A CRITICAL REVIEW OF THE RELATIONSHIP BETWEEN HUMAN CAPITAL MANAGEMENT AND CORPORATE PERFORMANCE

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Abstract

The Human Capital (HC) is considered a strategic resource intangible for companies whose main features are the ability to be self-generated is to be subjected to the risk of a sudden evaporation in the presence of inadequate management practices. After analyzing the concept of human capital as a subset of the most important intellectual capital, research focuses on the determinants of human capital management on corporate performance. Specifically we will look at the literature that has produced empirical evidence on the impact that the practices of management of human capital, the behaviors of the staff, the remuneration and the formation of the staff have on performance.

Keywords: Corporate Perfomance, Humang Capital Management, Remuneration, Behaviours of the Staff

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1. Human Capital as a Conceptual Category of Intellectual Capital

In several contributions has been shown that in the post-industrial, in market economies, levels of competitiveness are positively correlated, and increasingly, to the cognitive and intangible resources that can ensure lasting and sustainable competitive differential (Itami, 1987, Stewart TA, 1991, 1997, Drucker, 1993; Nahapiet and Ghoshal, 1998; Teece, 2000a, 2000b). On the basis of empirical evidence supports the prevailing doctrine in fact the 'assumption according to which knowledge has become a corporate value drivers (Drucker, 1993; Black & Lynch, 1996; Women 1999, Sullivan and Sullivan, 2000; Zambon 2004; Fabbrini, Ricciardi 2007a), of such importance that characterize the current economy as a knowledge economy (Rullani, 2004; Foray, 2006). In the context of theories based on skills, (called Competence Based View) and knowledge (so-called Knowledge Based View) (Nonaka, 1995; Nonaka & Takeuchi, 1995, Grant 1996; Quagli, 1995; Sveiby, 2001a) consider that, respectively, skills and knowledge, the main driver of business value, over the past two decades has been introduced and developed in the literature the concept of intellectual capital as a new explanatory category of cognitive resources, and its line of study that is called Intellectual Capital Based View (ICV). (Edvinsson and Malone, 1997; Hall, 1992; Youndt et al., 2004; Foam & Marr, 2001; Youndt & Subramanian, 2005; Sullivan, 1998; Sveiby, 1997). Intellectual capital is interpreted as a catalyst for other intangible assets of cognitive nature.

The international empirical literature has attributed the increase of the gap between market value and book value in the cd value "invisible" omitted in the financial reports (Lev & Zarowin, 1999, Lev 2001, Lev & Radhakrishnan, 2003), summarized right through the concept of intellectual capital (Edvinsson & Malone, 1997), and theorized in the Intellectual based View.

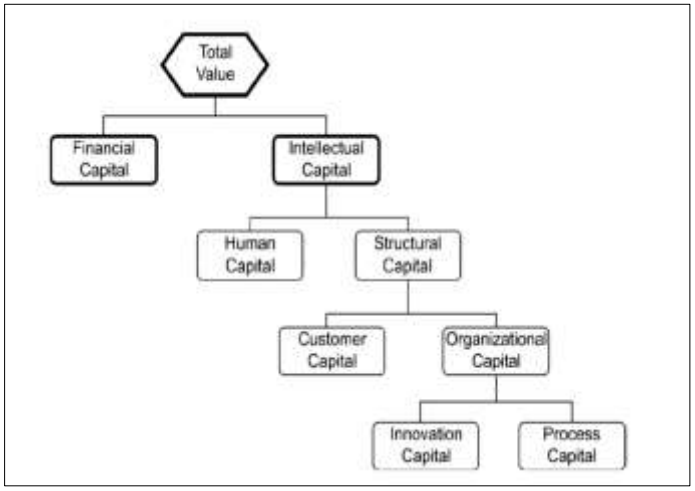
The proliferation of studies, research, conferences and scientific texts on CI, and the large number of consulting firms that offer products and services related to the CI, testify to the growing awareness of this conceptual category in studies of business administration (Guthrie and Petty, 2000). While there is general agreement on what constitutes CI, universally accepted definition of IC is still absent (Leon, 2002; Zambon, 2003). From an evolutionary first studies on the topic of structured CI can be traced back to Hirouky Itami, which provides a definition of IC that could be proposed as an embryo, which places emphasis on all intangible assets (defined as information-based resources or otherwise incorporating it) that include specific technologies, customer information, brand, reputation and corporate culture, valuable to the firm's competitiveness (Itami, 1987). Following in chronological order Thomas Stewart with his famous article on Fortune defines IC as "the sum of all that inside of every person 'company knows can give you a competitive edge" (Stewart TA, 1991), and Richard Hall, which is the

theme of intangible assets in strategic management (Hall, 1989; Hall, 1992). Always Stewart also defines IC as the collective brainpower, which is "packaged useful knowledge" assimilating the CI to "all that intellectual material - knowledge, information, intellectual property, experience - that can be harnessed to create wealth (Stewart, 1999).

Some authors emphasize the intangible component assimilating the CI to a combination of intangible assets capable of running the firm (Brooking, 1996). Another theory emphasizes instead the importance of knowledge in defining the IC as knowledge that can be converted into value (Edvinsson and Sullivan, 1996), or as an information and knowledge applied to work to create value (Edvinsson and Malone, 1997), or again as broad organizational knowledge unique to the firm that allows it to adapt to changing conditions (Mouritsen, 1998). Other interpretations shape the CI as the set of intangibles such as patents, proprietary rights, copyrights (Brennan, 2001), or again as an intangible asset that creates value for business and for the same company (Mavridis, 2005a, 2005b), or as a set of knowledge, information, experience, intellectual property can be utilized to create wealth (Martinez and Garcia-Meca, 2005).

Another systematization of the concept the same CI leads to a stock of intangible internal resources (skills, abilities) and external (image, brands, customer satisfaction and customer loyalty) to the organization, enabling it to transform a set of material, financial and human resources in a system capable of creating stakeholder value through the pursuit of sustainable competitive advantages. " The multiplicity of definitions, the analysis and comparison of which was the subject of specific studies (Hunter, Webster, Waytt, 2005; Kaufmann, Schneider, 2004; Tan, Plowman, Hancock, 2007), shows that it is a concept becoming. The studies on CI have therefore developed and produced conceptual schemes useful from the point of view of methodological research. These schemes, with slight differences, have a high convergence: the different authors agree with the view that the CI lies at different levels in the company, and that one can refer to it as a dynamic system of intangible resources available to the ' company, whose effective management can ensure the same, together with the management of physical capital, a sustainable competitive advantage behind the creation of business value (Fabbrini, Ricciardi, 2007b). It is this definition that is referenced in this study. From the second half of the nineties there was then a remarkable expansion of studies involving classification of intellectual capital (Zambon, 2003). These studies take the moves from what may be termed the first empirical attempt to apply the concept of intellectual capital management firm, by the Swedish company Skandia Insurance and financial services. It can be argued that the classification now more widespread and generally accepted definition of CI is that developed by Edvinsson and Malone, applied to the Swedish company Skandia, represented in figure 1.

Figure 1. Scheme of the dimensions and the value of intellectual capital



Source: Adapted from Edvinsson & Malone, 1997.

In the graphical representation of the proposal, the market value of a company (Total Value) is considered a function of both its capital finance / accounting (Financial Capital) is its intellectual capital (Intellectual Capital), through its components. In particular, the intellectual capital is divided into human capital and structural capital. Leif Edvinsson & Michael Malone (1997), Johan Roos et al. (1998), contributed to the spread of this model. Just Edvinsson, assuming that the value comes from two types of capital, financial and intellectual, the second focuses on carrying out an initial separation of human capital (also called capital "thinking") and structural capital (such capital "unthinking ") are attributable to

human capital skills, relationships and values of human resources business, while the structural capital includes the capital represented by the customers, one related to innovation and the afferent processes (Edvinsson, 1997). The reports of such patronage configure relational capital. The innovation-related components and processes, together with the corporate culture, representing the size of the organizational structural capital, which includes intangible assets and intellectual properties, as well as know-how within the firm encoded in different forms.

