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Outsourcing & Captive Insourcing: Challenges in Knowledge Retention

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Abstract

In the outsourcing of information technology (IT) projects, the proper selection and management of offshore service providers as well as the retention of business and technical knowledge intrinsic to the projects are critically important factors to determine the ultimate effectiveness of business process/information technology outsourcing (BPO/ITO). Based on some of the findings published in the existing research literature as well as on our own experiences in the management of outsourced projects, we examine in this paper the challenges to retain business and technical knowledge in the projects, thereby mitigating risks of indiscriminate technology and knowledge transfer. Additionally, our research indicates that these issues take a different dimension in the case of a captive IT center (wholly owned in-sourced center). In this connection we also address the important

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What's New ?

Dear Members,

On behalf of the IEEE Technology Management Council Bangalore Chapter, it's my pleasure to share E-Zone March 2009 the first of its Quarterly Newsletter of our Chapter.

The focus of most IEEE Societies and Councils Newsletters mainly technical stuff but TMC newsletter covers mainly management aspects which are so necessary to the success of technical operations. This newsletter seeks to connect up all the members of the IEEE community who are associated with the Bangalore Chapter. It aims to provide a forum to share ideas, developments in this space, new events, thought leadership articles and much more.

The newsletter would also foster us to be better connected and extend the benefits of technology & management expertise for the ecosystem that we live in. This includes Business, Industry, Academia, Government and Society.

I take this opportunity to extend a warm invitation to contribute, participate and volunteer in making a difference that we can all take pride in.

Thanks & Regards,

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scenario concerning the complexity of a mixed mode captive center where there exists an ecosystem of outsourced partners and the captive center.

INTRODUCTION

The IT outsourcing business over the past few years has demonstrated the importance of the fact that vendor selection and management in outsourced projects and the retention of organizational knowledge in these projects are interrelated issues. The acquisition of knowledge (domain, technological, managerial, etc.) in a software development project undertaken by an organization is important, because it is this knowledge that helps the organization to learn, to grow and to enhance its existing business practices and procedures. However, problems arise (Kliem, 2004; Rao, 2004) when the organization, in an effort to reduce IT spending or to take advantage of skilled technical labor at a low cost, dispatches selected parts of its projects to one or more offshore BPO suppliers (Lacity et al., 1996 and Aron et al., 2005). While this practice has immediate benefits (Kliem, 2004), the retention of knowledge in outsourced endeavors is a growing concern. Based on the existing literature on global IT outsourcing as well as on our own research findings, we present, in this paper, a number of criteria for the selection and management of offshore vendors which prove to be highly effective in retaining and also enriching organizational knowledge and learning.

KNOWLEDGE RETENTION

The importance of retention of business and technical knowledge in outsourced projects is an occasionally underrated aspect of ITO. There are various reasons for this deficiency: First, outsourcing clients do not normally possess the means to evaluate knowledge in an outsourced project (Willcocks et al., 2004). Second, they initially underrate the knowledge potential of outsourced projects and therefore significantly underestimate in the knowledge areas of the projects (Willcocks et al., 2004). Third, clients and vendors often have insufficient background information of each other (Carlile, 2004). Fourth, they also often lack an established knowledge base of business transactions and processes. Fifth, the exchange of knowledge between the client and the vendor frequently becomes asymmetric.

These shortcomings in the evaluation of knowledge often show up in the client's subsequent frustration with the gradual loss of control over the project (Cullen and Willcocks, 2003). In order to enhance the capacity and potential for the retention of knowledge in any outsourced project, the guidelines we have provided in this paper can be used to secure ways to build shared knowledge from client-vendor relationships and interactions.

The type of the outsourced project often determines how knowledge should be shared and retained in it. For short-term BPO services, project knowledge can be retained by means of a complete understanding accompanied with detailed documentation of the technical innovations and values that have been added to the project by the vendors. Should subsequent in-sourcing be necessary at any time, this knowledge becomes extremely valuable. For long-term BPO services, a lasting partnership between the client and the vendors often serves extremely well to retain knowledge in outsourced projects. In this scenario it is also important that the vendor should have a clear view of its client's long-term business strategies, so that the innovations and values they add to the project can be geared towards satisfying those specific needs. Furthermore, the vendor's capability for technical and business process innovations depends on its technical, technological and business domain knowledge as well as on its capacity for scalability. The benefit of using partner vendors in a project, as suggested in the guidelines above, is that they already possess sufficient knowledge of their client's business values. Depending on previous performance records of partner vendors in outsourced projects, it may sometimes be possible to establish a common framework, whereby both the client and its vendor are able to share a common frame of knowledge

