

# Demonstrating the Economic Value of SwiftMR™

## How SwiftMR™ Generates Revenue for Imaging Centers

### Introduction

The healthcare landscape is undergoing a seismic shift, as the demand for and utilization of advanced imaging modalities, particularly magnetic resonance imaging (MRI), continues to soar. This surge is driven by multiple interrelated factors, including chronic diseases becoming more prevalent, growing awareness of preventive healthcare, and technological advancements in MRI capabilities.<sup>1-5</sup> These developments have expanded MRI's clinical applications and enhanced its diagnostic capabilities, making it essential in various medical fields.

However, this surge in demand is met with supply-side challenges. The high costs associated with operating and maintaining MRI scanners create a substantial financial burden for imaging centers. Traditional MRI protocols often require considerable scan durations, leading to increased wait times and delays in care delivery. Additionally, radiology practices face pressure from declining reimbursement rates, particularly from government payers.<sup>6</sup>

These factors create a mismatch between the growing demand for MRI services and the ability of imaging centers to meet this demand efficiently and cost-effectively. Radiology institutions must find ways to increase patient throughput — and thereby generate revenue — while maintaining the highest level of patient care. Before investing in

technological upgrades, they require a clear demonstration of return on investment (ROI).

This white paper aims to assess the economic value of SwiftMR™, an artificial intelligence (AI)-powered MRI reconstruction software developed by AIRS Medical. We examined a hypothetical imaging center's adoption of SwiftMR™ in the United States to model the potential ROI and analyze the associated economic benefits.

### Methods

#### Model assumptions

The model incorporated the following assumptions, which were informed by literature and real-world data collected by AIRS Medical:

1. The model represented a hypothetical outpatient imaging center that purchased SwiftMR™ for 1 year for 1 MRI scanner.
2. The model assumed that the imaging center operates 5 days per week, 4 weeks per month, and 12 months per year for a total of 240 working days.
3. For the base case, the model assumed that the daily scan volume of an MRI machine is 15 scans per day without SwiftMR™. The impact of this assumption was tested in the **baseline scan volume sensitivity analysis**, in which the model

used higher and lower base daily scan volume inputs (i.e., 18 and 12 scans per day).

4. For the base case, the model assumed that scan volume increased by 30% with SwiftMR™. The impact of this assumption was tested in the **SwiftMR™ scan volume increase sensitivity analysis**, in which the model used higher and lower scan volume increase inputs (i.e., 40% and 20% increases).
5. The model assumed a base case in which half of patients were commercially insured and half were covered by Medicare. The impact of this assumption was tested in the **payer sensitivity analysis**, in which the model used different payer distribution inputs (i.e., 100% commercial and 100% Medicare).
  - Note: the payer sensitivity analysis did not consider Medicaid enrollees. Medicare reimbursement rates are typically higher

than Medicaid rates for radiology procedures.<sup>7</sup> Due to its standardized national structure, Medicare offers a more generalizable foundation for initial analysis.

6. The model assumed that two specific MRI procedures (lumbar spine and lower extremity joint, without contrast enhancement) are relatively representative, in terms of reimbursement rates, to the average MRI procedure performed at an imaging center.
7. Additional revenue was calculated by multiplying the number of additional scans enabled by SwiftMR™ by the MRI procedure reimbursement rate. The payback period was calculated solely based on the additional revenue generated by SwiftMR™, assuming no other costs or factors were considered.

The base case and sensitivity analyses are summarized in **Table 1**.

**Table 1. Summary of sensitivity analyses compared to base case model**

Inputs	Base case	Sensitivity analyses		
		Baseline scan volume sensitivity analysis	SwiftMR™ scan volume increase sensitivity analysis	Payer sensitivity analysis
Patient insurance plan distribution	50% Medicare, 50% commercial	Same as base case	Same as base case	2 scenarios: 100% Medicare vs. 100% commercial
Base scan volume	15 scans per day	2 scenarios: 12 scans per day vs. 18 scans per day	Same as base case	Same as base case
SwiftMR™ scan volume increase	30%	Same as base case	2 scenarios: 20% increase vs. 40% increase	Same as base case

## Model inputs

Details for model inputs are provided in Table 2.