Based on the model Skandia, Saint-Honge (1996) and Sveiby (1997) identify three areas where intellectual capital is localized: the individual, the internal structure and external structure. In a subsequent contribution (Roos et al., 1998), while maintaining the distinction between human capital and structural capital, they better define the two areas, assimilating human capital skills, attitudes and intellectual agility, and capital structural relations, organization and class renewal and development. Even the model of Stewart in 1997 represents an evolution of the Skandia model. He, in fact, places the capital customers at the same level of human capital and structural, as it believes that "customers are not owned by the company." Table 1 shows the main categorizations of the concept of CI. The different conceptualizations, the result of enrichment of the Skandia model, extend in an obvious component related to human resources, while giving great importance to relations, pointing out, moreover, as the intellectual capital is the result of a process of value creation powered interaction of the human and structural, and aimed at the transformation of knowledge of individuals in the capital to use the entire organization.

Though in several studies emphasizing the human component, comparing the CI with human capital, or the knowledge and skills possessed by the people, the CI studies converge on the assumption that the background IC while being generated by people and their knowledge and skills then becomes the value of organizational structures inside (know-how, processes) and external relational (image, customer relations). In this way we arrive at the famous tripartite division of CI: human capital (HC), organizational capital and relational capital (which includes not only customers but all types of stakeholders), which represents an empirical point of view the more schematic common of the concept of CI (Bontis, 1998; Edvinsson and Malone, 1997; Stewart, 1997). It is a cognitive map, that is, a representation of the concept in a usable form for the empirical research, which initiated, however, to the series of studies on the measurement of the value of the IC through the measurement of the value of its components.

The human capital is people that make up the organization and contribute to its success through their skills, their ability to make proposals and their motivation. At the core of every organization there are people, or rather, the system of knowledge, skills, abilities, creativity and innovation based on knowledge of the individuals who work in business but also the quality, organization and work of people who contribute to company established the institution. Stewart describes human capital as the knowledge that people hold at the end of the workday (Knowledge in people heads), while Hudson (1993) defines human capital as a combination of genetic inheritance, education, experience and attitude towards life and enterprise. And again according to Bontis et al. (1999) human capital is the collection of intangible resources that are inherent in the organization's members, and these resources can be of three types: competencies (including skills and knowledge), attitude (motivation, leadership skills for better management), intellectual agility (ie the readiness and intellectual dynamism, innovation and entrepreneurship, adaptability)

Following the approach of the RBV one understands that human resources are among the main determinants of competitive advantage a company; this notion seems to find support in theories that see human capital as drivers for the transfer of knowledge. In the new economy, in fact, where the work is no longer dominated by energy functions (that use muscular strength of man), but cognitive function (liable to propagate new knowledge), human resources play an increasingly important and central (Rullani, 2004). It 's widely recognized fact that individuals are the most important "collectors" of knowledge and especially tacit knowledge (Nonaka I., Takeuchi H., 1995), which is strictly personal knowledge, unknowing, subjective, intuitive, difficult be formalized, to describe, to transfer and share with others (such as perceptions and intuitions). The structural capital (Structural Capital) is the ability to retain and reuse knowledge in the production process: is the infrastructure that enables the human capital to deliver its potential (Fabbrini, Ricciardi, 2007a). Structural capital is the set of operational knowledge and routine business, from internal processes, the degree of cohesion of the management. As defined by Edvinsson, "structural capital is all that remains of the company after the closing time" (Edvinsson, 1997). Structural capital is divided in turn into relational capital and organizational capital.

Table 1. Major classifications of intellectual capital

BROOKING (1996) UK	ROOS, ROOS & EDVINSSON (1997) UK	EDVINSSON & MALONE (1997) DENMARK	SVEIBY (1997) SWEDEN	STEWART (1997) USA	BONTIS ET AL., (2000) CANADA	LEV (2001) USA	NEW GUIDELINE (2003) DENMARK
Human Asset Skills, abilities, expertise, problem solving abilities and leadership styles, Knowledge of Workforce	*Human Capital* Competence, attitude and intellectual agility	*Human Capital* Competence matrix. Number of professionals, total staff, temps	*Human Capital* Employee know-how, education & quality, work-related knowledge & competency, entrepreneurial spirit	*Human Capital* Employees are an organisation's most important asset	*Human Capital* The individual-level knowledge that each employee possesses	*IIntangible related to the innovation* Originated by discoveries	*Employees* Employees' skills, competencies, experience, education, motivation, commitment.
Infrastructure assets All the technologies, processes, routines, organisational structures, internal information networks, m'ment methodologies	*Organisational capital* All organisational, innovation, processes, intellectual property and cultural assets	*Process capital* Average throughput time of invoicing. Average throughput of monthly reporting	*Internal capital* Management philosophy, Corporate Culture, management processes, Information and networking systems, financial relations	*Structural capital* Knowledge embedded in information technology.	*Structural capital* Non-human assets or organisational capabilities used to meet market requirements	*Intangible organizational* Related to organizational original structures	*Processes* Knowledge embedded in stable procedures., innovation processes quality procedures, management and control processes, mechanisms for handling info.
Market assets Brands, customers, customer loyalty and distribution channels, relations and networks with stakeholders, and also wider social citizenship and environmental health investments.	*Relational capital* Relationships which include internal and external stakeholders	*Customer capital* Service-based sales spread. Percentage of key clients	*External capital* customer loyalty, company names, distribution channels, business collaborations, licenses, favourable contracts franchising agreements	*Customer capital* Market information used to capture and retain customer	*Relational capital* Customer capital is only one feature of the knowledge embedded in organisational relationships	*Intangible of human capital* Originated by operations in the field of the human resources	*Customers* Relations to customers and users, satisfaction and loyalty of clients, their referral of the company; involvement of the clientele in the development of product and of process
Intellectual property Patents, trade marks, copyright, reg. designs, legal protection of confidential information etc.	*Renewal and development capital* New patents and training efforts	*Innovation capital* Current innovation areas; staff deployable in these areas		*Brevets, mark and licenses*	*Intellectual property* Intellectual laws has a juridical recognition		*Technologies* Technological support of the other three knowledge resources. IT systems esp. intensity usage

Source: adapted from Hunter - Webster - Wyatt (2005).

The relational capital (customer capital) represents the set of intangible assets acquired in the relationships that the company has with its reference environment, ie with the outside (customers, distributors, suppliers, lenders) and is expressed, for example, or by estimating the reputation enjoyed by the customers, good labor relations, the credit, trust and consent of the undertaking. This is the heritage of trust (customer satisfaction, customer loyalty, brand awareness, corporate image, etc.). "Stored" in memory of people outside the company, which allows the sharing and transfer of knowledge and information relating to their activities and needs and that allows the company to play in a more rational, in terms of effectiveness and efficiency, its economic function (N. Bontis, 2001). Organizational capital (Organizational Capital) includes components related to innovation, business processes and culture and is divided into innovation capital and process capital. The former comprises trademarks, patents, software and so on, while the second relates to the manual process, database, best practices, management, and computer networks.

2. Studies on the Relationship between Human Capital Management Practices and Business Performance

The academic literature that has developed since the eighties has focused on measuring the performance of human capital management practices of proving, on the basis of established empirical observations, the existence of a positive correlation between the Management of Human Capital and business performance. In particular, the focus of research has focused on the question of whether companies that adopt a system of practices intended to enhance and encourage the staff (such as training, internal development, attractive compensation system and variable forms of direct participation in the management of 'company) achieve even better results at the operational level (eg, in terms of productivity or quality of products / services) and financial (eg cost reduction or profit increase). A study conducted in 2005 by Blackwell Publishing has identified no less than 66 empirical studies conducted on the correlation between a complex of human capital management practices and company performance (see Table 2). This is a representative sample of academic research of the theme that in all cases showed the existence of a positive correlation between at least one aspect of the management of human capital and performance. The following table analyzes the methodologies adopted, namely: the time perspective and the determination of whether a causal inverse relationship between human capital and performance. The time perspective indicates the temporal sequence of choice for measuring human capital and performance. In particular, four alternatives are identified: the post-forecast approach, retrospective, and contemporary statements. Approach post-forecast corporate performance measurement temporally precedes the detection of business practices and, therefore, the comparison is made between the present system of management of Human Capital and the data on past performance. This approach, however, cannot be used to demonstrate empirically that a certain personnel management is the basis of a given performance, but may show only the inverse relationship, such as, for example, is highlighted in the study of Harter et al. (2002), which examines the relationship between commitment and motivation of employees and results of its business units in terms of customer satisfaction, profit and productivity and staff turnover. The results showed the existence of a strong correlation between the magnitudes of these two categories and led the authors of this study to conclude that human capital management practices that foster employee satisfaction lead to improved economic performance.