Thus, they both can participate in planning and decision making. Trust and mutual responsibility are the key to success in establishing this type of institutional partnership. For new vendors hired in long-term projects, partnership can be motivated to retain project knowledge by using the partial, mixed outsourcing strategy. In this case a division of the client company always remains knowledgeable about the technical and business resources used in the project. Knowledge is also known to remain stable within people sharing a common, or at least a similar, culture. For long-term projects it is therefore advisable to hire vendors that are culturally compatible with the client (Rao, 2004). Dealing with the intricacies of outsourced projects pertaining to culture, language, and communication then becomes considerably less problematic; a shared repository of knowledge can also be built. Furthermore, knowledge is also in need of safe preservation, especially if it lies distributed across national boundaries. Thus, if the vendor selection and management processes observe the security and legal safety measures in the transfer of technology and business knowledge discussed above, then the client's intellectual properties in the form of business processes, source codes, prebuilt libraries, or any number of software modules that may have been handed over to offshore vendors for use in a specific outsourced project should remain relatively secure within the proprietary boundaries of the client's business

IEEE Technology Management Council (TMC)

The Technology Management Council (TMC) of IEEE has several goals:

- Provide information for advancing the careers of technology and innovation managers,
- Reach out to technology professionals who consider transitioning to management, and
- Provide technology professionals with an understanding of management issues.

The field of interest of the Council encompasses the management sciences and practices applicable to individuals engaged in or overseeing the management of engineering, technology, innovation, and strategy in a global environment.

The TMC provides access to management theory and practice for managers and technology professionals to advance their careers. Our publications, the *Engineering Management Review* and the *Transactions on Engineering Management* provide sources of information to bring you up to date on management issues. Our conferences, website, and virtual community offer timely information related to achieving a successful career as a manager or technology professional.

domain. Knowledge is likely to be lost in projects when the relationship between the client and the vendor is limited to mere fee-for-service modes of transactions, often seen many totally outsourced, short-term projects that exhibit a singular lack of meaningful knowledge management.

This problem reported to frequently lead a client organization to an excessive dependency on the vendors they hire for a project, which, in view of the knowledge rendered inaccessible by the lack of careful management often leaves no alternative for the client but to go for re-in sourcing (Willcocks et al, 2004).

CAPTIVE CENTRE

Lately, a large number of IT user organizations are creating wholly owned offshore IT center (Dasgupta, 2007) to leverage cost and work on the core areas on their own, to reduce dependency on the vendor, and to perform program management of vendor projects from a close distance. Typically, these IT user organizations are greatly dependent both on the technical knowledge as well as on the application domain knowledge of the supplier vendor. Thus, when a captive center commences operation, it becomes the weakest entity in terms of both technical and domain aspects. The supplier exercises their existing relationship with the user IT organization managers to secure new projects; this delays the maturity of the captive center. In many cases the captive center always remains a weak counterpart and does low criticality job and vendor management The parent organization attempts to make further monetary investments, but it does not yield immediate success. The captive center, therefore, is viewed as the most expensive and unviable proposition. In terms of the process framework, it becomes complex, as there are more parties to be integrated and synchronized to get the same piece of work completed. From our personal experience in creating multiple successful captive centers, the following best practices methodology can be derived

1. There must be a corporate mandate to project sponsors and the IT managers to use the captive center; it should be the part of key performance indicators (KPI) of the respective managers/groups

2. To begin with, the captive center should co-exist with the outsource vendors.

3. A detailed plan to prioritize the work for the captive center should be created and implemented in multiple phases.

4. Initially, the captive center should leverage the competency of the vendor and perform multiple joint development projects in three modes: staff

augmentation from the vendor (initially till the team is up-skilled and ramped up and then for all spiky requirements); vendor led projects; and captive led projects

5. In case of projects where there is a tremendous dependency in terms of knowledge of the vendor, a plan is to be defined where the knowledge is transferred to the captive through a ramp-up of captive resources and a ramp-down of vendor resources.

6. The captive always provides a huge profitability and knowledge retention, but it is achieved in phases and there is no quick and dirty solution for this enterprise.

7. There should be an appropriate budget for branding in captives so as to attract the best talents from the local market against the competition of large SI's

8. The captive should never be treated as a "low-cost second-class citizen"; it should be empowered by a local management of local origin

CONCLUSION

In this paper we have addressed the challenges of knowledge retention in case of an outsourced project or project executed at a captive in-sourcing centre. We have developed the guidelines in this paper to ensure that, if they are observed carefully in outsourced projects, then sufficient knowledge from these projects can be retained within the client's organization, eventually benefitting both the client as well as its vendors to perform better in partnership in outsourcing. Many of these practices have been personally used by us with good results over the years in exciting outsourcing business.

