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Specific Intangible Assets in the Air Transportation Sector A Theoretical Construct for their Identification and Valuation

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This paper focuses on the importance of intangible assets in the entire value creation process. Based on the Portuguese airlines companies, the paper presents a theoretical framework approach about intangible assets identification and valuation for the air transportation sector as a whole. It is now irrefutable that a new perspective has replaced traditional value chains, based on the linear activities alignment—the innovation cycle (recognizing specific intangibles as value key drivers on wealth creation process) dynamically interlinked with the operational cycle. The authors also underline the first step approach for a deep research concerning intangibles, and their identification and valuation.

Introduction

Davenport and Prusak (1998, p. 5) wrote that “knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information”. Since then, several approaches have been followed in order to identify the knowledge scheme inside the organizations. Some have argued that this dynamic scheme is based on intangibles that increase the company’s value, and therefore, the stakeholders expect returns. Broadly, intangible assets appear as an important issue in the accounting rules frontier—a tension between those responsible for accounting standards establishment and those who use the information, are indeed evident. Intangibles have a value but due to their volatile nature and difficulties in their measurement, they are normally excluded from the financial statements. However, according to their linkage and contribution to certain businesses, the importance for stakeholders is irrefutable. Traditional financial reports, based on traditional accounting rules that exclude the potential return, seem to be irrelevant for decision-making. Thus, intangibles identification and measurement approaches can contribute to a better decision-making.

Innovation cycle or the innovation value chain claims a deep analysis on the intangibles identification, measurement and reporting. Radical changes have been occurred in the last two decades of the 20th century. New business models have also emerged in which knowledge creation, capture, re(use) and diffusion constitute the way ahead to value creation. Companies need to identify the drivers that contribute to a higher value level and intensity. Investing in intangibles is probably the first step to innovation, and consequently, for wealth creation. Intellectual capital management and reporting can, in a feasible basis, support the gap of perception between accounting and market value.

Aims and Objectives

As per the standard accounting rules specifications, intangibles act as a key driver in the businesses value creation, and are strongly interlinked with several strategies effectively followed. Innovation is probably the most visible face on this topic, which results from prior investments in intangibles such as human and structural capital.

Despite the importance of intangible assets, we underline a theoretical framework approach for the Portuguese airlines companies. Specific intangibles should be evidenced that contribute to value creation in this particular branch of activity. Thus, the objective is to underline the importance of intangibles in those companies, and define a theoretical approach to identification, measurement and reporting of their intellectual capital assets.

Intangibles: The Concept Revisited

"Intangible" is a concept to which no consensus exists on the definition and application. Three broad perspectives about intangibles have supported several issues on their contribution to value creation. According to Blair and Wallman (2003), intangibles relate to assets that can be owned and sold, assets that can be controlled but not sold or assets that may not be wholly controlled by the company. Dependent from accounting rules and measures, authors like Brockington and Raymond (1996), Lev and Sougiannis (2001), Andriessen and Daniel (2004), and Cohen and Jeffrey (2005) argue about their impact on businesses and on company's value creation. Thus, historically, intangibles have been treated as an aggregated amount (goodwill), without impact on national wealth neither included in financial statements of firms. Goodwill, in nature, represents a residual, which incorporates all intangibles that cannot be measured separately. In this paper, we focus on those ones that can be identifiable and be measured under impairment approaches, having or not an indefinite lifetime (Epstein and Mirza, 2005, p. 234).

As argued by Blair and Wallman (2003, p. 451), "intangibles are non-physical factors that contribute to, or are used in, the production of goods or the provision of services or that are expected to generate future productive benefits to the individuals or firms that control their use". Broadly, a typical intangible asset cannot be bought or sold in an organized market, the verification of its existence may be impossible, it may not have a finite life, its value can fluctuate (which means that it should be submitted to the impairment analysis) and sometimes it is strongly interlinked with a specific activity, product/service or business. Hence, intangible assets are commonly development expenditures, patents and trademarks, brand names, databases, human know-how, strategic alliances and processes. Despite that, individuals and companies have an expected future return and benefits based on the intangibles management. Nevertheless, accounting systems defined by the Financial Accounting Standards

Board (FASB) has a very conservative nature. Expenditures in research and development, advertising and other similar ones, should be immediately expensed even though they traduce expected future returns. However, as stated by Lev and Sougiannis (2003, p. 145), firms' R&D capital was found to be associated with subsequent stock returns.