The approach to post-forecast while presenting limits is widespread and is found in 70% of the studies considered in Table 3, thanks to the easy retrieval of data on personnel policy that are relevant to the present condition and the past management. Retrospective approach, the verification of the existence of a causal relationship between human capital management practices and company performance is done by requiring companies to sample information on managing past, or previous to the period in which performance is measured. Significantly, the study by Ichniowski et al. (1997) who analyzed the monthly financial results of 30 companies in the steel processing sector over five years comparing them to the personnel management system prior to this time. This approach is conceptually sound but because of the need to find information on personnel management in a relatively distant past also causes a high probability of error in responses, making this method difficult to achieve and unreliable. Similar problems presents the contemporary approach.

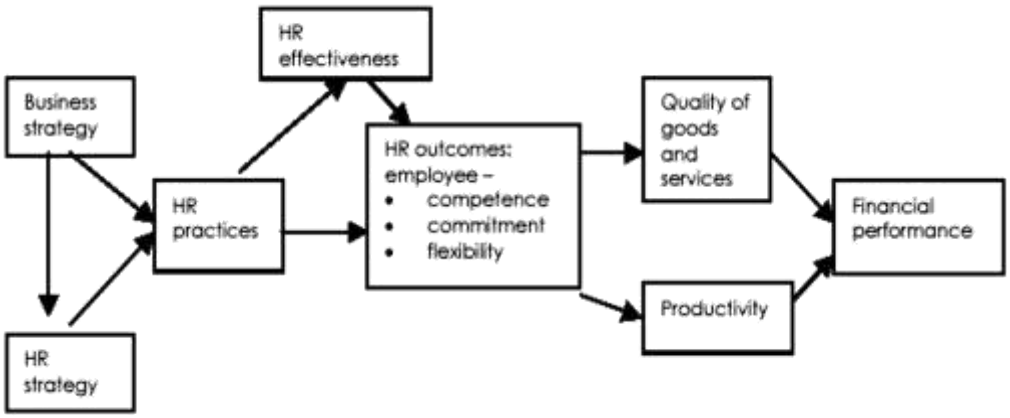
Table 2. Studies Examining the HR-Performance Relationship

Author	*Year*	*Temporal Perspective*	*Reverse causality tested*
Arthur	1994	Post-predictive	No
Cooke		Post-predictive	No
MacDaffie	1995	Post-predictive	No
Caligiuri e Stroh		Post-predictive	No
Maretlli e Carroli		Predictive	No
Huselid		Predictive	No
Snell e Youndt		Contemporaneous	No
Delery e Doty	1996	Post-predictive	No
Delaney e Huselid		Post-predictive	No
Lincoln e Kalleberg		Predictive	No
Welbourne e Andrews		Predictive	No
Youndt et al.		Predictive	No
Huselid et al.	1997	Predictive	No
Ichniowski et al.		Retrospective	No
Huselid e Becker		Retrospective	yes
Bennett et al.	1998	Post-predictive	No
Stroh and Caligiuri		Post-predictive	No
Shaw et al.		Post-predictive	No
Liouville and Bayad		Post-predictive	No
Lahteenm¨aki et al.		Post-predictive	No
Lam and White		Post-predictive	No
Ngo et al.		Post-predictive	No
Gomez-Mejia		predictive	No
Harel and Tzafrir	1999	Post-predictive	No
Hoque		Post-predictive	No
Jayaram		Post-predictive	No
Jangwoo Lee and Miller		Post-predictive	No
Wright		Post-predictive	No
Varma		Post-predictive	No
Vandenberg e Richardson		Post-predictive and predictive	No
Ichniowski e Shaw		Retrospective	No
Khatri		Post-predictive	No
Huang	2000	Post-predictive	No
Fey et al.		Post-predictive	No
Chandler et al		Post-predictive	No
Chandler and McEvoy		Post-predictive	No
Ramsay		Post-predictive	No
Bae and Lawler		Post-predictive	No
Addison and Belfield		Post-predictive	No
Appleyard and Brown	2001	Post-predictive	No
Rogg et al		Post-predictive	No
Richard and Johnson		Post-predictive	No
Harris and Ogbonna		Post-predictive	No
Fey and Bjorkman		Post-predictive	No
Cappelli and Neurmark		Post-predictive	No
Black and Lynch		Post-predictive and Retrospective	No
Guthrie		Retrospective	No
Way		Post-predictive	No
Batt	2002	Post-predictive	No
Bj¨orkman and Xiucheng		Post-predictive	No
Batt et al.		Post-predictive	No
Harter et al.		Post-predictive	No
West et al.		Post-predictive	No
Guthrie et al.		Retrospective	No
Agarwala		Contemporaneous	No
Ahmad and Schroeder		Post-predictive	No
Bae	2003	Post-predictive	No
Collins and Clark		predictive	No
Fulmer et al.		Post-predictive, contemporaneous and predictive	yes
Gelade and Ivery		contemporaneous	No
Guest et al.		Predictive	yes
Harel et al.		Post-predictive	No
Li		Post-predictive	No
Park et al.		Post-predictive	No
Paul and Anantharaman		Post-predictive	No
Rodrıguez and Ventura		Post-predictive	No

Source: Wright et al., 2005, pag. 413-414.

In light of the foregoing, the only methodologically correct what appears in this forecast, which investigates the management of Human Capital and compares it to the next economic and financial performance. It is significant that effect Huselid's study conducted in 1995 that analyzed the correlation between so-called High Performance Work Practices and financial performance and stock price in a sample of over 3000 companies. Related to the time perspective is also another methodological aspect that should be considered when analyzing the academic literature on human capital and organizational performance and that is the verification of the inverse correlation that is the extent to which both the level of business performance to affect the value of Human Capital. The sample of studies presented in the table above, however, gives disappointing results. In fact, they are excluded from studies that adopt a time horizon post-forecast because they are based on recent data of personnel management and, therefore, can only demonstrate the influence of past performance on human capital and not the opposite. Considering the other categories of studies show that only 16% of cases the authors have investigated the possibility that the human capital and performance affect each other. The best example is research of Fulmer et al. (2003) survey of 100 U.S. companies winning the title of "Best Companies to Work for" in 1998, comparing the performance (measured in terms of productivity and profitability or return to shareholders) with a sample of companies competing in a span of six years three preceding and three subsequent assignment of the title. The authors' hypothesis is that the victory of this title better working atmosphere and with it the motivation and productivity of employees and ultimately the profit of the company. The results obtained confirm this hypothesis, but not limited to, in fact, testing has shown that the reverse causality that group of companies had achieved a greater economic return even earlier, during the period 1995-1997 thus providing evidence that not only the Capital Human influences the performance, but also that a positive economic and financial performance is a prelude to the proper management of Human Capital. With regard to the relationship between human capital management and corporate performance an interesting contribution comes from Guest (1997), who argues that if the return on investments made by the selection practices, training and a competitive production system is greater than their costs, business benefits are tangible and are reflected at the level of financial results (Figure 2).

Figure 2. Relationship between Human Capital Management and Corporate Performance



Source: Guest, 1997, pag. 503.

By this graph it is possible to derive the fundamental steps in the chain of value creation of human capital (see Table 3), which allows to analyze how human capital management practices influence business performance: By this graph it is possible to derive the fundamental steps in the chain of value creation of human capital (see Table 3), which allows to analyze how human capital management practices influence business performance:

Table 3. Linking HRM and Performance

HRM Practices	*HRM Outcomes*	*Behaviour Outcomes*	*Performance Outcomes*	*Financial Outcomes*
Recruiting e selection Training Job security Appraisal Reward Performance related Pay Job designer	Quality and competence Commitment Capacity	Motivation Cooperation Involvment	<u>High:</u> Productivity Quality <u>Low :</u> Absenteeism Labour Turnover	Rate of growth Market value Total Retur to Shareholders Profit

Source: Gasperini A., Raso N. (2008), pag 41.

