

Roadmap for a Successful Technology Transfer



In this stage of globalisation, cross-border technology transfer has increased manifold. Despite an abundance of natural resources, skilled manpower and market, a developing country like India still lags behind the developed countries in technology and productivity. With liberalisation in economy for the last twenty years or so, there has been a constant emphasis on the enhancement of advanced technology through import. This advancement of technology may be brought in either by setting up a joint venture where foreign companies including promoters contribute technology in addition to capital, or simply by importing the technology. In this article, the author has opted to discuss the latter, i.e. import of technology. Read on:

With globalisation of economy, there has been a corresponding increase in cross-border technology transfer. In a developing country like India, there is an abundance of natural resources, skilled man power and huge market potential. However, in terms of technology and productivity, it lags behind the developed countries. As such, with liberalisation of Indian economy since 90's, there is regular stress on import of advanced technology by Indian Inc. Technology transfer may take place in two forms. It may be either setting up a joint venture in India whereas the foreign promoter contributes technology in addition to capital or simple import of technology by the Indian company.

Liberalisation in Import of Technology

Earlier, the automatic approval for foreign technology collaboration agreements were subject to: (a) the lump sum payments not exceeding \$ 2 million, (b) royalty payable being limited to 5% for domestic sales and 8% for exports and (c) the period of royalty not exceeding seven years from the date of commencement of commercial production or ten years from the date of agreement, whichever is earlier. Royalty limits were net of taxes. Any foreign technology agreement not meeting all above parameters was subject to government (RBI's) approval. However, since the introduction of Press Note 8 (2009 series) with effect from 16th December, 2009, all above ceilings have been withdrawn. Moreover, automatic approval is permissible irrespective of quantum of lump sum payment, rate



CA. O. P. Jagati

(The author is a member of the Institute. He may be reached at opjagati@rediffmail.com)

of royalty as well as tenure for payment of royalty. This liberalisation has enabled Indian companies to negotiate more effectively for import of foreign technology without procedural hassle and delay.

Evaluation of Technology Transfer Proposal

Any technology transfer proposal needs to have financial evaluation and legal evaluation. We will touch upon mechanism of both the requirements.

A. Financial Evaluation

A lot of homework is necessary before doing the financial evaluation of the proposal. The initial exercise comprises of reputation of the overseas technical collaborator, relevance of the output product to be generated by application of proposed technology to the existing business of the Indian company, market size of the output product and growth rate as well as special features of the proposed product *vis-à-vis* the existing similar products manufactured by other companies. Although, a CFO is expected to rely upon the such information collected from marketing and technical personnel of the company, he should be involved in the discussion process so as to have a better understanding of the need for the technology import. He should have a detailed discussion with the CEO so as to understand the fine points of the proposal which in turn will enable him to make financial evaluation prudently. Once the Management is convinced *prima facie* about the utility of the proposed technology, the CFO should prepare a business plan in order to justify the commercial viability of the proposal. The usual components of business plan should be:

- a) Estimate of market penetration
- b) Profitability projection
- c) Cash flow projection
- d) Discounted present value and payback period

Estimate of Market Penetration

The first exercise is to estimate the market penetration by the company after the technical absorption *vis-à-vis* the market size. Although, there is no specific period for which the business plan should be made, it is usually believed that five to seven years projection can be considered as fair one to do the financial evaluation. A model market estimate of market penetration has been exhibited in Annexure 1. Although, the CFO will depend on the input data given by the marketing department for above projection, he should seek external survey reports and database on the market size, growth and past performance of key competitors as may be available for the product emanating from the underlying technology. The CFO should endeavor to evaluate the veracity of market growth by analysing the

historical data of the key competitors. He should also have a macro review the market size and growth of the industry in which the subject product falls.

Profitability Projection

Once the business projection is ready for the planned period, the next step should be to prepare a financial statement showing the profitability of the proposed technology import. With availability of ERP package, it is now possible to estimate the material cost, labour and other direct cost with much accuracy. The projected financial statement will give the first hand information whether the proposed technology is a profitable one and, if so, whether the percentage of profit on sales is comparable with that from the existing business. Annexure 2 exhibits a model financial projection statement which may be customised as per need of the organisation.

