. To expect that an outsourcing arrangement will reduce your operational costs dramatically is foolish. You may be able to streamline your costs, and insure you provide the business a higher level of trained staff, but you cannot shortchange what is necessary to manage the IT function. Use your strategic IT plan to determine which functions should be outsourced vs. what functions should remain in house, if any. Any outsourced managed IT provider can provide the basic resources and skills, but be sure to understand their experience in your type of environment and culture.



5 Implementing State of the Art Future-Proof Wi-Fi Network for Business and Resident Needs

5.1 Provider: Garden Spot Village

Contributor:

Andrew Dietzel, Director of IT

5.2 Vendor: HealthSignals

Case Study Type

Update/ Upgrade/ Implementation of State of the Art IT Infrastructure

Driver Type

New Construction, Repositioning, Periodic Revisit of the Strategic Plan/ IT Strategic Plan

Impacts

New Business Units/ Operations/ Capabilities, Market Share/ Positioning/ Competitive Advantage, Staff Efficiencies, Quality/Satisfaction of Internet Service, Implementation Costs

Organization Type

Personal Care Facilities, Continuing Care Retirement Community (CCRC)

Organization Description

Founded in 1990, Garden Spot Village (GSV) is a licensed, non-profit provider of innovative housing and lifestyle services that enrich the lives of older adults. Its flagship community, Garden Spot Village is a 104-acre campus in New Holland, Lancaster County, Pennsylvania. The community features award-winning architecture and a variety of residential options, including cottages, carriage homes and apartments. The community also offers personal care services, memory support and person-centered skilled nursing households as well as adult day services.



The community has more than 40 social clubs and spaces to support them, including a technology lab and a wireless enabled model train room.

Garden Spot Village hosts several major athletic events. For example, each spring it holds the Garden Spot Village Marathon. In 2014, the event drew 1,200 participants. The community uses Wi-Fi to support registration and provide Internet access to participants, event staff and spectators.

Garden Spot also owns and operates Maple Farm, a household-model skilled nursing campus in Akron, Pennsylvania, about 10 miles from the New Holland campus. In addition to its residential offerings, Garden Spot provides healthcare services on campus, and Garden Spot Village At Home personal care and companionship services to residents of Garden Spot Village and the greater New Holland community.

Garden Spot Village has about 1,000 residents and nearly 500 team members at its two locations.

Project Description

Garden Spot sought a technology solution that would support advanced technology services for residents and other community stakeholders. The leadership team wanted:

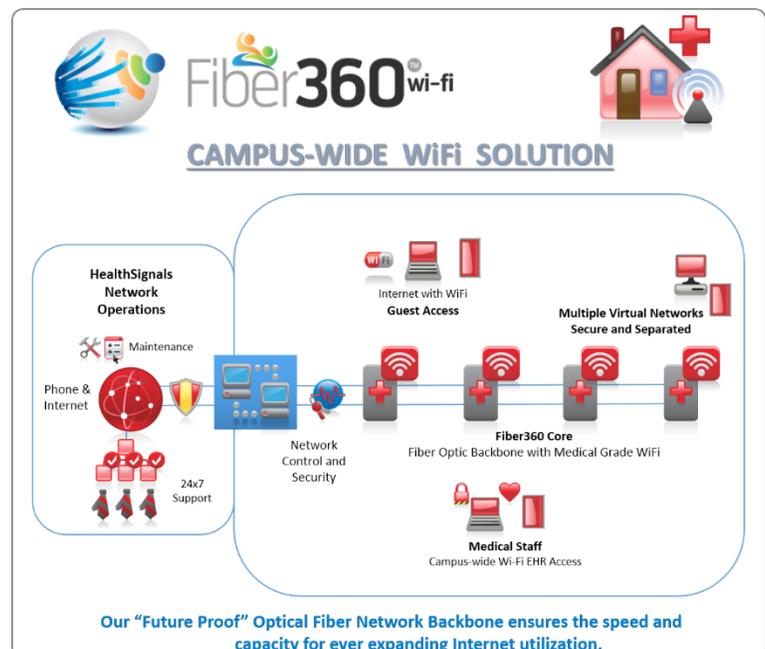
- A centrally managed system capable of providing comprehensive coverage throughout the 104-acre main campus, with the ability to expand coverage to support a planned expansion to an adjacent 116-acre property as well as the Maple Farm community.
- A solution that would be “future proof,” flexible and scalable to grow with the community, with a multi-phased rollout across all campuses.
- A high-performance network to support entertainment services as well as healthcare and business operations.
- A network sufficiently robust to run cameras, building automation, security and access control applications.
- A system that is easily extensible to provide both indoor and outdoor coverage for residents, team members and guests.

Project Type

The HealthSignals solution of a Fiber360™ Backbone with the Xirrus Access Points, Switches and Integrated Management System enabled Medical Grade Wi-Fi coverage to the health center and admin areas in Phase I and expanded to cover all residences in Phase II. The management solution allows a limited number of IT personnel to support multiple campuses and a large number of wireless devices.

The Fiber backbone and the Xirrus Modular Arrays are key to ensuring that the network has expansion capacity built in for the future:

- **Fiber Capacity:** The Single Mode Fiber backbone has a capacity of 10GB, which is an order of magnitude greater than the capacity required for most



facilities today but will definitely support applications like HD security cameras and video diagnostics in IL; applications that could become standard in a few years.

- **Wi-Fi Arrays:** As users move from 2.4 to 5 GHz (like iPhone 6), or migrate to the higher capacity 802.11ac technology, we just need to flip a software switch from a console to accommodate this change. Also the 4, 8 and 16 radio array configurations will make it easy to grow with increased use.

Status before the Project Started

- Administration and common areas had spotty Wi-Fi internet coverage via access points without any network management capability.
- Residents contracted directly with Comcast® or Frontier® for internet and used Wi-Fi access supplied by the internet provider.
- Small IT team included an IT director and one IT person supported by other non-IT staff.

Business Model

GSV includes cost in monthly service charge.