### MRI scan volume inputs

Daily MRI scan volume without SwiftMR™ and percentage increase in scan volume using SwiftMR™ were selected based on real-world data from AIRS Medical. According to this real-world data, one MRI scanner at a typical imaging center performed 12-18 scans per day without SwiftMR™. With SwiftMR™, the percentage increase in scan volume generally fell within the range of 20% to 40%, with the majority of facilities achieving at least a 30% increase.<sup>a</sup>

### Cost inputs

Costs were calculated from the perspective of the imaging center. For a 1-year license of SwiftMR™, the manufacturer's suggested retail price (MSRP) at the time of writing was used for the analysis (\$60,000).

### MRI scan reimbursement rate inputs

Medicare reimbursement rates were obtained from the Centers for Medicare & Medicaid Services (CMS) 2024 Physician Fee Schedule.<sup>8</sup> Commercial payer reimbursement rates were calculated as 180% of Medicare rates. This assumption was based on an analysis from the Urban Institute, which found that radiologists receive commercial rates roughly 1.8 times higher than Medicare prices.<sup>9</sup>

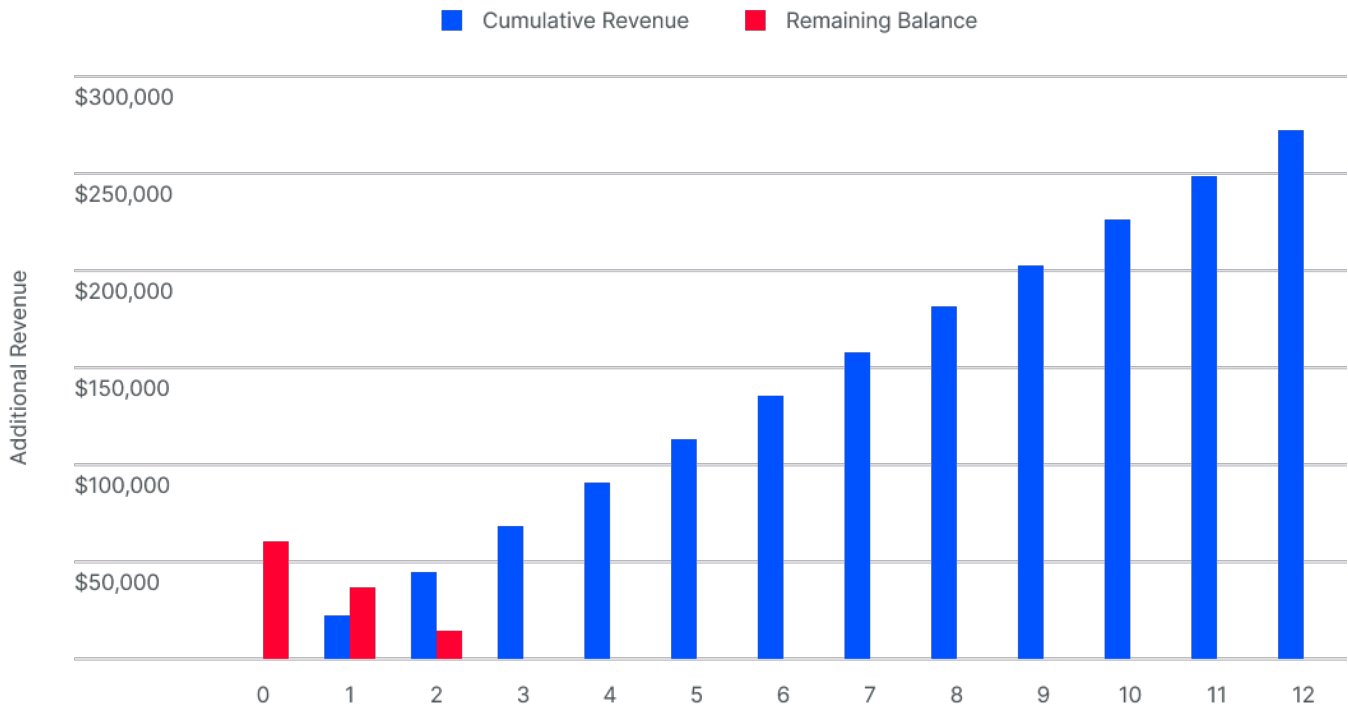
Two frequently used MRI procedure codes were used in the analysis: MRI of the lumbar spine without contrast material (Current Procedural Terminology [CPT] 72148) and MRI of a lower extremity joint without contrast material (CPT 73721). These were the two most common MRI procedure codes in 2023 and accounted for 5.3% of all radiology procedures at imaging centers, according to a claims-based study by Definitive Health.<sup>10</sup> Average reimbursement rates were calculated separately for Medicare and commercial payers using these two procedures.