Some of us have created wholly owned subsidiaries in the form of captive centre for both software product companies and IT user organizations and have witnessed better vendor management in terms of controlling "price" and "product".

These best practices have been successfully applied by us at the India center of Intec Telecom Systems Ltd (UK based telecom oss bss product company) and Target Corporation India (Second largest Retailer in US).

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Letter from the Chair

Dear Friends,

It gives us great pleasure to present the inaugural issue of IEEE TMC Bangalore Chapter's quarterly publication, E-ZONE, in your hands. This is our small effort to create a shared learning platform within IEEE's vibrant Bangalore community.

As we speak, the juggernaut of worldwide economic crisis continues its wild run unabated. No assurances can be made about when the eventual recovery will happen, but certainly not before the forces of free-market economy have taken its heavy toll on businesses, nations and people. No giant is big enough to remain unaffected by its sheer magnitude, nor nimble enough to escape its path of destruction. This is indeed an event of unprecedented proportions. While it brings a prolonged period of anxiety and uncertainty, it also brings opportunities for us to learn a thing or two.

With scarce resources available, and a forecast of lower customer spending, we surely need newer approaches to create differentiated products and services. Ability to innovate under most stringent constraints will be a premium commodity, and might probably determine the very survival of enterprises and industries. As technology professionals, we have the increased responsibility to be fiscally more responsible and create highly efficient and effective solutions. We hope TMC Bangalore chapter to play a proactive role in bringing together such ideas, solutions and experiences on a common platform and serve the needs of its patrons.

2009 is also the 125th anniversary of IEEE, and many of you might be aware that Bangalore is identified as one of the eight locations globally to plan special events. There will be several events lined up in the next few months and we hope you are able to participate in them.

Like all other IEEE activities, this is a volunteer-led community effort. Please give us your valuable feedback and constructive criticism to make our efforts more meaningful to the IEEE community and beyond. Of course, a word of praise for a job well done will surely boost the morale of our team to serve you even better ☺

Thanks and warm regards,

Tathagat Varma,
Tathagat@ieee.org
PMP, CSM, Black Belt Six Sigma
Chair IEEE TMC Bangalore Chapter, 2009-10

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"Teamwork is neither "good" nor "desirable." It is a fact. Wherever people work together or play together they do so as a team. Which team to use for what purpose is a crucial, difficult and risky decision that is even harder to unmake. Managements have yet to learn how to make it."

- Peter F. Drucker

Intellectual Capital - The Value Driver

Vijay Kumar
President, IP Consulting, Bizworth, Bangalore

"Competitive advantage represented by Intellectual Capital reaps the highest rewards in the market", James Tobin, Nobel Prize winning economist

Intellectual capital (aka intangibles) can be defined as all non-monetary and non-physical resources that are fully or partly controlled by the organization, contributing to the organization's value creation.

"An intangible asset is a claim to future benefits that does not have a physical or financial embodiment" describes Baruch Lev, the well-known economist from the Brookings Institutution.

Simply put, knowledge assets are talent, skills and know-how that can be used to create wealth. It is what is created through the firm's intellect, giving the firm its competitive advantage.

Examples of Intellectual Capital are Human capital, IP assets like Patents, Trademarks, copyrights, Processes, Databases, Software, Organizational culture, Customer relationships, Brands, Supplier networks, etc.

The subject of Intellectual Capital provokes the richest and deepest discussions in business and economics today. Intellectual capital is what is left of an enterprise after it has been stripped of all its tangible assets, such as land, buildings, machinery, inventory and cash. Intellectual Capital is rapidly becoming the currency of the new economy. The value of a firm today is dictated by the Intellectual Capital that it owns.

Intellectual Capital now accounts for more than *90%* of the value of companies like Microsoft, Google and Amazon. Of specific interest to today's manager is the value creation ability of Intellectual Capital

Intellectual capital (IC), at the heart of one's business, may be utterly useless to another; there is therefore an organizational context to the IC of a company. Intellectual capital formation stems from the vision of the company; it is rarely created by accident.

America's most admired company, GE has incorporated Intellectual Capital into its values: *Prize global intellectual capital and the people that provide it; build diverse teams to maximize it.*

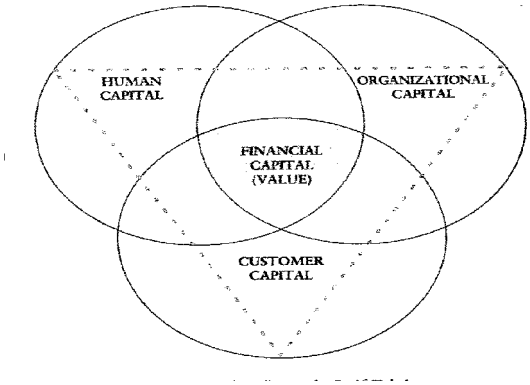
Why is Intellectual Capital so important?