Table 1: Typology Related Intangible Assets

Intangibles Assets Typology	Marketing-related (e.g., trademarks, trade names, brand names and logos).
	Technology-related (e.g., process patents, patent applications and technical documentation).
	Artistic-related (e.g., literary works, copyrights, maps and engravings).
	Data processing-related (e.g., proprietary computer software, software copyrights, automated databases, integrated circuit masks and masters).
	Engineering-related (e.g., industrial design, product patents, trade secrets, engineering drawings and schematics, blueprints and proprietary documentation).
	Customer-related (e.g., customer lists, customer contracts, licence agreements, franchise agreements, and business models).
	Human capital-related (e.g., trained and assembled workforce, employment agreements and union contracts).
	Location-related (e.g., leasehold interests, mineral exploitation rights, air rights and water rights).
	Goodwill-related (e.g., institutional goodwill and professional practice goodwill).
<i>Source: Financial Accounting Standards Board (FASB).</i>	

It is, nowadays, irrefutable that intangibles identification, management, measurement (income, cost or market approaches) and reporting is a key burner on the value creation process. Lev (2001, p. 5) defines intangibles as "a claim to future benefits that does not have a physical or financial (a stock or a bond) embodiment. A patent, a brand, and a unique organizational structure (for example an Internet based supply chain) that generate cost savings are intangible assets". Table 1 shows the most important intangible assets categories as defined by the FASB.

Intangible assets measures and risks such as research and development capitalization, organizational innovation processes and intellectual capital approaches act as key drivers in the value creation process. Knowledge arises as the main way to the wisdom achievement and wealth creation. Although intangibles have non-physical nature that

contributes to the production of goods and services, companies expect for their future benefits and returns. Individuals and companies responsible to manage them look for the market, and adjust their business processes through customization approaches. Broadly, strategies followed by companies such as alliances, mergers and acquisitions, internal and external diversification or disinvestments, even driven by integrated and innovative market approaches, are based on intangibles in particular research and development programs. Thus, knowledge-based assets are responsible for the major business changes occurred in those (two decades of the 20th century) decades.

From an accounting point of view, intangibles identification is the first step towards a better financial reporting. Although those assets are not included in the balance sheet, they should be reported to the stakeholders. Accounting systems stagnation and its conservative nature are primarily responsible for the lack of perception between accounting value (based on equity) and market value (based on information perception and integration). We underline that the intangibles identification can contribute to a better company's analysis even those assets are not included in the financial statements. Creating value for companies through intangible assets also requires the implementation of strategies based on innovation processes, strongly supported by investments in intangible (Lev, 2001).

New Value Throughout Intellectual Capital Approaches

As previously mentioned, value has been assuming a major role, reaching a multidimensional plan. Intellectual capital approaches (Edvinsson *et al.*, 1997), efficient knowledge management systems and intangible assets management constitute strong burners on the value creation and retention process.

Whereas the customer acquisition aims at measuring in absolute or relative terms the capacity of the company in attracting or acquiring new customers for business, the client satisfaction aims at measuring how well the company is functioning. Retention capacity indicates the level of customers that are set in each business segment. However, to know the customer satisfaction level is not by itself a condition to assure high retention or profit level. Thus, high levels of customer satisfaction are needed to assure a recurrent behavior in terms of purchase. To ensure a deep customer satisfaction level, it is strongly important that the product or service has intrinsic characteristics (functionality, uniqueness, quality, price and sense of opportunity).

Companies should acquire the possibility of acting pro-actively regarding their customer needs and answering them on time. It results from the conjugation of several domains throughout companies acquire a competitive edge resulting in considerable financial returns.

Internal business dimension is an important variable in achieving value. It matches customer needs in providing them with a set of attributes, which are also interlinked with shareholders' expectations by affording an excellent financial return. Focusing on the processes with a significant impact on customer satisfaction and on the results achievement, it has an impact in the creation of a new value chain, supported by new business internal processes (Kaplan and Norton, 1996).

