

MISSION-CRITICAL:

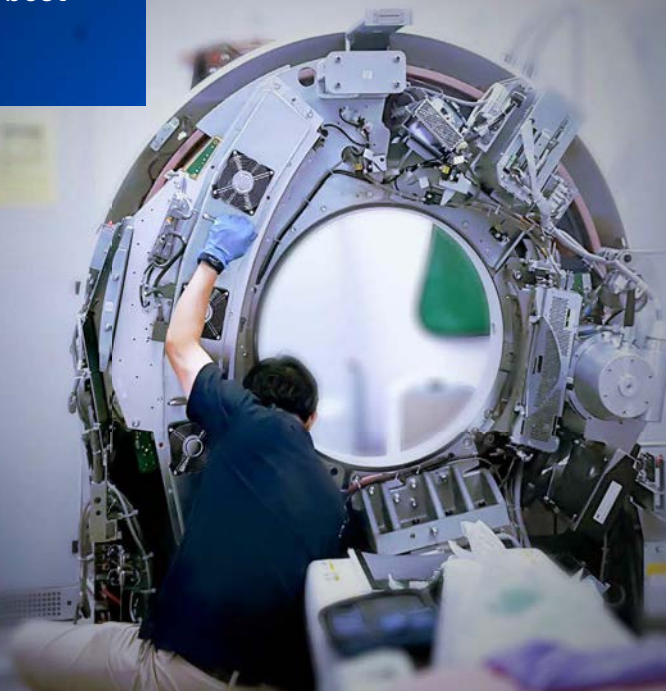
Calculating and Communicating the Strategic Value of Healthcare Technology Management

Jason Behm, Executive Solution Architect, PartsSource
Mara Paré, Vice President of Client Solutions, PartsSource
Carol Davis-Smith, President, Carol Davis-Smith & Associates, LLC

“It’s important to understand where your organization falls on the continuum between fully outsourced and fully in-house, both to calculate the overall value that your team brings to the organization and to identify opportunities to adjust the in-house/outsourced balance for optimal operations, maximum uptime and best use of resources.”

Your healthcare technology management (HTM) team is an indispensable part of the healthcare mission of your organization: it keeps mission-critical medical equipment operational for patient care. This is true regardless of the combination of in-house and contracted resources that your institution uses.

However, your organization’s leadership may not be fully aware of the value that HTM represents in the organization’s ability to deliver effective care. Health systems must understand the importance of maintaining all their technology, whether it’s imaging equipment or electrical systems or IT devices. For healthcare technology, the HTM function is the nexus of accountability. Ideally, HTM isn’t simply “the shop” that keeps things running. It helps the organization use its health technology assets efficiently, maximizing limited resources and driving outstanding performance with its clinical partners. It’s a business and running it effectively can improve the performance of the whole organization.



The more that HTM leaders can position themselves as strategic partners in the organization, the better they can use the resources available. Among other things, they can:

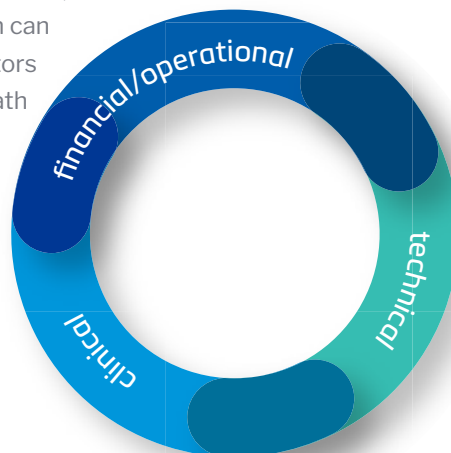
- Advocate for expanded headcount to help provide higher quality, faster and less expensive services in-house than those available from outside contractors.
- Identify equipment that can be most effectively serviced through outsourcing, freeing up internal resources so they can focus on high-value work.
- Recommend the most cost-effective equipment replacement schedules and planned maintenance approaches.

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To become an effective strategic partner, you must fully understand the value of your team’s services and then make sure that the organization’s leadership understands it as well. In this paper, we will discuss the elements of that value as well as ways to calculate it and to communicate it to your organization’s leadership.

Evaluating your model: Striking the right balance

HTM bridges the three worlds of a healthcare organization: the technical, the clinical, and the financial. It interfaces to some degree with every department, and that’s one reason it’s so difficult, and so important, to strike the right balance between in-house and outsourced services. Stretching in-house resources beyond their capabilities can lead to excess downtime, unhappy clinicians, and lost revenue. Outsourcing too much can leave clinicians and administrators with no easy communication path to keep equipment up to date and running smoothly and impair the ability of the HTM department to achieve maximum value for the organization.