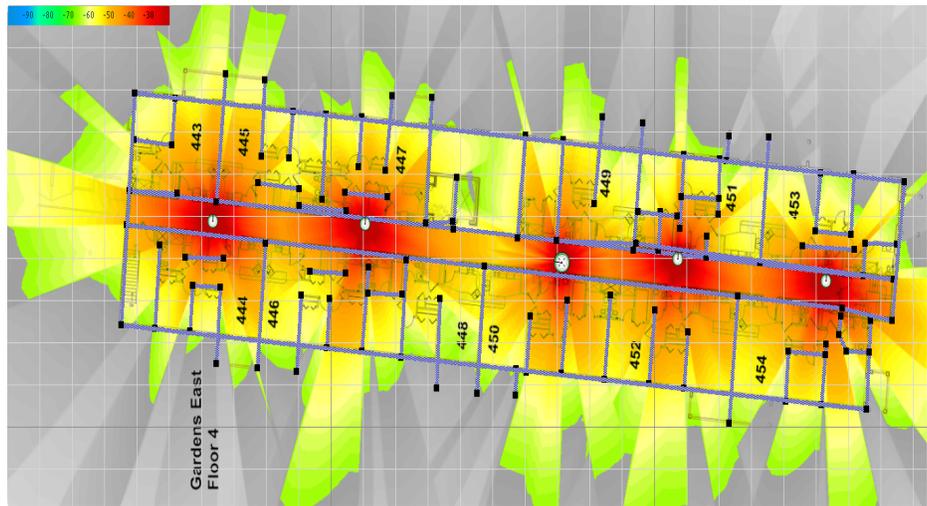
Planning Philosophy/ Approach

- Solution needs to be highly secure to support privacy and security of both business and resident data.
- Needs to provide coverage to all areas:
 - a. Phase I: Health Center and Admin areas to prioritize business operations first
 - b. Phase II: All residences, except cottages and carriage homes
- No additional IT staff

Implementation Approach

- The Garden Spot Village network includes four virtual LANs: one for guests, two for residents and one for administrators.
- GSV uses the HealthSignals Management System, which is based on Xirrus Management System (XMS), to monitor and assess the demands placed on the network. HealthSignals uses XMS to monitor and deliver an assessment of network performance and trend analysis each quarter, manage and make appropriate adjustments to network configuration in coordination with the GSV staff as part of the standard ongoing maintenance and support agreement. XMS enables administrators to directly access information on the amount and type of devices logging on and the kinds of activities that are taking place on the network.
- Garden Spot Village also uses Application Control to monitor the applications that are accessed on the premises to determine the most popular applications and programs.
- Fiber Backbone – Single mode with 10 Giga Bit per Second (GBPS) optics has been deployed across the campus to accommodate future growth.
- Two-radio access points (APs) and 4-radio arrays with built-in threat sensing allow for the appropriate deployment of bandwidth at the various locations, based on the predictive modeling and active radio surveys prior to final design signoff.

- The predictive model was validated prior to system signoff with hundreds of readings across the campus to ensure that the baseline for the service level agreement was established.
- The agreement called for all personal Wi-Fi and mobile Mi-Fi devices acting as Access Points to be turned off to avoid channel conflicts and interference with the GSV provided Wi-Fi service. GSV and HealthSignals constantly monitor the network and make extensive use of the rogue detection capability of the management system to ensure that the system performs per the service level guarantees.
- The HealthSignals Management System enables control over networks at Garden Spot Village main campus and the Maple Farm Nursing Facility 10 miles away.



Predictive Modeling for Signal Strength Sample- Phase II

The Solution for Phase I entailed deploying:

- 223 Xirrus wireless APs and Arrays:
 - XR-2420 and XR-4820 Arrays.
 - XR-520 and XR-520H APs.
- 802.1x WPA2 Enterprise level encryption
- Fiber360 Wi-Fi – Fiber Optic Backbone in all hallways in the entire campus.
- 15 Enterprise-class Xirrus wired switches:
 - XT-5024s and XT-5048s.
- Xirrus Management System (XMS) – Enterprise.

In addition the solution included HealthSignals Managed Services.

The Solution for Phase II entailed deploying:

- An additional 123 Xirrus wireless APs and Arrays:
 - XR-2420 and XR-4820 Arrays.
 - XR-520 and XR-520H APs.
 - 802.1x WPA2 Enterprise level encryption

Advantages to the Implementation Approach

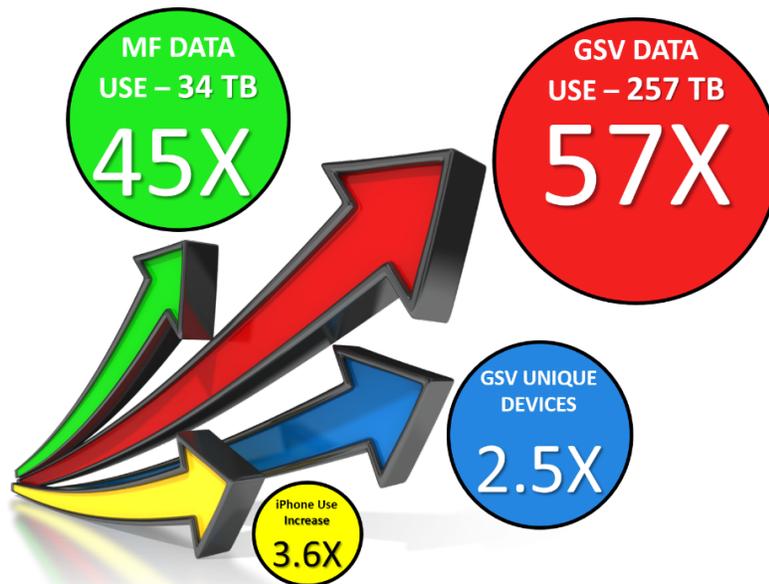
GSV Benefits

- Deliver entertainment services such as Netflix, YouTube and Pandora in all residences.
- Organize and manage outdoor events for residents and guests.

- Support for all devices across the two locations, which include 60-percent smartphones and 23-percent laptop/tablet device use at the Garden Spot Village campus and 50-percent smartphone with 40-percent laptop/tablet device use at the Maple Farm campus.
- Coverage for more than 1,000 residents and guests, as well as team members.
- Central management of the network.