Traditional value chain was primarily directed on focusing the processes and activities, which supply products and/or actual services to actual customers. This wave of value creation begins by ordering a product and/or a service already in existence on the part of the actual customer, and finishes with its delivery. According to the traditional value chain, the company has created value, based on production activities, delivery and after-sales services.

The new view upon the value chain, which takes on a long-term financial outlook, requires a structure that can create new products and/or services which match the emerging future needs or potential customers. The process of innovation (Kaplan and Norton, 1996, pp. 27-28) has become, for a large number of organizations, a more important mean of a future financial performance than can be in itself, their operational cycle. This means that, in the emerging markets, already catalogued as new business models, the success states on the organization's capacity to successfully manage the products and services development and in reaching new categories of costumers with an highly retention power.

An approach based on the innovation value represents a strategic logic in which the orientation does not lie on the fact of wanting to be constantly ahead of competitors. In fact, it was a characteristic over the last decades in the conventional logic, in which the competitors become irrelevant on the prosecution and on the value creation. Knowledge management was not induced by processes or businesses by themselves. Thus, it seems to us appropriate to identify these two logics that seem to direct the creation value on the strategic outlook.

The underlying differences of those strategic logics can be reached throughout some key dimensions. These differences intend to emphasize the main questions that managers have to face—Which opportunities are diagnosed or sought after and how is the business risk dealt with? Actually, the value-based strategies are not established on the industry conditions as a starting point, but in the fundamentals in which the strategic options are founded. Strategic focus is on confronting their strong and weak points with those of the competitors and, from there, identifying the best way to establish a competitive advantage, opposing the idea that the competition only works as a simple benchmarking.

Conventional logic has oriented strategy for the expansion of the customers' data, always responding to each of their specific needs. Innovation-based strategies have been directed towards an opposite logic in the sense that they are directed towards what the different customers have in common, even if it means, in some cases, losing some of them. On the other hand, conventional logic treats opportunities accordingly with its actual recourses and capacities, whereas innovation logic would never admit any kind of constraint caused by that level or resources and/or capacities. The supply of products and/or services does not obey to this logic—the traditional limits rule imposed by the industry—it focuses the overall solution, and thus, on the generic value chain, even if that leads the organization to the brink of a new business. In this manner and in the ambit of business, the search for synergy ceases to limit itself to the main activities and the support activities of the value chain to assume the most diverse shapes: knowledge sharing, strategy coordination, physical resources sharing, vertical integration, negotiation sharing and the creation of combined businesses (Campbell and Goold, 1998, p. 133). That synergy may be of great help to the organization, but it is essential in the first phase to know how to distinguish true opportunities from illusions. Sometimes, the results obtained from that synergy are more productive in cases, where a minor number of initiatives are pursued.

It has also been mentioned that organizations have been seen for many years as value chains or even as systems in which the value is created by transforming certain inputs in more refined outputs. Strategic changes associated with the value chain management are related with the production of goods with a proper quality at the lowest possible cost. This cost reduction or the value increase was initially associated to the effect of economies of scale, to the efficiency in the resource use capacity, to

the learning effect, to the information circuits about products as well as to the quality measures. The key success critical factors identified in this process of creation value certainly include a whole set of relations between the principal and the support activities. Nowadays, this approach has also extended to other means of value creation such as the networks development.

Besides the value chain approach identified and formalized, two more configurations of value were emerged. They were value networks and value shops. In the former, organizations create value by sharing activities, whereas, in the latter, competencies of helping them to resolve a problem are sold.

The key factors of competitiveness which have directed the evaluation of industry attractiveness in the last decades continue to constitute an essential basis for that evaluation, although due to the differences of performance deriving from the followed strategies, they have been complemented with the analysis of the competition position. Market development, strongly marked by technology development, even by the evolution of quality concepts and by the business ethics in itself, has been demanding the development of new techniques which enable us to measure the business-related performance but also the business own risk measure.

The importance lost within traditional analysis of the industry attractiveness has revealed over the last decades. We are now oriented to the emergence of new performance measures and to the identification of new key factors that create value, tangible or intangible assets, framed in the domains of knowledge and/or in the information and communication technologies—the knowledge management system revolution. The impact of its development is not due to the fact that the companies are becoming more profitable by increasing the rate of hourly production, but on allowing access to a greater diversity of information sources, and in its velocity processes. Nowadays, there is a global market for the technology and for the individual skills. The goal is not only on developing competencies that represent by themselves a competitive edge, but also on developing them economically and faster than the competitor.

