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Valuation Insights

Practical challenges in valuing software-related intangibles

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01 Introduction

The Indian IT industry has demonstrated its coming of age through its resilience in 2013, when global and domestic markets continued to showcase a lack-lustre performance. As per the industry body NASSCOM, the IT-BPO industry, aside from crossing the US$ 100 billion mark in 2012, also clocked a 13% growth in exports and a 9.5% growth in sales in the domestic market in 2013. Further, for the fiscal year 2015, exports are expected to grow at an annual rate of 12.3%, with domestic growth expected to clock 14%.

The Indian IT/ ITeS industry has also held its own on the deal-scape for CY 2014. As per Grant Thornton's Dealtracker, the sector has led the mergers and acquisitions (M&A) activity charts for the year in terms of value, accounting for more than 20% of the total M&A deal values during the period.

Within the overall IT industry, software product has been one of the fastest growing sub-segments. This is evident from the fact that there has been a significant increase in the number of Indian start-ups focused on developing niche products. As per NASSCOM, over 70% of India's software product companies have been incorporated post 2010. The software products market in India, which includes B2B software, mobility products and Internet and consumer/e-commerce products, was expected to grow at 14% in 2014. Further, as per the Indian Software Product Industry Roundtable, India has the potential to build a US$ 100 billion software product industry by 2025.

Needless to say, the growth rate clocked by the sub-segment over the past and its potential growth rate over the near future are among the key drivers of the deal activity. Indian software product companies such as Capillary Technologies, Knowlarity and Linguanext have secured Private Equity (PE) funding. Further, several large IT firms are now acquiring software product companies to move up the value-chain and follow a non-linear revenue strategy. For example, Wipro Limited recently acquired an Australian analytics product firm, Promax Applications Group, to strengthen its analytics offering. It has also set up a fund to invest in early stage product and niche companies. It is also clear that the fund raising/ M&A activity in the software product segment is expected to increase further. Given this heightened transaction activity, Valuation becomes one of the key focus centres for an entrepreneur /promoter of a software product company seeking to raise funds, or an acquirer looking to acquire a software product company. In order to optimally leverage such opportunities, it becomes imperative to know how software or a software-related technology asset is valued.

Some of the other reasons why valuation of software is important are as follows:

- **For financial reporting purposes:** If the acquirer is reporting its financials under standards such as USGAAP, IFRS and IndAS, the value of the technology of the target would have to be recognised as an intangible asset on the acquirer's balance sheet. This also holds true in the case of acquisition of an IT service company if the target has some off-the-shelf software or if it has internally generated software
- Though rare, in some cases, the acquirer, instead of buying the entire company, might only buy the technology/ product. In this case, assessing the value of technology/ product is of utmost importance
- **Transfer of assets:** Technology related IP is often held by one company in a group, which, in turn, charges royalty or other financial arrangement from other group entities for use of the IP. In such cases, valuation of the IP is required for transfer of IP to the holding company from the entity where the IP initially resides. Besides, it is also needed for transfer pricing purposes

What is being valued?

Before we delve deeper into the nuances of valuation of software-related technology assets, it is imperative to understand the asset being valued. Software assets, often referred to as operating systems, utilities, business applications, spread-sheets, source code and algorithms, electronic databases, etc, primarily include computer software which is a written program, procedure, or set of rules and the associated documentation pertaining to the operation of a computer system.

In addition to the nature of the asset, other key factors which an acquirer should evaluate during acquisition include:

- What are the primary competitive advantage (s)/ unique feature(s) of the software? How easy is it to replicate it?
- Is the target software bought off-the-shelf, internally generated or acquired in a previous transaction?
- Is the software ready to be deployed or is it under development?
- Is the software patented? If legal protection is not available, what measures have been taken to prevent the loss of value to the competition? (E.g: Only key employees having access to the source code, employees having signed confidentiality agreements, etc.)
- Is the software being developed for internal use, external sale or licensing?

While the basic approaches to valuation of an intangible asset such as software i.e. cost, income and market – remain straightforward, the territory beyond this is fraught with practical challenges, ranging from estimation of life and obsolescence to estimating royalty rates. This publication attempts to list some of these issues, and provide insights on tackling them, through both scholastic discussion and explanatory illustrations.