Status after the Project and Outcomes

- **Superior Wi-Fi and Customer Satisfaction.** We have received extremely positive comments from our residents and staff about the speed and reliability of the Wi-Fi in the common areas, including the Healthcare areas. The HealthSignals solution is far superior to the services some residents previously received directly from their internet service providers in their apartments. The excellent performance of the solution in Phase I has made it easy to continue with Phase II and beyond.
- **Streamlined Management.** The sophisticated management system along with the high-performance Xirrus Arrays and HealthSignals' Managed Services Platform, allows us to administer networks on both campuses as a single, seamless network.
- **Voice Communications.** In addition to providing continuous connectivity to residents and staff, the Wi-Fi also supports voice communication in areas of the campus with poor cellular signals, such as the below-ground levels of the Garden Towers. Now residents and staff can reliably make Session Initiation Protocol (SIP)-based Voice over Internet Protocol (VoIP) calls using the Wi-Fi from smartphones or Wi-Fi enabled handsets, eliminating any problems caused by a spotty cell signal. The lower level of the Garden Apartments attracts many residents, as it is home to several recreational spaces, including a fitness wood shop and the model train room. In addition, the lower level houses many staff offices and conference rooms. Reliable, high-capacity Wi-Fi in the lower levels is a necessity at Garden Spot Village, and our solution works extremely well here.
- **Traffic Growth.** The graph below shows the increase in the utilization of the network from Q1 to Q2 after installation of Phase I.



GSV USAGE GROWTH Q1 TO Q2 AFTER INSTALLATION.

(Data is for the quarter)

- **Future Applications.** In addition to the current capabilities, Garden Spot Village plans to implement an electronic medical record (EMR) solution to be accessed by staff members streamlining the delivery of quality health care to all residents. Moreover, the comprehensive coverage across all campus buildings will also make it easier to support Wi-Fi-based personal emergency response systems (PERS) and other mobile health technologies that support greater health and safety for campus residents. These are included in the organizations' strategic IT plan.

Challenges and Pitfalls to Avoid

- Ensure that the drawings (even the as-builds) match the actual building and structures.
- Determine any key aesthetic restrictions prior to touching walls and paint.
- Communicate the plan clearly to residents and staff.
- Ensure that all residents are committed to using organization's Wi-Fi (no rogue devices).
- Access to apartments has to be negotiated and factored into the timeline.

Lessons Learned

- Having a Service Level Agreement with provider and a long-term maintenance contract is critical to successful management and support.
- Application level monitoring of traffic is not a luxury but a necessity to help the organization identify issues before they become problems and plan for remediation and growth.
- Network utilization monitoring and a quarterly review of usage patterns allow GSV to stay on top of the quality of service.
- Budget for onsite spare access points and arrays.

Advice to Share with Others

- Create a comprehensive plan driven by the business goals 3-5 years out.
- Ensure that the technology deployed has room to grow without forklifting installed solution.
- Ensure that the partner/ provider you pick has an understanding of your organization's strategic goal and why you are deploying technology.



Welcome to the neighborhood.



6 Taking Campus Redevelopment Opportunity to Develop a State of the Art IT Infrastructure for Business and Residents

6.1 *Provider: Rose Villa, Inc.*

Contributor:

Vassar T. Byrd, CEO

6.2 *Vendor: DaVinci Digital, LLC.*

Case Study Type

Update/ Upgrade/ Implementation of State of the Art IT Infrastructure

Primary Project Driver

New Construction, Expansion, Renovation

Impact

New Business Units/ Operations/ Capabilities

Organization Type

Continuing Care Retirement Communities (CCRC)

Organization Description

Rose Villa is an innovative community of active seniors who share common interests and live together in a shared experience. Planned around the vision of an intimate, neighborhood setting, Rose Villa is designed to bring people together for meaningful interaction. As a licensed "Continuing Care Retirement Community" we offer garden-style living on a 22-acre campus with a full menu of supportive services and programs to enhance and empower the lives of people aged 55 and older. We have on site fitness, social, educational, and spiritual resources, a restaurant and catering business offering locally sourced, healthy, interesting food, as well as a full service 24-hour long term care center for short- and long-term stays. We have served the Portland metro area for 55 years as a proudly independent not-for-profit community.

Project Description

Design, implement and deploy fully integrated hub and spoke Fiber Network as part of a major redevelopment project. Project scope included 24 months of IT strategic analysis consulting through project funding.

Project Type

Rose Villa has been planning and executing a major campus redevelopment project for their community over the past several years. In the spring of 2012, DaVinci Digital was brought into the project to provide consulting and leadership to the Information Technology aspects of the project.

Following initial discussions, a seminal strategy meeting occurred in November of 2012 between CEO Vassar Byrd, CFO Debbie Senestraro-Suchan, John Reese and Michael Sanzotti from Reese Engineering and Jonathan Jedeikin from DaVinci Digital. In this strategy meeting Debbie and Vassar clearly defined Rose Villa's vision for technology over the next twenty years and how that would play a key role in the redevelopment.

That vision included some of the following IT features for the Residents:

- A network infrastructure that can fully accommodate today's services as well as new applications and services as Rose Villa's needs evolve.
- Per-unit personalized networks giving each resident the ability to privatize all of the devices they connect in their unit and experience continuity with their home devices as they leave their units and walk about campus.
- A Voice over IP telephony system to provide next generation interactive features as well as mobile device integration.
- Broadcast Television over the campus network to take advantage of streaming video services and shift away from depending on cable video service providers.
- Robust wireless services to replace the unreliable system in place today.
- Security sentry services.
- CCTV security services leveraging the IT infrastructure for capture, display and storage.
- Multi-media web conferences and lectures accessible both in the main multi-media hall and the residential units.

After that strategy meeting, Michael Sanzotti set out to design the technical architectural plans for the power and wiring of the network while Mike Kephart from DaVinci Digital set out to architect the high-level network design and management strategy.

Status before the Project Started

The existing Internet service was a business class broadband connection delivered by Comcast (25 Mbps download/2 Mbps upload) and this provided services to their business network via wired and wireless connectivity. To propagate that network out to various disparate locations around the campus, antiquated VDSL modems that utilizing existing copper pairs provided a less than perfect connection somewhere between 10 and 100 Mbps. But these modems were unreliable – failing due to aging and antiquated copper wiring infrastructure.

In advance of construction the primary Administrative and Executive teams moved east across a public road to a group of office trailers approximately 1000 feet from the primary DMARC. The Sales and Marketing teams moved into a redecorated house behind the business trailers. Left behind in the main building were the following groups: Dining and Food Services, Health Center/Assisted Living, Front Desk Operations, Social Services and In-Home Care and Housekeeping. The Maintenance department was relocated to a property approximately 1000 feet off the southwest side of campus. All of these groups needed to maintain business network continuity.

