



DETERMINE THE BEST PROCUREMENT OPTION FOR YOUR DIAGNOSTIC IMAGING ASSETS



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Is a cash purchase always the least expensive option for procuring capital assets? What other options are there?

In the past, planning periods for diagnostic imaging technology would span several years, providing administrators a near guarantee that they would receive a positive ROI from purchasing a system. In fact, the average age of an MRI system in 2014 was 11.4 years old, reflecting exactly this point.¹

Today, we face a United States healthcare market in flux because of **population changes, rising consumerism, and a volatile political climate**. For example, emerging payor steerage movements like Anthem's decision to not cover hospital outpatient CT and MRI is resulting in a highly unpredictable market for imaging services, forcing many providers to seek asset procurement strategies that minimize their financial risk.

¹ Prochaska, Gail. *Ready for Replacement? New IMV Survey Finds Aging MRI Scanner Installed Base*. Rep. Des Plaines, IL: IMVinfo, 2014. Print.

Advancements in technology can necessitate upgrades, and new regulations (i.e., Consolidated Appropriations Act) can render technology obsolete. Rapidly aging populations also can alter imaging volumes dramatically. These risks have narrowed planning periods for capital-intensive diagnostic imaging technology, leaving healthcare administrators to reevaluate procurement options, as an outright purchase is no longer guaranteed to be the most cost-efficient option.



The question then becomes:

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How do healthcare administrators determine the most cost-effective procurement option for diagnostic imaging technology in today's changing market?

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The answer is Net Present Value comparative cost analysis.

In planning and budgeting capital projects, hospital administrators can apply this type of objective analysis to all procurement options to determine which option is the least costly over the asset's lifespan. **Lease, purchase, functional service** – the Net Present Value of ALL procurement choices should be calculated and weighed against each other to make the most cost-effective decision for your facility.

What is Net Present Value comparative cost analysis?

Net Present Value is the *present value of a stream of future cash flows discounted at your required rate of return*. The result of this analysis determines the cost (or value) in today's dollars of an investment in which cash outflows and cash inflows occur at different times throughout the planning period.

NPV Formula

$$NPV = -C_0 + \sum_{i=1}^T \frac{C_i}{(1+r)^i}$$

C_0 - initial investment

T - the total number of periods

i - the period of the cash flow

r - the discount rate

C_i - net cash flow during the period i

Net Present Value (NPV) comparative cost analysis demonstrates the present value cash flows of two or more procurement options.

Now, with an understanding of Net Present Value, the next step is to compare the NPV costs of your options.



Setting up Your Net Present Value (NPV) Cost Comparison

1 Simplify the Equation

To properly set up your NPV cost comparison, remove cash inflows (revenues) and outflows (expenses), which are identical regardless of procurement method. For example, 'Expected Revenue' will be removed because the revenue generated by an asset will be the same regardless of the procurement method. Still included are cash acquisition costs and operating expenses that are unique to each procurement option.

2 Specify your Planning Period

How long will you be holding the asset? What factors (i.e., population shifts, technology upgrades, acquisitions or mergers) will you consider when making this decision? This is a critical component of your NPV cost comparison analysis because planning periods are shortening in response to the uncertainty in today's healthcare market. Work closely with your market planning team or contact Shared Imaging to fully understand the period in which your asset can be reasonably expected to have meaningful usefulness.

3 Apply Your Required Rate of Return

Working with your finance team, determine the hurdle rate needed for this project.

This is your required rate of return.

Hurdle rate is the minimum **rate** that a company expects to earn when investing in a project. A **hurdle rate** may also be referred to as the company's required **rate of return** or **target rate**.

4 Determine the Residual Value of an Owned Asset

Determine an accurate residual value by taking into account the reasonable selling price of the asset at the end of the planning period and any expenses you would incur for the disposal of the asset. Specify this expected residual value as a cash inflow (C_i) at the end of the planning period. This step only applies when you purchase and own the asset.

5 Include ALL Procurement Options in Your Analysis

Oftentimes, healthcare executives only compare operating and/or capital leases to cash purchases in their analyses. Diagnostic imaging as a **functional service** is another procurement option that often proves to be the most cost-efficient option after performing an NPV cost analysis.



What is Functional Service?

Functional service is when the imaging vendor retains ownership of the asset and takes on its full ownership responsibility (including the service/maintenance, staffing when needed, asset disposal / removal, and other associated operating expenses) and provides the technology as a single monthly operating expense.