Intellectual Capital is so critical that today's organizations are measured by the Intangible assets (rather than physical assets) that they possess. It's inaccurate to describe the company in physical terms, which is the current way an organization is viewed. The relevant assets do not appear on the balance sheets[1].
For example, Intel's microprocessor designs are more valuable than their fab unit that costs tens of billions of dollars. Coca-Cola's intellectual assets are its formula and brand – worth more than all their other assets put together. All kinds of companies have no physical assets at all – advertizing agencies, professional firms, consulting and computer services companies.

The shape of Intellectual Capital

The Intellectual Capital of an organization is the aggregate of different knowledge assets that the company possesses. These knowledge assets can be sliced and diced in various ways, but the first model of Intellectual Capital was proposed by Leif Edvinssion in his path breaking book," Intellectual Capital". The crux of this model is the creation of financial capital (or Value) through the three basic forms of Intellectual Capital, namely Human capital, Organizational Capital and Customer Capital[1].

Intellectual Capital, namely Human capital, Organizational Capital and Customer Capital[1].



Source: Intellectual Capital, Leif Edvinsson

[1] Currently, US accounting norms prohibit recognizing intangibles on the books of the company, unless a business combination takes place (like an acquisition). In case of a

business combination, all the intangibles so acquired will have to be valued and accounted for (and subsequently amortized or tested for impairment). The current accounting procedures therefore recognize externally generated intangibles but do not have any provision for recognizing internally generated intangibles (like for example, an in-house developed patent). This is a matter of intense debate among the accountants. India is expected to change over to the accounting norms that comply with the US Financial Accounting Standards (FAS) by 2011.

[2] The seminal model proposed by Leif Edvinsson more than a decade ago to characterize Intellectual Capital has served as a basis for all subsequent work on Intellectual Capital. The definition of Customer Capital has however (now known as Relational capital) has been expanded to include any external relationships (like relationships with suppliers, media, shareholders apart from customers).

Each of the forms of Intellectual capital is explained below:

Human capital:

"Take our 20 best people away and I can tell you that Microsoft would become an unimportant company" Bill Gates

All the attributes that relate to individuals as resource for the company and under the requirement that these attributes cannot be replaced by machines or written down on a piece of paper. This includes resources such as competence, attitude, skill, tacit knowledge, personal networks…

"Our greatest assets walk out every evening. We are not sure whether they will come back the next morning" says Narayana Murthy of Infosys[1]. Employers do not own employees, but have access to their intellect.

Human resources relates to all resources embodied in the individuals employed by or linked to the organization. Human capital is a corporate asset, but people can't be owned. As Jack Welch famously said, *"The day we screw up the people thing, this company is over."* Some of the traits of the Human capital are shown below:

Dimensions of Human capital[1]

Competence	✓ **Specific knowledge** ✓ **Specific abilities** ✓ **Brain power or processing capacity (IQ)** ✓ **Empathy** ✓ **Ability to build personal networks** ✓ **Ability to participate (maintain) in personal networks**
Attitude	✓ **Ability to use (leverage) personal networks** ✓ **Behavioral traits including social intelligence** ✓ **Motivation** ✓ **Pace-also known as urgency** ✓ **Endurance or perseverance**
Intellectual Agility	✓ **Ability to innovate** ✓ **Ability to imitate** ✓ **Ability to adapt**

[3] Infosys is the first Indian company to recognize the importance of Intangible Assets. They were the first ones to value their Brand and Human capital and publish it in their annual report (although this is not a statutory requirement).

[4] Source: The dimensions of all the three forms of intellectual capital is derived from Managing Intellectual Capital in Practice – Goran Roos, Stephen Pike & Lisa Fernstrom

Harnessing Human Capital is at the very core of survival for organizations. The marginal value of investing in human capital is about three times greater than the value of investing in machinery[1].

It must be remembered that Human capital is easily dissipated. It needs to be harnessed. Smart companies convert human capital into organizational capital (by codifying the tacit knowledge residing in the employees). Human capital needs its Organizational and Relational siblings to make a difference.

Organizational capital:

Organizational assets are those that remain in the organization when the employees have left the building but cannot be found in the balance sheet. Brands, IPs, processes, systems, organizational structures, and databases are a few examples of Organizational capital.

Organizational capital makes up the nonhuman embodiment of the accumulated knowledge developed by the organization. Organizational resources are owned and controlled by the organization and require continuous and thought-through investments to develop.

