Accounting perspectives of R & D Spending- revenue expenditure syndrome

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Introduction

The effort puts in toward the product and Processes idea generation and up gradation by company is known as Research and Development. Often it leads to the ownership of intellectual properties like copyright and patent.(***Investopedia Definition, 2019***) Expenses relating to the R&Dactivities on product and service development are known as R&D Expenses. It is treated as an operating expense whichis sustained in the process of inventing or developing new products or process. The accounting rule is that, expenditures are to be charged to expense as incurred. The R&D accounting consists of those activities which develop or upgrade products or processes.***(Silaen, P., & Williams, R., 2009)***A research & development institution is entirely dissimilar from a non R&D institution. The activity, characteristics, goals, planning and accounting everything is different from the other. The following are the R&D functional area activities:

- Unearth new knowledge
- Make use of new research findings
- Product and process design creation
- Products and processes trailing
- Alteration or improvement of products, or processes
- Sketchingand appraising prototypes
- Blueprint of technology based tools
- Pilot plant drafting and operating

According to GAAP, it is mandatory that all R&D expenditure be charged to expense as incurred. ***(A. Cazavan-Jeny et al. 2011),*** because there is an element of uncertainty associated with the future benefits from these expenditures and cannot be recorded as an asset. The only exception to this is in a business acquisition or merger where certain portion of the amount is considered for in process R& D of the acquired company.***(OECD, 2015)***R&D expenditure statistics helps to know the level of activities on R&D in a country, which are also used to understand the contribution to economic growth and societal well being. Both International & National policy makers have a significant interest in the R&D expenditure statistics.

Why are R&D expenses not capitalized?

R&D Accounting is a controversial issue. According to ***(Financial Accounting Standards Board N2, 1974),*** it is mandatory in US to immediately expense the R&D costs. But ***(International Accounting Standards Board, 2004)*** directs that to capitalize R&D costs only when they fulfil certain conditions. ***(Boone and Raman, 2001; Healy et al., 2002; Chambers et al., 2003 & Lev et al., 2007)***in their study investigates the capability of the capitalization of R&D to distinguish between projects which are good and bad.

As per accounting rules, an asset is something which has some future benefits. R & D costs are treated as expense and not as an asset because the cost related to R&D cannot be capitalized because the future benefits are very burdensome to quantify. Generally companies are prohibited from capitalizing R&D costs because there are no standard measures to scale the future economic benefit from it. R&D involves many failures than success and has no guarantee of future benefit, so that the cost cannot be treated as an asset.(***Merritt, C., 2019)***In 1970s, the accounting standards board while setting the rules and regulations for R&D spending cited that only 2 percent of product ideas become viable for commercialization and only 15 percent developed products become viable.

Capitalization Effects&Amortization Issues of Research and Development

Capitalization of R&D costs has direct impact on the profitability and value of the company. It will come under the asset side of the balance sheet which in turn increase the value of the company and show higher

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profits. According to "Matching principle" which is one of the fundamental principles of accounting, whenever there is revenue generation simultaneously the expenses incurred ingenerating that revenue must also be accounted. (***Merritt, C., 2019)***R&D cost violates this basic law because there is no direct cause and effect relationship between R&D costs and future economic benefits. Generally, companies depreciate tangible assets like machineries and Vehicles. For example, a company buys a machine costs Rs.20, 000/- which has an estimated life span of 10 years. The cost of the asset will be capitalized and depreciation expense must be charged every year on the asset for the next 10 years until the machine is fully depreciated. Whereas in the case of intangible asset, they are amortized over time to match them with the revenue derived from it. As per accounting rules, R&D costs should be treated as expenses when they are incurred, because most of the time it's not possible to match R&D expenses with revenue and hence it can't be amortized.

Exception to the rule

The only exception to the rule against capitalizing research and development costs is when a business buys another company; the acquiring business must capitalize any ongoing R&D projects along with the purchase. Because, some portion of the price paid by the business to acquire the company might be allocated to those R&D projects and these projects have a definable value which can be treated as an asset.

After completion of the project, if it doesn't produce tangible results, the full amount will be treated as an expense or write it off. The company has to assign a life span to the benefits of the project, if it produces some tangible result and amortize the asset over that life span.

Accounting Standards related to R&D Expenditures

 Assets/ Materials: Fixed assets or materials having alternative future uses should be recorded as assets and amortized over its useful period. If there is no alternative future use then the cost should be charged to expense.

 Computer software: Purchased for the purpose of R&D project having alternative future use should be capitalized. Nevertheless, if it has no alternative future use, the cost should be charged to expense.

 Indirect cost:Overhead expenses relating to research and development activities should be allocated to expense.

 Purchased intangibles: Intangible assets purchased having alternative future uses must be treated as intangible assets and if it doesn't have any future use, then it should be charged as expense incurred.

 Software development. There is no exception for software development, the expenditure are always expensed as incurred

In some cases, R&D activities of an entity may be fully or partially funded by a third party/ sponsor. In that case, the arrangement is made like that to shift licensing right, share of profit, ownership of Intellectual Property or an equity stake to the sponsor. The funding may be in kind of fixed fee or cost reimbursement(***Research and development accounting***, 2017). The following are the several accounting issues that must be resolved, when an entity is a party to a R&D project.

 Repayment by third parties onLoans or advances issued to them based on monetary benefits derived from R&D projects should be charged to expense.

 *Defer theNon-refundable advances*which will be used for R&D projects and when the related goods are delivered or services performed, treat them as expenses. Charge the rest deferred amount to expense, if the good are not expected to be delivered or services are not performed.

 Account the repayment obligation to perform services, if the repayment of sponsorship funding is solely based on the results of the related R&D activities.