Several studies demonstrate the importance of human capital on the financial performance and its active contribution to value creation for shareholders (shareholder value). Table 4 briefly discusses some of the major empirical studies sula correlation between the adoption of a system of management practices of Human Capital and business performance.

Table 4. Studies on the correlation between systems of human resource management practices and firm performance

Author	*Year of Survey*	*Sample size*	*Results*
Ichniowski (1990)		65 business units in manufacturing firm	Clusters of practices associated with better financial performance (Tobin's q) and profitability.
Cooke (1994)	1989	Manufacturing firms in Michigan	Value added increases. Wages also increase.
Huselid (1995)	1991	c.a 3000 U.S. Publicly quoted firms	The adoption of high performance practices have a positive impacton productivity and Tobin's q.
MacDuffie (1995)	1989-1990	62 US firms	We found a positive effect of HRM practices on firm performance and such practices produce results only when applied together.
Huselid e Becker (1996)	1991, 1994	Panel data were used. The panel consists of a result of the investigation of 1991 repeated in 1994 the study of Huselid 1995	Panel data were used to study the relationship between work practices and organizational performance. The results are less significant than the study of 1995
Ichniowski et al. (1997)		36 finishing lines in steel US firms	The main result is that human resource management practices havepositive effects on productivity of workers only if applied together and that the cluster consists of 7 practices have greater effects on performance.
Easton and Jarrell (1998)	1981-1991	108 Publicly quoted firms	Positive effect of TQM on financial performance.
Black and Lynch (2001)	1987-1993	Using data from Educational Quality of the Workforce National employer Survey (EQW-NES).	The analysis has been included the use of ICT and it was found that it is complementary, increasing labor productivity, the adoption of flexible work organization and investment in human capital.

Cappelli and Neumark (2001)	1977-1993	Using data from Educational Quality of the Workforce National - employer Survey (EQW-NES).	The practices of HRP have a positive effect on firm performance, although not statistically significant.
Caroli and Van Reenen (2001)		UK and French establishment level data	Organizational changes appear to (i) increase demand for more skilled workers; (ii) have larger positive effect on productivity when combined with more skilled workers.
Osterman 2006	1997	Using data from the National Establishment Survey	Increased wages from adoption of high performance workplace organization, appears due to increase productivity
Bartel, Ichinowski and Shaw (2007)		212 steel US firms	The adoption of information technology (IT) improves the efficiency of all stages of production, increases the requirements for retraining of workers and allows the adoption of new practices in HR management
Bloom, Sadun and Van Reenen (2010)	2006	1,633 firms in 7 European countries..	Complementarity between IT and people management.

Source: Bloom e Van Reene, 2010, pages 68-76.

For the purposes of this paper discusses two major studies on this theme: that of Mark Huselid, a leading international authors in the field of human resource management, conducted in the United States in 1995, and the one conducted by consulting firm Watson Wyatt in 1999. The study conducted by M. Huselid in is based on information obtained through a survey analysis of the management staff from the U.S. listed companies. The author identifies a set of 13 indices (high performance work practices) on the basis of previous academic research results and signs of the Department of Labor (1993), involved in the following areas: Recruiting and selection, training, pay commensurate with performance, internal system of career, job structure, procedure for internal complaints, internal communication, surveys of staff and organization of work. These criteria are divided into two categories (Huselid, 1995):

1. Capacity of personnel and organizational structure (employee skills and organizational structures), which includes practices aimed at developing knowledge and skill of employees and processes through which these skills can be put into practice. It includes measures for the selection and training of personnel, aiming at the participation of employees in the production process, such as quality circles and team work organization, but also processes for internal sharing of knowledge, internal complaints and a variable remuneration.
2. motivation (Employee motivation), which contribute to a salary commensurate with performance and an internal system of merit-based career. For each company the author takes into account two indices of the quality of Human Capital Management, a level of personal and organizational skills and a level of motivation. The management of human capital is then correlated with the measured performance both financially and in terms of market value.

As an indicator of the first was chosen gross rate of return on capital (gross rate of return on capital - GRATE), calculated as cash flow / gross capital stok (equity). As a measure of shareholder value has been chosen Tobin's Q, a widely accepted indicator for estimating the value of a company, calculated by dividing the market value of the replacement cost of its assets (Huselid, 1995). An analysis of the correlation between human capital and financial performance and market interesting results emerge: the two indices of the quality of 'Human Capital Management confirmed positively correlated and statistically significant at both Tobin's Q is the gross rate of return on capital (with one exception, however, not supported by a statistically significant correlation between the gross rate of return on capital and motivation). In conclusion, the author has demonstrated the existence of a substantial and positive return of an investment strategy in some so-called high-practice performance against both financial and market performance of companies. Similar conclusions were obtained from the study conducted by Watson Wyatt in North America and Europe, demonstrating the existence of a correlation between Human Capital Index (HCI) and shareholder value (Wyatt, 2002). The HCI is an index between 0 and 100 assigned to each company included in the survey sample, based on responses from a questionnaire regarding the organization of human resource management practices, including remuneration, development, communication and staffing. The author has identified 30 key practices for

the management of Human Capital, and demonstrated that their introduction leads to an increase of 30% of shareholder value (Aldisert, 2002). In particular, there has been a shareholder value higher in those organizations (Wyatt, 2002):

- adopt excellent selection practices, understood as the ability to put the right person at the right place at the right time, as they represent an early opportunity to increase value for shareholders. Companies that fail to fill vacancies more quickly limit the risks associated with lost productivity associated with an increased level of turnover;
- pursue a balanced approach between the external recruitment of employees, development programs and promoting internal lines;
- in addition to recruit individuals with higher skills and promote structured development plans of their powers, they adopt a mode of remuneration which aligns employee behavior with organizational goals, motivates them to higher performance and to establish relationships trust;
- are able to manage the rate of turnover in an optimal way;
- communicate accurately to their employees compensation and benefits plans.

3. Empirical evidence on the relationship between behavior of Human Resources and Corporate Performance

In this section we analyzed the influence of the variables are behavioral (*behavior outcomes*), such as motivation, cooperation and involvement, have on the financial and operational performance of the company. To this end, there is illustrated an empirical investigation conducted by Wright et al. (2005). This is a study that relates to the food company operating in the United States and Canada, and is based on information gathered on a sample of 6,986 people distributed in 62 independent business units, each consisting exclusively of personnel functions thus excluding executives and operational managers to exercise oversight. Regarding the choice of the sample, unlike most studies in this analysis the statistical universe is represented by the staff of one company and the comparison is made among its operating units. This solution offers an important advantage for the analysis of corporate performance, namely: ensures the uniformity of the sample units in terms of size (turnover and employees in this case respectively fluctuated between USD 350 million and USD 700 million and in respect staff of 250 to 600 employees) and the homogeneity of products and production technology.

These conditions are difficult to detect in a sample consisting of several companies, as the diversity of its components is a problem because it limits the possibility of a confrontation and can undermine the validity of the results. In contrast, membership of the same company does not preclude, according to the authors, a plurality of personnel management practices, considered the independent variable in this model. In fact, except for some elements except base, the majority of practices, including techniques and processes of personnel selection, the pay system, the incentives to productivity and the training and development activities are decided and managed independently at the individual business units. A significant benefit that results from this survey methodology is to balance the centralization of financial management system for which the company offers a guarantee of uniformity with the variety of solutions for strategic management as the management of Human Capital, eliminating distortions resulting for example, from the diversity of assessment or accounting treatment.

The study is structured around three sizes (Wright et al., 2005):

1. *HR practices*;
2. *affective commitment score*;
3. *performance.*

HR practices. As regards the part relating to management practices Human Capital has been asked participants to comment on whether or not the nine measures related to the selection, training, remuneration and participation, through a questionnaire on precisely these practices. The authors in this study have chosen to acquire the information directly from the staff and not by the human resources, as happens in most other studies. As part of the academic literature suggests, from employee responses paint a more reliable because it is based on facts and not statements of principle, and more precise as induced by direct experience. Based on responses to the questionnaire reported was calculated level of production unit an indicator called HR Index, ie we calculated the percentage of positive response to the nine questions of each interviewee in question and then the average of these values for each production unit.

Affective commitment score. The behavioral factor or the extent of personal involvement was determined by the authors using the answers to the following three questions (Wright et al., 2005):

- the company is linked by a strong sense of belonging?
- is willing to work hard to contribute to the success of the company?
- it is proud to work for your company?