Dimensions of Organizational capital

Externally oriented	✓ **Brands** ✓ **Trademarks** ✓ **Service offerings** ✓ **Product concepts** ✓ **Patents and other IP**
Internally oriented	✓ **Processes** ✓ **Organizational structures** ✓ **Systems** ✓ **Information on paper** ✓ **Information in database** ✓ **Software** ✓ **Organizational culture**

Organizational capital can be secured by legal rights, can be leveraged and shared. Technologies, inventions, data, publications, and processes, copyrights, trade secrets, patents are some typical examples of Organizational capital. Successful organizations constantly endeavor to codify the tacit knowledge of human capital and convert them into Organizational capital - Manufactured standard documents, ISO processes, testing procedures, etc

Relational Capital:

Relational capital includes all relationships that the organization has, such as customers, consumers, intermediaries, representatives, suppliers, partners, owners, and lenders….entities of the external world with which the organization has a relationship.

Relational resources encompass all those relationships the organization has with entities outside the organization which influence the organization's ability to create value. The direct financial flow into an organization comes from customers who pay the bills of the organization. It is relatively easier to value and track Relational capital through standard yardsticks like Market share, Customer retention, defection rates, Per-customer profitability, etc.

[5]A 10% increase in workforce education increases productivity by 8.6%; a 10% increase in physical assets increases productivity by 3.4% (source: The Wealth of Knowledge, Thomas A Stewart).

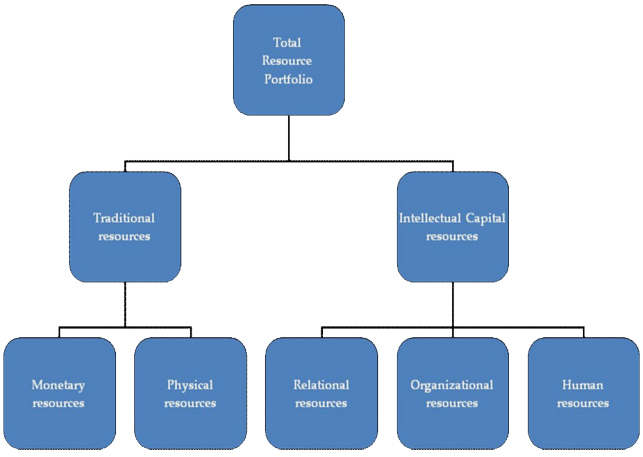
Relational Capital is largely ill-managed, although it has the most direct impact on the financial health of the company. This vital capital is the key to the survival and growth of any organization (even non-profit organizations need relational capital to survive). Despite this, Relational capital is probably the worst managed resource.

Many companies don't even know who their customers are; in retail stores, the customer remains a statistic. Many companies treat their customers arrogantly[1]. Relational capital is enormously valuable. A 1% repeat-purchase will translate to $100 million sales to Ford. Most leading Indian IT companies have loyal customers contributing in excess of 85% of their revenues.

In summary, every company has all the three, but some emphasize one more than the others. Human resource is the *mother* of all IC resource. Relational and human resources are *not entirely owned* by the organization. As an example, an employee's presence cannot guarantee access to his competence. Organizational resources are the only resource *owned* by the organization which can be traded; they form an important basis for competitive advantage in many organizations.

[6] This also explains why US companies lose half their customers every five years and the customer satisfaction in the US is actually declining (source: The Wealth of Knowledge, Thomas A Stewart).

The Asset matrix



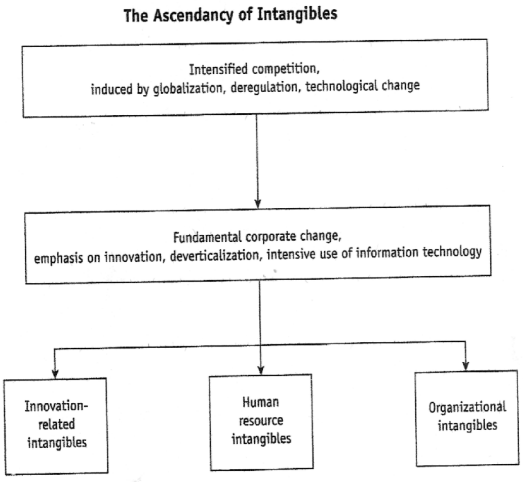
Why are companies becoming IC-centric?

Why the current interest in intangibles? *"Two fundamental developments-one, economic and political and the other*

technological have dramatically changed the structure of corporations and have catapulted intangibles into the role of the major value driver of business" Baruch Lev

The graphic below provides the answer to this question. The intensified competition in practically all business sectors brought about by the globalization of trade, far-reaching deregulation, and technological changes (like the Internet) has forced business enterprises to radically change their operating models. Most of these changes revolve around deverticalization (for example, outsourcing) and innovation.