 Recognize a liability for the repayment amount and charge R&D costs to expense as incurred if there is aRepayment obligation to the funding parties. This accounting is significant in the following cases:

a) Related party transactions between the business and sponsoring entities.
b) Purchase of interest in the partnership by the sponsoring parties in the business.
c) Securities given to sponsoring parties at the time of termination of agreement.

 As part of a funding arrangement if the business *issues warrants* then a*llocate a portion of paid-in-funds to paid-in capital in* the fair value as of the date of the arrangement.

Ind-AS, International Accounting Standards& IFRS for R&D

Indian Accounting Standards (Ind-AS) were followed by Indian companies which was issued by ASB (Accounting Standards Board), a committee under Indian Chartered Accountants of India (ICAI). Companies have to follow it either voluntarily or mandatorily and cannot be revert back once it is adopted.The R&D costs were treated under Intangible assets which come under Ind-As 38. Later on to compare business around the world and to increase the transparency International Accounting Standards Committee (IASC) issued International Accounting Standards (IAS). Thus, separate reporting standard IAS 9 was issued for accounting R&D activities in 1978 but it was fully withdrawn on 1999 and was supersede by IAS 38. The following Table 1,presents the changing phase of Accounting Standards on R & D costs.

TABLE 1. Changing Phases of R&D Accounting

Year	Development
1977	Accounting for R&D Activities - Draft E9
1978	IAS 9 issued for Accounting for R&D Activities
1991	R&D Costspublished - Draft E37
1993	IAS 9 on R&D Costs issued
1995	PublishedIntangibleAssets - Draft E50
1997	Modification of E50,IntangibleAssets - Draft E59
1998	Issuance of Intangible Assets IAS 38.
2008	Amended by Improvements to IFRSs (amortisation methods)
2009	IFRS improvement amendment on intangible asset measurement
2013	Amendment to IFRS annual improvement on accumulated depreciation
2014	IAS 38 Amended (Acceptable depreciation & amortization methods)

Source: Deloitte

R & D Statistics of India

According to a survey carried out by National Science and Technology Management Information System (NSTMIS) under the Department of Science and Technology (DST) has found out that the per capita R&D expenditure has tripled in the last ten years. However, when compared with select developed and emerging economies, the composition of R&D expenditure in India contrasted sharply. Table 2 presents the sector wise national expenditure on R&D from 2010 to 2016.

TABLE 2. Sector wise National expenditure on R& D for the period 2010-2016

Sector	**2010- 11**	**2011- 12**	**2012- 13**	**2013- 14**	**2014- 15**	**2015- 16**	**2016-17**
Central Sector	33095.18	34021.44	37894.46	38879.89	43094.9	46033.97	49173.49
State Sector	4457.81	5137.56	5282.86	5951.15	6327.32	6982.83	7706.25
Private Sector	19337.02	23295.71	27096.51	30514.8	32538.39	37835.64	43995.28
Higher Education Sector	3306.74	3506.62	3708.96	4010.05	3365.49	3664.01	3989.01
Total	**60196.75**	**65961.33**	**73982.79**	**79355.89**	**85326.10**	**94516.45**	**104864.03**

Source: Dept. of Science and Technology website

The Gross Expenditure on R&D is highest in the government sector. The central government topped the list followed by state government, public sector industries & higher education institutions and private industry. The study also found that the R&D was dominated by public sector defence industries and drug & pharmaceuticals and transportation in private sector.Compared with other nations India topped the list in R & D participation by the government but in terms of participation of institutions of higher education, India hit the bottom.

Eight major scientific agencies contribute to the 81.3% of R&D expenditure incurred by the central government. R&D expenditure percentages of major Research agencies in India during 2014-15 are given in Table 3.

TABLE 3. R&D expenditurepercentage of major research agencies in India during the period 2014-15

Defence Research and Development Organisation	37.8 %
Department of Space	16.6%
Department of Atomic Energy	11.6%
Indian Council of Agricultural Research	11.4%
Council of Scientific and Industrial Research	9.5%
Department of Science and Technology	7.7 %
Department of Biotechnology	2.9%
Indian Council of Medical Research	2.4%

Source: Compiled by the author

Conclusion &Discussions

R&D accounting is comparatively a new area. Still as a leading developing nation India is not uncommon to R&D accounting practices.From year to year the GERD of India isincreasing.Policymakers relay on these information to find out the level of R&D activities and frame policies accordingly. ***(A.Cazavan-Jeny et al., 2011)***found in their study that the business is unable to truthfully provide information relating to the succeeds of projects on R&D through the decision to capitalize the costs and doesn't capitalize R&D expenditure of projects which have success chance, which is antithetical to the accounting standards.***(Datta, U, K)***Difficulties arise when R&D costs are charged as expense to the current period. It may lead to the decrease in profit which leads to the decrease of investment and shareholders earnings. It will also affect the firm value, distorts profitability and collection of tax on profits will be affected. ***(Lev &Zarowin, 1999)*** Capitalising R&D costs will allow in conveying significant inside information on the upcoming performance of both R&D Project and the firm.***(AIMR, 1993; Prencipe et al., 2008)***Whereas,opponents argue that R&D capitalization may create way to distort earnings by speeding up or retrad amortization of R&D expenditure on low success projects. R&D should be treated as an investment, because companies spend money on R&D for inventing and innovating products or services which in future will generate income. So if it has an impact on the growth of revenue and cash flow inflow in future, then the amount spends should not be expensed, but capitalized. The R&D must be shown on the asset of the balance sheet which will reflect true profitability of the company and helps in fair comparison between past performance of both the company and its peers.

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