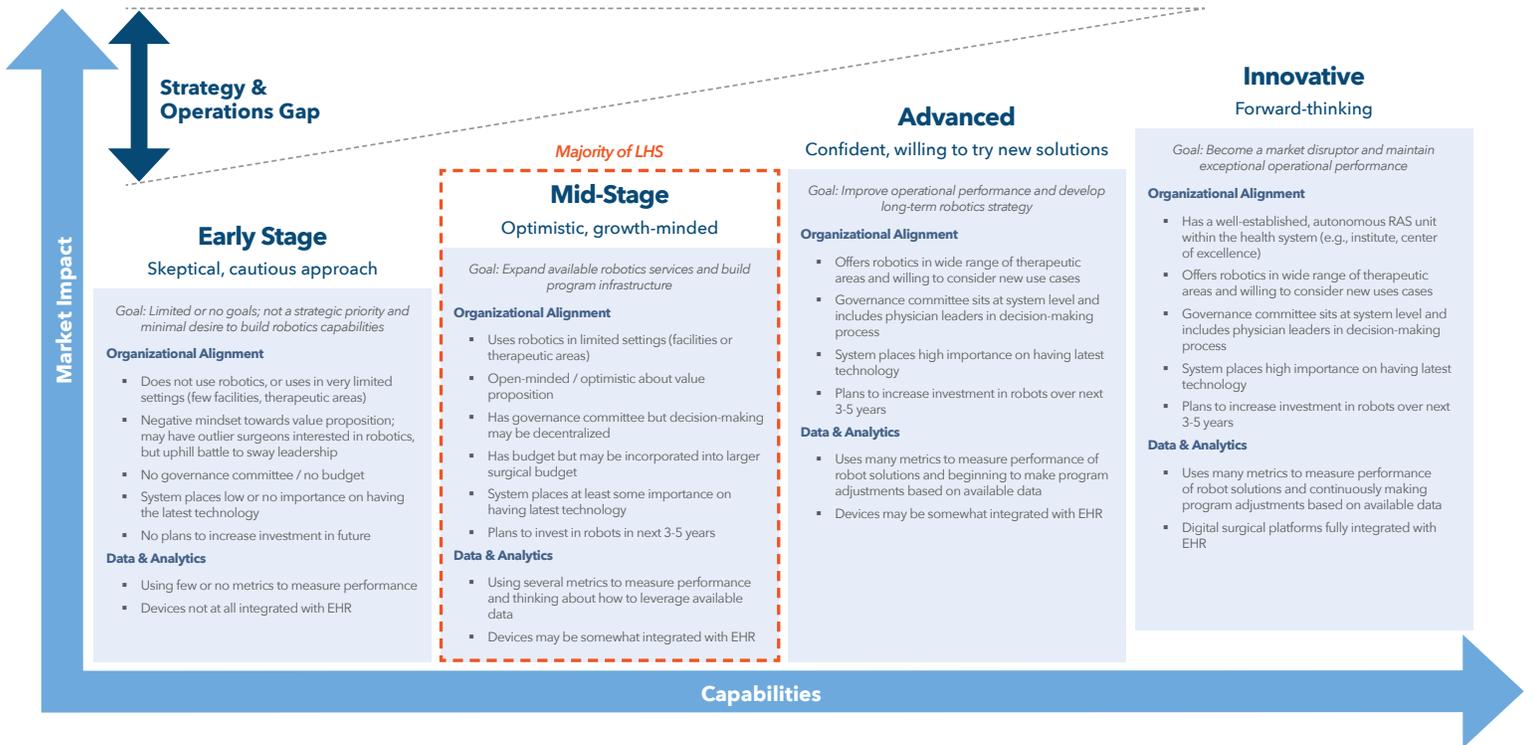


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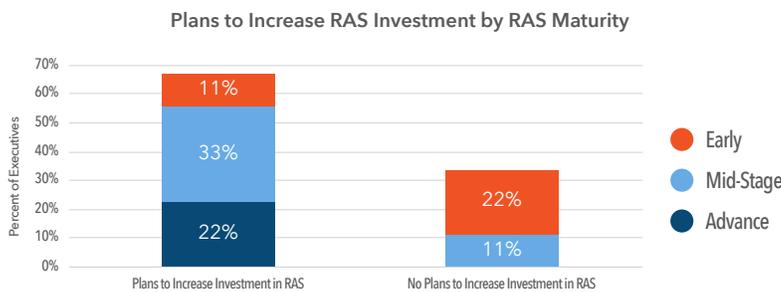
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Key Findings

