Investing in Human Capital: Integrating Intellectual Capital Architecture and Utility Theory

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ABSTRACT

Decision models related to investments in human capital, based on the strategic role of Human Resources (HR), are affected by existing perspectives of Intellectual Capital Architecture (ICA) and Utility Theory (UT). With the purpose of supporting decision-making process by increasing its quality via better informing stakeholders, human capital investment decision is a crucial component of the core Human Resource Development (HRD) process, and is the focus of this paper, which analyzes the foundations and potential integration of the main elements of intellectual capital architecture and utility theory, by contrasting relevant and current literature on the topic with essential views and perspectives as support for a more strategic HR.

Keywords: Human Capital Theory; Intellectual Capital Architecture; Utility Theory

It is possible to argue that a considerable part of the strength present in the field of Human Resources (HR) is due to the fact that, at its core, multiple harmonizing theories can be found. The fundamental process of Human Resource Development (HRD), as discussed by Swanson and Holton (2001), its main studied interventions, as suggested by McLagan (1989), and its main functions, as described by Davis, Naughton and Rothwell (2004), are all as strong as they are flexible when aiming at supporting the new set of environmental and organizational demands. Organizational decisions, ranging from operational to strategic dimensions, ask for the precise HRD support that stem from the combination of views and perspectives afforded by the multiplicity of theories sustaining the field. Weinberg (1998) discusses such multiplicity when focusing on theoretical foundations of HRD, including economic theory, psychological theory, systems theory, along with theory of performance improvement, and learning theory.

Also, the dynamics of the field and its relative young age (in terms of its formal establishment as an area of research) offer the proper conditions to explore new (or to expand on existing) areas of research, based on trends potentially affecting the field (Colteryahn and Davis, 2004; Karoly and Panis, 2004). In this particular sense, and assuming the presence of HRD as a strategic agent to improve competitive advantage of organizations, modeling and tackling investment decisions aiming at human capital development represents a relevant area for research and practice. With the purpose of supporting decision-making process by increasing its quality via better informing stakeholders, human capital investment decision is a crucial component of the core HRD process, and is the focus of this paper.
PURPOSE AND GOAL

This study explores decision models for investments in human capital from two perspectives: Intellectual Capital Architecture (Snell et al., 1999; Lepak and Snell, 1999) and Utility Theory (Stigler, 1950a, 1950b). The economic theory foundation of HRD supports the discussion of both individual and corporate models of investments in human capital, and the Intellectual Capital Architecture model explicitly addresses the perspective of the firms in this process. Utility theory explains economic behavior tied to satisfaction from consuming particular goods and services, and it is very present at the basis of neoclassical economics, when focusing on the rationality of utility maximization process under economic constraints. The marginal utility approach expands this idea by focusing on the achieved benefit from the consumption of an extra unit of a particular good or service.

The discussion on allocation of resources within the HR arena (investing in human capital) can, in fact, benefit from the integrative perspectives of these two models: Intellectual Capital Architecture (ICA) and Utility Theory (UT). HRD, in fact, has a strategic role in organizations and constantly focuses on investment decisions related to development of human capital, via its interventions. Thus, the purpose of this paper is to review and critique the current focus of mainstream research and literature on the issue of human capital investment decision based on existing HRD and economic models. This paper aims at exploring the integration of the main elements involved with the intellectual capital architecture and utility theory, by contrasting relevant and current literature on the topic with essential views and perspectives for a strategic HR.

RESEARCH QUESTIONS AND DESIGN

This study explores two main constructs in order to discuss their level of integration when supporting human capital investment decisions, in light of strategic HR. The research questions guiding the present study include:

RQ1: What support does the Intellectual Capital Architecture framework offer to human capital investment decisions?

RQ2: What support does the Utility Theory offer to human capital investment decisions?

RQ3: To what extent are the Intellectual Capital Architecture and the Utility Theory frameworks integrated in terms of supporting human capital investment decisions?

Limitations of the study are related to the limited number of studies exploring directly these two constructs, along with the large amount of specific literature, for each construct, in economics and management. Thus distinct terminologies and their uses are present in the literature, and reviewed in this study.

