GE HealthCare

Is your MRI scanner holding you back?

A guide to upgrading your SIGNA™ MR system with SIGNA Continuum™

Contents

Introduction

Managing a radiology department is complex. Keeping technology up to date and planning for future needs can be your biggest challenges. When it comes to MRI, an older system can significantly impact your bottom line with higher operational costs, lower staff productivity/efficiency and limit the type of MR imaging services and examinations you can provide.

How do you know whether to replace or upgrade your magnet? Which option is best for your department?

Are you seeing an impact on your practice from the inability to offer certain MRI examinations/services?

This guide will help you evaluate your current and future MRI needs, what you may be lacking in MRI technology and the best path to achieve your MR imaging goals to position your department for the future. Each section provides a checklist to help you determine if an upgrade is the right path for your department.

Is your MRI keeping up with your department's priorities and demands?

Most MRI departments and facilities aim to make scanning safer, more efficient and more profitable. The type of MRI equipment needed depends on each site's top priorities.

What are your top priorities?

- ❒ Patient satisfaction
- ❒ Staff satisfaction
- ❒ Meet the imaging needs of referring physicians
- ❒ Improve department workflow and productivity
- ❒ Decrease MRI scanning times
- ❒ Reduce repeat scans/acquisitions
- ❒ Expand referral base
- ❒ Offer new types of MRI examinations (e.g., cardiac)
- ❒ Perform more complex examinations (e.g., Alzheimer's, radiotherapy planning)
- ❒ Manage increasing MRI volumes
- ❒ Adopt artificial intelligence (AI) technologies for MRI

Scanning volumes are increasing

Demand for MR scanning volumes have stabilized since the post-Covid shock, with hospitals experiencing a **6.7%** increase in procedure volume from 2023 to 2024 and **67%** of all MRI sites anticipating higher volumes in 2025.[2]

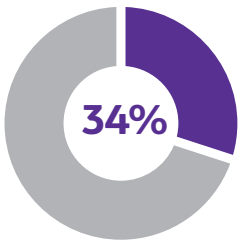
Patients are getting older and sicker

An aging population, many who have complex healthcare problems, are driving the need for more MRI scans. Departments must also be prepared to handle invasive MRI exams and patients with unique needs, such as obesity, inability to hold breath for exam, arrhythmias and other co-morbidities, as well as pediatrics and geriatrics who may be unable to remain still.

Aging and complex populations

Medicare beneficiaries 65 years and older with 2 or more chronic conditions[1]

Invasive exams



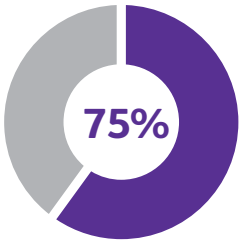
34% of MR procedure in 2024 used contrast[2]

Is your MRI keeping up with your department's priorities and demands?

Artificial intelligence and machine learning technologies

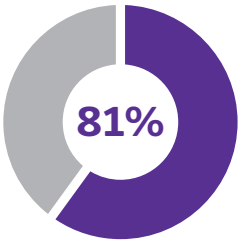
The top five priorities for MR departments are improving patient satisfaction, satisfying the needs of referring physicians, improving MR department workflow and productivity, acquiring state-of-the art technology, and reducing patient backlog and wait time. Artificial intelligence (AI) and deep-learning (DL) technologies are a key enabler in addressing these priorities. Approximately **75%** to **81%** of all MR sites are using or considering using AI/DL technologies to address these department priorities.

Patient experience



75% of MR sites are currently using or considering using AI/DL for improving patient experience[2]

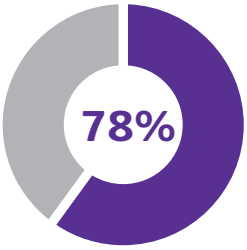
Department efficiency



81% of MR sites are currently using or considering using AI/DL for improving staff/ department efficiency[2]

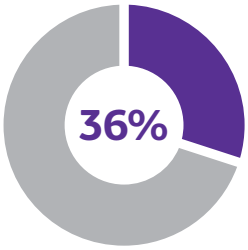
Scanner lifecycle

Aging technology



78% of systems installed in 2015 or later[2]

Increasing MRI demand



36% of sites planning to purchase/replace their system from 2025-2027[2]

The current median age of installed MRI systems is **14 years**, the average replacement cycle of an MRI scanner is **15 years** and the average useful clinical life of an MRI magnet is **30-40 years**.[2] If your system is over 10 years old and you are not planning to replace it, your department may be falling behind.