Evaluating your program:

KEY QUESTIONS

All HTM programs include some combination of in-house and contracted services. Developing the right combination proactively means understanding your environment in-depth. Answers to these questions can provide a framework for that analysis.

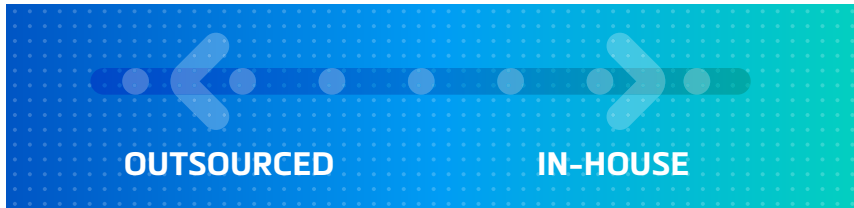
1 What are the targets for your service strategy?



- What type of facility or facilities do you serve?
- What patient needs and demographics does your organization serve?
- Who are your clinical customers, and what are their requirements?
- Do you need to gather customer input, and if so, is there a method in place to do so?
- What are your key performance indicators (KPIs) and how do you track them? They can include:
 - Response time
 - Uptime/equipment availability
 - First visit fix rate
 - Disruption to patient care
 - Customer satisfaction
 - Cost of service/budget
 - Productivity
 - Lost revenue
- Can you track your KPIs in real time and share them easily with your team members and management?

continued on page 3


All healthcare organizations use some combination of in-house and outsourced services to fulfill their HTM functions. However, many organizations make these choices reactively rather than strategically, and may fail to reevaluate them periodically to see whether better options are available.



It's important to understand where your organization falls on the continuum between fully outsourced and fully in-house, both to calculate the overall value that your team brings to the organization and to identify opportunities to adjust the in-house/outsourced balance for optimal operations, maximum uptime and best use of resources. "In-house" encompasses more than service delivery; it also includes oversight of all service contracts and related supply expenditures.

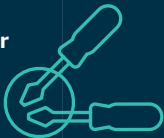
Note: A good first step is to determine the maturity of your HTM function. The *HTM Levels Guide*, from the Association for the Advancement of Medical Instrumentation (AAMI), can help. (See *Resources for Strategic Thinking* on page 6.)

2 What factors shape your overall service strategy (that is, the determination of which services are handled in-house, which are handled by contract and how contractors are chosen)? These factors may include:



- | Geography/location
- | Modalities to be serviced
- | Number of like assets (that is, single pieces vs. fleets of equipment)
- | Staffing, capacity, training and competencies
- | Clinical requirements and service-level agreements
- | Financial goals
- | Technology (that is, whether your organization favors mainstream technologies or sometimes opts for the cutting edge)

3 What factors shape your service strategy for a particular category or piece of equipment?



- What is the ROI for the available options (in-house, Time and Material contracted)?
- How do equipment utilization, capacity and redundancy factor into your evaluation?
- Is the equipment mission-critical to patient care? (For example, if the organization has only one MRI, minimizing downtime may be the single most important factor in choosing a service strategy.)
- How does risk affect the decision?
 - | What attributes or assets present higher risk for your organization and its strategy?
 - | Is the risk actual or perceived? Has it been validated by data, and discussed with clinical business owners and your financial and legal departments?
 - | Is the risk associated with patient care or outcomes?

The workforce factor: Maximizing the value of your in-house team

Workforce considerations are a good example of the multiple factors that play into the service mix. Health systems in major metropolitan areas have, potentially, access to both a sophisticated workforce and a full range of services from manufacturers and contract service organizations. These organizations have options for building a mix of in-house and contracted services that reflects the most cost-effective and labor efficient applications for each.

Hospitals and health systems in more remote areas may have fewer choices and different considerations. Would a premium in compensation need to be paid to attract the in-house skills that are needed? Would clinicians favor external local vendors to service equipment even if HTM has the capabilities to do so in-house?

Another element is determining the optimal mix of skills for your needs. When maintenance is relatively simple and must happen frequently or at high volume (for example, with infusion pumps), you may pay less per hour by partnering with a third party.

Conversely, the numbers may show that you can maintain imaging equipment more cost-effectively by hiring and training in-house staff, perhaps supplemented by a contract (or time and materials labor) with the vendor for backup as needed. In addition to spending less per hour on labor, doing that work in-house will allow your department to be more responsive to clinicians, and to build more solid relationships with them.

Sometimes more frequent scheduled replacement is the right answer. There may be equipment categories where for the cost of a vendor service contract on a fleet of devices, an organization could afford to replace the whole fleet every three years. HTM groups need to constantly evaluate their service contract costs in comparison with the value of their equipment to determine which is most effective.

continued on page 4

4 Do you periodically evaluate current strategies to discover whether there are more efficient and cost-effective options available? For example, some PM may be available through a contractor at a lower cost per hour than in-house, or vice versa.