Even from these results was developed an index called *Affective commitment score.*

Performance. The company's performance was evaluated at the consolidated level based on whether indicators in four operational and two of a financial nature:

- Productivity, measured as the cost of wages and salaries / number of units produced;

- Product quality, as measured by number of units produced / unit with product defects;
- Loss or damage to stocks as a percentage of sales; - Remuneration of staff, wages and salaries costs calculated as sales;
- Profitability, expressed as EBITDA as a percentage of sales;
- Operating expenses, expressed as a percentage of sales

The results of this study demonstrate three forms of correlation: between practices of human capital management and conduct of the staff and between these two factors be considered individually and the performance is operational and finance. From the statistical analysis showed a strong positive correlation between these two quantities both at the level of correlation coefficient is of significance

In particular, the authors have adopted with regard to performance, an approach estimated by comparing the personnel policy with the results of the subsequent financial management. The performance was examined in the near future, ie at a distance of 3-9 months from the survey, and in the medium term, ie in the next 9-15 months. An analysis of the correlation between human capital management practices and performance data, it is clear that the better management of staff will be more positive results in terms of product quality, profitability and operating costs low and losses.

The correlation between human capital management practices and financial performance is summarized in the following table.

Table 5. Correlation between HR Practice Index and financial performance

Measures	***Performance after 3-6 monthes***	***Performance after 9-15 monthes***
Profitability	Positive**	Positive**
Operating Expenses	Positive*	Positive
Shrinkage	Positive*	Positive*
Productivity	Negative	Negative
Quality	Positive**	Positive**
Workers compensation	Positive**	Positive*

* significance > 95% (ρ< 0.05)
** significance >99% (ρ< 0.01)

Source: Gasperini A., Raso N. (2008), pag. 50.

Specifically, the Human Capital has a particularly strong influence on the profitability and quality as proven by the correlation coefficient (0.33 and 0.48 respectively in the short term) and on its stability in the two time horizons considered. An exception is the productivity that has a slightly negative correlation: this is justified by the cost of investment in human capital, the impact becomes weaker over time. The results for the correlation between behavioral factors (*Affective commitment score*) and financial performance are shown in Table 6. Also in this case there exists a positive correlation for all the variables considered with the sole exception of the productivity.

Table 6. Correlation between Affective commitment score and financial performance

Measures	***Performance after 3-6 monthes***	***Performance after 9-15 monthes***
Profitability	Positive*	Positive**
Operating Expenses	Positive*	Positive
Shrinkage	Positive*	Positive~
Productivity	Negative~	Negative
Quality	Positive**	Positive**
Workers compensation	Positive**	Positive**

~ significance > 90% (ρ< 0.10)
* significance > 95% (ρ< 0.05)
** significance >99% (ρ< 0.01)

Source: Gasperini A., Raso N. (2008), pag. 51.

In particular, a strong staff involvement in the activity of the company manifests itself in a strong operating performance, especially if measured in terms of remuneration of staff (coefficient of correlation between Affective commitment score and costs for wages and salaries / sales pariahs to 0.50 in short-term), product quality (correlation coefficient equal to 0.38) and profitability (coefficient of correlation of 0.29). The negative correlation with productivity in this case is more sensitive than that seen in human capital management practices, the correlation coefficient of 0.23 compared to 0.77, but at the same time decreases to a greater extent. In conclusion, the results obtained from this study to empirically show the existence of a positive correlation between the management practices of Human Capital and consequent behavioral attitudes of staff and financial performance.

4. Studies on the correlation between remuneration and business performance

The study of Human Capital highlights several theoretical implications of the effect of remuneration on motivation and productivity, and thus on corporate performance, which are then reflected in the empirical analysis. Indeed, the question of remuneration varies according to the operating result and its effects in terms of productivity are some of the most debated issues in studies on the management of Human Capital. Specifically, the theme of reflections on the productivity of forms of variable pay has been the subject of empirical research and analysis since the eighties. In Table 7 we report the main studies conducted in the U.S. market, English and German. Even taking into account the diversity of the samples analyzed, the peculiarities of the national pay system and differences in study design these surveys provide a unique framework and demonstrate with a few exceptions to the positive effects on productivity of a system of incentives. Theoretically, the variable remuneration depending on the operating result and its effects in terms of productivity, is an issue related to the so-called agency problem, one of the conceptual issues of Human Capital and Corporate Governance. It expresses the conflict of interest between two groups of subjects: management and shareholders on the one hand, the employer and other employees. The danger is that management and employees in performing their functions can leverage their position to achieve personal interests, rather than pursuing the goals and success. This problem is more accentuated in the presence of a fixed return as the risk that employees decide in their own interest is higher.

Table 7. Studies on the Relationship between Pay and Firm Performance

Author	***Year of Survey***	***Sample size***	***Results***
Cable / Wilson (1990)	1977-1979	61 German companies in the metallurgical sector	Differences in productivity of 20% -30% among companies with and without participation of employees in the capital of the company.
Cable / Wilson (1990)	1978-1982	52 German companies in the metallurgical sector	Differences in productivity of 3% -8% among companies with and without participation in profit
Wadhwani Wall (1990)	1972-1982	101 UK manufacturing firms	Increased productivity of the investment earnings amounted to 2.7% but not statistically significant.
FitzRoy / Kraft (1985) FitzRoy / Kraft (1987b) FitzRoy / Kraft (1992)	1977-1979	60 german firms	Positive correlation and statistically significant between participation to the profit and shareholders value, productivity and profitability
Kruse (1992)	1971-1985	2976 U.S. firms	Differences in productivity between firms with and without a share in the 2.8% -3.5% in manufacturing and 2.5% -4.2% in non-manufacturing sector.
Kruse (1993)	1975-1990	500 US manufacturing firms	The introduction of forms of participation in profit in the short term leads to an increase in productivity. The correlation is reduced in subsequent years.

Gerlach / Hubler (1994)	-	Project IPSE	Positive correlation and statistically significant between participation to the profit and productivity from England Germany and France
Hubler (1995)	1990-1993	351 german firms	Positive correlation but not statistically significant between participation to the profit and productivity
Jones / Kato (1995)	1973-1980	109 manufacturing firms in Japan	Increase productivity by 4% -5% of ESOPs and bonuses at a distance of 3-4 years after their introduction
Paarsch and Shearer. (2000)	1994-1995	British Columbia firm	It was measured the gain in productivity, comparing the data of workers who were pay at piece rates, with those who had a base salary, an increase in productivity in an amount equal to 22.6%,attributable to the 9 % workers are benefit a payment linked to performance.
Lazear (2000)	1994-1995	The analysis is based on data from Safelite Glass Corporation	The company gradually changed the compensation method for its workforce, moving them from hourly wages to piece-rate pay. The effects, which are docu- mented by examining the behavior of about 3,000 different workers over a 19-month period. In Safelite, productivity effects amount to a 44-% increase in output per worker.
Hamilton, Nickerson and Owan (2003)	1995-1997	U.S. manufacturing firm	On average productivity rose 18%. Increased use of collaborative skills.
Piekkola (2005)	1996-2002	Introduction of PRP scheme using linked employer-employee data from Finland	Performance related pay (PRP) improves both productivity and profitability by the same magnitude of around 6 per cent, but only if the compensations are substantial enough and exceeding on average 3.6 per cent of salaries for those who receive it.
Gielen et al. (2010)	1995-2001	2786 german firms	We find that performance related pay (PRP) increases productivity at the firm level with 9% and employment growth with 5%.

Source: Gielen et al., 2010, pag. 293-294.

In these cases the doctrine has found that it could provide for the participation of employees to the economic activity: the remuneration of the staff would be well related to the operating result with the effect of increasing shared interests and objectives between employees and company. To this end, empirical studies show that if the net effect of these measures would be a savings in personnel costs and if they reveal their effectiveness not only at the individual level but spread throughout the staff, the improvement of individual performance lead to positive effects on profit.

As regards the forms of variable compensation is possible to distinguish two types:

- participation in the profits;
- participation in the capital of the company.

