

# ***Healthcare Facility Development and Strategic Equipment Acquisition Planning***

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| Hatten Hotel Melaka | 06 October 2020 |

# CURRENT TRACK



Malaysia



Singapore



Philippines



DAMANSARA PROPERTIES



TMR URUSHARTA



METRO PARKING



DAMANSARA PMC SERVICES



HC DURACLEAN



DAMANSARA TECHNOLOGY

# PAST HANDS-ON



PUSAT PERUBATAN  
PRINCE COURT  
MEDICAL CENTRE



# HEALTHCARE FACILITIES & EQUIPMENT : MALAYSIAN LANDSCAPE

MORE  
THAN

140

Public Hospitals

240

Private Hospitals

45,000

Hospital Beds

200

Manufacturers

2,500

Medical Device Companies

4,500

Medical Device Types (UMDNS)



# HEALTHCARE FACILITY : PLANNING, DESIGN & DEVELOPMENT

## PRIVATE HOSPITALS

Private Healthcare Facilities & Services Act

Uniform Building By-Laws

Factories & Machineries Act

Fire Services Act

Pathology Laboratory Act

Atomic Energy Licensing Act

Medical Device Act

+ Design adaptability to...



MSQH 5<sup>th</sup> Edition  
Service Standards 2-3



JCI 7<sup>th</sup> Edition  
FMS 7-11

# EQUIPMENT : STRATEGIC PLANNING & PROCUREMENT

FUNDING

CLINICAL

TECHNICAL

MEDICAL TECHNOLOGY  
PROVIDERS



CT Scanner  
MRI Scanner



4-slice  
16-slice  
32-slice  
64-slice  
128-slice  
256-slice  
640-slice

0.3T  
0.4T  
1.5T  
3.0T  
7.0T



SIEMENS

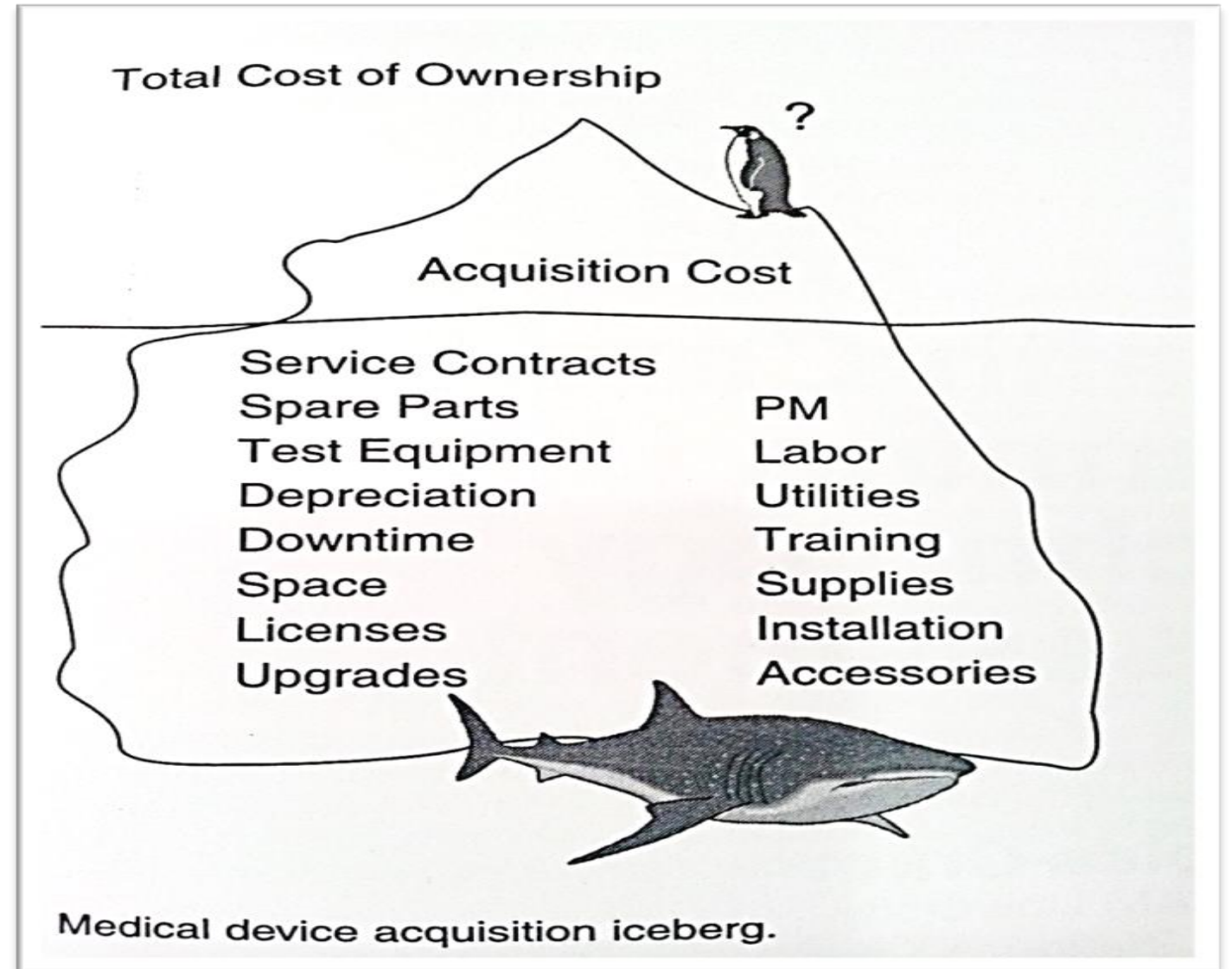
PHILIPS

Canon

HITACHI  
Inspire the Next

UNITED  
IMAGING

# EQUIPMENT : PROCUREMENT – THE ICEBERG SYNDROME



# QUICK TRICK : Post Warranty Analysis

PROJECT AND/OR HOSPITAL NAME :

DATE OF SUBMISSION :

COMPANY NAME :

COMPANY CHOP :

PERSONNEL NAME & EMAIL :

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## Maintenance Service Contract Summary

1-Full Comprehensive     PPM, Unlimited Breakdown Calls, With Parts (INCLUSIVE of Vacuum Parts/Tubes/Accessories.....otherwise pls specify with additional supplementary letter)

2-Semi Comprehensive     PPM, Unlimited Breakdown Calls, With Parts (EXCLUSIVE of Vacuum Parts/Tubes/Accessories.....otherwise pls specify with additional supplementary letter)

3-Non Comprehensive     PPM, Unlimited Breakdown Calls, WITHOUT Parts

Year	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	TOTAL (RM)
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			1st	2nd	3rd	4th	5th	6th	7th	8th	RM
Equipment Name :	1-Full Comprehensive	Warranty	Warranty								