LHS are most commonly at mid-stage maturity for RAS, exhibiting limited scale and utilization but with a growth-oriented mindset.



Two-Thirds of LHS Plan to Increase Investment in RAS in Near Term



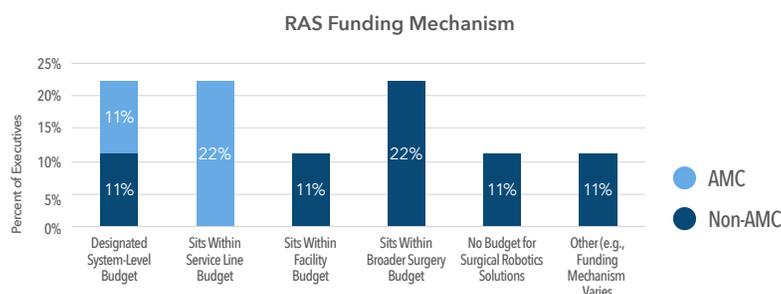
Most LHS Plan to Increase Robotics Investments

Two-thirds (66%) of LHS report plans to increase investment in RAS solutions in the next 3-5 years. Health systems that prioritize RAS funding at the system-level or have a dedicated carve-out within their service line budget are more likely to report plans to increase investment.

Previous Academy research found that LHS expect to continue centralizing their supply chain.¹ This may indicate a trend toward system-wide robotics purchasing strategies - where individual facilities have less autonomy to make robotics investments and system-wide governance committees drive purchasing and implementation decisions for the whole enterprise.

Funding Mechanisms for Robot-Assisted Surgery Vary Widely

Across LHS, there is no standard funding mechanism for robotics. AMCs tend to have either designated system-level budgets (11%) or funding that sits within the service line budget (22%). In contrast, non-AMCs' funding mechanisms typically sit within the broader surgery budget (22%), facility budget (11%), or have no budget for surgical robot solutions (11%). AMCs may be more likely to have dedicated robotics funding due to higher cultural acceptance of new and experimental technologies.

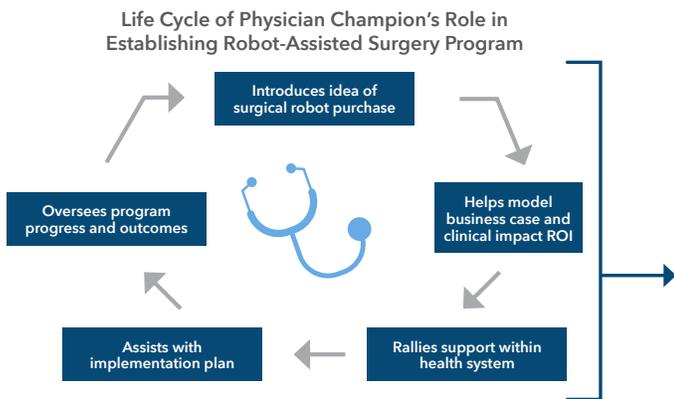


¹The Academy. Single-Use Device Reprocessing Among LHS: Informing JJMDC's Strategic Approach. 2019.

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Physician Champions Serve Critical Role in Starting Robotics Programs



“Clinicians are the ones that bring forward interest in the device. You have to have a champion - someone to help you lay out the program, the clinical implications, the financial analysis and ROI - all the things you need for funding. They also help recruit like-minded physicians to initiate the program. They have to have that vision.”