Illustration

X-CRM Ltd ("X-CRM", the Company) is a software product company. The Company has developed DocX, a CRM software product targeted at pharmaceutical companies. DocX allows the subscribing pharmaceutical company to track sales activities of its medical representatives for sales analysis, compensation discussions, etc. The client, viz.the pharmaceutical company, can buy a subscription to DocX for each of its medical representatives and assign unique user-names and passwords for access, which is enabled through the cloud, and through computers as well as mobile computing devices.

The revenue stream for DocX is a one-time upfront payment for subscription, followed by annual license fee, for each medical representative of the pharmaceutical company which is subscribed to the product.

Features of DocX include modules to store data about existing/ proposed doctors visited by the representatives and product-wise sales made to each doctor, ready references about products, modules to track, analyse and forecast sales trends, doctor- and product-wise, and modules to analyse representatives' performances on absolute and relative basis.

X-CRM releases updated versions of DocX every three years, at which point clients have the option of switching to the new version by giving a one-time payment, followed by annual license fee, or continuing with the older version by paying relevant annual license fee, till the version is phased out by X-CRM.

02 Cost approach

This approach values an asset based on the cost of recreating the asset, internally or externally, from scratch, represented by reproduction ("make exact replica from scratch") and replacement ("buy asset of similar utility") methods, respectively. This method is mainly used for the valuation of unpatented and internally used software, and helps in establishing a floor value, while not taking into account the future economic benefits.

The Replacement vs. Reproduction Debate

The replacement method states that the value of the asset is equivalent to that of an asset ('reference asset') that has similar utility. However, software is often tailor-made for particular purposes and finding a functional equivalent is difficult. Even if a similar reference asset is found, several adjustments have to be made to the value of the reference asset to account for additional or lesser features. Estimating such upward/ downward adjustments to valuation entails considerable valuer judgment, as well as technical inputs. The replacement method is therefore rarely used under the cost approach.

The reproduction method entails estimating costs, as if they were incurred on the date of valuation, i.e., historical costs adjusted for inflation, to produce the identical asset. With respect to software or technology platforms, it is understood that the major portion of cost would comprise cost of human capital or the cost in the form of employee salary.

Further, there could be certain 'soft costs' which need to be factored into the total cost of development. Examples of such costs include those pertaining to the initiative taken by the management to develop an asset, and the cost of ideation which should incorporate the opportunity cost of the management's time and effort spent. While these inputs are often ignored, they nevertheless form a crucial input.

If the software being valued is under development/ operational for a long time, given the cutting-edge nature of technology, one should also take into account the obsolescence in technology that might have taken place during this period. The technological obsolescence can be estimated by carrying out an analysis for the remaining useful life of the software and comparing it with the total life of typical software. Estimation of life of the software is covered in detail in the later part of this publication.

It must also be pointed out that it always pays to use cross-checks to estimate ballpark numbers to validate the results derived from the above approaches. These include determining proportion of the total R&D budget of the company allotted to the software during development, and using industry sales and earnings multiples for software product companies, applied to estimated or historical earnings of the subject asset, if it is the main revenue driver of the company.

"While the Indian software product industry is fast becoming an important sub-segment in the IT space and on the deal-scape, equally interesting are the valuation nuances the space offers. The unique nature of software-related intangibles implies that basic valuation approaches have to be refined to appropriately capture the value of this intangible."

Darshana Kadakia
Partner, Grant Thornton India LLP

Illustration

MedX, software similar to DocX, was recently bought by another company for Rs 25 crore. Based on a feature-by-feature comparison of MedX vis-à-vis DocX, it was observed that MedX provided more comprehensive functionality to its users. Accordingly, a feature-specific discount was considered to the value of MedX to arrive at the adjusted price of Rs 15 crore for DocX.

If the above analysis is not feasible due to lack of transactions involving similar products or non-availability of module/ feature-wise price points, reproduction method can be used. Data was collected from X-CRM on the time spent exclusively or predominantly in developing DocX along with X-CRM's as-on-date cost per employee, summarised below:

Employee designation	Number of employees	Annual employee salary in Rs crore	Time spent in years
Senior management	5	1.0	1
Application developers	10	0.3	2
Support analyst	15	0.1	2

The summation of the above costs led to a total cost of Rs 14 crore to reproduce DocX. Further, a premium of 16% for innovation and initiative was added to the above value, based on X-CRM's estimated cost of capital and time spent by senior management, predominantly, on developing the asset, leading to an adjusted value of Rs 16 crore. The final adjustment made pertains to obsolescence. While three types of obsolescence exist in theory - technological (is there a better software in the market serving the same purpose, that is cheaper, faster?), functional (does another software perform the same functions cheaper?) and economical (does DocX still generate a positive return on investment?) – in practice, a single discount can be used to cover all obsolescence. In the case of DocX, life was estimated to be seven years (explained later) while the asset was approximately one year old on the date of valuation, leading to the application of an estimated obsolescence factor of 10%. The final value of DocX was thus estimated at Rs 15 crore under the reproduction method.