Intangibles are the fundamental drivers of both: deverticalization is achieved by a substitution of intangibles (like Internet-based supply chains) for physical assets, and innovation is achieved primarily by investment in intangibles. Hence the recent growth of and focus on intangible assets.

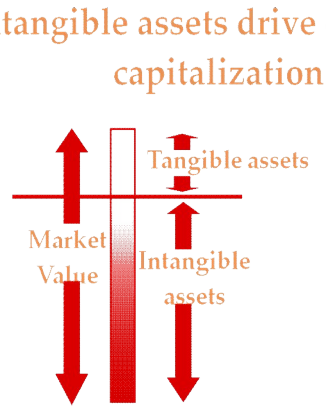


Source: Intangibles – *Management, Measurement, and Reporting*, Baruch Lev

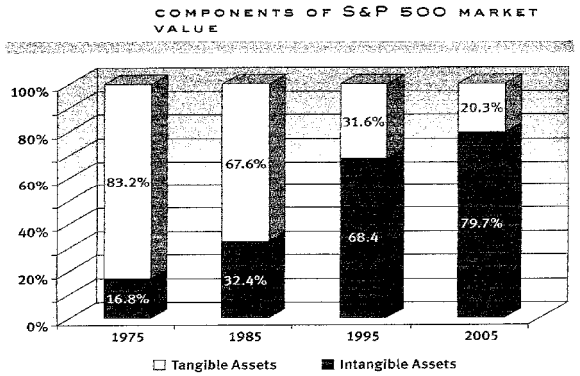
It is also a matter of survival. As Baruch Lev says*"….firm's survival and success will primarily depend on smart intangible investments….."*

➢ **Intellectual Capital is a value creator**

The intellectual intensity of organization has been increasing over the years and now determines the net worth of the company. A significant part of the market capitalization (markcap) of successful organizations is explained through the intellectual assets that the company owns. While the traditional brick and mortar companies are morphing to attain greater intellectual intensity, most of the newly born technology companies have almost no physical assets at all.



The intellectual intensity across organizations has been steadily increasing over the years. One example shown ahead depicts the discerning tilt towards intangibles as opposed to physical assets in S&P 500 companies.



Source: Aurigin Systems Inc.

The **market-to-book ratio** (as shown below) is a good indicator of the enormous ability of Intangible assets to create wealth. In recent years, the Market-to-book ratio is above six among the largest US corporations (S&P 500) – out of every six dollars of market value, only one dollar appears on the balance sheet (tangibles). The remaining *five dollars* represent intangible assets.

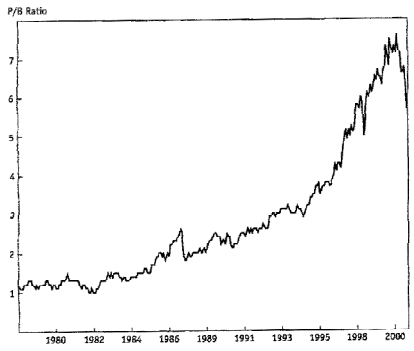
There are caveats, though. First, stock markets are volatile and respond, often strongly, to factors entirely outside the control of management. If a company trades for less than its book value[1], does that mean that it has no intellectual capital?

Second, there's evidence that both book value and market value are usually understated because of:

- Accelerated depreciation
- Takeovers are usually at a premium to market value, indicating understated market value

It is therefore always better to look at market-to-book

ratios and compare across companies over sustained periods of time.

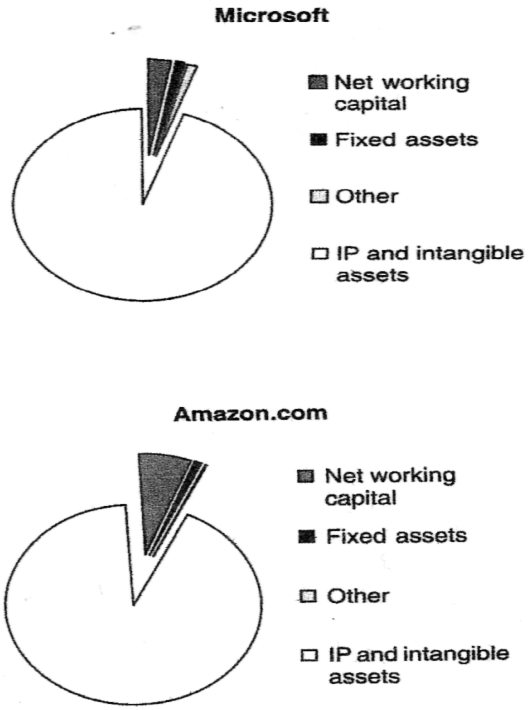


Average Price-to-Book Ratio of S&P 500 companies, Dec 1977-Mar 2001, Source: Compustat, S&P, McGraw Hill

[7] Given the current extreme economic upheaval, this is true of several Fortune 500 companies. The net worth of their intangibles however has not eroded so sharply.