- VP, Clinical Integration

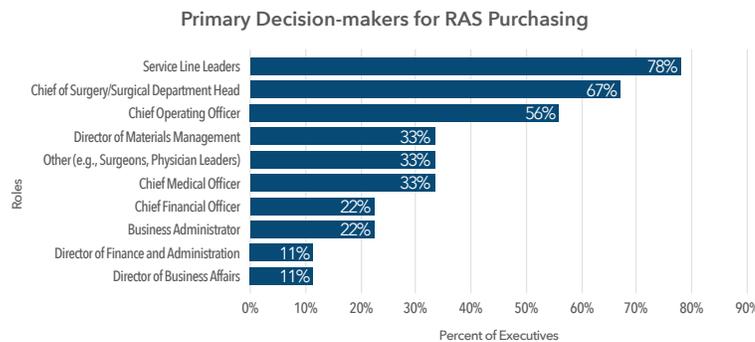
LHS Typically Rely on Physician Champions to Initiate Program Efforts

LHS of all sizes, regions, and academic status report the critical importance of the “physician champion” to their RAS programs. Health systems have reported that many of their RAS programs started with one or two interested physicians willing to oversee the process from idea initiation to implementation and oversight. The physician champion may remain actively engaged in oversight and operations once the program is up and running, or may transition some of these responsibilities to a dedicated service line leader once the program becomes more established.

Life Cycle of Physician Champion's Role

1. Introduces idea: Enthusiastic surgeon proposes idea for robotics purchase to health system, influenced by training or other robotics exposure
2. Models impact: Surgeon helps model inputs (e.g., cost, staffing, facility needs) and project potential outputs (e.g., clinical outcomes, patient volume) to evaluate ROI
3. Rallies support: Surgeon recruits like-minded physicians to establish a team and helps align program model to executive strategy, enlists support of service line leader
4. Outlines implementation: Surgeon works collaboratively with decision-makers (e.g., service line leaders, other executives) to outline a roll-out plan for the service offering
5. Oversees program: Surgeon establishes process for monitoring program operations and evaluating success through performance metrics and continues to participate in program oversight or yields this responsibility to service line leader

Service Line Leaders Are Key Decision-Makers for RAS Purchasing

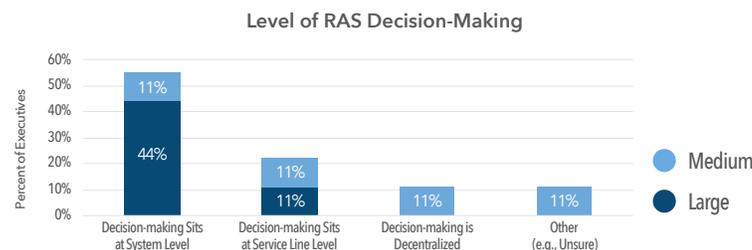


Service Line Leaders Are Primary Purchasing Decision-Makers

LHS report that service line leaders are the most frequent decision-makers on purchasing decisions related to surgical robots (78%), followed by Surgery Department Heads (67%), and COOs (56%). Relative to C-suite executives, service line leaders have more direct communication with surgeons and may be better positioned to evaluate the feasibility, as well as potential costs and benefits, of integrating robotics into their surgical program.

RAS Decision-making Typically Centralized

The majority (77%) of LHS have a structure in place to govern their RAS decisions, and 55% report that this governing body sits at the system level. Only 11% of LHS report that decision-making is decentralized. Large LHS are more likely to have a governance committee at the system level, potentially due to the need for greater coordination of robot purchases and decisions across a larger enterprise. Smaller health systems are more likely to place governing bodies at the facility or hospital level, indicating that they may not yet have scaled their programs to an enterprise level.



“We have one overarching steering committee that governs sub-committees. The committee has representatives from finance, clinical effectiveness, surgeons, and operational leaders and decides on where technology should be deployed and how to improve the robotics process. It meets monthly at the moment but we plan to make it bimonthly.”