In the first case, the employee performance is rewarded with prizes rewards in addition to the basic salary, commensurate with the financial indicators such as profit, productivity growth and the trend in sales. In the second form of participation employees assume the role of shareholders with all the rights and obligations related. However, in considering the effects of a variable remuneration must take account of certain features. First, that such remuneration will result in a benefit for the company must be commensurate with the achievement of goals not individual but collective. In fact, it has been observed in a number of empirical studies that in the presence of collective targets teamwork prevents individuals to limit permanently their performance. In addition, a sort of mutual control among colleagues on the proper conduct of their work. In addition, a variable compensation commensurate with the achievement of collective goals are better suited to a working structure, such as modern, organized into groups based on performance and interdependent in which the individual output is difficult to be isolated and measured. The success of forms of variable pay is also affected since onset of a relationship of collaboration and cooperation between the company and its staff (Gasperini and Raso, 2008).Fact that these forms of incentive to be effective it is necessary that the personnel with their work can have an appreciable effect on the result of the company. In particular, empirical studies have shown that a remuneration commensurate with company profits noticeable effect particularly positive in terms of productivity growth if accompanied by a growing sense of individual responsibility towards their

employer, for example, through participation of staff decisions relating to their work (Hubler, 1995).

In this way the material incentive of participation in monetary profit company is a component of intangible convergence of interests between the company and employees. By improving performance and by the increased sense of personal responsibility comes an ensemble of indirect benefits for both the company and staff. The most immediate impact for the company are summarized as follows:

- increased motivation and commitment;
- an improved indoor climate;
- reduced staff turnover and therefore lower costs for recruiting and training new staff;
- alignment of remuneration to company results.

From the point of view of staff the main advantage is represented by the fact that, as the variable compensation is a measure of productivity and therefore an incentive for investment in Human Capital determines an increase of the cost for the company of the loss of personnel and therefore reduces the probability of dismissal. The participation of staff to corporate results does not, however, only benefits, but can also lead to internal tensions. First, in view of the company has a cost of information for staff, costs for the organization and implementation of such a pay system. Secondly, the increasing demands of staff who feels called and want greater involvement in management. Consequently, decision-making to a widening circle of people will be more extensive and complex artificial slow, and even the management of which is requested more transparency will suffer as will threaten the autonomy. The greatest risk to personnel is instead made by the fluctuation of the level of wages and salaries. This risk is most felt by low-skilled workers. In fact, many surveys show that the empirical forms of variable pay are more common in companies in which the standard of competence and professionalism is higher.

5. Studies on the correlation between company training and business performance

Along with the issue of remuneration of staff, including management practices and human capital that are widely considered by the company, as well as analytical and empirical research in academia, there is training. Surely the education plays a central role in the changes related to economic developments of the last two decades, particularly with reference to two phenomena: the development of new technologies and increasing competitive pressure resulting from the globalization of markets. These changes are impacting significantly on the production system and thus forcing companies to innovate both in the organization of production, both in their marketing strategy. In response to this need the main resource is the knowledge we need to invest. In light of these considerations it is evident that there are reasonable grounds for the interest of research for the training of human resources, or rather of Human Capital. Here are schematically some of the best-known studies on the impact of investment in company training on business performance (Table 8 and Table 9).

Table 8. The studies of the relationship between training and firm performance

N.	*Author*	*Sample size*	*Response rate %*	**Firm performance**
1	**Birley & Westhead (1990)**	249	Dati di archivio	Training raised sales (r = .27**) of the companies
2	**Bishop (1991)**	2,594	75	100 hours of formal training for new hire led to increased ROI ranged from 11% to 38% and has positive effect on turnover..
3	**Wiley (1991)**	200	100	Training has positive effects on store net sales (r = -.40**) and customer satisfaction (r = .31**)
4	**Bracker & Cohen (1992)**	73	45	Training led to increase on sales, income, and firm present value.
5	**Bartel (1994)**	495	Archival data	Implementation of formal training raised productivity by 6 % per year
6	**Kalleberg & Moody (1994)**	688	Archival data	Training has positive effects on market share (r = .22**), product quality (r = .18**), customer satisfaction (r = -.01), and employee relations (r = .10**).
7	**Lyau & Pucel (1995)**	131	55	Training led to increase value added per employee and sales per employee.
8	**Martell & Carroll (1995)**	115	26	Training has positive effects on perceived business unit performance (r = .15**).
9	**Barling, Weber & Kelloway (1996)**	20	N/A	Training led to increase on credit card sales (r = .30) and personal loan sales (r = .40*)

10	**Black & Lynch (1996)**	2,945	64	10 % increase in average education will lead to an 8.5 % increase in productivity in manufacturing and a 12.7 % in non-manufacturing.
11	**Delaney & Huselid (1996)**	590	65	Training has positive effects on firm performance (r = .06*) and market share (r = .19**).
12	**Koch & McGrath (1996)**	319	7	Training has positive effects on sales per employee
13	**Ichniowski, et al. (1997)**	36	60	Training has positive effects on production line uptime and overall customer satisfaction (r = .44**).
14	**Lawler, et al. (1998)**	491	26	Training has positive effects on productivity, customer satisfaction, quality and speed (r = .13* to .28*), profitability and competitiveness (r = .16* to .33*).
15	**Boon & van der Eijken (1998)**	173	N/A	Training raised value added per employee and gross output.
16	**Meschi & Metais (1998)**	102	44	Training led to increase return on investment.
17	**Newkirk-Moore & Bracker (1998)**	152	49	Training led to raise ROA, ROE, overhead, spread, and mixed results
18	**Ngo, et al. (1998)**	253	20	Training has positive effects on perceived competitive sales (r = .21**), new product development (r = .35**), competitive net profit (r = .31**), employee satisfaction (r = .32**).
19	**Shaw, et al. (1998)**	227	36	Training has positive effects on voluntary turnover (r = .19**).
20	**Harel & Tzafrir (1999)**	76	35	Training raised market share (r = .53**).
21	**Vandenberg, Richardson & Eastman (1999)**	49	100	Training has positive effects on ROE (r = .02) and turnover (r = -.30*).
22	**Fey, et al. (2000)**	101	28	Technical and non-technical training has positive effects on HR outcome(r = .23* to .51*) & overall firm performance (r = 0.22* to .26*).
23	**Huang (2000)**	315	36	Training has positive effects on sale growth, profit growth, ROI, ROS, turnover, and market share
24	**Khatri (2000)**	194	24	Training has positive effects on sales growth (r = 0.08), profit margin (r = 0.17**), and perceived performance (r = 0.18**)
25	**Barrett & O'Connell (2001)**	215	33.5	General training has a significant positive effect on productivity growth (r = 0.14**).
26	**Ballot, Fakhfakh & Taymaz (2001)**	290	Archival data	Training has positive effects on value added per worker (17.3% for France and 7.3% for Sweden).
27	**Cappelli & Neumark (2001)**	1,304	72	Training has positive effects on sales per worker, productivity, labor efficiency.
28	**Fey & Bjorkman (2001)**	101	28	Technical and non-technical training has positive effects on overall firm performance (r = 0.44**, nonmanagerial and r = 0.48**, managerial)
29	**Storey (2002)**	314	22	Training led to raise GRATE (r =0 .01 to 0.15*), cash flow (r = 0.06 to 0.14*), and profitability.
30	**Ahmad & Schroeder (2003)**	107	60	Training has positive effects on employee's commitment (r = 0.52**) and perceived operational performance (r = 0.37**).
31	**Aragon-Sanchez, et al. (2003)**	457	9	Training has positive effects on quality (5 items, a = 0.73).
32	**Deng, Menguc & Benson (2003)**	97	54	Training raised export intensity and average export sale growth over three years (r = 0.17**).
33	**Gelade & Ivery (2003)**	137	49	Training has positive effects on sales (r = 0.19**), clerical accuracy (r =0 .18**), and customer satisfaction (r = 0.37**).