Is your MRI keeping up with your department's priorities and demands?

#1

Is your MR department prepared to meet the clinical and throughput needs of the next five years?

❒ Yes Notes: _____

❒ No _____

#2

Does your department fall behind in the daily schedule due to repeats or aborted examinations?

❒ Yes Notes: _____

❒ No _____

#3

Is your MRI scanner more than 10 years old?

❒ Yes Notes: _____

❒ No _____

#4

Would you benefit from higher SNR and image quality from digital architecture?

❒ Yes Notes: _____

❒ No _____

#5

Would you benefit from faster scans and higher image quality provided by AI or deep-learning-based applications and productivity tools?

❒ Yes Notes: _____

❒ No _____

#6

Do you want to do more specialized exams (cardiac, body oncology, advanced neuro) but have limitations on your current scanner?

❒ Yes Notes: _____

❒ No _____

#7

Can your existing MRI system handle higher volumes?

❒ Yes Notes: _____

❒ No _____

#8

Can your existing MRI workflow accommodate sicker patients?

❒ Yes Notes: _____

❒ No _____

Your answers to these eight questions will provide insight into whether your MRI system can handle increasing patient volumes and more complex exams.

Upgrade or replace your magnet?

Updating your old MRI scanner is a big decision. It also requires making significant changes in day-to-day operations. Choosing between replacing your old system with a new system or upgrading it with new hardware and software requires careful planning and significant resources.

Let's look at the top five areas most impacted by the decision to replace an older MRI scanner. Your goals will help you understand if an MRI upgrade is the right path for you.

1. Improve clinical outcomes

❒ Yes ❒ No	Do you want to achieve the best possible clinical outcomes relative to benchmark?
❒ Yes ❒ No	Are you seeking to lift department performance metrics/core measure targets?
❒ Yes ❒ No	Do you want to improve physician alignment and consistency of practice?
❒ Yes ❒ No	Are you planning to provide new MRI imaging services/examinations?
❒ Yes ❒ No	Are you seeking new referral patterns?

2. Greater operational efficiency

❒ Yes ❒ No	Do you want to help optimize clinical and non-clinical labor spend?
❒ Yes ❒ No	Are you seeking to improve the efficiency of support functions?
❒ Yes ❒ No	Do you want to help reduce supply spend and optimize utilization?
❒ Yes ❒ No	Are you seeking to help ensure the efficient management of episodes of care?
❒ Yes ❒ No	Do you want to help improve workflow and patient management?

3. Improve staff management and retention

❒ Yes ❒ No	Do you want to improve staff and physician engagement?
❒ Yes ❒ No	Do you want to drive staff and physician development?
❒ Yes ❒ No	Do you want to improve staff and physician satisfaction?
❒ Yes ❒ No	Do you want to improve staff retention?
❒ Yes ❒ No	Are you seeking to attract more experienced staff?

4. Increase patient volume

❒ Yes ❒ No	Do you want to improve the patient experience?
❒ Yes ❒ No	Do you want to facilitate resource allocation on priority services?
❒ Yes ❒ No	Do you want to improve alignment with referring MDs?
❒ Yes ❒ No	Do you want to improve capacity management?
❒ Yes ❒ No	Do you want to help expand the number of payor contracts and improve the quality of portfolio contracts?

5. Better financial performance

❒ Yes ❒ No	Do you want to help increase reimbursement fees, payor rates, and collections?
❒ Yes ❒ No	Do you want to increase capital efficiency?
❒ Yes ❒ No	Do you want to help increase contribution margin?
❒ Yes ❒ No	Do you want to expand portfolio of revenue generating assets?
❒ Yes ❒ No	Do you want to improve revenue cycle management?

For categories 1-5 above, the number of **YES** answers to the questions can help you rank your priorities.

What upgrade path is right for you?

Now, let's look at the process and resources required.

❒ Yes ❒ No	Can your department/facility be down one scanner for four to six weeks?
❒ Yes ❒ No	Does your budget cover construction costs or would the construction cost not lead to any compromises in your options for the replacement system?
❒ Yes ❒ No	Is your MRI scanner easily accessible for a crane or other heavy equipment to facilitate easy removal and replacement?