Ultimately Cash is the King

After the year wise profit after tax (PAT) is arrived at, the next step should be evaluate the investment decision by evaluating the cash flows over the select period. Discounted pay back method is a better option to evaluate an investment decision, since it encompasses both the net present value of cash flow as well as the payback period for the investment. Once each year net cash flow spreading over the plan period is reinstated into present value after applying the relevant discounting rate, the payback period may be arrived at by observing the cumulative NPV. The year in which the cumulative NPV becomes positive, is considered as the payback year. The discounting rate is an important variable for calculation of discounted payback period. By simple definition, it is the cost of capital, which is the minimum acceptable rate of return on the funds deployed in a project. It is the compensation for time and risk. As per traditional theory, weighted average cost of capital is based on the cost of individual components of capital, e.g. equity, preference, debt, etc. The composite cost is the weighted average of the cost of various sources of funds, weights being the proportion of each source of funds in the capital structure. However, most of the times, the capital for a project is a hybrid of share capital, retained earnings, bank borrowings, etc., without any source wise quantification. In such cases, the Capital Asset Pricing Model (CAPM) is a simple but preferred tool followed by many financial analysts to arrive at the composite cost of capital. Another argument in favour of such tool is that it considers the rate of returns from two diametrically opposite funds of the economy, both from risk and time point of view. As such it considers government bond which is risk free but of longer tenure

as well as share market which is most risky, but highly liquid.

Calculation of cost of capital (COC): $COC = \text{Risk free return} + [\text{Beta factor} * \text{Risk premium}]$

First of all, a CFO has to choose one long-term risk free gilt edged security as he deems appropriate in the particular situation. Usually, 10-year Government of India Bond is considered as a long-term risk free investment. Beta factor is a measurement of how much the price of a particular stock jumps up and down compared with how much the stock market, e.g. Sensex, Nifty, CNX, etc., as a whole jumps up and down. If a share price moves exactly in line with market index, then the stock's beta is 1. A stock with a beta of 1.5 would rise by 15%, if the market rose by 10%, and fall by 15% if the market fell by 10%. However, a CFO of an unlisted company may encounter the problem of ascertaining the beta for his company. In such a case, an industry average beta may be derived at which may be considered as the beta for the unlisted company. Risk premium means the equity market return less the risk free return. For equity market return, the CFO may consider movement of Sensex/Nifty index in the past for a reasonably long duration, say five years. We will explain the derivation of the formula by an illustration. Let's consider that ten year Government of Bond has a return of 7.50%. Let's assume that based on CNX index for last five years, the Beta factor of the company is 0.53. Further, we may assume that last five year return from equity market is 25% based on Sensex. Based on above data, the COC will be:

$$COC = 7.50\% + 0.53 * (25\% - 7.5\%) = 16.78\%$$

If the COC is 16.78%, the discounted cash flow and payback period of Alpha Limited can be calculated as shown in Annexure C. From above illustration, it is seen that whereas the business from proposed technology will yield an operating profit of 11.51 % by 7th year, the discounted payback period is five years plus assuming the cost of capital as 16.78%. However, the management may derive/adjust the COC as per its own risk and return perception.

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B. Legal Evaluation

Once, the project is justified on basis of financial parameters, the next step is to do legal evaluation of terms and conditions as put forth in the draft agreement. The CFO should look into the following points while reviewing the draft agreement.

1. Subject matter of technical know-how

The products for which technical know-how is imported should be described with full clarity. Generic description may lead to unwarranted controversy later on. For example, if an Indian company wants to import some technology for manufacture of rice milling plant, instead of mentioning the subject matter as technology for manufacture of rice milling plant, it will be better if specific machines for which technology is imported are mentioned. A typical rice milling plant comprises of key machines, like Paddy Husker, Paddy Separator, Abrasive Whitener, Friction Whitener, De-Stoner and Sifter. In reality, the licensee company may be already having technology for some machines for which it may not import the technology. By specific citation of the machines for which technology is required rather than generic description of rice milling plant, there will be clarity towards rights and obligations of both the parties to the agreement.

2. Mode of technology transfer

The agreement should contain the modality of technology transfer, e.g. simple handover of technical designs, drawings and formulae, or development of proto type machine/pilot plant using the proposed technology. However, it is always preferred to develop a prototype machine/pilot plant by the licensee company in presence of technical personnel from licensor company applying the underlying technical designs, drawings and formulae. It will in fact validate the technology and will leave no room of controversy in later stage.

3. Territory of the agreement

This clause has a lot of commercial importance. Whereas, the licensee company will be interested for wider range of countries in which it can sell its products manufactured by application of the imported technology, the licensor will obviously be interested to restrict it to the extent possible so that it can sell its technology to more interested parties

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outside the admissible territory. Further, whereas, the licensor normally grants non-assignable and non-transferable license, the Indian licensee company should always ensure exclusive license right so that it gets competitive advantage in the permissible territory.

4. *Improvement of technology*

With increased focus on R&D and innovation, it is quite natural that there may be distinct improvement in the subject technology either by efforts of the licensor or the licensee. Ideally, each party should share the improvement achieved by it with the other party. The obligation of sharing of such information and consideration, if any, should be properly incorporated in the agreement.