To meet the communications needs, we built a temporary Intermediate Data Frame in the garage of the Sales and Marketing Center with network switching equipment. New LAN wiring was installed throughout the Sales and Marketing Center. A dedicated circuit for the new VoIP system was installed at this location due to the existing physical presence. Early deployment of the new VoIP system allowed all of the Administrative offices in the trailers and the Sales and Marketing offices to begin using the new system before the bulk of the community and help prepare for the coming technology shift.

Business Model

Rose Villa is a CCRC, all IT services are included in the Resident's fees.

Planning Philosophy/ Approach

One of the challenges the Rose Villa campus presented to the team was its expansive 22-acre property. The linear distance between far ends of the property was far beyond the capabilities of copper cable and thus called for fiber optic cable to support the campus-wide network. But even modest cost fiber optic cable and equipment has practical limitations that wouldn't allow for a single fiber optic "ring" circling the property. To overcome this obstacle, Mike Kephart's network architecture introduced a hub-and-spoke design where approximately 20 intermediate wiring closets (termed "Building Group Distribution Frames" or "BGDFs") would be set up, with fiber optic cable connecting each BGDF back to a central network point. Fiber optic cable not only covers longer distances than copper, but also has the additional benefits of low delay and high bandwidth; the right fiber optic cable can support increasing network bandwidth needs well into the future.

Using fiber optic cable also presented options for a high-speed backbone network. With all current generation consumer network devices having a 1 Gigabit-per-second connection, this clearly calls for higher data rates across network links aggregating multiple users' data. This prompted a design recommendation to use 10 Gigabit-per-second connections across the backbone fiber links.

From each BGDF, copper wiring would be run to the individual units within close proximity – whether newly constructed or existing residences. This was the best choice from a technology and cost perspective: copper cabling will carry network data at a very high speed over relatively short distances while being less expensive to install and maintain.

This newly laid fiber cabling becomes the high-speed communication path between the central Data Center with the installation of an enterprise core switch that will manage traffic distribution to and from groups of distribution switches located within each BGDF. Although the fiber and copper cabling provides one ubiquitous communications "highway", the network switching and routing equipment provides the capability to securely separate, isolate, prioritize, and re-connect each network subscriber's data. This "Virtual Local Area Network" or VLAN technology underlies the design solution affording a "personal network" for each residence, with configurable tiers of service delivery and performance.

Thus, the deliverable of this project consists of a completely wired network with a blend of copper and fiber cabling and tuned switching and routing for traffic management. Seated on top of this wired foundation will be an ADTRAN enterprise wireless system consisting of approximately 170 access points managed by a ProCloud wireless controller and monitoring service offered by ADTRAN. The discussions that preceded the approval of this project involved a thorough process of education for Vassar (CEO) and Debbie (CFO). This was essential to help them fully understand the requirement for fiber in order to deliver the kind of robust, resilient and extensible network they wanted. These discussions included defining and analyzing fault tolerance. Complete fault tolerance could only be provided by an end-to-end redundant system: redundant hardware in the Data Center, in each BGDF, and multiple fiber paths between these end points. It would also call for power

feeds from the site emergency power generator, which exceeded the project's feasibility; Vassar and Debbie ultimately chose an acceptance of 24 hours of downtime in a worst-case scenario. But this did not preclude minimizing downtime in key areas: 4-hour parts replacement for the core switch components, on-site cold spares for the distribution switches, UPS power for all network switches, etc. Because the network design strategy is modular, downtime service level agreements (SLAs) could be improved at a later date without introducing overlapping service costs.

Along the way we met with budgetary obstacles presented by increased bond financing rates. We were asked to consider and present alternatives with real-world scenarios. These included a detailed cost and performance analysis. One of the requested alternatives was to provide an "all copper" wiring solution with the premise that copper must be cheaper than fiber. When we priced that out we found the copper-only solution to be more expensive than the hybrid copper-fiber solution. We were also asked to compare the cost of the proposed 10 Gigabit-per-second backbone to a 1 Gigabit-per-second backbone. In this analysis we found the 10 Gbps option to be roughly 15% above that of the 1 Gbps option. In both cases, we found the results to be the side effect of marketplace dynamics of demand and available supply.

Finally, the cost analysis was performed to assess what it would cost to repair the existing copper network – patching it with new copper reactively and then pulling the copper out and replacing it with fiber at a later date. This analysis concluded that this effort would be too expensive on the front and back ends, causing inflated service and maintenance costs through that interim period.

As the pre-sales of new units was racing toward the finish line towards bond financing, the interest rates went down providing the budgetary relief we needed to deliver the architecture originally designed with all the fault tolerance the business requirements. However, we were faced with a new challenge. The 22-acre campus and existing older construction presented uncertainties for the Guaranteed Maximum Price (GMP) contractors. They did not understand why Rose Villa was insisting on constructing a high-speed fiber network and providing high-quality Category 6 copper wiring to all the existing residential units. These existing units presented an unknown because they had tiny crawl spaces and walls that could not easily be retrofitted with low voltage cabling. This led to a situation where each contractor priced themselves out of the bid process by providing outrageous bids of over \$1M, yet still lacking obvious desirables such as running cable underground. Vassar and Debbie proposed a simple solution: take on the copper wiring to the existing residences themselves; only utilize the GMP for the fiber optic cabling from the Data Center to the BGDFs and for the copper wiring in the new construction. As a result they found their savings to be roughly \$700K less than the GMP bids. This made the decision easy: pull this wiring of existing residences phase of the project out of the GMP and complete this work themselves, as owners. This brought us to project approval and start of implementation.

Implementation Approach

Once the deployment is complete with configured VLANs for each subscriber a service model will be deployed. This model has not yet been fully defined with detailed granularity. A few points the model will cover:

1. 24/7/365 Network Monitoring of several key areas of the IT infrastructure with alerting to DaVinci Digital, ADTRAN and Rose Villa IT groups.
 - a. Network switching and routing, end-to-end, from the Data Center core, to each residence and business office, and through firewalls to the Internet.
 - b. Each wireless access point across the entire campus.
 - c. On and off-site servers providing Email, file sharing, Point-of-Sale, video streaming and other services to residents and staff.