03 Income approach

This approach values an asset based on the cash flows that the asset is capable of generating in the future. Relief From Royalty and Multi Period Excess Earnings are two commonly used methods under this approach. While an income approach method could often involve the use of more subjective inputs, it is desirable over the cost approach where the asset is particularly unique or patented, and has immense potential from a Market Participant perspective due to factors such as scalability.

As discussed previously, the cost approach to valuing software does not capture the future economic potential of the software, particularly when the software is patented or difficult to recreate. Income approach is therefore considered desirable over the cost approach in such cases. Two primary methods are used under this approach, viz., Relief From Royalty ("RFR") method and Multi Period Excess Earnings Method ("MEEM").

The RFR method estimates the portion of a company's earnings attributable to an intangible asset based on the royalty rate the company would have paid for the use of the asset if it didn't own it. The MEEM is a variant of the discounted cash flow technique. Under this method, value is estimated as the present value of the benefits anticipated from ownership of the intangible asset in excess of the returns required on the investment in the contributory assets necessary to realise those benefits.

Both the above methods involve estimation of certain key inputs such as life, relevant revenue stream and discount rate.

Income approach: Navigating the many inputs

Estimating life of the asset

The life of any particular software can be defined as the period over which the software can generate economic benefits without requiring significant reinvestments in the underlying technology/ source code. Under the income approach (RFR or MEEM), the value is derived from the future economic benefits which are expected to be realised over the useful life of the software. Hence, ascertaining the life of the software becomes critical for valuation.

Determining the life of a unique technology asset can be challenging. This is further complicated by the fact that no asset is often in an 'as is' state for extended periods of time, with continual upgrades or 'version changes' slowly but surely morphing the asset into an entirely 'new' functional entity. Hence, the exercise for estimating life needs to also address the deeper question of when the asset has entirely changed into another technological entity. Some research in the field by Wiederhold (2007) notes that the lifetime of software, before complete product substitution is needed, ranges from 10-15 years.

In practice, while version upgrades take place frequently (typically every three years), the underlying platform, algorithm or source code remains stable for a fairly long time, with modules simply being added over time to increase efficiency or productivity. It is this underlying platform, algorithm or source code that is normally valued as the 'software', rather than a particular version.

Illustration: Estimating life of DocX

The life of software can be established by conducting market studies, consulting with in-house SMEs and engaging in client discussions. Further, life can be assumed to end when all/ key functionalities of the software present on the date of valuation are entirely replaced/ upgraded.

As a best practice, the following four inputs can be used to triangulate for estimates of useful life:

1. Discussions with the management on R&D plans, expected life, past trends;
2. Analysis of asset specific factors and overall market for competitive products, and the pace of technological development;
3. Mathematical inputs: Attrition curve and contribution of present value of annual cash flows to cumulative cash flows; and
4. Benchmarking using reported lives of software in peer companies.

In the case of DocX, research on similar software and discussions with X-CRM's management revealed that software that is broadly similar to DocX, had managed to perform for around 5-10 years without significant reinvestment in updating functionality or underlying technology. Based on this, the mid-point of this range, of approximately seven years, was considered as the useful life of DocX.

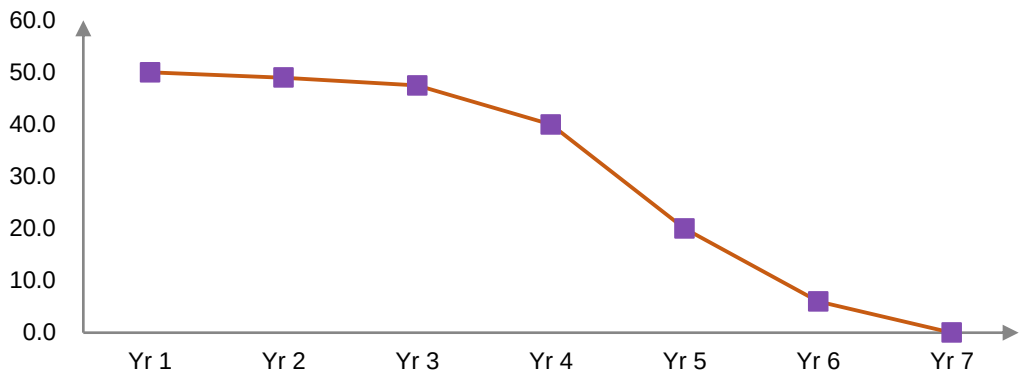
Estimating revenue flow over the life of the asset