Model:	2-Semi Comprehensive	Warranty	Warranty								
Country of make:	3-Non Comprehensive	Warranty	Warranty								

Equipment Name :	1-Full Comprehensive	Warranty	Warranty								
Model:	2-Semi Comprehensive	Warranty	Warranty								
Country of make:	3-Non Comprehensive	Warranty	Warranty								

Equipment Name :	1-Full Comprehensive	Warranty	Warranty								
Model:	2-Semi Comprehensive	Warranty	Warranty								
Country of make:	3-Non Comprehensive	Warranty	Warranty								

Equipment Name :	1-Full Comprehensive	Warranty	Warranty								
Model:	2-Semi Comprehensive	Warranty	Warranty								
Country of make:	3-Non Comprehensive	Warranty	Warranty								

Equipment Name :	1-Full Comprehensive	Warranty	Warranty								
Model:	2-Semi Comprehensive	Warranty	Warranty								
Country of make:	3-Non Comprehensive	Warranty	Warranty								



# QUICK TRICK : Post Warranty Analysis

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total 5 years		
	(During warranty)						(Post warranty)		

## **TOSHIBA 64 SLICE CT SCANNER (ACQUILION 64)**

<b><u>Maintenance Service Contracts</u></b>									
Non comprehensive contract	U/warranty	65,000.00	65,000.00	72,000.00	72,000.00	78,000.00	352,000.00	(A)	
Comprehensive contract (Opt 1)	U/warranty	270,000.00	270,000.00	300,000.00	300,000.00	330,000.00	1,470,000.00	(B)	
<b>Comprehensive contract (Opt 1) - NEGOTIATED</b>	<b>U/warranty</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>1,250,000.00</b>	<b>(B1)</b>	
<b><u>Periodic Scheduled Parts Replacement (5 years period)</u></b>									
Xray tube (24 months: 200,000slices)	U/warranty	320,000.00		320,000.00		320,000.00	960,000.00	}	
Heat exchanger (36 months: 8000 op hrs)	U/warranty		65,000.00			65,000.00	130,000.00		
HV cable (24months: 200,000slices)	U/warranty	38,000.00		38,000.00		38,000.00	114,000.00		
LC brush (60 months)	U/warranty				15,000.00		15,000.00		1,389,000.00
Raw data disk & Image disk (RM20,000)	U/warranty					20,000.00	20,000.00		( C )
MHR FD & DP 20 pcs (RM60,000)	U/warranty					60,000.00	60,000.00		
SRU-L (RM90,000)	U/warranty					90,000.00	90,000.00		
<b><u>5 years Maintenance Calculation</u></b>									
5 years Non-Comprehensive contract + Parts	1,741,000.00	(A + C)							
5 years Comprehensive Contract (cover parts)	1,250,000.00	(B1)							
<b>VAR</b>	<b>491,000.00</b>	<b>(A + C - B1)</b>							