34	**Paul & Anantharaman (2003)**	34	76	Training has positive effects on ROI (r =0 0.20**), net profit, sale, productivity, quality (r = 0.29**), speed of delivery (r =0 .12**), operating cost (r =0 .22**), competence (r = 0.58**), and employee commitment (r =0 .43**).
35	**Rodriguez & Ventura (2003)**	120	5.4	Training has positive effects on ROA, total sales growth, sales per employee, and turnover.
36	**Ely (2004)**	486	100	Training has positive effects on new sales revenue (r = 0.16*), productivity (r =0 .21*), customer satisfaction, quality and speed (r = 0.27*).
37	**Guerrero & Barraud-Didier (2004)**	180	12	Training has positive effects on productivity (r = -0.02), objective profitability (r = -0.04), and product & services quality (r = 0.10*).
38	**Ng & Siu (2004)**	485	62	1 percent increase in managerial training induced increase in sales from 0.13 to 0.32 percent
39	**Faems, et al. (2005)**	416	28	Training has positive effects on net profitability (r = 0.10), turnover (r = 0.03), and productivity (r = 0.15**).
40	**Garcia (2005)**	78	19	Training led to sales per employee, employee satisfaction (a =0 .79), client satisfaction (a = 0.70), owner/ shareholder satisfaction (a = 0.71).
41	**Mabey & Ramirez (2005)**	179	N/A	Varies by training type led to increase operating revenue per employee and reduce cost of employee (r = 0.05 to 0.19*).
42	**Thang & Quang (2005)**	137	9	There is a positive association of training and development with perceived market (r = 0.33**) and firm performance (r =0.45**).
43	**Tzafrir (2005)**	104	38	There is a positive association of training and development with perceived market (r =0 .47**) and firm performance (r =0 .66**).
44	**Ballot, et al. (2006)**	350	Archival data	Training has positive effects on value added per worker (17.3% for France and 7.3% for Sweden).
45	**Bernthal & Wellins (2006)**	127	-	Training has positive effects on operating cash flow/net sales, operating cash flow/ total assets, profit margin, ROA, ROE (global benchmarking study)
46	**Cho, et al. (2006)**	78	36	Training has positive effects on turnover, labor productivity, and ROA.
47	**Horgan & Muhlau (2006)**	392	5	Training has positive effects on work performance, cooperation, and discipline.
48	**Kintana, Alonso & Olaverri (2006)**	956	17	Training has positive effects on productivity (r = 0.04).
49	**Zheng, Morrison & O'Neill (2006)**	74	22	Training has positive effects on competency, turnover, and employee commitment
51	**Ghebregiorgis & Karsten (2007)**	82	42	Training has positive effects on sales per employee(r = -0.01), grievances (r = 0.05), voluntary turnover (r = 0.25*), and absenteeism (r = -0.01).
52	**Katou & Budhwar (2007)**	178	30	Training has positive effects on perceived effectiveness (r = 0.56**), efficiency (r = 0.57**), innovation (r = 0.53**), and product quality (r =0.46**).

Source: Thang et al., 2010, pag. 28-45.

Table 8 shows the main empirical studies that examine the effects of training on business performance. The data from these surveys come from a large sample of heterogeneous firms, obtained from telephone surveys and data archives.

In measuring the effects of training on business performance is examined, in most cases the financial performance, or ROI, sales, productivity, profitability and market share in 10% of the studies are taken into account measures non-financial, such as turnover,

absenteeism, satisfaction and motivation of workers, in 48% of cases were examined the effects of both.

The following table shows the studies that have estimated the effects of training on performance, using as standard a specific company with the data obtained from the department of human resources and personnel file.

It is all of 14 studies that analyze the effects of training in more detail and take into account other factors that may affect performance, such as the structure of the company, the introduction of new technologies. As an indicator of business results is used ROI.

Table 9. The studies of the relationship between training and firm performance

N.	*Author*	*Sample size*	Firm performance
53	**Bartel (1995)**	1	Training was found to have a positive and significant effect on ROI (49.7 %), job performance, and productivity.
54	**Krueger & Rouse (1998)**	1	Reading, writing, and math has positive effect on ROI (7 %) in manufacturing company, turnover, absenteeism, and job performance in both manufacturing and service company.
55	**Pine & Judith (1993)/ The Garrett Engine**	1	Team work training led to increase ROI (125 %) and have positive effects to equipment downtime.
56	**Phillips (1994)/ Information Serv. Inc**	1	Interpersonal skills training led to increase ROI (336 %) and have positive effects to behaviors.
57	**Phillips (1994)/ Financial Serv. Co.**	1	Selection training led to increase ROI (2,140 %) and reduction in turnover of branch manager trainees
58	**Phillips (1994)/ U.S government**	1	Supervisory skills training led to increase ROI (150%) and have positive effects on the skills.
59	**Phillips (1994)/ Midwest Banking**	1	Formative activities on loans to customers have brought to increase the ROI (1.988 %) and an increase of the net profit for loan
60	**Phillips (1994)/ Multi-Marques**	1	Time management training led to increase ROI (215 %)
61	**Phillips (1994)/ Coca Cola bottling Co. in San Antonio**	1	Motivation, perform, and appraisal training led to increase ROI (1,447 %) and sales, reduced waste and absenteeism
62	**Carnevale & Schulz (1990)/ Vulcan Materials**	1	Training led to increase ROI (400 %) and have positive effects on production worker turnover.
63	**Phillips (1994)/ Yellow Freight System**	1	Performance appraisal training led to increase ROI (1,115 %).
64	**Phillips (1994)/ International Oil Co.**	1	Customer services training led to increase ROI (501 %) and have positive effects on tracked pullout costs and customer complaints.
65	**Phillips (1994)/ Magnavox Electronic Systems**	1	Training led to increase ROI (741 %) and have positive effects on tracked average monthly efficiency
66	**Phillips (1994)/ Arthur Andersen & Co.**	1	Professionals training led to increase ROI (100 %), and have positive effects on tracked fees and chargeable hours.

Source: Fonte: Thang et al., 2010, pag. 28-45.

6. Conclusions

The Human Capital plays a central and strategic role for the growth of each company. However, its composite nature, multidimensional - includes fact, objective and / or subjective aspects and which can be very different - has made it difficult to measure. One of the major difficulties encountered in empirical studies conducted to verify the existence of a correlation between human capital management practices and company performance is the fact that the data come from surveys based on interviews and

surveys sent to businesses. Unfortunately, the fact that companies often do not have an internal system for collecting this information or do not wish to communicate sensitive data so does not make it easy to research in this field. Another limitation is the fact that the sample of companies in a study on the management of human capital tends to be self selezionarsi in that they tend to be companies with better performance and better management of human resources, who are willing to submit to an outside its management staff. Another problem is ultimately related to the large number of variables that affect corporate performance and hence the difficulty to recognize and isolate the contribution of human capital. Despite these limitations, academic research has demonstrated the existence of a correlation between the management of human capital and organizational performance, whereas in the sense of management policies will also cover the pay and personnel training, and management variables behavioral (motivation, cooperation and involvement). If strategically manage human capital can improve business performance, it is evident that human capital plays a fundamental role in business decisions. It's what comes from the line of studies on strategic management of Human Capital (Strategic Human Capital Management). It involves a focussed management of human resources in the complex, making them a unique resource difficult to reproduce and replace, and then, a source of competitive advantage for the company. Among the most significant contributions in this regard include Begin (1992), Jackson and Schuler (1992), Porter (1985), Schuler (1992), Wright and McMahan (1992), Huselid (1995).

The academy set of conditions specific to the management of Human Capital will support the company's strategy:

- The contribution of human capital to create value in the production process must be meaningful;
- The qualities and skills that the company is interested in are rare;
- The combination of skills and capacity choice in forming a team and then the synergies that are created are difficult to imitate;
- These resources can not be replaced by technological tools.

In this way the management of human capital has evolved from an individual perspective to a global strategic intent of becoming part of the organization.

The analysis of the empirical literature has shown that there is a paradigm widely reproduced in any company that guarantees the attainment of a particular outcome, but rather the human resource management (human capital management) is successful only if consistent with the objectives strategic and the company's business model. We can therefore agree with the observation that in different economic sectors and activities where human capital is the source of competitive advantage, management staff can not simply be confined to an administrative function but must become part of strategic management (Gasperini and Raso, 2008).