Clarifying the value system and making it work is the major contribution that each individual can give to the value creation. This logic is the one which has prevailed on the last few decades and which seems to persist in the digital economy, although in a more integrated, aggressive and volatile way.

Intangible Assets Measurement Approaches

Literature focuses on three valuation techniques towards intangible assets measurement: income, market, and cost approaches (Reilly and Schweihs, 1998; and Cohen and Jeffrey, 2005). Income approach is a straightforward application using discounted cash flows methodology, which are associated to the expected future returns. Assuming the basic principles of the financial theory, three main steps should be followed in order to achieve a feasible measurement: Identify the asset from which we expect an economic future return; estimate the expected cash flows over time; and finally, assign an appropriate measure of risk to our prediction (using the Capital Asset Pricing Model (CAPM), the Arbitrage Pricing Theory (APT) or other financial approaches). These approaches present, however, the weakness that it may be very difficult to come up with reasonable and unbiased expected future cash flows.

Under a market approach, it is assumed that an asset can be related to the value of comparable assets priced in the marketplace (comparable method). The more heterogeneous assets are, the more difficult is to use the market approach. For intangibles, comparable approach cannot be followed once; there is no active market for those intangibles. Some evidences exist that market approach can be followed for patents, licences, strategic alliances and other intangibles with a definite lifetime and subject to impairment analysis.

The cost approach for intangibles is probably the most linear, which considers the book cost (recorded in the traditional financial statements) or the replacement cost (with a wide range of interpretation. Broadly, equals reproduction cost less curable functional and technological obsolescence). Reilly and Schweihs (1998, p. 144) argue that "the cost approach is one fundamental way of estimating the value of intangible assets and intellectual properties. There are several cost approach valuation methods, the most common being the reproduction cost method and the replacement cost method". Thus, for intangibles without an active market or under a comparison limitation, this approach would be followed on a systematic basis.

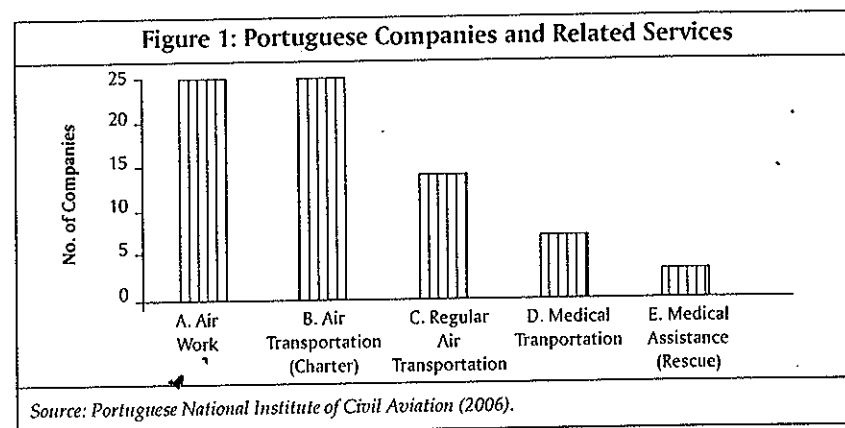
The Portuguese Airlines Sector

Scope and Generic Activities

The Convention on International Civil Aviation signed at Chicago on December 7, 1944, states in its Preamble that "...international civil aviation may be developed in

a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically". In fact, developments in civil aviation can contribute nation's developments and to preserve understanding and relations between nations and peoples of the world.

Air transportation sector activity has been increased in Portugal in the last years (aircraft, passengers and goods). Between 2002 and 2003, that activity has increased to 1.4% in the number of aircraft movement, and approximately 1.5% of passengers (including Schengen and Non-Schengen territories). Aligned with this trend, companies have implemented new strategies, some of them, based on regional or international strategic alliances. The biggest Portuguese company, TAP Portugal, joined the Star Alliance, also contributing for those strategies.



The Portuguese Airlines Sector aggregates 38 companies, developing several activities, namely: regular air transportation, charter activities and emergence activities. All of them are certified by the National Institute of Civil Aviation (NICA) for those activities (Figure 1). However, in 2004, only seven companies were certified to regular air transportation activities. In the past two years, other seven companies were certified as regular air transportation operators.