THEORETICAL FRAMEWORK

Investment Decisions and Accountability

The main foundation of this paper is tied to the fact that, as in any investment decision, benefits and sacrifices must be compared, in same basis, in order to support a particular action (Copeland et al., 1994; Siegel and Shim, 2000), under the economic rationality paradigm (Astley & van de Ven, 1983). This is a crucial element in almost all socioeconomic situations where stakeholders cannot afford simple depletion of scarce resources, when dealing with recurrent exchanges (unwanted consequences of costs surpassing
benefits). In such situations there is a clear accountability issue and those making the decision are held accountable for their actions, in several dimensions (e.g., fiscal, monetary, emotional, ethical, moral). This is the case of HRD, dealing with interventions that can be observed as an exchange of resources, usually scarce, in time. Before any HRD intervention, a particular organization or entity has a set of resources with their correspondent potential benefits, and after such intervention a new set of resources with potential benefits is present. Linked to each set of resources and potential benefits there is an embedded value, which is expected to increase under most of the HRD definitions of systemic improvement (McLagan, 1989; Swanson and Holton, 2001; Weinberg, 1998).

In this context of resources, constraints, allocation, and benefits, clear models to support the abstract decision-making process are helpful and can provide basic elements to inform the decision of changing the set of resources and consequently the potential benefits linked to it. Theories of finance and accountancy, as well as economics, provide sound and precise guidance in terms of supporting the reflection process linked to capital (sensu lato) allocation decisions aiming at multiple investment options. Numerous models and metrics are available, so that informed decisions can be made under rational computation of direct and indirect sacrifices and benefits, all estimated according to the overall time frame of the decision.

With this in mind, it is important to stress two major dimensions connected to the concept of investment: time and portfolio (Markowitz, 1952). The temporal dimension is linked to the fact that investment models can be used on either an ex ante or an ex post facto basis, the former being naturally associated with the concept of initial investment decisions, and the latter associated with decisions about maintaining or terminating existing investments. In ex ante situations, the load of subjective measures and proxies to deal with natural uncertainty and risk is much heavier. In addition, the portfolio dimension of investments is tied to the fact that investments models can be used to help decisions involving one (single) or more (portfolio) components. In situations involving investment restrictions (limited resources), simultaneous and comparative analyses of the portfolio (options) tend to be mandatory.

Investment models, within this framework involving the two aforementioned dimensions, must be effective to deal with costs and benefits considering time and conditions of risk or uncertainty. The classic relationship between risk and return has been at the core of investment decisions, mainly in situations involving multiple options with constraints (Fiegenbaum and Thomas, 1988). Thus, stronger investment models tend to rely not only on estimation of effective imbursements and expenditures (objective measures, actual facts), but also on economic benefits and opportunity costs involved in the situation (subjective measures).

Investing in Human Capital

Economic theory, one of the HRD foundations (Swanson and Holton, 2001; Weinberg, 1998), explicitly considers elements of investment in human capital. Foundations of Human Capital Theory (HCT) can be traced back to Friedman’s neoclassic ideas (1976 Economics Nobel laureate), as well as the influential Chicago-School approach to economics. HCT core elements were developed by contributors such as Shultz, Mincer, and Becker. Becker (1992 Economics Nobel laureate and 2001 HRD Scholar Hall of Fame) and his colleagues extended the discussion in economics to human behavior. He argued that investments in education and training are the most relevant types of investments in human capital, while studying human capital and the consequences of investing in human capital (Becker, 1992). This key concept was present in the economics literature before, and a relevant example, clearly tied to HRD, is presented by Harbison and Myers (1964, p. 2): “human resource development is the process of
increasing the knowledge, the skills, and the capacities of all the people in a society.” They move on exploring the relevance of investing in human capital, acknowledging Marshal’s idea from the 1930’s that “the most valuable of all capital is that invested in human beings” (Harbison and Myers, 1964, p. 3).

According to Becker (1992), human capital is linked to economic growth, from individual to national levels (e.g., per capita GDP). The main proposition of HCT is that the more education presented the more pecuniary and/or non-pecuniary returns, with such returns being present at distinct levels: (a) individual (i.e., performance), (b) organization (i.e., productivity/profit), and (c) national (i.e., quality products and services). Lucas (1988) made a clear link between human capital and economic growth. He argued for the combination of physical and human capital as drivers of economic development. Based on this discussion, it is imperative to stress that numerous models and initiatives of measuring returns on HRD investments, according to the mainstream literature of the field, tend to limit the issue to the organization level. This approach exists despite the central HRD assumption of developing both individual and organization, and the logic applies to both levels equally.

The HRD perspective of investment in human capital can be traced to the branch of program evaluation, which deals with solutions to provide knowledge of worth or merit of specific organizational interventions. Such perspective is perfectly legitimate and, in deed, clearly linked to accountability issues of the agents, as well. However, Sutton and Stephenson (2005) highlight ASTD findings on 85% of all evaluation data as meaningful just to the training department. A more pro-active and strategic presence of HRD in organizations, as discussed by Ruona and Gibson (2004), is obviously tied to larger budgets and responsibilities within the organization. When the focus is set on HRD interventions within the organizational setting, discussions and meetings aiming at both individual and group decision processes tend to benefit from relying on common communication channels and constructs. This element calls for an expansion of the HRD perspectives eventually relying more deeply on existing frameworks for human capital investment decisions.