Clearly, IC is now driving major corporations' market capitalization. Investors realize that important assets are *not* bricks and mortar or conveyer belts and lathes, or trailer trucks and air-conditioning systems, but find substantial value in intangible assets

Intangible intensity of leading technology companies



Source: Intellectual Property Valuation

The strong correlation between the market capitalization and the knowledge-intensity of a company is fairly well established. IC centric companies have a significant portion of their market cap explained through intangibles (as can be seen above). In the case of Amazon, the value of its intangible assets is more than 90%; in the case of Microsoft, it is as high as 93%[1].

- **Knowledge companies are leaders**

IC centric companies are industry leaders. For example, in the PC industry, knowledge leaders like Microsoft, Intel and Dell each account for *more than half* the value of their piece of the industry. In each case the secret of their control is an intangible knowledge asset.

- Microsoft controls a standard – all the others have to make their software compatible
- Intel also owns a standard – and innovates faster than its rivals
- Dell owns unique real-time knowledge of supply and demand
- Dell gets paid by customers before it has to pay its suppliers – has a negative working capital

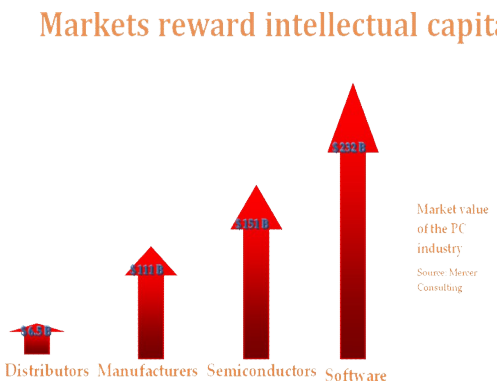
Successful companies worldwide are knowledge-intensive; this enables them to become leaders in their respective fields. Intel has a 77% market share in the PC market. Cisco has 73% of router market. 78% of internet users access through America Online. 70% of online auctions are routed through eBay. Microsoft has near monopoly in PC software[1].

[8] P&G's intangible assets account for 84%; yet, for years it has been viewed as a solid, extremely well managed consumer goods bricks and mortar company.

[9] Most efficient and well-managed capital-intensive companies like GE and Exxon have market shares less than 25%.

- **The markets reward IC-centric companies**

The chart below shows how the IC intensity has rewarded players in the PC industry. The greater the intellectual intensity, the larger the market value. As one moves up the value chain (from Distributors to Manufactures to Semiconductor manufacturers to Software companies), the IC intensity increases and therefore the market value dramatically improves.



- **Intellectual Capital is a key competitive tool**

Intellectual capital is a key differentiator, simply because the other sources of competitive advantage are rapidly drying up:

- *Geography* (weakened by electronic commerce, reduced tariffs and lower barriers to FDI)
- *Regulation* (rapid globalization, reduced protectionism)
- *Vertical integration* (less valuable because of outsourcing, buying instead of making)

Characteristics of Intellectual Capital

Intangibles, like monetary and physical resources, are subject to the fundamentals of economic laws, of balancing benefits and costs. There are some specific characteristics of Intellectual assets:

1. Intellectual capital can replace expensive physical assets

Efficient use of intellectual capital can **eliminate/reduce** expensive physical assets. Citibank's target of serving 1-billion customers by 2010 could have been achieved through 250,000 branches OR by creating software for web sites, ATMs, Palm Pilots, mobile phones. The choice was clear for Citibank.

As another example, several airlines own less than a quarter of the airplanes they fly. *"….within a decade, one airline will exist that owns next to nothing"* McKinsey. These will rely on a virtual balance sheet of intangibles: brand, reservation system**,** landing rights and a database.

2. Intellectual capital can be leveraged

Leverage is a second reason intellectual assets have become more important than the physical kind. A tangible asset is additive in nature; deploying physical assets precludes them being employed in another activity concurrently.

Monetary and physical resources are rival resources - specific deployment of rival assets precludes them from simultaneously being used elsewhere. IC resources are non-rival. They can be deployed at the same time in multiple uses. Usually, IC resources are characterized by large fixed cost, but negligible marginal cost.

"The ability to leverage physical and financial assets is limited and getting more so. The ability to leverage intellectual capital is unlimited and getting less so. An airplane can fly on just one route. A reservation system is limited only by the number of people in the world." Lev Baruch

The non-rivalry attribute of intangibles-the ability to use such assets in simultaneous and repetitive applications without diminishing their usefulness is a major value driver.