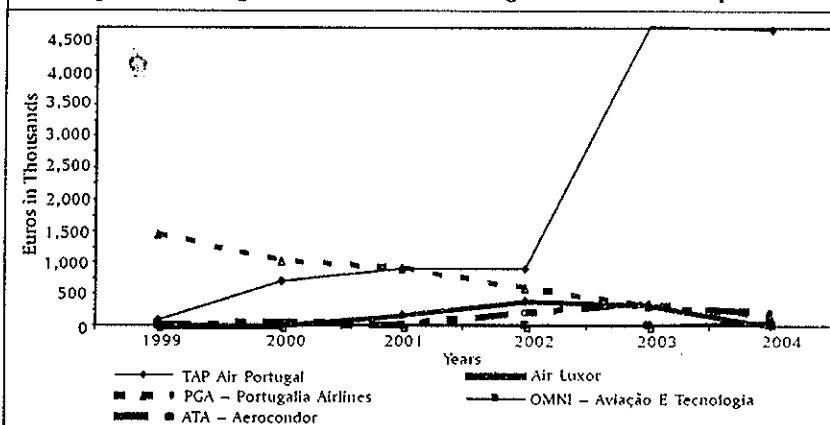
TAP Air Portugal (Public company) represents more than 80% of the sector activity, followed by Air Luxor, a private company. PGA-Portugália Airlines, a regional airline company, was classified in 2005, as the best regional European company. In 2006,

other seven companies were certified to regular transportation. However, their relative position has not been modified.

Intangible Assets Identification

This paper presents a theoretical framework approach: the assertion is that there are several intangibles not included in the financial statements nor adequately included in the management reports. In some cases, we argue that some intangibles are incorrectly expensed. In this preliminary step, the hypothesis includes the identification of several intangibles (having or not a definite lifetime), which should be feasibly analyzed, in order to improve the management information available to the stakeholders as a whole. Those intangibles can be identified as: preventive maintenance programs, specific learning programs, code-share agreements, strategic alliances (e.g., Star Alliance), brands, frequent passengers programs, flying certificates granted by NICA, research and development investments, software and databases and other rights. These intangibles should be measured and integrated in the financial statements or specified in the management reports.

Figure 2: Intangible Assets in the Portuguese Airlines Companies



Source: Annual financial reports (1999 - 2004).

Intangible assets included in the financial statements relate to goodwill, Research and Development (R&D) investments, property rights and installation expenses. There is no evidence about other intangibles identification included in the annual

financial reports. Thus, the supremacy of TAP Air Portugal and PGA-Portugalia Airlines has no significance if we compare the intangible assets impact on the net balance sheet value (Figure 2). Intangibles like maintenance programs, specific learning programs, code-share agreements, strategic alliances, brands, frequent passengers programs and flying certificates are not included nor reported. Most of them are immediately expensed and included in the profit and loss account. Intangibles identification in the balance sheet is evidenced in the Table 2.

Table 2: Intangibles Reported in the Annual Financial Statements

Company Airline	Goodwill	Research and Development	Industrial Property and Rights	Installation Expenses	Other Rights (Contracts)
TAP Air Portugal	■	■	■	■	-
Air Luxor	-	■	■	■	-
PGA - Portugalia Airlines	-	■	■	■	-
OMNI - Aviação E Tecnologia	-	-	-	■	■
ATA - Aerocondor	-	■	■	■	-

Source: Annual financial reports (2004).

As stated in the Table 2, intangibles recognition or identification is not a strategic issue. We have focused our attention on intangible assets as value sources but we are also aware that the essence of value, although strongly conditioned by that assets typology, wears itself out. Nevertheless, an integrated outlook of the possible factors, which can influence the value creation or destruction from the stockholder's point of view, is required. For instance, strategic commercial based alliances are usually formed between companies that try to enter into new markets or expand their existing ones. Stakeholders seem to perceive those alliances as advantages and as a value creation source.

Strategies in this type of company are based on the capacity to anticipate, innovate and make shared use of opportunities and knowledge. Other more wide-ranging factors were also identified, which cause fluctuations in the value of companies—strategic alliances as “Star Alliance”, diversification by international acquisition, and use of “outsourcing”, mergers and disinvestment decisions. Companies should anticipate the value migration process focusing on their innovation cycles and customers needs. Create value arises in the new economy as the key burner to maintain a sustainable competitive advantage.