## **SIEMENS 64 SLICE CT SCANNER (SOMATOM 64)**

<b><u>Maintenance Service Contracts</u></b>									
Non comprehensive contract	U/warranty	65,000.00	65,000.00	68,500.00	72,000.00	75,000.00	345,500.00	(X)	
Comprehensive contract (Opt 1)	U/warranty	290,000.00	290,000.00	305,000.00	320,000.00	336,000.00	1,541,000.00	(Y1)	
Comprehensive contract (Opt 2)	U/warranty	290,000.00	290,000.00	290,000.00	290,000.00	290,000.00	1,450,000.00	(Y2)	
<b>Comprehensive contract (Opt 2)-NEGOTIATED</b>	<b>U/warranty</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>1,250,000.00</b>	<b>(Y3)</b>	<b>LATEST</b>
<b><u>Periodic Scheduled Parts Replacement (5 years period)</u></b>									
Xray tube (24 months: 200,000slices)	U/warranty	430,000.00		430,000.00		430,000.00	1,290,000.00	}	
Air Filter for PDC (pn:30 68 095; every 6M)	U/warranty	500.00	500.00	500.00	500.00	500.00	2,500.00		
Air Filter for dehumidifier (pn:27 93 250; every 6M)	U/warranty	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	7,000.00		
Air filter set for IRS 3 (pn:83 79 344 every 6M)	U/warranty	1,420.00	1,420.00	1,420.00	1,420.00	1,420.00	7,100.00		1,686,600.00
UDC Power Brushes(pn:73 95 143; every 6M)	U/warranty	24,600.00	24,600.00	24,600.00	24,600.00	24,600.00	123,000.00		( Z )
Low Power Carbon brushes(pn:73 95 176; every 6M)	U/warranty	19,400.00	19,400.00	19,400.00	19,400.00	19,400.00	97,000.00		
Brushes for Control Data Unit (pn: 73 95 168;every 6M)	U/warranty	26,800.00	26,800.00	26,800.00	26,800.00	26,800.00	134,000.00		
UPS (pn:40 15 970 ; repair exchange every 3 years)	U/warranty		13,000.00			13,000.00	26,000.00		
<b><u>5 years Maintenance Calculation</u></b>									
5 years Non-Comprehensive contract + Parts	2,032,100.00	(X + Z)							
5 years Comprehensive Contract (cover parts)	<b>1,250,000.00</b>	<b>(Y3)</b>							
<b>VAR</b>	<b>782,100.00</b>	<b>(X + Z - Y3)</b>							