3. Intellectual capital is ephemeral

Intellectual Capital is **ephemeral.** Intellectual Capital can dissipate quickly if it is not harnessed properly. For example, a good %age of human capital is tacit knowledge that resides in the minds of its employees; in case of employee-separation, the intellectual capital is lost. Quite literally, Intellectual capital is what walks out of the door at the end of the day and may not come back tomorrow.
Unless employees' knowledge is identified, documented and shared with others, Intellectual capital cannot be useful. Intellectual capital that has been so captured, preserved, catalogued and made available for sharing is known as *Intellectual assets*.
Intellectual assets stay on. Intellectual assets legally protected under applicable laws are called *Intellectual Property*. An example would be a Patent that is protected by the patent law (Title 35 of the United States Code or the Indian Patent Act).
The key to preservation of Intellectual Capital is to distill - Intellectual *assets* form a more valuable subset of intellectual *capital*, and intellectual *property* form an even more valuable subset of intellectual assets.

What limits the growth of Intangibles?

If the intangibles are so good, what is limiting the growth of intangibles? Why are physical-heavy behemoths not substituting intangibles for physical resources?

The answer is manifold. For one, Intangibles are more

difficult to manage. It is a question of well-defined physical assets versus hazy property rights of intangibles. Also, the virtual nature of intangibles is difficult to comprehend. Intangibles live in an environment of uncertainty.

The other value detractors of intangibles are

- Excludability
- Higher risk associated with investments in intangibles and
- Lack of a platform for trading

Excludability implies that the intangibles are also enjoyed by non-owners – investments in training, for example, is enjoyed by the new employer in case of attrition. The ability of owners of intangibles to prevent non-owners from enjoying is restricted. Even in case of secure intangibles like IP, issues like workarounds, infringements, reengineering, and weak IPR laws in major countries suffer from partial excludability. Accountants are most reluctant to recognize intangibles primarily because of partial excludability[1].

Higher risk attached to intangibles is another detractor. Innovation carries a higher risk than traditional activities like production, marketing and finance[1]. History is replete with instances to prove this. Only a few companies out of 100 odd companies succeeded in the disk drive market. The top 10% of patents in the US and Germany account for 90% of the total patent value. In fact, complete loss of investments is possible with intangibles, but is rarely the case with tangibles.

Absence of organized and competitive **markets** in intangibles can be a limiting factor. A plant can be sold off; results of R&D efforts are difficult to sell. Valuation and measurement of IC is hampered with the absence of a vibrant market. A limited number of IP exchanges are now available for patents' trading that can throw up benchmark numbers for IP valuation.

[10] Investments in intangibles are written off as expenses. IBM's acquisition of Lotus corporation in 1995 at a cost of $1.85 billion was accounted as in-process R&D resulting in IBM reporting a steep loss in that particular quarter. Such accounting guarantees that future revenues and earnings derived from these acquisitions will be reported unencumbered by the major expense item: the amortization of the acquisition costs. The future profitability and growth get inflated. Critics argue that this kind of accounting leads to collusion between financial analysts, brokers and senior managers.

[11] Studies show that the risk of investments in R&D is three times more than physical investments. Of course, payoffs are equally higher.

[12] Building Market Capitalization With Intellectual Capital Assets, KLM Inc., Management consultants

Conclusion

Over the last fifteen or twenty years, tangible assets have been increasingly better managed in the corporate world through the use of sophisticated management tools such as outsourcing, right-sizing, and reengineering. It is therefore safe to assume that these assets are well-optimized in most diligent enterprises.

What about knowledge-based intangible assets? Are they equally optimized? Unlikely. Learning to optimize intangible assets is both the challenge and the opportunity facing executives in today's corporations.

Even after the tough market of the last two years, the market cap of several Fortune 500 companies exceeds their book value by two, three or even four to one[1] (of course, market cap of some have gone below the book value as well). This means that for every dollar of value contributed by tangible assets, two to four dollars more are being contributed to enterprise value by intangibles. This is true across both old and new economy companies. It is now a fairly well established fact that the value being contributed by their intangible assets is significantly greater than the value contributed by their largely optimized physical assets.

This highlights the reality and power of such knowledge-based assets and to the importance of identifying and managing these intellectual assets to create new sources of value and growth for the enterprise.

As we continue the shift into a knowledge-based economy, the success of businesses both in the marketplace and with investors will be based upon intangibles. Given the significant power of Intellectual assets to influence the valuation of an enterprise, companies are learning to employ these assets to improve profitability and increase shareholder value.

Coupled with the fact that intangibles can grow exponentially relative to tangible assets, it only makes sense to harness the intellectual assets of the enterprise.

"Wealth creation is now a mental event" Forbes

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