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VALUATION OF PROPRIETARY TECHNOLOGY

This publication provides insights on valuation of proprietary technology.

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INTRODUCTION TO PROPRIETARY TECHNOLOGY

Technology-based intangible assets protect or support technology and may include, patented technology, in- process research and development, unpatented technology, computer software etc. In general parlance, the terms are used interchangeably. However, in dealing with the valuation of technology-based intangible assets, understanding the exact nature of the subject intangible is of utmost importance.

Proprietary technology is more of a basket of intellectual property. There is no one-size-fits-all as far as proprietary technology is concerned. It may include processes, tools, systems, trade secrets, and formulations that are the property of the business and provides some sort of benefit to the owner. A proprietary technology is the overall technology that is used by the organisation. It may be either developed by, or purchased by the business owner. A proprietary technology may be patented or unpatented.

Valuation of technology-based intangibles is required for financial reporting purposes such as in compliance with SFRS (I) 3: Business Combinations, as the intangibles acquired as a part of a business combination are required to be measured at fair value. Based on SFRS(I) 1-36: Impairment of Assets , the value of the intangibles has to be tested for impairment which requires a measurement of the underlying technology. Companies may also require valuation of technology, as part of the due diligence process, as one may want to know the value of underlying technology if it is the primary reason for the acquisition. Valuation may also be sought in relation to tax reporting, legal and insolvency proceedings or monetisation of technology developed by a company.

VALUATION APPROACHES

There are three conventional approaches used to value an intangible asset: the income approach, the market approach and the cost approach. These approaches are summarised as follows:

Income approach

The income approach is a general way of determining the value of an asset by considering expected returns on an asset, which are then discounted or capitalised at an appropriate rate of return to reflect the risks and potential rewards associated therewith.

Market approach

The market approach is a general way of determining a value indication of an asset by using one or more methods that compare the subject to similar assets that have been sold. When applied to intangible assets, the market approach requires the valuation analyst to identify guideline transactions. The use of market approach to value a proprietary technology is rare since there is no active market for the same and comparable transaction for similar technologies would be rare to come by.

Cost approach

The cost approach reflects the amount that currently would be required to replace the service capacity of an asset.

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VALUATION GUIDANCE

There are three conventional approaches used to value an intangible asset: the income approach, the market approach and the cost approach. These approaches are summarised as follows:

COST APPROACH	INCOME APPROACH	MARKET APPROACH
• **Replacement cost method** It considers the cost to create, at current prices, an asset having equal utility to the subject asset. • **Reproduction cost method** It considers the cost to construct, at current prices, an exact duplicate or replica of the subject asset.	• **Multi-period excess earnings method ("MEEM")** MEEM can be described as an attrition model under income approach. The fundamental premise of MEEM is that the value of an intangible asset is equal to the present value of the net cash flows attributable to the subject intangible asset. The net cash flow attributable to the subject intangible asset are those in excess of the fair returns on all the assets that are necessary to the realisation of the total cash flows.	• **Relief from royalty method ("RfR")** The theory underlying the method is, an entity that owns an intangible asset has a valuable right since the entity is not required to pay a third-party license fee for the right to use that intangible asset. The fair value of the proprietary technology is measured as the present value of hypothetical royalty payments that the entity is relieved from paying by not having to license the use of the technology from a third party.

SPECIAL CONSIDERATIONS IN VALUATION OF PROPRIETARY TECHNOLOGY

An attribute specific to technology-based intangibles is obsolescence. Obsolescence can be on account of outdated technology or improvements being made to the existing technology due to which the contribution of existing technology to future economic benefits depletes over time. The valuation model should take into consideration the depletion in the value of the existing technology on account of obsolescence.

Types of obsolescence

Functional obsolescence
The decrease in the subject asset's value due to its inability to perform the designated function.

Technological obsolescence
It becomes obsolete due to improvements in technology.

Economic obsolescence
The decrease in the value of the asset due to external influences. It is generally considered incurable.

For example, software in need to modification or enhancement might be considered functionally obsolete. But if the software were to be rewritten in a different programming language, using different hardware and operating systems, then technological obsolescence would be indicated.

VALUATION OF PROPRIETARY TECHNOLOGY

CASE STUDY I

As a part of the allocation of purchase price, the valuer identified internal use software that requires valuation. Discussions with management indicated that they were not aware of any commercially available software at the time of development nor at the present time that would meet their needs. Given the nature of its operations, the company did not have available internal resources to develop the software. As a result, a third-party vendor would be required on 'rates and hours' basis. Management indicated the development of the software would require management involvement and other resources and provided an overhead estimate to account for this element of the development.

FAIR VALUE OF PROPRIETARY TECHNOLOGY – REPRODUCTION COST METHOD

Particulars		Amount
Estimated hours to complete – 3rd party vendor		8,000
Estimated cost per hour		$ 40
Indicated value		$ 320,000
Plus: Overhead allocation	30%	$ 96,000
Indicated value		$ 416,000
Less: Obsolescence adjustment	50%	$ 208,000
Fair value		$ 208,000

The cost approach is typically utilised in measuring the value of early stage technology since the technology is not likely at the point where the profits can be reliably ascertained of the future economic benefits. It may be best suited for technology which is not the direct source of economic earnings for the enterprise, is easily replaceable, and may be of less significant value relative to other assets.