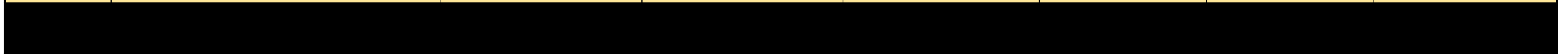


**HOSPITAL :**  
**MRI 1.5 Tesla**

HOSPITAL : MRI 1.5 Tesla										
	Bidder 1		Bidder 2		Bidder 3		Bidder 4		Bidder 5	
Brand	A		B		C		D		E	
Origin & Manufacturing Plant	Japan		Germany		Japan		Netherland & China		China	
Year Marketed	2014		2004		2010		2013		2012	
Model										
System Price (RM)	3,993,000		3,750,000		3,700,000		3,698,000		3,900,000	
Site Preparation Works (RM)	255,340		360,000		225,304		266,141		Inclusive	
Total Price (RM) Budgeted 3,800,000	4,248,340		4,110,000		3,925,304		3,964,141		3,900,000	
Payback Period	3.75 Years									
Warranty	24 months						24 months		24 months	
Maintenance (RM)	FC	NC	COMMERCIAL				FC	NC	FC	NC
Year 3	360,000	70,000	330,000	100,000	297,350	81,000	420,217	110,020	195,000	58,000
Year 4	360,000	70,000	330,000	100,000	297,350	81,000	441,228	110,020	195,000	58,000
Year 5	375,000	70,000	330,000	100,000	312,217	85,050	463,290	110,020	195,000	58,000
Year 6	375,000	70,000	330,000	100,000	312,217	85,050	486,454	110,020	195,000	58,000
Year 7	390,000	70,000	330,000	100,000	327,828	89,300	510,777	110,020	195,000	58,000
TOTAL ( 5 Years )	1,860,000	350,000	1,650,000	500,000	1,546,962	421,400	2,321,966	550,100	975,000	290,000
Recommendation :										
1-Specifications										
2-Site Reference										
3-User Preference										
4- Maintenance (5Y)										

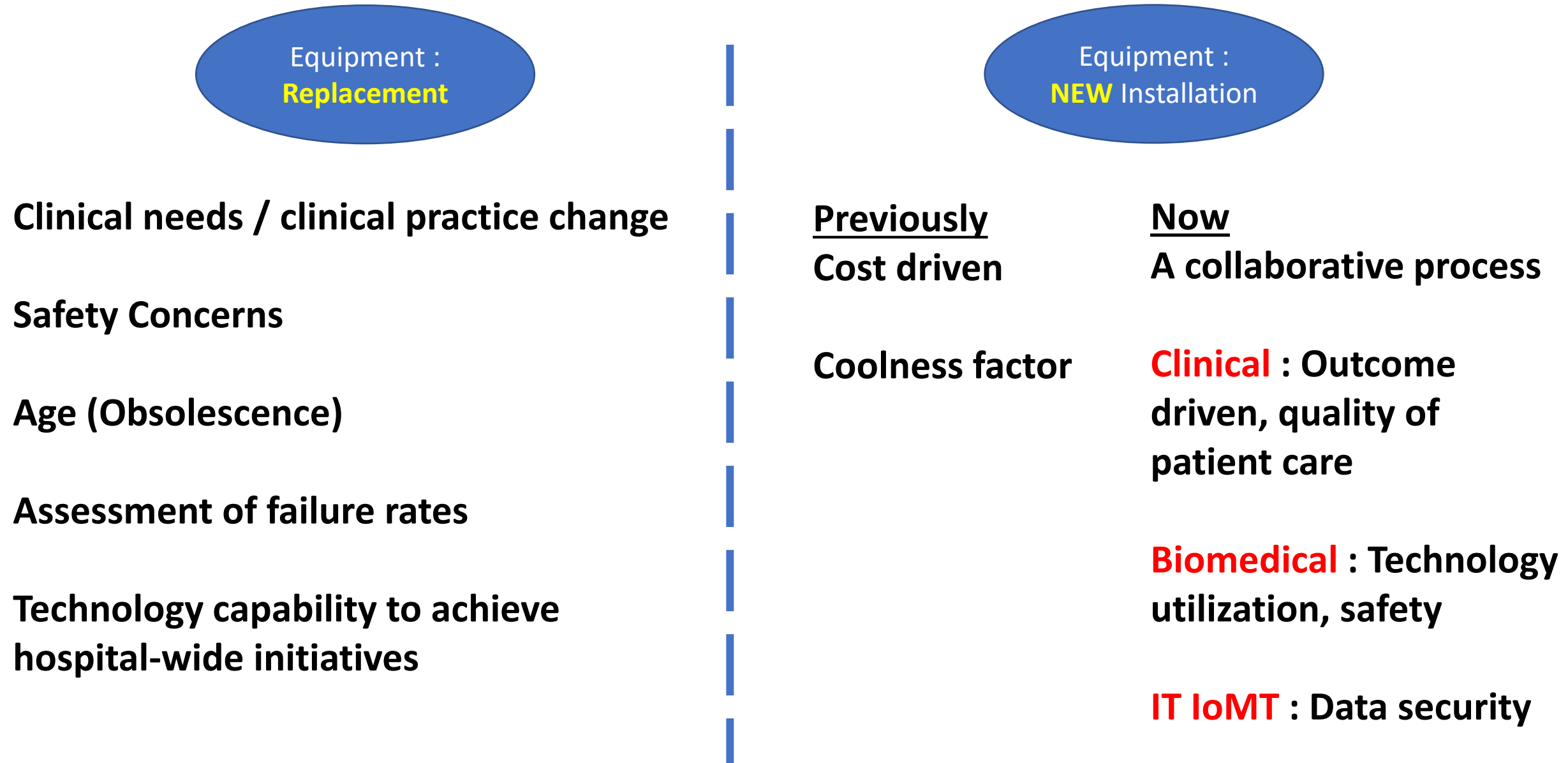
MRI Technical Specifications	Bidder 1	Bidder 2	Bidder 3
Brand :	1.5Tesla (8ch)	1.5Tesla (8ch)	1.5Tesla (8ch)
Model:			
<b><u>System features :</u></b>			
1.Gradient			
2.Slew rate			
3. Gantry bore diameter	61 cm	65cm	65cm
4. Table length			
5. Lowest Table height from floor			
6. Magnet Weight			
7. Magnet lenth			
<b><u>Software applications offered :</u></b>			
Neuro application	Yes	`	Yes
Angiography application	Yes	Yes	Yes
Basic Cardiac application	Yes	Yes	Yes
Body application	Yes	Yes	Yes
Basic Oncology application	OPTION	OPTION	OPTION
Basic Breast application	Yes	Yes	Yes
Ortho application	Yes	Yes	Yes
Pediatric application	Yes	Yes	Yes
<b><u>Additional Software offered:</u></b>	<div>TECHNICAL</div>		
Motion disortion Correction (eg radar/blade?)			BLADE
Fat suppression application			
3D Distortion Correction			
DWI			
Dicom connectivity to PACS		Yes	No
Spectroscopy(basic)	Yes (dual )		No
<i>Advance Spectroscopy (OPTION )</i>			
<b><u>Coils offered:</u></b>	1	1	1
Head Coil	1	1	1
Neck Coil	1	1	1
Spine Coil	1	1	1
Body Coil	1	1	1
Multiple coils	1	1	1
Shoulder coil	1	1	1
CP Extremity coil			
Dedicated knee coils	1	1	1
Breast coil (OPTION)	OPTION	OPTION	OPTION
Any other offer ( inclusive in offer price)	Integrated gantry coils	TR coils (4 connectors)	Surface coils
<b>Total Coils Offer</b>	<b>10</b>	<b>10</b>	<b>10</b>