In the previous analysis of financial reports, traditional intangible assets have been recognised in the financial statements namely "goodwill" (as an aggregate value), research and developments investments, industrial property and rights, company installation expenses and other intangible as contracts. This is the traditional approach based on the Portuguese accounting rules and, since 2004, based on international accounting standards. However, our concern relates to other intangibles that are not accounted and/or not reported in the financial statements. Our assertion is that those intangibles strongly drive the company value. Some of them, emerging from air transportation literature review are: brand names, code-share agreements, international alliances, frequent passenger programs, preventive maintenance programs, and human capital typologies, license typology granted by INCA, local agreements, and specific contracts, among others not yet identified.

Specific Intangible Assets Identification: A Theoretical Approach

In the first stage, economic regulation (bilateral agreements and negotiations, regional regulatory developments, trade in service developments, national liberalization policies, fair competition, consumer protection and fair aide) was reviewed and several airline business models (fares and rates, tariff developments, computer reservation systems, electronic ticketing, travel agents, multiple distribution channels) were identified. As stated in the Manual on the Regulation of International Air Transportation (2004), the process of national regulation of air transport services has three basic components: legislative, licensing and *ad hoc* authorization. Those regulations and business models support nowadays, the main strategies followed by aviation companies.

In the following stage, specific intangibles on the air transportation sector will be diagnosed (throughout the questionnaire methodology approach). Hence, a ranking will be evidenced in order to identify their relative importance and their impact in the companies' strategies.

In the final step, measurement and valuation analysis will be carried out for some air transportation key intangible typologies (throughout the case study analysis approach).

Meanwhile, we assume in our research, five hypotheses relating intangible assets identification and measurement.

- H1—There is an information perception gap about intangibles on the Portuguese air transportation sector, depending from: H11—Company size; H12—Type of license issued by NICA; and H13—Respondent management level.
- H2—Air transportation sector evidences particular intangible assets that should be measured and reported, depending from: H21—Company size; H22—Type of license issued by NICA; and H23—Respondent management level.
- H3—Intangibles are not included in the traditional financial balance sheet statement. It depends from: H3—Company size; H32—Type of license issued by NICA and H33—Respondent management level.
- H4—Intangible assets are not adequately reported in the stakeholders' management reports, namely: H41—in legal reports and H42—in voluntary stakeholders' reports.
- H5—There is a positive correlation between intangibles valuation and potential future returns. It depends from: H51—Company size; H52—Intangible typology and H53—Accounting and financial rules used.

After fieldwork completion, we expect that most of the assertions assumed in this paper, will be effectively confirmed. From an accounting point of view, we are confident that intangible importance and consequent recognition depend from company size, organizational culture and company maturity stage. Accounting barriers in their fair measurement will also affect the intangible non-recognition.

On the air transportation sector, strong changes have also occurred—traditional value chains based on linear activities alignment were replaced by a new perspective—the innovation cycle (intangibles recognition) and its impact on the operational cycle. A new market approach has also emerged, which is based on customers needs identification, the inclusion of those needs in the innovation cycle and thus, their consequent integration in the operations cycle management. Air transportation companies also compete by their innovation capabilities (human and structural capabilities). Value migration (also dependent from the innovation intensity), as stated by Slywotzky and Adrian (1996, p. 58), requires that companies recognize their value drivers that, on a feasible and continuous base contribute to the company growth. That migration process, strongly embodied in innovation capabilities, enables companies' airlines to acquire/develop competencies (organizational learning process)

that can easily create value and maximize the future expected returns. It is today irrefutable that value creation is the main objective of the companies' stakeholders.

Value became the key pointer for those stakeholders. Searching information, designing systematic learning processes about companies' innovation and operational cycles, and match them with customers needs, that can contribute to the minimization of value losses in the value migration process.

Specific Intangibles Revised

As stated earlier, specific intangible assets are indeed underlined for air transportation sector (Table 3). However, further investigation is required in order to point out their relative importance. Questionnaire approach will be followed in order to meet this objective on a feasible basis.