**Table 2. Model input summary**

Input	Value	Source
Number of working days per year	240	Assumption
Number of MR scanners	1	Assumption
Daily scan volume without SwiftMR™	12-18	Assumption
Increase in scan volume with SwiftMR™	20-40%	Assumption
SwiftMR™ MSRP	\$60,000 per year	AIRS Medical
MRI reimbursement rate, commercial payer	\$364 per scan	CMS 2024 Physician Fee Schedule; Urban Institute 2021
MRI reimbursement rate, Medicare	\$202 per scan	CMS 2024 Physician Fee Schedule
Patient insurance plan distribution, % commercial	0-100%	Assumption

<sup>a</sup> Data available upon request.

**Figure 1. Monthly additional revenue from SwiftMR™ vs. cost**



Note: Red bars represent the remaining balance of SwiftMR™ after deducting cumulative revenue generated from SwiftMR™ (blue bars). At month 0, the balance equals the cost of SwiftMR™. At month 1, the first month's revenue of \$22,649 is deducted from the initial balance.

## Results

Results are summarized in Table 3 (next page).

### Base case

The results of the base case analysis indicate a substantial economic benefit from the utilization of SwiftMR™ in a 1-year period. With SwiftMR™, a hypothetical imaging center realizes a total of \$271,790 in additional revenue over 1 year, with an **ROI of 453% and a payback period of just 3 months** (Figure 1).

### Sensitivity analyses

Several sensitivity analyses were conducted to examine the effects of varying key model inputs on the economic outcomes of adopting SwiftMR™.

### Baseline scan volume sensitivity analysis

The baseline scan volume sensitivity analysis used 12 and 18 scans per day before adopting SwiftMR™; the other inputs were consistent with the base case. For an MRI scanner performing 12 scans per day before SwiftMR™, SwiftMR™ resulted in an additional revenue of \$203,843, a ROI of 340%, and a payback period of four months. For an MRI scanner performing a baseline of 18 scans per day, SwiftMR™ led to an additional revenue of \$339,738, an ROI of 566%, and a payback period of three months.

**Table 3. Results by scenario**

Scenario	ROI	Add'l revenue	Payback period
Base case	453%	\$271,790	3 months
Sensitivity 1: Baseline scan volume (12 scans)	340%	\$203,843	4 months
Sensitivity 1: Baseline scan volume (18 scans)	566%	\$339,738	3 months
Sensitivity 2: Scan volume increase (20%)	340%	\$203,843	4 months
Sensitivity 2: Scan volume increase (40%)	679%	\$407,686	2 months
Sensitivity 3: Payer channel (commercial)	582%	\$349,445	2 months
Sensitivity 3: Payer channel (Medicare)	324%	\$194,136	4 months

### SwiftMR™ scan volume increase sensitivity analysis

The second sensitivity analysis used 20% and 40% as scan volume increase inputs with SwiftMR™; the other inputs were consistent with the base case. A 20% increase in scan volume generated an additional revenue of \$203,843, with an ROI of 340% and a payback period of four months. A 40% increase in scan volume resulted in an additional revenue of \$407,686, yielding an ROI of 679% and a payback period of two months.

### Payer channel sensitivity analysis

The final sensitivity analysis used varying payer distributions (100% Medicare vs. 100% commercial); the other inputs were consistent with the base case. When the patient population was entirely commercially insured, the additional revenue amounted to \$349,445, with an ROI of 582% and a payback period of two months. The patient population entirely covered by Medicare led to an additional revenue of \$194,136, an ROI of 324%, and a payback period of four months.

## Discussion

SwiftMR™ affords imaging centers significant economic value and rapid ROI. By reducing scan times and therefore increasing patient throughput, SwiftMR™ requires a remarkably short payback period, even under conservative assumptions.