2. Level-one resident support provided by ADTRAN for the wireless network access.
3. Escalations of tickets and incidents to the DaVinci Digital-Rose Villa IT group.
4. Ability to police both wired and wireless connections into the enterprise network using 802.1X-based access control.
5. Centralized network configuration management tools to help automate routine changes (such as moves, adds and changes), enforce change management, and provide change tracking.
6. Continuous collection of network utilization data to support both real-time analysis of network performance as well as long-term trend identification and projections.
7. Standards-based integration with the wide array of vendor equipment attached to the enterprise network:
 - a. Primary Business Server
 - b. Secondary Business Server (Accounting)
 - c. Exchange Email Server
 - d. Domain Controller and Backup Domain Controller Servers
 - e. Disaster Recovery Server
 - f. Terminal Services Server
 - g. Network Monitoring Server (utilizing the InterMapper Network Management product)
 - h. iAlert Assisted Living Nurse Call System Server
 - i. Voice-over-IP Telephony Server
 - j. Broadcast-Over-IP Server
 - k. Centralized Media Streaming Server (public access data, Netflix, Hulu, etc.)
 - l. Security Sentry Server
 - m. CCTV Security Server
 - n. Campus-Wide ERP and Point-of-Sale Server
 - o. Human Resources Server

Advantages to the Implementation Approach

The primary advantage to the approach is a completely new ground up Fiber network utilizing none of the legacy or existing resources. Even though a green space would have provided less risk and greater opportunities for resilience in network performance, the fact that we get to build everything from the ground up puts us in a key position to provide durability and a complete life cycle of the hardware resources.

Status after the Project and Outcomes

We're currently in the initial phases of the Fiber Network Deployment. We just had our second meeting with the General Contractor to discuss progress towards the build-out of the new Data Center and to establish construction time lines and transition goals.

Our preference would be to have the new Data Center available with power for initial setup of core equipment by the end of 2015. Within 6 months after that, the fiber cable plant laid, terminated and tested. In parallel with the fiber cable work, Category 6 copper should be run to existing residences and business offices. The goal is to

have these tasks to be complete in roughly the same timeframe and lead to end-to-end testing and operational turn-up. At this point we can slowly transition the staff and residents to the new services. With staff and residents in existing construction live on the fiber network, we can begin to phase out the legacy analog phone system, wireless and age-old copper wiring.

Challenges and Pitfalls to Avoid

Building this network in a green space would have been optimal, but that would make this a development and not a redevelopment project. We'd need to move buildings, staff groups and residents to make room for the new construction. This presented us with the difficult task of building, adapting, and rebuilding a temporary network to maintain the existing IT resources with minimal cost and interruption.

Prior to construction the primary communications points of hand-off (DMARCs) for the campus were in the main building, split between three smaller data closets. The bulk of the Administrative staff was located in offices (now occupied by the construction company) that physically surrounded these data closets. When the data network was originally deployed this was efficient for the Accounting group, for example, because they needed to be as physically close to their MAS90, POS, File and Mail Servers as possible.

As mentioned above, the existing Internet service was a business class broadband connection delivered by Comcast (25/2) and this provided services to their business network via wired and wireless connectivity. To propagate that network out to various disparate locations around the campus, antiquated VDSL modems that utilizing existing copper pairs provided a less than perfect connection somewhere between 10 and 100 Mbps. But these modems were unreliable – failing due to aging and antiquated copper wiring infrastructure.

In advance of construction, the primary Administrative and Executive teams moved east across a public road to a group of office trailers approximately 1000 feet from the primary DMARC. The Sales and Marketing teams moved into a redecorated house behind the business trailers. Left behind in the main building were the following groups: Dining and Food Services, Health Center/Assisted Living, Front Desk Operations, Social Services and In-Home Care and Housekeeping. The Maintenance department was relocated to a property approximately 1000 feet off the southwest side of campus. All of these groups needed to maintain business network continuity.

To meet the communications needs, we built a temporary Intermediate Data Frame (IDF) in the garage of the Sales and Marketing Center with network switching equipment. New LAN wiring was installed throughout the Sales and Marketing Center. A dedicated circuit for the new VoIP system was installed at this location due to the existing physical presence. Early deployment of the new VoIP system allowed all of the Administrative offices in the trailers and the Sales and Marketing offices to begin using the new system before the bulk of the community and help prepare for the coming technology shift.

Next, we built another IDF in the larger of the two Administration trailers. We decided to move the key business server to this IDF to place the equipment closest to the most critical users. This was logically the best temporary location for the new VoIP server and other key network resources. These two trailers were fully wired for LAN connectivity and interconnected with the Sales and Marketing Center using fiber optic cable. We left the primary business class broadband Internet service and firewall in the main building, but migrated it to a consolidated wiring closet out of the way of near term construction. At the same time we upgraded this to a 100/20 Mbps service to meet the growing business needs for Internet bandwidth. For connectivity between this compound (two trailers, Sales and Marketing Office and a small transportation office) and the main building across the public road we deployed 200 Mbps line-of-sight point-to-point radios. The primary business server was now located in the larger trailer, providing key network services to the LAN, while the Internet

service was interconnected through the wireless line-of-sight radios.

To tie in the new Maintenance office now located off the southwest area of campus we built a site-to-site VPN utilizing an independent Comcast connection. This provides full LAN connectivity for Maintenance staff back to the business IT servers.

In operation, this has worked well, even better than expected in areas where new LAN wiring and switching equipment has been installed. But the solution has not had the survivability of that designed into the end-state architecture. A modest Fall wind knocked the point-to-point radios devices out of service. To provide more durability and higher performance, we're now in the process of installing a fiber optic cable run between the compound describe above and the main building complex.

Lessons Learned

The most important lesson we feel was learned by all parties (both the CCRC and the provider) was the value in performing complete analysis of existing wiring infrastructure. In this analysis, the value of deploying a ground-up infrastructure is clear and ROI can be calculated and discussed amongst every stakeholder in the project. Lastly, choosing an inferior networking medium does not necessarily bring the cost down, as the price is dependent on availability.

Advice to Share with Others

Focus on your strategic plan, strategic IT plan and vision to guide you in the redevelopment process. Use your strategic plan and your strategic IT plan and vision to articulate the future needs of your organization and plan to make sure your infrastructure can support both your business goals and resident needs.

If contractor bids are too high, you may want to consider reassessing to see if portions of the proposed work could be completed in-house. In our case, we saved roughly \$700K by pulling the copper wiring to existing residences ourselves.