As in Portugal, within Europe, some changes have occurred in the air transportation companies—strategic alliances have taken place and deep restructuring programs were implemented. Should they be reported as intangible assets? According to their

Table 3: Intangible Assets (First Approach)

Brand names
Code-share agreements
Preventive maintenance programs
Logos and trademarks
Quality certificates
Strategic alliances and cooperation
Frequent passenger programs
Human capital categories (e.g., pilots and maintenance HR)
Regional agreements
Contracts between air transportation companies
Licences issued by INCA
Electronic ticketing
Airlines business models
Restructuring strategies
Computer reservation systems
Fiscal planning strategies

potential financial returns stated by the Intangible Assets – IAS 38, we are aware of that approach.

Strategic alliances require “that the partners come to some agreement on the value of their respective contributions to the collaborative entity” (Inkpen and Madhok, 2001, p. 49). Every partner has access to new skills and knowledge, increased return is expected. In fact, each alliance is established on payoff to learning approach and on the cost of continued collaboration analysis. On the air transportation sector, several companies join the alliance (e.g., Star Alliance) in order to cover new destinations with higher passenger's fidelity. Synergies are the most important outcome in this particular value creation process.

Fiscal planning and restructuring strategies can also be considered as intangible assets and subject to a patent process (and thus subjected to patent portfolio management analysis). In the last decade, in the United States of America, 49 fiscal planning strategies were patented. Know-how embodied in those strategies can be, in essence, translated into strong future financial returns for stakeholders (opportunity for competitive advantage or process complexity risk increase!). Nevertheless, no consensus exists about this process.

Another example is related to computer reservation systems. Since the late 1990s, these systems' business has been affected significantly by increasing public awareness of the Internet with a large number of third-party providers in the area of business-to-consumer. The major systems vendors have adapted to a challenge of translating their existing system designed mainly for the use of traditional travel agents into one applicable to any activity of business-to-business. As a result, all the major systems are now serving as a booking engine behind most business-to-consumer websites and as an on-line travel booking system for major corporations and airlines (ICAO, 2004).

Broadly, it is irrefutable that intangible assets justify the gap between accounting and market values. However, some of them have an ephemeral essence. As stated by Cohen and Jeffrey (2005, p. 135), “One way to begin our discussion of valuing ephemeral assets is to present an accounting framework. At the center of this framework is status”. Probably, on the air transportation sector, we should sometimes follow this way.

Final Remarks and Further Investigation

Intangible asset concept is associated with expected future returns. It is viewed as an identifiable non-monetary asset without physical substance, controlled and is the source of future returns for the enterprise. In this respect, one of the most visible sources of intangible assets is patent registration, supported by the intensity of research and development. This evidence is consolidated at a later date by the number of patents actually registered and granted by the international agencies. Innovation management is, therefore, a source of competitive advantage for national economies in general and for the business sector in particular.

Broadly and according to modern economic theories, knowledge is the most subjective asset that appears directly associated to connectivity, information, technological and organizational convergence, and complementary, to mobility. It appears as the main source of competitive advantage, and responsible for the organizational productivity improvement. As a dynamic process, it is also understood as the capacity to transform data, to use information, to learn, to test results, to interpret, to support decisions and to take sustainable advantage.

Portuguese company's airlines present poor rates about intangible assets in their financial reporting systems. Our assertion relates that several intangible assets exist that are not included nor adequately reported in the financial statements/stakeholders reports. Future research is required relating to intangible assets identification and measurement throughout an income, cost or market approach. A theoretical framework approach was presented in order to identify and quantify the intangibles impact on the financial statements and on value creation process.

Although our approach is based on the Portuguese companies' airlines, similar approach can be followed for worldwide air transportation sector. Other companies should be included in the sample in order to support the assertions issued in this paper.