If you answered **NO** to most of these questions regarding resources, an upgrade may be the right choice for you.

How do you know if an upgrade is the right path for you? Let's examine other variables that can impact your decision.

Installation

- What are the upgrade installation costs vs. the installation costs of a new scanner?
- What is the timeline of an upgrade option for my scanner vs. the timeline for replacing with a new MRI system?
- What will be the downtime and associated costs of replacing my scanner compared to the downtime and associated costs of upgrading my current system?
    - Do I need a mobile rental during the installation of a new system or an upgrade to my existing system and how much would that add to the total cost of acquisition?

Operations

- What are the most important clinical offerings I need for my facility?
- What clinical advancements could I obtain through an upgrade to my existing scanner and how does that compare to the advancements I can get with a new system?
- What option is best for helping extend overall clinical offerings to patients?
- What additional staff training will be needed if I upgrade my current scanner? (e.g., new clinical capabilities)
- How long is the training for an upgrade compared to the training for a new MRI system?
- What service packages are available to me and what are their costs?

Sustainability

- What is the average carbon footprint incurred throughout the process to replace an MRI magnet/system compared to upgrading?
- What is the energy consumption cost of a new scanner and how does that compare to the energy consumption cost of my scanner after an upgrade?
- Will I need to add helium to an upgraded system?
    - If I upgrade, how much helium is saved compared to a new scanner?
- What happens to my old magnet if I replace it?
    - Are there recycling options?

Once you are convinced that the new system can meet your needs and fit within your budget, inquire about the upgrade path from your system towards the new system that you are evaluating. Work with your account manager to facilitate a thorough evaluation of your system by your Field Service Engineer. This will help you understand any specific constraints or additional costs involved with your upgrade.

Reset the life of your scanner with an upgrade

Innovation in MRI technology continues to bring new solutions and services to market that can expand the capabilities of your radiology department or imaging center. Sometimes these advances are breakthroughs and sometimes they bring incremental gains. Since advances in technology are often incremental, upgrading an MRI scanner can help extend the life of equipment over a defined time. There are typically different upgrade paths that a facility can choose from, depending on their department's priorities and goals.

System upgrades provide financial and clinical benefits:

- The acquisition cost can be significantly lower, sometimes reduced as much as 50% compared to a similarly configured new system.
- Less down time – the system can be upgraded in considerably shorter time than it would take to install a new machine, particularly if it requires significant dismantling and rigging.
- Reduced construction related costs in comparison to new installations
- Less disruption to the building and services
- Advancements in clinical capabilities from new software applications

In many cases, an upgrade can deliver image quality equivalent to a newer scanner due to technological improvements. The option to reset a machine's life rather than completely replace it has given many institutions the ability to improve upon their equipment. Imaging sites that might not be able to afford a new machine can now offer the same quality of care with an upgraded unit. These upgrades can also improve the economics of the operations for the clinic as the scans offer improved image quality, they take less time and more scans can be performed in a day.

DL-based technologies have changed the paradigm between image quality and scan time. Historically, longer scan times led to better image quality. Recent advancements in DL image reconstruction and acceleration techniques now allow for shorter scan times and faster scanning capabilities without compromising image quality. These advancements are commonly available in an upgrade path.

System upgrades often include new applications and enhancements to existing applications. It's important to make sure your upgrade includes applications that address the specific needs of your practice area. In some cases, these applications may enable the facility to offer new or improved imaging service lines. Applications available with an upgrade include:

- Motion-free 2D/3D imaging
- Isotropic 3D volumetric imaging
- Increased tissue contrast sensitivity
- Improved diffusion-weighted imaging
- Non-contrast perfusion imaging
- Acoustic noise reduction imaging
- Imaging multiple contrasts with a single acquisition

Body imaging

- Motion-free imaging
- Free-breathing sequences
- Fat and water separation techniques for improved FatSat
- Improved diffusion-weighted imaging
- Quantitative imaging techniques
- Advances in permeability imaging

Cardiac imaging

- Viability imaging
- Free-breathing imaging
- Single heartbeat imaging
- 4D flow imaging
- Quantitative mapping

Vascular imaging

- Non-contrast imaging
- Accelerated table movement for run-off imaging
- Eliminated timing bolus imaging