CASE STUDY II

In performing the purchase price allocation for the acquisition of A Ltd, the valuer identifies internally developed, internal use technology at the company. A comparable technology is available for a license fee of 1 percent of revenues. The technology is only needed for a certain number of products with a finite life.

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FAIR VALUE OF PROPRIETARY TECHNOLOGY – RELIEF FROM ROYALTY METHOD

Particulars		Year 1	Year 2	Year 3	Year 4	Year 5
Total revenue		$ 100,000	$ 103,000	$ 106,090	$ 109,273	$ 112,551
Growth		NA	3%	3%	3%	3%
Revenue dependent on technology		$ 10,000	$ 12,000	$ 15,000	$ 10,000	$ 5,000
Royalty rate		1%	1%	1%	1%	1%
Pre-tax royalties		$ 100	$ 120	$ 150	$ 100	$ 50
Less: Maintenance expense		$0	$ 0	$ 0	$ 0	$ 0
Adjusted pre-tax royalties		$ 100	$ 120	$ 150	$ 100	$ 50
Income tax	40%	($ 40)	($ 48)	($ 60)	($ 40)	($ 20)
Adjusted after-tax royalties		$ 60	$ 72	$ 90	$ 60	$ 30
Present value factor	16%	0.93	0.80	0.69	0.59	0.51
Present value of cashflows		$ 56	$ 58	$ 62	$ 36	$ 15
Sum of present value of cash flows						$ 227
Plus: Tax amortisation benefit						$ 43
Fair value						$ 270

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Use of the relief from royalty method to value the intangible is appropriate when -

- The importance of the technology to the business is similar to that of a comparable, licensed asset;
- The rights of ownership can be compared to the rights under a license (for example, similar geographic market coverage, duration, exclusivity, limitation, technology, and type of customer); and
- It is practical and possible to license it separately and market royalty rates can be observed that confirm comparable economic rights for similar intellectual property.

Sometimes, in the selection of royalty rate, analysts may make the assumption that whoever owns that technology is constantly updating that technology and that is factored in the royalty rate being paid. That is the reason that times obsolescence factor is not applied in the relief from royalty method.

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CASE STUDY III

In performing the purchase price allocation, the valuer identified internally developed technological platform that enables the company to conduct research and develop products per customers' request on project basis. Herein, the technology may be considered to be the primary value driver and therefore, MPEEM may be considered the most appropriate method to perform the valuation of the technology.

FAIR VALUE OF PROPRIETARY TECHNOLOGY – MULTI-PERIOD EXCESS EARNINGS METHOD

Particulars		Year 1	Year 2	Year 3	Year 4	Year 5
Revenue		$ 12,000	$ 9,600	$ 6,720	$ 4,032	$ 2,016
Growth *(considering obsolescence)*			-20%	-30%	-40%	-50%
Cost of goods sold		$ 4,800	$ 3,840	$ 2,688	$ 1,613	$ 806
Gross profit		$ 7,200	$ 5,760	$ 4,032	$ 2,419	$ 1,210
Maintenance R&D		$ 1,200	$ 960	$ 672	$ 403	$ 202
S&M expenses		$ 1,800	$ 1,440	$ 1,008	$ 605	$ 302
G&A expenses		$ 1,200	$ 960	$ 672	$ 403	$ 202
EBITDA		$ 3,000	$ 2,400	$ 1,680	$ 1,008	$ 504
Depreciation		$ 600	$ 480	$ 336	$ 202	$ 101
Operating income		$ 2,400	$ 1,920	$ 1,344	$ 806	$ 404
Tax expense	40%	$ 960	$ 768	$ 538	$ 322	$ 161
After-tax operating income		$ 1,440	$ 1,152	$ 806	$ 484	$ 242
Contributory asset charges						
Net working capital	0.60%	$ 72	$ 58	$ 40	$ 24	$ 12
Fixed assets	2.40%	$ 288	$ 230	$ 161	$ 97	$ 48
Assembled workforce	0.80%	$ 96	$ 77	$ 54	$ 32	$ 16
		$ 984	$ 787	$ 551	$ 331	$ 166
Present value factor	16%	0.93	0.80	0.69	0.59	0.51
Present value of cash flows		$ 914	$ 630	$ 380	$ 197	$ 85
Sum of present value of cash flows						$ 2,205
Plus: Tax amortisation benefit						$ 420
Fair value						$ 2,625

MEEM is the most commonly used to value the primary or most important asset responsible for the income generating ability of a business enterprise or a key segment of a business enterprise. It may be best suited for technology which is the direct source of economic earnings for the enterprise and is the primary value driver.

Conclusion

In general, the value of a proprietary technology is based on technology aided earning power of the company, the stage of the technology, and the industry. While above discussion is a good base for the valuation of a proprietary valuation, there is no one-size-fits-all approach. As is often the case with the intangibles, the experience, the expertise and reasoned judgement of the qualified valuers would be your best guides along with the International Valuation Standards (IVS).

ABOUT KNAV

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