5 How does your program compare with programs at other similar organizations?



What benchmarks are available, including:

- | Financials
- | Quality
- | Customer Satisfaction
- | Productivity

6 How does your program add value in other strategic areas, and how do you quantify this value to your leadership? These areas may include:



- | Capital Replacement Planning
- | Disposition of Equipment
- | Project Management/Support
- | Cybersecurity
- | New Facility/Program Equipment Planning



Calculating the value of your healthcare technology management team

A full understanding of your current operations is essential if you want to communicate the value of your in-house healthcare technology management team, find ways to improve its operations and make the case for expansions or changes. That understanding lies in your computerized materials management system (CMMS), assuming that its data is kept current and accurate. The CMMS can be supplemented with a procurement platform, such as PartsSource PRO, which tracks specifically what you spend on parts. Such a platform will give you access to uniform data and allow you to build reports and analytics without the separate and often tedious step of compiling the data.

The path to a smart hybrid approach will vary by organization, but it will depend on having access to complete, current data, including:

- **Asset inventory**
- **Parts inventory**
- **Service contract details**
- **Maintenance records**
- **Failure rates and source of failure**
- **Warranty information**

Once you understand exactly where your resources are going—to which vendors, to which modalities, to which types of services—you can prioritize

expenditures and explore opportunities to reduce cost and/or increase value.

For example, you may be able to build a case for increasing HTM's scope. It's usually more efficient for oversight if the healthcare technology management department is centralized within the organization whether the service itself is delivered in-house or contracted out, but some organizations have a more decentralized structure. Does your radiology department administer its own service contracts because "it's always been done that way"? Or because there is one person in the department who knows all that information? Having it sequestered there, rather than combined with your other HTM administration, may lead to missed opportunities to trim costs or improve quality.

A key strategic value of the HTM department is the ability to apply its knowledge and networks of relationships to find the best suppliers and pricing for parts across the enterprise's complete inventory of medical equipment. We conducted a time-motion study over two years among seven large healthcare organizations to compare the efficiency of centralized ordering of parts versus having that function decentralized into the clinical departments that use the parts. Moving to a centralized structure with automated ordering capabilities reduced staff time per order by an average of 85%: time that could be redeployed to repairing and servicing equipment. (Paré, M and Alan Gresch. "Time-Motion Study to Evaluate the Impact of Purchasing within Clinical Engineering." *Journal of Clinical Engineering* 46 (2021): 141 - 144.)

Don't be afraid to reexamine traditional "rules of thumb." Perhaps you use a standard cost-of-service ratio for a given type of equipment—say, 18 to 20 percent for an imaging device. Is that ratio still accurate? What costs go into it? Do other providers accomplish the same level of service for less? Could you bring the percentage down by hiring in-house staff for that category? It's also important to establish a review cadence and methodology for your service strategies and equipment service contracts.

RESOURCES FOR STRATEGIC THINKING

Below are tools and resources that can help you develop a strategically focused HTM function and communicate its value to your organization's leadership.



Assessing your HTM level

To even begin to position your HTM function strategically, it must have achieved a certain level of maturity. If you haven't already done a formal assessment of your HTM program, the Association for the Advancement of Medical Instrumentation (AAMI) offers a program-planning tool called the *HTM Levels Guide* to help you identify areas for development. The five levels range from *Developing* to *Leader*; a detailed questionnaire allows you to score your program in various categories and determine which level applies to your current operation. You can use the information both internally (for example, to define issues with staffing, maintenance contracts and overall program management) and to present your program's capabilities and needs to your organization's upper management.



Evaluating AEM approaches

All healthcare technology comes with planned maintenance instructions from the vendor (OEM), which the purchaser often is required to adhere to, both for warranty considerations and to fulfill accreditation requirements. For some types of equipment, the organization has the option to use alternative equipment maintenance (AEM) practices as long as they ensure safety and effectiveness. Many organizations use AEM informally or even without being aware of it ("this is the way we've always done it"). This casual approach can open the organization to safety issues and liability, as well as problems with the accreditation process. However, managed strategically, AEM can increase efficiency and lower costs. The AAMI's *AEM Program Guide* describes when and how to adopt AEM safely and effectively to conform to regulatory requirements.



Optimizing your CMMS

No HTM department can function effectively without clean and complete data. If your computerized maintenance management system (CMMS) is not producing useful information, one likely cause is a lack of standardization in how you collect and enter data. AAMI's white paper, *Optimizing the CMMS Failure Code Field*, looks at how a standardization effort could work in one of the CMMS's most confusing areas: where and how to record reasons for equipment failure. Standardization within your institution can enable analysis of not only the types of failure but also their causes and how to prevent them. Standardization across the industry could enable large-scale benchmarking to identify opportunities for improvement.