7 When a Cog Becomes the Wheel: How Enterprise EMR Adoption can Drive Organizational Change

7.1 *Provider: Jewish Association on Aging (JAA)*

Contributor:

Debbie Winn-Horvitz, President @ CEO

7.2 *Vendor: HealthMEDX*

Case Study Type

Strategic IT Planning

Primary Project Driver

Repositioning, IT Strategic Plan

Impact

Cost of Care and Return on investment (ROI) to Providers, Implementation Costs, Staff Efficiencies

Pittsburg-based Jewish Association on Aging (JAA) began their external search for an electronic medical records (EMR) vendor by first looking inward. By integrating their long-range strategic objectives into the product review process, they were able to make a selection based on the direction the long-term care organization wanted to go, rather than where they were at the time.

The result was a set of stringent criteria that was applied to each potential integrated EMR system that was evaluated. All products submitted for consideration were required to incorporate clinical reporting, care coordination, financial management, consumer relations and advanced analytics. Additionally, the successful system would support specific strategic goals, including:

- Sharing of essential information across care settings
- Ensure secure, accurate real-time data transfer
- Position for future regulatory and reimbursement changes
- Present a highly functional and cost-effective solution

Other Partners

Pittsburgh Regional Health Initiative, Pennsylvania REACH

Organization Type

Continued Care Retirement Community public service resource components

Organization Description

JAA is a multi-level CCRC organization located in Pittsburg, PA. In addition to skilled nursing, outpatient rehab, assisted living, and memory care units, they offer home health, hospice, palliative care, and a full complement of community services including a seniors' day club, kosher meal delivery and virtual community resource clearinghouse.

Project Description

JAA utilized a five-step process for crafting a transformative IT strategy, roadmap and implementation plan. Internally, their criteria for an integrated system of care had to connect all business units across the JAA continuum – from meal deliveries and day center operations, to skilled nursing care and hospice. Externally, it was important to select a system with interoperable exchanges linking to acute care partner providers.

Project Type

This study outlines the process undertaken by JAA to plan for, select, configure and implement a comprehensive enterprise EMR system. Leadership at JAA, through their research and preparation, knew that their technology decisions would play a critical role in their broader strategic initiatives, which included care quality, revenue enhancement and operational efficiencies. Key functionality included analytics and reporting capabilities of the selected vendor system to document the positive impacts of JAA's changes to referral partners.

Status before the Project Started

JAA's journey began partly in preparation for ICD-10, which was originally slated for a 2014 deadline but has since been postponed until October 1, 2015. They noted a need to better position the business office to accommodate changing revenue cycles, as their financial systems at the time were unable to calculate cost per condition – a key reporting requirement for bundled payments.

Other future changes that JAA leadership strategically identified were interoperability with Health Information Exchanges, value-based reimbursements, hospital readmission and length of stay rates. Through their research, selection team members knew that EMR best practices had been shown to improve patient/resident care quality and operational efficiencies

Business Model

Though once considered a nearly non-competitive market, Pittsburgh's healthcare community has undergone a recent series of revolutionary changes that are creating broad consumer choice for the first time. For a broad-scope CCRC, such as JAA, the resulting environment strongly favors strategic ties with insurers and referring health systems, placing quality measures such as hospital readmission rates and medication management under even greater focus.

Planning Philosophy/ Approach

For JAA, system selection was just the first mile marker on a longer journey. In addition to aligning with guiding organizational principles and strategic goals, JAA leaders set forth a series of “Must-Haves” for their EMR. From the inception of the Select/Build/Implement process, they moved forward on the presumption that their system of choice would:

- Support a seamless flow of patient information across their organization
- Provide easy access to accurate, reliable data
- Ensure essential information is available between caregivers
- Position the organization for healthcare reform and regulatory changes, and
- Be efficient and cost-effective.

Based on their extensive research, JAA planned from the early stages to pursue an enterprise-wide implementation approach. They realized that while a slower phased strategy might lessen some of the pain points on the path to paperless operations, it would prolong the overall transition period. For CCRCs, phased implementations also create information silos, increasing the likelihood of fragmented workflows across varied care settings.

Moreover, the leadership team realized that bringing core systems online in close proximity would shorten the organizations path to return on investment. They realized that one of the inherent benefits of a comprehensive system was the ability to move more quickly through the change management phase and onward towards optimization and direct operational benefit.

5-Step process

Across a four-month span, JAA initiated a coordinated vendor selection process that included strategy definition, RFI evaluation, reference calls, cost modeling, technical review and final selection of their vendor of choice. Decisions were made with a strict governance model that included the oversight of an Executive Steering Committee that incorporated institutional considerations such as strategic goals and financial impact. A multi-disciplinary System Selection Committee – including medical staff, clinicians and JAA leadership – guided the overall selection process, including establishment of selection criteria and final recommendation of a preferred product & vendor.

With the shrinking margins of long-term care, tight cost considerations were very much a factor. As such, the JAA team considered everything down to the cost of education, staffing and hardware upgrades that might be needed to accommodate the adoption and launch of a comprehensive EMR. Much of the funding discussion focused on 5-year Total Cost of Ownership (TCO) for the final two vendors. Recognizing that purchase price and implementation fees are merely a portion of the aggregate cost of any system, the team carefully considered secondary costs, including incremental staffing & consulting, patient data conversion, external/ internal system interfaces, and even detailed travel costs for training and support.

JAA dug deep and made an extra effort to achieve an “apples-to-apples” comparison, big-picture view of each vendor’s total cost to accomplish JAA’s broader long-term goals – not just achieve the bare-minimum functionality and expand to enterprise usage over time.

Early evaluations leveraged JAA’s self-identified needs against the [LeadingAge CAST EHR vendor matrix and online selection tool](#), while final selection was based on broad criteria that included interoperability, reference visits and 5-year total cost of ownership. The organization narrowed the vendor pool from six to three, then two finalists, before selecting Missouri-based long-term software developer HealthMEDX as their system of choice.

Implementation Approach

While the adoption of an integrated enterprise EMR was part of a longer, broader To-Do list, JAA encouraged a “What-if” mentality when it came to configuring and launch of their system. The resulting mindset allowed fuller exploration of options and impacts, allowing JAA to optimize the software developer’s HealthMEDX Vision® platform, as well as their own adjacent processes and workflows.