NO.	CRITERIA	RATINGS	BIDDERS				
	BRAND COUNTRY OF ORIGIN		A	B	C	D	E
			USA	Switzerland	Sweden	Germany	Spain
1	Company	100%	85.7%	92.9%	100.0%	78.6%	71.4%
2	Product	SUMMARY			70.0%	75.0%	80.0%
3	Support : After Sales	100%	100.0%	70.0%	57.0%	63.0%	63.0%
	Total	100%	93.1%	81.5%	75.7%	72.2%	71.5%
	Ranking: No.		1	2	3	4	5





# EQUIPMENT : PROCUREMENT – PLANNING PROCESS



# COMMON ISSUES AND CHALLENGES

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**Technical Specifications**

**Aligning current and future technology**

**Technology improvement & upgrade :  
Hardware Software**

**Technology storage & mobilization**

**Service Model Optimization : Post Installation Maintenance**

**EOT, Delays**

**Vacuum / Changing Technical Personnel**

**Database for Contractors. Competency, Upskill**

# FUTURE HEALTHCARE ?

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**Centre of Excellence (CoE) Hospitals**

**Digitalizing Healthcare and AI /  
Machine Learning. Remote Diagnosis**

**Patient Data Security via Medical  
Device, IoMT**

**Adaptability for New Innovation, New  
Technology. Robotic environment**



# CONCLUSION

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**COST.** There are many criteria today to consider in making cost conscious decision in a market with increasing budgetary pressures & precious capital funds.

**PATIENT CENTRIC.** From planning, design, development, procurement, service, technology - Patients are the hospital's reason for being.

**STRATEGIC.** Building & Equipping a Hospital has to be conclusive towards operational efficiency, clinical safety, flexibility for expansion / adapting new technology, sustainability & serviceability.

**SECURE.** Effective planning, designing, equipping Hospital with protection to IT and medical devices interlink data, network, system and patients – secure IoMT connectivity against cyber threats.

An architectural rendering of a modern building with a curved facade and a parking lot. The building has multiple floors with large windows and a curved roofline. A parking lot with several cars is visible in the foreground. The text "THANK YOU" is overlaid on the left side of the image.

# THANK YOU

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