A second white paper from AAMI, *Optimizing the CMMS Work Order Type Field*, is available and addresses standardization of work order types.



Effectively supporting the acquisition process

AAMI's resource, *Acquisition Guide for Clinical Technology Equipment*, is applicable to replacement planning.

IN-HOUSE VS. CONTRACTED: PROS AND CONS

While each type of equipment may require a different calculation to decide whether to handle service in-house or through a contract of some type, these are some general considerations. You should conduct this exercise, taking into consideration the unique needs of your own organization.

	PROS	CONS
IN-HOUSE	Better control (scheduling of services, ordering of parts, responsiveness to emergencies)	Difficulty finding appropriate skillsets for staff
	Better access to complete data on service and equipment costs*	Communicating value upstream
	Lower hourly costs for complex services	
OEM CONTRACTS		Lack of flexibility / control over scheduling
	Availability of specialized skillsets	Highest cost of service
		Inability to access data / transparency

*Regardless of the specific composition of your medical equipment management program, a clinical resource management platform that streamlines the procurement process and provides visibility to strategic analytics can help your team operate more efficiently and effectively, while providing the organization's leadership with accurate data to understand the value of your program.

Communicating value

From the perspective of system leadership, HTM teams have three broad sources of value. They are:

- **Maximizing Uptime.** Ensuring that critical equipment is available when needed
- **Expanding Capacity.** Optimizing the team to take on additional responsibilities and/or focus on the most critical, high-value tasks
- **Driving Performance Improvement.** Making sure all improvement efforts translate into cost, efficiency, and quality gains for the organization

You should be able to describe the work of HTM in the context of these three sources of value. Explaining the cost of service is important, but equally important are the steps taken to reduce downtime and increase availability. Can you use these three sources of value to explain the rationale behind your service mix, and why you outsource some functions and keep others in-house? Can you explain the clinical, operational and financial advantages, both for your current mix and for any changes you might want to make?

All healthcare organizations seek to control costs, and HTM departments face the same cost pressures as every other department. In addition, they may be particularly vulnerable to having their entire department contracted out, particularly if their organization has a C-level executive who has had experience with that model. C-suite leadership often doesn't have the information necessary to grasp the possible strategic significance of HTM, which may be a small piece of their overall health system budget. It may seem easier to outsource that function in its entirety. But when that happens, the organization loses a significant portion of its ability to analyze its HTM function, to look for ways to improve it or to reap financial benefits from those improvements.

It's the job of the HTM leadership to put its function into the larger context of hospital operations, becoming more strategic with capital replacement planning, cybersecurity, cross-functional device integration and other operations to truly understand

the needs and utilization of assets. Even if the function of the department is primarily to manage service contracts and vendor relationships, the leaders can maintain key data on the total cost of service. They can share this data with other members of the organization to make operations decisions on equipment planning and staffing and other important factors that impact the organization and also provide expertise on negotiating contracts.

Having a strong value story can help you maintain, and even increase, the HTM budget while strengthening the overall financial position of the organization.

Learning the "language"

To tell that story effectively, you will need to become "multi-lingual." HTM professionals are typically fluent in technical and engineering language, which, though vital for executing their tasks effectively, can create a barrier in talking to non-technical professionals. To position the HTM function at the intersection of clinical, financial and technical concerns, you must be able to tell its story in the language of nurses, physicians, finance, supply chain and the C-suite. Acquiring this fluency may take some outside study.



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You can begin by enlisting people from your target audiences to help you understand their concerns and what types of information they need from you. Do you understand your organization’s revenue and expense drivers? Its current strategic plan? Any unique challenges it may be facing?

Most organizations have a standard template for presenting proposals and opportunities. It could be a SWOT analysis (strength/weakness/opportunity/threat), or SBAR (situation/ background/assessment/ recommendation) or another method of summarizing the available information. Whatever tool is used by your leadership, learn to use it, too. Along with an ROI (return on investment) analysis, the proposal template will help you frame your needs so that both you and your upper management can easily compare them with other proposals. If your organization is

large enough, there may be analysts available to support the development of these templated presentations.

To strengthen support for HTM and tie its activities more closely to clinical priorities, it may be useful to establish a “technology council” for each major modality, led by representatives of the

clinical departments that use the modality and a member of the HTM team who is most familiar with the equipment connected with that modality. The team can review all contracts coming up for renewal or execution, in-house service performance and evaluate new and replacement purchases.

To be a strategic partner for your organization’s clinicians, you must provide effective lifecycle management of their equipment and make HTM a resource for providing maximum availability. It’s essential to define your place in the overall mission of the organization and tie your activities directly to the delivery of exceptional patient care. We hope this paper has given you a framework for understanding your team’s place in your organization’s mission, and for communicating its value to your leadership.

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