As discussed earlier, technology assets have a definite life over which economic benefits or revenues can be generated. However, a historical study of the lifecycles of technology assets suggests that the revenues from these assets do not decline gradually in a linear fashion, but tend to follow more complex geometrical patterns. Due to the time value of money, estimating the shape of this 'revenue curve' becomes highly important, apart from simply gauging the 'length' of the curve.

It has been observed historically that in case of technology assets, the rate of obsolescence is slow at the beginning as people are used to existing technology and take time to replace existing technology with new technology. However, as people become familiar with the new technology, there is rapid adoption and the technological obsolescence of the existing technology accelerates. Further, as the new technology becomes more entrenched, the rate of obsolescence of the existing technology decreases before ultimately becoming zero. This life-cycle is represented by an inverted S-curve. As a result, in order to correctly estimate the value of the software, an inverted S should be taken into account while forecasting the future benefits from the software.

Illustration: Estimating revenue flow over DocX's life

Over DocX's estimated life of approximately seven years, it was assumed that the pattern of decline in revenues over the life of the asset would be similar to that of a typical technology asset. Accordingly, future revenues were projected over the life of the asset after incorporating the aforementioned obsolescence pattern.



RFR Method: Estimating royalty rates

As mentioned earlier, under the RFR method, the value of the software is estimated as present value of royalty payments that the company owning the software avoids paying, by virtue of owning the asset. The royalty payments saved are based on the revenues that could be generated from the software and the royalty rate payable on those revenues. Once the revenue stream has been estimated, the next key task is to arrive at the right royalty rate. The very fact that the asset is unique, makes estimating royalty rates based on similar licensing transactions, where royalty is being charged for similar assets, difficult.

Hence, other methods like the Profit Split method are also often used in conjunction with the royalty rate derived from market transactions. Under the Profit Split method, the typical operating margin of a software product company is "split" to carve out a part of the operating profit only attributable to the software. The split (could range from 25% to 50% of the operating margin) is based on a subjective assessment of the strength of the subject software.

Illustration: Estimating royalty rates

In order to estimate the appropriate royalty rate for DocX, the first step was to conduct research for extant royalty rates in the industry, using publicly available databases. While the research could not identify royalty transactions for exactly similar software, there were broadly similar transactions with royalty rates in the range of 10-30%.

The second step was to use the Profit Split method. Based on industry analysis, it was found that a typical software product company could generate normalised operating profits of approximately 40%. Keeping in mind the specific strengths of DocX and other factors as explained below, it was concluded that a larger part, i.e. upto 50% of the profits, could be attributed directly to DocX, leading to a royalty rate of 20% for DocX. Strengths of DocX are enumerated below:

- DocX had extensive legal protection by way of copyright. Further X-CRM's management ensured that the source code was only accessible to select people in the organisation
- DocX had consistently received better reviews from its users/ clients vis-à-vis other comparable software
- Revenue driver: An analysis on what drove revenues, i.e. the technology itself or other factors like brand name, pricing, customer relationships, etc., through client interviews, revealed that the quality of software was the most important factor driving the client choice

Based on the above analysis, a higher share of profit margin, viz. 50%, was attributed to DocX under the Profit Split method, leading to the ultimate conclusion of a royalty rate of 20% for DocX.

Application of the 20% royalty rate to the forecasted revenues from DocX, along with a tax rate of 34% and rate of return of 18% resulted in a value of approximately Rs 20 crore for DocX, under the RFR Method.

MEEM: Other issues

Other common issues encountered under the MEEM pertain to the estimation of margins purely attributable to the asset, required rates of return on the asset, and appropriate contributory asset charges. While a plethora of material exists on these issues, particular attention must be paid to including amortisation/ depreciation only to the extent pertaining to the exact level of fixed assets considered as contributory assets while applying EBIT/ EBITA margins on the subject technology asset.