5. *Trademark and logo of licensor*

The licensee may use the trademark and logo of the licensor in advertisement, brochures and other promotional materials provided it is allowed in the agreement. Usually, the licensor expects the licensee to use its trademark and logo since it enhances the recognition of its products in global market. However, the licensee should evaluate whether such usage will be to its advantage or it is better to use its (licensee's) own trademark and logo, before accepting the clause.

6. *Intellectual Property Rights (IPR)*

With IPR related statutory provision and related administrative control becoming stringent day by day, the licensee company should ensure that the proposed technology will not result in infringement of any existing IPR. It should ascertain from the licensor whether the technology is covered under any patent taken by the licensor, whether there is any patent in the permissible territory for similar products, whether any competitor in the permissible territory is already having a registered trademark same or similar to that some of the licensor registered in the licensor country. Licensee Indian company may also do parallel due diligence through some IPR consulting firm. At any cost, the licensee company should ensure that the subject technology does not infringe any patented

technology in the country of both the licensor and the licensee. It is always advisable to put a clause in the agreement that in case the licensee company suffers due to legal claim and action by any third party on ground of IPR infringement, the licensor should indemnify the licensee for the loss inflicted on it.

7. *Payment of tech fees and royalty*

Although, ceiling for tech fees and royalty has been lifted, while drafting the consideration clause abundant care should be taken to define the time schedule for such payment as well as the basis of calculation of royalty. The payment of tech fees should be scheduled in tranches in tandem with progress of technology absorption. Royalty calculation should be calculated on the invoiced amount of supplies of the licensed products exclusive of excise duty, sales tax, landed cost of standard bought out components from the licensor and the landed cost of the imported components. Tech fees and royalty payment is subject to deduction of withholding tax by the licensee at the applicable rate. Usually, there is resistance by the licensor for such withholding tax and it insists for grossing up. In such case, the withholding tax is borne by the licensee and it becomes an additional



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In some cases, the licensor may agree to give the perpetual ownership right subject to payment of royalty as a specified rate.

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cost. With introduction of double taxation avoidance treaty with almost all major countries, the licensor can get tax credit for such withholding tax and therefore the Indian company should not easily accept the grossing up demand. The prevailing withholding tax rate is 20% where the licensor does not have an Indian PAN.

8. *Non-disclosure agreement*

It is quite imperative that both the licensor and licensee should ensure that the confidential information shared or exchanged during the tenure of the technology transfer agreement is not misused by employees or other external parties who in course of the agreement get an access to such information. Usually the parties to a tech transfer agreement prefer to execute the non-disclosure agreement prior to sign the technology transfer agreement, since even prior to the formal decision of transfer of technology; there might be exchange of some critical information or trade secret.

9. *Governing laws and arbitration clause*

Prior to liberalisation of automatic approval for technology transfer in 2009, there was a condition that the technology transfer agreement should be governed by Indian laws in order to avail automatic approval route besides satisfying other conditions. However, there is no such conditionality now.

Both licensor and licensee can mutually decide the country whose laws will be applicable. It may be a neutral country also. Usually, arbitration clause is incorporated in international agreement for settlement of any legal dispute. Both the licensor and the licensee can decide the modality of engagement of arbitrators and the venue of arbitration proceedings. The Indian licensee company should try to have Indian governing laws as well as any Indian city as the venue for arbitration proceeding. However, if it is not possible, at least it should be ensured that the selected country should have a sound judiciary system. Similar care should be taken for selecting the venue for arbitration proceeding. The Indian licensee company should ensure that the arbitration proceeding is subject the procedural rules of United Nations Commission on International Trade Law (UNCITRAL).

10. *Perpetuity of ownership transfer*

It is a vital point in any technology transfer agreement. Once the tenure of the agreement is expired upon payment of royalty for the stipulated period, the licensee will lose its right to use the technology unless it is specifically mentioned otherwise. The licensee as the first preference should insist that there should be perpetual transfer of ownership of the technology after the normal expiry of the agreement, so that it can continue to manufacture and sell the products in the defined territory without financial obligation. It may even sell the technology to a third party in the said territory. In some cases, the licensor may agree to give the perpetual ownership right subject to payment of royalty as a specified rate. However, the ultimate decision depends upon the mutual consent. It is always advisable to work out this clause at the time of execution of original agreement, rather than taking a decision after expiration of the tenure. In case, the license has got the subject product patented in India, it should insist for ownership right at least during the tenure of the patent, which is normally 20 years, if the licensor is not prepared for perpetual transfer.

A successful technology transfer can be considered as a combination of sound body, intelligent mind and passionate soul. If the credibility of the technology is compared with a sound body, an intelligent mind is required to decide its logical appropriateness for the business of the licensee. And ultimately like a passionate soul, the technology once acquired should be absorbed and applied for effective and gainful commercial application with all sincerity.