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References

1. Andriessen and Daniel (2004), *Making Sense of Intellectual Capital—Designing a Method for the Valuation of Intangibles*, Elsevier, Oxford.
2. Barth Mary E, Clement Michael B, Foster George and Kasznik Ron (2003), "Brand Values and Capital Market Valuation", *Intangibles: Management, Measurement, and Reporting*, John Hand and Baruch Lev (Ed.), pp. 153-184, Brooking Institution Press, Washington.
3. Blair Margaret and Wallman Steven (2003), "The Growing Intangibles Reporting Discrepancy", *Intangibles: Management, Measurement, and Reporting*, John Hand and Baruch Lev (Ed.), pp. 449-468, Brooking Institution Press, Washington.
4. Brockington and Raymond (1996), *Accounting for Intangible Assets: A New Perspective on the True and Fair View*, Addison-Wesley Publishing Company, England.
5. Campbell Andrew and Goold Michael (1998), "Desperately Seeking Synergy", *Harvard Business Review*, September-October, pp. 131-143.
6. Cohen and Jeffrey A (2005), *Intangible Assets—Valuation and Economic Benefit*, John Wiley and Sons, New Jersey.
7. Contractor and Farok J (2001), "Intangible Assets and Principles for Their Valuation", *Valuation of Intangible Assets in Global Operations*, Farok J Contractor (Editor), Quorum Books, London.
8. Davenport Thomas H and Laurence Prusak (1998), *Working Knowledge—How Organizations Manage What they Know*, Harvard Business School Press, Boston, MA.
9. Edvinsson Leif, Roos Johan, Roos Göran, Dragonetti and Nicola Carlo (1997), *Intellectual Capital—Navigating the New Business Landscape*, MacMillan Press, London.
10. Epstein Barry J and Mirza Abbas Ali (2005), *IPRS, Interpretation and Application of International Accounting and Financial Reporting Standards*, John Wiley and Sons, New Jersey.
11. Garrod N and Rees W (1998), "International Diversification and Firm Value", *Journal of Business Finance and Accounting*, Vol. 25, No. 9/10, November-December, pp. 1255-1285.
12. Healy P, Myers S and Howe C (2002), "Research and Development Accounting and the Relevance Objectivity Trade-off", *Journal of Accounting Research*, Vol. 40, No. 3, pp. 677-710.

13. Inken Andrew C and Madhok Anoop (2001), "The Valuation of Alliance Knowledge", *Valuation of Intangible Assets in Global Operations*, Edited by Farok J Contractor, Quorum Books, London.
14. Koza Mitchell and Lewin Arie (2000), "Managing Partnerships and Strategic Alliances: Raising the Odds of Success", *European Management Journal*, Vol. 18, No. 2, pp. 146-151.
15. ICAO (2003), *The World of Civil Aviation 2002-2005*, International Civil Aviation Organization, Circular 299-AT/126.
16. ICAO (2004), *Manual on the Regulation of International Air Transport*, International Civil Aviation Organization, Doc 9626.
17. ICAO (2006), *Convention on International Civil Aviation*, International Civil Aviation Organization, Doc 7300/9.
18. Kaplan R S and David P Norton (1996), *The Balanced Scorecard: Translating Strategy into Action*, Harvard Business School Press, Boston.
19. Lev Baruch and Sougiannis T (1996), "The Capitalization, Amortization, and Value-relevance of Research and Development", *Journal of Accounting and Economics*, No. 21, pp. 107-138.
20. Lev Baruch and Sougiannis (2003) "The Capitalization, Amortization and Value-relevance of Research and Development", *Intangibles: Management, Measurement, and Reporting*, John Hand and Baruch Lev (Ed.), pp. 123-152, Brooking Institution Press, Washington.
21. Lev Baruch (2001), *Intangibles: Management, Measurement, and Reporting*, Brooking, Washington.
22. Offsey and Steve (1997), "Knowledge Management: Linking People to Knowledge for Bottom Line Results", *Journal of Knowledge Management*, Vol. 1, No. 2, December, pp. 113-122.
23. Phillips Jack J and Patricia Pulliam Phillips (2002), "Measuring and Monitoring Intellectual Capital: Progress and Future Challenges", *Measuring Intellectual Capital*, Jack J Phillips and P Pulliam Phillips (Ed.), ASTD, Alexandria.
24. Reilly Robert F and Schweihs Robert P (1998), *Valuing Intangible Assets*, McGraw-Hill, New York.
25. Slywotzky and Adrian J (1996), *Value Migration: How to Think Several Moves Ahead of the Competition*, Corporate Decisions, Boston.
26. Smith Kim E, Tully Robert T and Charles Ian (2000), *International Accounting Standards Overview and Application—IAS 38 Intangible Assets*, Accountancy Tuition Centre Limited, Teddington.