Reset the life of your scanner with an upgrade

Orthopedic/MSK imaging

- Improved cartilage delineation
- Motion-free imaging
- Isotropic 3D volumetric imaging
- Improved MR-Conditional metal implant imaging
- Acoustic noise reduction imaging

Oncology imaging

- Motion-free imaging
- Improved diffusion-weighted imaging
- Uniform fat suppression
- Rapid scanning

Pediatric imaging

- Motion-free imaging
- Free-breathing sequences
- Non-contrast techniques
- Acoustic noise reduction imaging

An upgraded scanner also benefits patients by ensuring their examination is performed with modern technology that can increase image quality and decrease scan times. The patient can trust their physician's diagnosis and treatment plan, knowing that their MRI examination was obtained using the latest technology to create highly detailed images.

An upgrade can reset the life of the MRI system. Typically, a new system has a life of 10-15 years before technology obsolescence sets in. In addition, due to older technology and component availability, it becomes difficult to operate the system with guaranteed uptime. Often, the system could be down for a week or more due to the delay in procuring a simple part such as a connector or cable. Resetting the life of the system with an upgrade is a prudent choice to reduce unplanned downtime risk.

With life-resetting upgrades, almost all components except the magnet are brought up to date with forward production systems. The site and staff can expect operational reliability on par with a new system.

While deciding to reset the life of an MRI scanner is an important decision, many physicians are deciding it is right for them. They are excited about the new technology, the exceptional image quality, faster scanning, the ability to offer new imaging services and the high level of care they can now offer patients, while taking a cost-effective path to keeping equipment current.

Ready for a site visit?

References and site visits

At this stage, it would be prudent to ask for references of others who have done similar upgrades. This will help you better understand the upgrade process and set your expectations in terms of the process and the post-upgrade performance.

Site visits are often part of a new system purchase, but they can also be helpful when considering an upgrade. If you choose to visit a site with an upgraded scanner, here's a few tips for your planning.

1. Visit a site that is similar to yours in terms of size, volume, examination mix, patient demographics, etc.
    a. Inquire about seeing technologists conduct exams in a typical clinical environment
    b. Ask the user questions about their experience and the scanner performance
2. Headquarter demonstration is a great option to inquire about vendor resources and company functions such as product development and service.
3. Who is best suited to evaluate a system during a site visit or headquarter demo? If possible, involve key personnel who will work with the system.
4. Start with a detailed understanding of your priorities and the critical items you want to understand with the site visit.
    a. Let the visit planner know your key priorities so they can help you get the answers you need.
    a. Manage the allocated time so you don't skip any important segments of the site visit such as scanning time, presentations, Q&A sessions, etc.

Asking the right questions during a site visit – whether at another provider site or the vendor headquarters – is crucial to getting the information you need to determine if an upgrade is right for your facility.

Clinical excellence

1. How will system "X" help me achieve an improvement in my diagnostic capabilities?
2. Will I notice a positive change in my diagnostic confidence? How?
3. Is it possible to realize both quantity and quality improvements with system "X?"

Patient satisfaction

1. Will system "X" help me attain my current and future patient satisfaction goals?
2. Will I be able to better serve patients unhappy with MRI exams?
3. How does this system enable me to provide better patient comfort and care than my existing system?

Operational efficiency

1. Can this system provide a path to overcome variation among technologists?
2. Will I be able to increase patient throughput? How?
3. Am I currently optimizing the capacity of existing assets? How can system "X" help?

Strategic growth

1. Will system "X" allow me to develop new diagnostic services?
2. Can I expect to see an increase in my patient and physician attraction/retention rates?
3. Is it possible for system "X" to enable maximum reimbursement? How will it help with this?

Capital planning

1. What do we anticipate our total cost of ownership to be and how does that fit our needs?
2. How long do I expect to retain system "X" and how will it impact our evolving patients and imaging?
3. Can I reduce my cost of capital with system "X" acquisition?

References

1. World Population Aging, 2023, United Nations Organization. Available at https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_2024_wpa2023-report.pdf. Accessed Sept 12, 2025.
2. IMV 2024 MR Market Outlook report.

Get ready to elevate your MR operations with flexible and customizable upgrade options that ensure your upgrade best fits your equipment. Contact your GE HealthCare representative or visit *https://bit.ly/upgrade-your-legacy-mri-system* to learn more.

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