Annexure 1

Estimate of Market Penetration of Alpha Limited by Acquisition of New Technology

Year	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Market Size (₹ Crores)	4,000	4,400	4,840	5,324	5,856	6,442	7,086
Market Growth %	10%	10%	10%	10%	10%	10%	10%
Alpha Limited Business:							
Value (₹ Crores)	40	180	375	600	850	1,200	1,400
Alpha Market Share %	1%	4%	8%	11%	15%	19%	20%

Annexure 2

Summary of Financial Projection of Alpha Limited pursuant to Acquisition of New Technology

Year	1 st		2 nd		3 rd		4 th		5 th		6 th		7 th	
Total Sales (₹ crores)	40.00	% to sales	180.00	% to sales	375.00	% to sales	600.00	% to sales	850.00	% to sales	1,200.00	% to sales	1,400.00	% to sales
Material	20.00	50.00%	90.00	50.00%	187.50	50.00%	300.00	50.00%	425.00	50.00%	600.00	50.00%	700.00	50.00%
Labour	2.20	5.50%	9.70	5.39%	20.30	5.41%	32.40	5.40%	45.90	5.40%	64.80	5.40%	75.60	5.40%
Personnel Cost - Production	1.20	3.00%	1.30	0.72%	2.50	0.67%	2.80	0.47%	4.40	0.52%	4.90	0.41%	5.50	0.39%
Factory Overhead	6.50	16.25%	29.20	16.22%	60.80	16.21%	97.20	16.20%	137.70	16.20%	194.40	16.20%	226.80	16.20%
Total Manufacturing Cost (A)	29.90	74.75%	130.20	72.33%	271.10	72.29%	432.40	72.07%	613.00	72.12%	864.10	72.01%	1,007.90	71.99%
Personnel Cost - Marketing & Admin.	2.40	6.00%	3.60	2.00%	5.00	1.33%	6.70	1.12%	8.80	1.04%	11.30	0.94%	14.20	1.01%
Royalty	2.80	7.00%	12.60	7.00%	26.30	7.01%	42.00	7.00%	59.50	7.00%	84.00	7.00%	98.00	7.00%
Sales Commission	2.00	5.00%	9.00	5.00%	18.80	5.01%	30.00	5.00%	42.50	5.00%	60.00	5.00%	70.00	5.00%
Warranty	0.80	2.00%	3.60	2.00%	7.50	2.00%	12.00	2.00%	17.00	2.00%	24.00	2.00%	28.00	2.00%
Depreciation & Amortisation	8.50	21.25%	11.10	6.17%	13.70	3.65%	8.50	1.42%	5.80	0.68%	3.20	0.27%	1.90	0.14%
Sundry Overheads	4.00	10.00%	4.80	2.67%	5.80	1.55%	6.90	1.15%	8.30	0.98%	10.00	0.83%	11.90	0.85%
Finance Cost	0.20	0.50%	0.90	0.50%	1.90	0.51%	3.00	0.50%	4.30	0.51%	6.00	0.50%	7.00	0.50%
Total Sales & Admin. Expenses (B)	20.70	51.75%	45.60	25.33%	79.00	21.07%	109.10	18.18%	146.20	17.20%	198.50	16.54%	231.00	16.50%
Total Cost (A+B)	50.60	126.50%	175.80	97.67%	350.10	93.36%	541.50	90.25%	759.20	89.32%	1,062.60	88.55%	1,238.90	88.49%
Operating Profit [Sales -(A+B)]	(10.60)	-26.50%	4.20	2.33%	24.90	6.64%	58.50	9.75%	90.80	10.68%	137.40	11.45%	161.10	11.51%
Profit After Tax	(10.60)	-26.50%	2.84	1.58%	16.82	4.49%	39.52	6.59%	61.34	7.22%	92.81	7.73%	108.82	7.77%

Annexure 3

Discounted Cash Flow Statement

Year	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Profit After Tax	(10.60)	2.84	16.82	39.52	61.34	92.81	108.82
Add: Depreciation & Amortisation	8.50	11.10	13.70	8.50	5.80	3.20	1.90
Less: Tech Fees	19.80	13.40	12.90	-	-	-	-
Less: Working Capital	4.00	14.00	19.50	22.50	25.00	35.00	20.00
Net Cash Inflow / (Outflow)	(25.90)	(13.46)	(1.88)	25.52	42.14	61.01	90.72

Discounting Year Factor
 Net Present Value @ 16.78%
 Pay back period (discounted)

(25.90)	1	2	3	4	5	6
(11.53)	(1.38)	16.01	22.64	28.07	35.73	
5 years +						