With their HealthMEDX implementation team, JAA developed a two-track roadmap that detailed a preliminary design/build/test period for Long-term Care and Billing operations, which went live in July of 2014. JAA is currently in the process of implementing the EMR across their Home and Community-based services, including HomeCare and Hospice operations, with an anticipated go-live date of late summer 2015.

Advantages to Implementation Approach

In the case of JAA, enterprise governance was the first step to achieving enterprise benefits. Representatives from across the organization were involved in the process, and their frequent and open communications helped enhance buy-in. JAA also credits their success to the interdisciplinary nature of their leadership team, with active involvement of clinical, business and IT leaders. They also found that enterprise adoption helped to foster a sense of shared system ownership.

HealthMEDX, which specializes in broad-scope implementations, configured core functions to manage shared workflows between business units and support. Their Vision platform architecture was designed around the concept of managing standardized, enterprise-level data across diverse care settings like those at JAA.

Status After/ Outcomes

In the few months since bringing their clinical and financial systems online with the Vision platform, JAA has already begun to realize progress toward their overarching strategic goals. With full access to real-time information by care teams, the organization has seen improvements in quality measure scores (clinical, bed board, etc.) Workflow enhancements have been noted in admissions, finance and nursing, while overall clinical efficiency has improved with each operational step further from the tether of a paper chart. Financial benchmarks are already being met, thanks to full electronic claims submissions and payment processing, which has accelerated cash flow.

Challenges/ Pitfalls to Avoid

Buy-in of front-line staff is critical to a successful implementation, and must be taken into careful consideration and closely managed. Despite JAA’s significant preparation – which included internal awareness campaigns and a go-live countdown/celebration – a bump in turnover rates negatively impacted the adoption consistency of the new system, necessitating unplanned retraining. Even considering their highly strategic approach, JAA leaders said it was easy to lose focus on maximizing system functionality while managing the go-live details. They also cited the importance of maintaining internal system user groups beyond the initial implementation phase, in order to generate ongoing feedback on how the system is being used and ensure the EMR platform delivers optimal operational value.

Lessons Learned

- Approach EMR adoption with an open mind to “What-if” possibilities
- Ask tomorrow’s questions instead of focusing only on today’s issues
- Strong leaders must be willing and able to make decisions and stick to them

- There is no such thing as over-preparation or over-communication
- Link EMR adoption success to organizational goals and objectives
- The “go live” isn’t a beginning or end, but a milestone to celebrate

Advice to Share

A clear understanding of workflows, forms and reports is critical to successful system selection, build and implementation. JAA also recommends staffing of a full-time project manager and technical analyst and utilization of tech-savvy board members for board-governed non-profits. Key project proponents should also be allocated 10-15% of protected weekly time to focus on project work.

Helpful Resources

The HITECH Act of 2009 earmarked federal monetary support to assist physician and hospital providers in meeting Meaningful Use Standards. Those dollars are distributed geographically via Regional Extension Centers (RECs), with Pittsburgh allocations being made via Pittsburgh Regional Health Initiative (PRHI). That group approved use of surplus HITECH funds to support JAA’s implementation of their HealthMEDX system – A first-ever occurrence for a long-term care organization. It is strongly suggested that post-acute providers contact their own REC to find out if EMR implementation support is available.



8 Successful Strategic IT Planning: ERP is a Priority

8.1 *Provider: Channing House*

Contributor:

Rhonda Bekkdahl - Director of Finance & IT

8.2 *Vendor: ProviNET Solutions*

Case Study Type

Strategic IT Planning

Primary Project Driver

New Construction, Expansion, Renovation and Periodic Revisit of the Strategic Plan/Strategic IT Plan

Impact

New Business Units/ Operations/ Capabilities, Market Share/ Positioning/ Competitive Advantage, Functional/ Health Outcomes, Staff Efficiencies, Quality of Life/Satisfaction with Care, Implementation Costs and Cost of Care and Return on investment (ROI) to Providers and Consumers

Organization Type

Independent living, assisted living and skilled nursing services

Organization Description

Channing House (<http://www.channinghouse.org>) is a premier continuous care retirement community located in the heart of downtown Palo Alto, CA offering independent living, assisted living and skilled nursing services. Today, Channing House serves nearly 181 independent living residents, 27 assisted living residents and 26 skilled nursing residents. In 2014, Channing House opened a state of the art assisted living and healthcare center on its Palo Alto campus, making even more room for independent living apartments in its original building.

ProviNET Solutions (<http://www.provinet.com>) is a full-service Information Technology consulting company offering a vast array of IT products and services and has been in business since 1991. With over 90 employees that provide a wide breadth of knowledge and expertise in technology, they serve more than 300 clients. ProviNET provides technical service and support tailored to long-term care and has assisted many organizations with their IT Assessments, EHR planning, implementation and support as well as other technology solutions.

ProviNET Solutions was born out of a long-term care provider and is very familiar with the strict demands and urgent needs of the long-term care marketplace. ProviNET started out as the internal IT department for

Providence Life Services, headquartered in the greater Chicagoland area and has been supporting them since the late 1980's. Providence Life Services (<http://www.providenceliveservices.com/>) owns and operates more than a dozen senior living communities and places a high emphasis on utilizing technology to streamline operations and provide premium care to its senior residents.

Project Description

Channing House engaged ProviNET Solutions to develop a comprehensive strategic technology plan aimed at streamlining technology hardware, software applications and support for the staff and residents. Channing House had recently brought on a new director of finance and IT who was quickly losing faith in IT because of the many technical challenges and an overwhelming amount of decision making related to future construction projects.

Following a comprehensive onsite technology audit, ProviNET identified several underlying technology issues related to:

- IT oversight and governance.
- Technical infrastructure improvements.
- Information systems.
- Risk management.

ProviNET delivered a foundational set of strategic objectives that included:

- Outsourced IT leadership.
- Core Enterprise Resource Planning (ERP) application replacement.
- Converged local area networking.
- Migration to enterprise e-mail platform.
- Implementation of campus-wide Wi-Fi networking.

Project Type

Channing House engaged ProviNET Solutions to assess their current state of technology and develop a strategic IT plan for several reasons. The primary drivers for this initiative were:

- Desire to strategically implement technology infrastructure to support new construction and renovation of existing care spaces.
- Desire to carefully manage capital and operating expenses related to Information Technology.
- Desire to modernize core business applications.
- Desire to offer more technology services to residents served.