Two key factors contribute to the robust ROI observed with SwiftMR™:

**1. Increased scan volume:** The primary economic benefit is derived from the sizable increase in scan volume enabled by SwiftMR™. Across the base case and all sensitivity analyses, the highest ROI was observed for the scenario in which scan volume increased by 40% via SwiftMR™. Greater baseline scan volumes further enhance benefits, while lower baseline volumes still provide substantial gains.

- The models assumed a 5-day work week for the imaging center. For centers operating extended hours or on weekends, the baseline weekly scan volume would be higher and thus the financial benefit of SwiftMR™ may be greater than estimated in these models.

**2. Reimbursement rates:** The type of payer significantly impacts the financial outcome for the imaging center. Since commercial payer reimbursement rates are higher than Medicare rates, imaging centers with a higher proportion of commercially insured patients experience a greater financial benefit. However, even in the scenario with a 100% Medicare population, the imaging center realized over 300% ROI.

- Furthermore, commercial payer reimbursement rates were calculated as 1.8 times that of Medicare rates. From our

experience with imaging center customers, this is a very conservative estimate, and commercial rates are even higher. Thus, the financial benefit of SwiftMR™ may be underestimated in the current models.

The benefits of SwiftMR™ may extend beyond imaging center finances to include other stakeholders, including patients and operations managers. Shorter MRI scan times reduce patient discomfort and anxiety, particularly for those who experience claustrophobia. They also decrease the need for rescans due to patient movement. Ultimately, faster scans can lead to quicker, more accurate diagnoses and treatment planning. For operations managers, improved scan efficiency reduces the likelihood of scheduling delays and rescheduling, the ability to streamline patient flow, and more predictable scheduling. Furthermore, the reduction in repeat scans due to motion artifacts can yield significant cost savings, potentially as much as \$115,000 per scanner per year.<sup>11</sup>

Further research is needed to fully understand SwiftMR™'s impact on MRI technologists. Recent surveys indicate high burnout levels among technologists due to rising patient volumes and increased workloads.<sup>12</sup> Reduced scan times, enabled by SwiftMR™, may have mixed effects: while it may increase the number of patients processed per day, it could also allow for more breaks between appointments, additional time for administrative tasks, and shorter operating hours. The net impact on technologist workload and job satisfaction will likely depend on implementation strategies and management practices.

## Limitations

As this model is based on several assumptions, certain limitations should be considered:

1. **Assumption dependencies:** The model's results are based on several key assumptions, including number of working days, reimbursement rates, and number of scans per day with and without SwiftMR™. Actual outcomes may vary depending on specific operational conditions at individual imaging centers.
2. **Optimal patient throughput with SwiftMR™:** Not all imaging centers aim to maximize ROI via increased throughput. Some seek to do so by limiting hours of operation. SwiftMR™ enables these facilities to scan the same number of patients in less time.
3. **Generalizability:** The analysis is based on a hypothetical imaging center. Results may differ in practice due to variations in institution size, patient demographics, and regional reimbursement rates.

## Conclusion

Integrating SwiftMR™ into MRI workflows offers a significant economic advantage for imaging centers. By enabling faster scan times and higher scan volumes, SwiftMR™ generates significant additional revenue, leading to substantial ROI and quick payback periods. These financial benefits, coupled with improved patient and technician experiences, make SwiftMR™ a valuable investment for imaging centers looking to optimize their operations and financial performance.

## Disclaimers

The findings we have detailed above were based on assumptions and real-world data from a limited number of institutions and radiologists. Individual results may vary depending on the institution considering the adoption of SwiftMR™. This white paper is provided for informational purposes only and does not constitute legal or professional advice.

## Summary

- SwiftMR™ is an AI-powered reconstruction software that enables reduced MRI scan times for radiology institutions like imaging centers and hospitals. This white paper assesses the economic value of SwiftMR™ for a hypothetical imaging center in the US
- By increasing MRI scan volumes and reducing scan times, SwiftMR™ increases revenue of imaging centers, leading to substantial ROI and quick payback periods.
- A typical imaging center will experience \$271,790 in additional revenue over 1 year, resulting in an ROI of 453% and a payback period of 3 months.
- Even using conservative estimates, **SwiftMR™ is expected to produce an ROI of over 300%.**

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