References

1. Aldisert L.A. (2002), "Valuing people: how human capital can be your strongest asset", *Dearborn Trade Publishing*, 2002, p. 80.
2. Begin J.P. (1992), "Comparative human resource management (HRM)", *The International Journal of Human Resource Management*, Vol. 3, No. 3, pp. 379-408.
3. Bloom N., Van Reenen J. (2010), *Human Resource Management and Productivity*, Centre for Economic Performance, London, pp. 68-76.
4. Bontis N. (1998), "Intellectual capital: an exploratory study that develops measure and models", *Management Decision*, Vol. 36, No. 2, pp. 63-76.
5. Bontis N. (2001), "Assessing knowledge assets: a review of the models used to measure intellectual capital", *International Journal of Management Reviews*, Vol. 3, No. 1, pp. 41-60.
6. Bontis N., Chua Chong Keow W., Richardson S. (2000), "Intellectual capital and business performance in Malaysian industries", *Journal of Intellectual Capital*, Vol. 1, No. 1, pp. 85-100.
7. Bontis N., Dragonetti K., Jacobsen, Roos G. (1999), "The Knowledge Toolbox: A Review of the Tools Available to Measure and Manage Intangible Resources", *European Management Journal*, Vol. 17, No. 4, pp. 391-402.
8. Brennan N. (2001), "Reporting intellectual capital in annual reports: evidence from Ireland", *Accounting, Auditing & Accountability Journal*, Vol. 14, No. 4, pp. 423-436.
9. Brooking A. (1996), *Intellectual Capital: Core Assets for the Third Millennium Enterprise*, London, Thomson Business Press.
10. Chiucchi M.S. (2004), *Sistemi di misurazione e di reporting del capitale intellettuale: criticità e prospettive*, Torino, Giappichelli Editore.
11. Edvinsson L. (1997), "Developing Intellectual Capital at Skandia", *Long Range Planning*, Vol. 30, No. 3, pp. 266-373.
12. Edvinsson L., Malone S. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Roats*, New York, HarperCollins Publisher.
13. Edvinsson L., Sullivan P. (1996), "Developing a Model for Managing Intellectual Capital", *European Management Journal*, Vol. 14, No. 4, pp. 356-364.
14. Fabbrini G., Ricciardi A. (2007a), *Human Resources: modalità di reporting e criteri di valutazione*, Milano, Franco Angeli.
15. Fabbrini G., Ricciardi A. (2007b), *Intangible assets. Principi contabili, modalità di reporting e tecniche di valutazione*, Milano, Franco Angeli.
16. Fulmer B., Gerhart B., Scott K. (2003), "Are the 100 best better? An empirical investigation of the relationship between being a "great place to work" and firm performance", *Personnel Psychology*, Vol. 56, pp. 965-993.
17. Gasperini A., Raso N. (2008), *Capitale Umano e performance di business. Misurare il ROI del Capitale Umano*, IPSOA.

18. Gielen A.C., Kerkhofs M.J.M., Van Ours J.C. (2010), "How performance related pay affects productivity and employment", *Journal of Population Economics*, pp.293-294.
19. Guest D. (1997), "Human Resource Management and Performance: a review and research agenda", *Journal of Management Studies*, Vol. 24.
20. Guthrie J., Petty R. (2000), "Intellectual capital literature review: Measurement, reporting and management", *Journal of Intellectual Capital*, Vol. 1, No. 2, pp. 155-176.
21. Hall R. (1992), "The strategic analysis of intangible resources", *Strategic Management Journal*, Vol. 13.
22. Hall R. (1989), "The management of intellectual assets: A new corporate perspective", *Journal of General Management*, Vol. 15.
23. Harter J., Schmidt F., Hayes T. (2002), "Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis", *Journal of Applied Psychology*, Vol. 87, pp. 268–279.
24. Hudson W. (1993), *Intellectual Capital: How to Build It, Enhance It, Use It*, New York, John Wiley.
25. Hunter L., Webster E., Wyatt A. (2005), "Measuring Intangible Capital: A Review of Current Practice Intellectual Property Research", *Intellectual Property Research Institute of Australia*, Working Paper No. 16/04.
26. Huselid M.A. (1995), "The impact of Human Resource Management Practices on Turnover, Productivity, Corporate Financial Performance", *Academy of Management Journal*, Vol. 38.
27. Ichniowski C., Shaw K., Prennushi G. (1997), "The effects of human resource management practices on productivity", *American Economic Review*, No. 87, pp. 291–313.
28. Itami H. (1987), *Mobilizing Invisible Assets*, London, Harvard University Press.
29. Jackson S.E., Schuler R.S. (1992), "HRM practices in service-based organizations: a role theory perspective", *Adv. Serv. Mark. Manage*, Vol. 1, pp. 123-157.
30. Kaufmann L., Schneider Y. (2004), "Intangibles: A synthesis of current research", *Journal of Intellectual Capital*, Vol. 5, No. 3, pp. 366-388.
31. Leon M.V.S. (2002), "Intellectual capital: managerial perceptions of organizational knowledge resources", *Journal of Intellectual Capital*, Vol. 3, No. 2, pp. 149-166.
32. Lev B. (2001), *Intangibles: Management, and Reporting*, Washington, DC, Brookings Institution Press.
33. Martinez I., Garcia-Meca E. (2005), "Assessing the quality of disclosure on intangibles in the Spanish capital market", *European Business Review*, Vol. 17, No. 4, pp. 305-313.
34. Mavridis D. (2005a), "Intellectual capital performance determinants and globalization status of Greek listed firms", *Journal of Intellectual Capital*, Vol. 6, No. 1, pp. 127-140.
35. Mavridis D. (2005b), "Intellectual capital performance drivers in the Greek banking sector", *Management Research News*, Vol. 28, No. 5, pp. 43-62.
36. Mouritsen J. (1998), "Driving growth: economic value added versus intellectual capital", *Management Accounting Research*, Vol. 9, No. 4, pp. 461-482.
37. Nonaka I., Takeuchi H. (1995), *The knowledge-Creating Company*, New York, Oxford University Press,
38. Petrash G. (1996), "Dow's journey to a knowledge value management culture", *European Management Journal*, Vol. 14, No. 4, pp. 365-373.
39. Porter M.E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, New York, Free Press.
40. Rebora G. (2003), *Le risorse intangibili e il valore della banca*, Liuc Papers, n. 125, Serie Economia Aziendale.
41. Roos J., Roos G., Edvinsson L., Dragonetti N.C. (1998), *Intellectual Capital. Navigating in the New Business Landscape*,New York, New York University Press.
42. Rullani E. (2004), *Economia della conoscenza*, Roma,Carocci.
43. Saint-Honge H. (1996), *Building the Intellectual Capital of Organization*, New York, Conference Board.
44. Schuler R.S. (1992), "Strategic human resource management: linking people with the needs of the business", *Organ. Dyn*., Vol. 21, pp. 19-32.
45. Stewart T.A. (1991), "Brainpower: How Intellectual Capital is Becoming America's Most Important Asset", *Fortune*, Vol. 3, pp. 44-56.
46. Stewart T.A. (1997), *Intellectual Capital. The New Wealth of Organizations*, London, Nicholas Brealey Publishing.
47. Stewart T.A. (1999), *Il Capitale Intellettuale: la nuova ricchezza*, Varese, Ponte alle Grazie.
48. Sullivan P.H. (1998), *Profiting from Intellectual capital: extracting value from innovation*, New York, John Wiley & Sons.
49. Sveiby K.E. (1997), *The New Organizational Wealth. Managing and measuring Knowledge-Based Assets*, San Francisco, Berrett-Koehler.
50. Tan H.P., Plowman D., Hancock P. (2008), "The evolving research on intellectual capital", *Journal of Intellectual Capital*, Vol. 9, No. 4, pp. 585 - 608.
51. Thang N.N., Quang T. & Buyens D. (2010), "The Relationship Between Training and Firm Performance: A Literature Review", *Research and Practice in Human Resource Management*, pp. 28-45.
52. Wright P. M., T. M. Gardner, L. M. Moynihan, M. R. Allen (2005), "The Relationship Between HR Practices and Firm Performance: Examining Causal Order", *Personnel Psychology*, No. 58, pp. 409-446.
53. Wright P.M., McMahan G.C. (1992), Theoretical perspectives for strategic human resource management, *J. Manage*, Vol. 18, pp. 295-320.
54. Wyatt W. (2002), *The HC Index™: Linking Human Capital and Shareholder Value*, Survey Report 1999, 2000, 2002.
55. Zambon S. (2003), "New approaches to the measurement ad reporting of intangibles", in: *Study on the mesurement of intangible assets and associated reporting practices*, Enterprise Directorate General of the European Commission, Brussels, April.