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Plug and Go

With all variables now accounted for, the next step is to run your analysis in the electronic spreadsheet program of your choice and see which procurement option yields the lowest total cost of ownership.

NPV can also be calculated using the following formula in Microsoft Excel:
 $NPV = (Rate, Values, Dates)$

Example:

- The hospital wanted to install a wide-bore (70 cm) MRI at one of their outpatient facilities for a period of 60 months.
- The hospital considered purchasing a refurbished system either directly from the manufacturer or via a functional service offering from Shared Imaging.
- The required rate of return for this project was defined at 3.25%.
- The residual value of the system at the end of the period was estimated at diminished value of \$210,000 because the system was no longer the latest wide-bore MRI sold by the manufacturer.

Hospital Ownership - 3.25% Required Rate of Return - 60-Month Planning Period												
Description	Purchase Price	Monthly Expense	Month 1	Month 2	Month 3	Month 14	Month 19	Month 37	Month 43	Month 48	Month 61	Month 62
1.5T OEM Factory Refurbished Wide Bore MRI System												
MR System Maintenance		\$9,750	0	0	0	(9,750)	(9,750)	(9,750)	(9,750)	(9,750)	(9,750)	0
18-Month Software/Coil Enhancements	\$60,000		0	0	0	0	(60,000)	(60,000)	(60,000)	0	0	0
1.5T OEM Factory Refurbished Wide Bore MRI System	\$1,093,000		(1,093,000)									210,000
Monthly Expense			(1,093,000)	0	0	(9,750)	(69,750)	(69,750)	(69,750)	(9,750)	(9,750)	210,000
NPV Cost - Ownership		3.25%	(\$1,503,121)									

Functional Service - 60 Month Term												
Description	Purchase Price	Monthly Expense	Month 1	Month 2	Month 3	Month 14	Month 19	Month 37	Month 43	Month 48	Month 61	Month 62
1.5T OEM Factory Refurbished Wide Bore MRI System												
Monthly Functional Service Charge		\$26,000	0	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	0
Monthly Expense			0	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	(26,000)	0
NPV Cost - Functional Service		3.25%	(\$1,439,791)									

In this scenario Functional Service is **\$63,330 less** costly in today's dollars than a cash purchase.
Each scenario is unique and will yield different results.

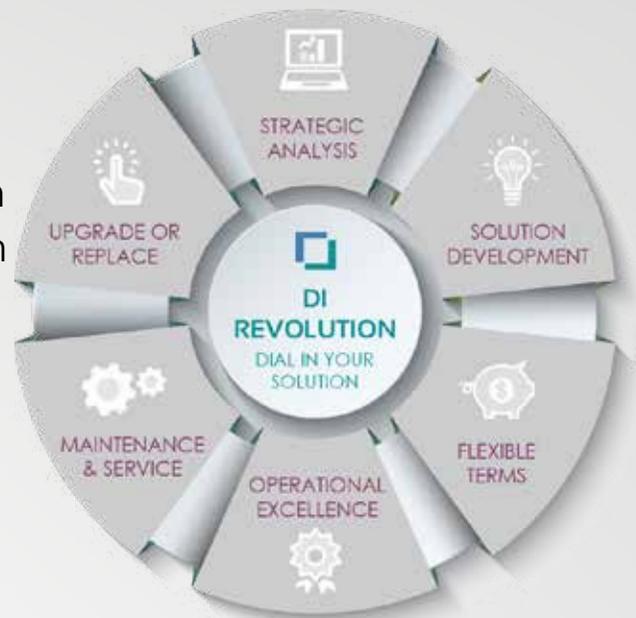




More Bang for Your Buck

When making big decisions about large capital-intensive equipment, hospitals often leave out the crucial step of analyzing the most cost-effective procurement option, and they unknowingly forfeit significant cost savings and the ability to reduce risk. An NPV comparative cost analysis is an excellent tool to determine which procurement option is the least costly in terms of overall cash expense throughout the planned usefulness of an asset.

As a functional service provider, Shared Imaging is equipped to **manage the entire lifecycle of your diagnostic imaging technology**. We start with an NPV calculation of your procurement choices. This calculation will allow us to determine what is the best option for you -- whether it is functional service or another solution. Let us do the heavy lifting so you can focus on providing excellent patient care while positively impacting your bottom line.



Get assistance in analyzing your diagnostic imaging procurement options using a Net Present Value comparison

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