04 Market approach

This approach values an asset using the market price, obtained using a transaction as reference. The difficulty in using this method clearly lies in the fact that software assets are often unique and custom-made to suit particular needs. As a result, such assets may not be readily available 'in the market'.

Market Method vs. Replacement Method

The market method and replacement method (elaborated earlier) are largely similar, considering that they rely on external, precedent transactions to provide valuation benchmarks. However, a subtle difference between the two lies in the fact that while the replacement method considers the price for a reference asset which provides similar utility, the market method considers the market price for the subject asset itself. Clearly, the market method can therefore only be applied in the event that the subject asset is freely available for sale in the marketplace, as in the case of off-the-shelf software.

Refining 'fair values' obtained under Market Method

Values derived under the market method may be used where valuation entails that of an 'off-the-shelf-technology asset'. However, it is still possible that the subject asset varies from the asset available readily in the marketplace due to various reasons – the market only offers newer versions of the subject asset, additional features have been added in-house to the subject asset that are not available as a package in the market, etc. Adjustments should be made to account for such factors.

Certain key factors to be looked into before considering market price of a technology asset as its fair value include the geographic areas over which rights are obtained for use of the asset, transferability of the IP (where relevant), nature of purchase – whether outright sale or licensing agreement that involves future upgrades at no/ incremental costs, and feature comparison to account for any customisations on behalf of the subject or reference asset.

Illustration

Pharm-A had purchased MarkX, an off-the-shelf software providing documentation solutions, six years ago, and capitalised the one-time payment made then for the license. Pharm-A has depreciated the capitalised asset over the last six years, with minimal value remaining in its books. Pharm-A has also been paying annual subscription fees for MarkX for the last six years, and been expensing the same each year.

Pharm-B is looking to acquire Pharm-A through a share purchase agreement. As part of the acquisition, Pharm-B would get access to the software licenses in the books of Pharm-A. The depreciated software license on Pharm-A's books is the six year old version of MarkX which is no longer available for sale in the marketplace. What should be the fair value of MarkX held by Pharm-A?

Though MarkX had been almost fully depreciated in Pharm-A's accounting books, it was understood from the management discussions that its value in terms of functional equivalence was the same as that of the latest available version of MarkX in the market since the annual license fees included annual upgrades to MarkX. As a result, the fair value of the license could be deemed equivalent to the market price of the latest version of MarkX.

05 Conclusion

Estimating the fair values of software assets is pertinent from many perspectives in terms of a transaction - for financial reporting (under IFRS or USGAAP), where intangible assets including software acquired in a transaction, are valued and recorded on the balance sheet, which in turn poses impairment and related earnings volatility issues; or from a tax perspective, for claiming tax amortisation benefits, etc.

It is interesting to note that the fundamental approach to valuing any intangible asset – a technology or IP in particular - will continue to remain one or more of the three basic ones comprising cost, income and market.

However, given the challenges inherent in the valuation of intangibles such as software, in terms of availability of information about the asset, comparable companies, transactions, products, useful life estimates, etc., the valuer's experience of carrying out similar engagements becomes fairly important while assessing the fair values. As highlighted in this publication, the key to valuing such assets lies in modifying the basic valuation approaches by developing refinements based on the nature of the asset being valued, management inputs, views of in-house SMEs, benchmark studies and valuer judgment and experience.

Abbreviations

BPO	Business Process Outsourcing
CY	Calendar Year
EBIT	Earnings Before Interest & Tax
EBITA	Earnings Before Interest Tax & Amortisation
IFRS	International Financial Reporting Standards
IP	Intellectual Property
IT	Information Technology
ITeS	Information Technology enabled Services
M&A	Mergers & Acquisitions
MEEM	Multi Period Excess Earnings Method
NASSCOM	The National Association of Software and Services Companies
PE	Private Equity
R&D	Research & Development
RFR	Relief From Royalty
SME	Subject Matter Expert
US$	United States Dollar
USGAAP	United States Generally Accepted Accounting Principles

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"Valuation Insights" is a periodic newsletter published by Grant Thornton in India, a member firm within Grant Thornton International Ltd. This publication is our effort to discuss and address various valuation issues using the best practices and international guidelines. Our team of professionals share their thoughts on the nuances of valuations and its strategic and practical implications. We hope that you will find our newsletter informative and encourage you to look at Grant Thornton as a reliable and valuable solution provider for your valuation needs.

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