Status before the Project Started

When ProviNET initially met with Channing House, Mel Matsumoto, executive director, indicated that he sensed the organization was behind the rest of the industry when it came to technology. Channing House is one of only a few senior living communities in Palo Alto California, which sits in the middle of Silicon Valley.

Channing House has a very special group of residents who have had careers working in technology and developing the high-tech geographic area that is known as Silicon Valley. Many of the residents have retired from Stanford University and spent time working with the very prestigious Stanford Research Group.

Today, there is a resident technology council that oversees and advises the organization on new and emerging technology initiatives that they would like to see implemented at Channing House.

In order to efficiently create an advanced architecture for technology, with start-of-the-art technology applications supporting business, Channing House decided to rely on the consulting expertise of ProviNET Solutions.

ProviNET quickly validated Mr. Matsumoto's concern that the organization had fallen behind technologically, and began developing a plan to leverage existing resources and supplement with additional resources to create a sustainable technology architecture that would serve not only the staff of Channing House, but also the residents and guests of the community.

Business Model

Aging services organizations have limited budgets and limited resources available to spend on capital, much less on technology infrastructure that has a Return on Investment (ROI) that is difficult to calculate. While the use of technology may increase spending/costs in the short-term and requires oversight with a high degree of technical knowledge, it has become a business imperative and there are ways for providers to save money during this process.

The best approach for getting approval for acquiring technology is to have a defined direction, which requires planning and strategy. Rather than surprise the organization with last minute capital projects, it is better to take the time to plan out all components, stages, and costs associated with each stage. Prepare a long-term strategic plan that includes a series of phased short-term projects, including capital requirements, one-time upfront costs to implement as well as ongoing support and maintenance of the systems.

Communication is key to success and must include collaborating with key decision makers as well as management who might have their budgets affected by a large-scope project such as an ERP implementation. This type of project takes careful planning and upfront time to complete, but once complete, a project plan will help your organization recognize the benefits and generate a return on the total investment.

Planning Philosophy/ Approach

Following the IT Assessment, Channing House leadership engaged ProviNET to develop a 3-5 year comprehensive strategic technology plan meant to enable the goals and objectives of the organization. ProviNET's senior consulting team is working with Channing House to develop the foundational recommendations and specify technology solutions, budgeting and priorities, based on the IT Assessment.

Through this engagement, ProviNET is working with the leadership at Channing House to:

- Develop an IT mission statement and statement of purpose
- Gather a comprehensive inventory of all hardware, software, licensing and other equipment in use today
- Develop a hardware refresh rotation plan for all servers, workstations, and networking equipment in place
 - Prepare hardware refresh rotation budget for 5 year strategic technology plan
- Oversee technology decisions regarding renovation of independent living spaces
 - Provide low-voltage specifications for cabling, switching, Wi-Fi and nurse call systems.
- Meet with internal departments regarding requirements for any new project initiatives and vendor

evaluation and vetting for:

- IT Support (including review of existing IT vendor agreements)
- Cloud hosting of critical infrastructure
- Networking system improvements for phone and data system
- Developing budgets, project plan for implementation of new project initiatives
- Review all IT Policies and Procedures
 - Develop budget and project for implementing new IT Policies and Procedures
- Summarize project plans, timelines, capital & operating budgets

A few of the outcomes of the IT Assessment held a very high priority, and ProviNET is working with Channing House to implement these recommendations immediately. One of the objectives was to vet, select and implement a new core enterprise resource planning (ERP) and general ledger platform. Based on the information gathered in the IT Assessment, ProviNET recommended that Channing House look at three ERP platforms including SAGE ERP 100, Microsoft Dynamics Great Plains and Blackbaud Financial Edge.

ProviNET is working with the finance and accounting department to vet these three vendors and will be working with Channing House and the selected vendor to implement this new ERP system.

Advantages to the Approach

Consulting Expertise

With the day-to-day operations within a long-term care community, it can be challenging to make time to strategically think through technology initiatives. Many organizations find a great deal of value in relying on consulting partners to help them evaluate where they are at with their technology and make recommendations for a sustainable future.

ProviNET Solutions understands Information Technology in long-term care very well, and Channing House was able to leverage the professional expertise of ProviNET to evaluate existing technology and craft a plan for the future. The outcome is a detailed strategic technology plan with initiatives spanning the next three years, including budgets and project objectives.

Efficient Solution Design

Because ProviNET works with many clients in long-term care, the consulting team knows exactly what solutions to recommend for a given initiative. For Channing House, there was almost an immediate need to replace the ERP software including General Ledger, Budgeting and Resident Billing. Rather than Channing House having to research various options for this need, ProviNET was able to make three independent recommendations to the accounting team at Channing House for consideration. ProviNET worked with Channing House to identify the objectives and then arranged for demonstration of each vendor's software system with Channing House. Ultimately, the decision to choose a vendor was completely up to Channing House, but the process for arriving at that decision was an intelligent and efficient one.

Status after the Project and Outcomes

The project is still in the planning phases, but we anticipate that implementation would support new operations and capabilities, increase staff efficiencies, enhance market positioning and competitive advantage, and would generate an ROI.

Challenges and Pitfalls to Avoid:

The project is still in the planning phases and has not yet faced any challenges.

Lessons Learned:

The project is still in the planning phases and lessons learned are being gathered.

Advice to Share with Others:

For organizations who are looking to develop a strategic technology plan, it is important to find a trusted partner who has experience in the full spectrum of technology. When selecting a partner, providers should consider these criteria:

- A Broad Product Portfolio – this minimizes the number of vendors required, reducing complexity from planning through deployment. When components can be sourced through a single vendor, clients have a single source of contact. Integration will be simplified and the solution will be launched faster, with less business disruption and risk.
- Industry Expertise – a vendor with rich industry experience will provide more insight and value. With intimate knowledge of pain points, industry best practices, changing regulations and compliance challenges, such a vendor is able to provide solid strategic direction.
- Responsiveness – in a mission-critical environment, clients need a vendor that can consistently provide the appropriate level of attention and response required during every phase of the project, from the design of wireless network to ongoing end-user support.
- Longevity – solutions become an integral part of operations. To ensure robust support, the vendor should demonstrate ‘staying power’ and today, with so much need for these services, the vendor should be growing.
- Thorough assessment and planning – don’t short cut the process; be sure to spend the time up front to evaluate where your organization is today with regards to technology and technology acceptance, compared to where you need to be strategically.