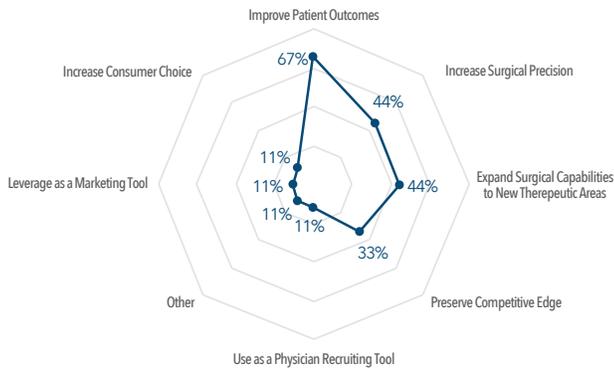
- Chief Medical Officer

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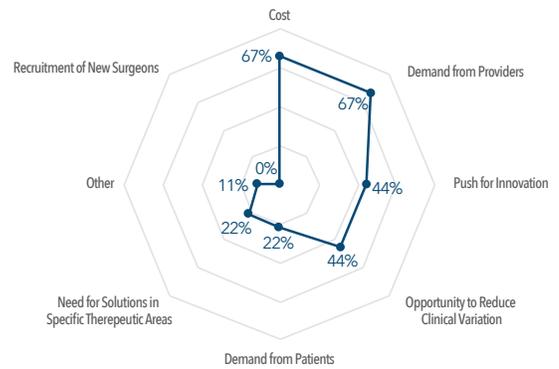
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Patient Outcomes and Costs Are Top Factors Driving Purchasing Decisions

Motivating Factors for Robotics Purchasing



Key Criteria in Evaluating Purchasing Decisions



Purchasing Decisions Consider Patient Outcomes, Cost, and Provider Demand

LHS report that improving patient outcomes (67%) is the top factor inspiring robot-assisted surgery purchasing, followed by increasing surgical precision (44%) and expanding surgical capabilities to new therapeutic areas (44%). These motivating factors echo broader organizational goals of improving clinical care and reducing care variation, as well as integrating new treatment paradigms. LHS' ability to demonstrate better clinical outcomes from their robotics purchases will be increasingly important given the rise in value-based care. As payment models continue to shift towards value, LHS will face pressure to demonstrate that their robotics solutions are generating sufficiently superior clinical outcomes to justify the higher treatment expense. Top criteria used to evaluate purchasing decisions include operational considerations such as cost (67%) and demand from providers (67%), followed by a push for innovation (44%) and opportunity to reduce clinical variation (44%).

Costs of Surgical Robots Impede Shift to Ambulatory Facilities

LHS believe the migration of robotics to ambulatory facilities is inevitable, but face considerable barriers to entry in this space

Ambulatory Shift Inevitable, But Slow

Despite a broader shift of health services from inpatient to ambulatory settings, LHS report that few or none of their robotics procedures are delivered in ambulatory surgical centers (ASCs) or other ambulatory facilities, due primarily to the lack of an economic model that supports easy entry into this market.

Factors limiting the transition to ambulatory settings include:

- Upfront capital costs required
- Lower reimbursement of procedures relative to inpatient setting
- Market dynamics (e.g., location/proximity of ambulatory centers, ownership structure)
- Limited portability of devices



LHS Cite Concerns with Reimbursement in Ambulatory Setting

"With all of the technology moving outside the hospital, ROI becomes more difficult to achieve. Outpatient procedures are reimbursed at a lower rate and the equipment creates an increase in disposables. And the robots aren't really portable. Even the Mako - you can move it, but it is heavy, expensive, and delicate."

-VP, Clinical Integration



LHS Plan to Enter ASC Market As Costs Become More Manageable

"We don't currently have any orthopedic robots in our ASCs. A few years back, it was a challenge due to costs, but vendors are offering lease plans and rebates to help with the costs. We just hired a director to help us get into this space."

-AVP, Orthopedics & Sports Medicine



LHS Anticipate Shift Toward Ambulatory Setting Will Vary by Location

"We are seeing a migration to ambulatory centers, but there's a significant degree of variation from hospital to hospital or region to region. Migration is not the effect of a strategic plan in our health system. It has more to do with whether the ambulatory centers are already in place - their proximity and ownership varies depending on location."

-AVP, Orthopedics & Sports Medicine