**PERSPECTIVES FROM INTELLECTUAL CAPITAL ARCHITECTURE**

Advancements in the core elements propelling the new economy are widely present in business literature. Mechanisms for defining and acting on specific elements driving business performance are required to be clearly stated and shared across the organization in order to support a more strategic and pro-active involvement of the agents. Snell et al. (1999) provide an important contribution to the aforementioned main problem of human capital investment decision, when discussing the intellectual capital architecture. Aiming at the competitive advantage from the knowledge-based assets, Snell et al. (1999) change the focus from behavior to knowledge when discussing the firm’s HR function. Advocating the relevance of sound decision model for investments in intellectual capital, they present its three main components: human capital, social capital, and organizational capital.

Although it is important to stress that the term ‘intellectual capital’ is used in this paper consistently with the critique developed by Dean and Kretschmer (2007), the embedded concept of intellectual capital in this work is aligned with the one provided by Snell et al. (1999), and involves the idea of organization’s potentially useful set of knowledge, skills and information. The word useful makes the case for paying close attention to the concept of utility, focused by this paper. Even without further in-depth discussion of the concept of utility in their work, they unmistakably rely on this assumption to build their argument on the proposed architecture of intellectual capital.
The core concepts used by Snell et al. (1999) relate to (a) human capital, as one of the main components of intellectual capital, embracing knowledge, skills and abilities for employees (e.g., within people), (b) social capital, involving knowledge flow among individuals within a network (e.g., network flow), and (c) organizational capital, consisting of institutionalized and codified knowledge (e.g., what is left when people leave). These components can be analyzed according to the combination of value and uniqueness, as suggested by Snell et al. (1999), based on four quadrants derived from combinations of low and high levels of both value and uniqueness of intellectual capital (resources) in organizations: (a) core (high value and high uniqueness), (b) compulsory (high value and low uniqueness), (c) ancillary (low value and low uniqueness), and (d) idiosyncratic (low value and high uniqueness).

Based on this proposed architecture, a specific model for managing intellectual capital focusing on the entire system of knowledge is offered by the authors. Specific actions can be taken according to the characteristic of the intellectual capital (e.g., quadrants), acknowledging both strategic needs and business constraints. Thus, it is not difficult to observe that this architecture clearly addresses a matter of accountability when managing intellectual capital of the firm, by categorizing intellectual capital developmental needs. HRD can benefit from this approach when considering particular human development interventions while matching strategic needs and constraints.

When addressing investments in human capital, Lepak and Snell (1999) emphasize the benefit of such architecture by stressing the form and function of the HR system, while focusing on efficiency and flexibility. They notably subscribe to the contingent view of human capital investment decisions by mentioning that investments in human capital will vary for different types of human capital (e.g., different HR practices for different employee groups). Here a specific point is made, linking internal (training and development) and external (outsourcing, market-based agents) interventions to specific situations and contexts. This contingent view of HRD is emphatically discussed by Kuchinke (2003) as an orienting philosophy of the field, according to three specific perspectives: person-centered, production-centered, and principled problem-solving. In essence, according to this perspective, elements such as size, industry, economy, area, function, and strategy will drive human capital investment decisions.

Lepak and Snell (1999) supported by a theoretical background involving transaction cost economics, human capital theory, and resource-based value of the firm could organize characteristics of human capital (value and uniqueness), identify employment modes (e.g., internal development, acquisition, contracting, and alliance), recognize employment relationships (e.g., organizational, symbiotic, transactional, and partnership), and suggest HR practices (e.g., commitment, market-based, compliance, collaborative), aligned to the proposed intellectual capital architecture. Figure 1 shows the HR architecture as proposed by Lepak and Snell (1999), while also integrating their HR practices, according to an internal or external approach to human capital investment decisions.
In essence, this HR architecture advocates that investment in human capital aims at increasing its value and uniqueness, based on a contingent view, and that having organized human capital (representations) enables its strategic use (Lepak and Snell, 1999). This perspective is coherent with the pro-active and strategic role of HRD (Ruona and Gibson, 2004). Thus, the central element here involves the combination of (a) value and (b) uniqueness of human capital. Lepak and Snell (1999) sustain that value of human capital is related to potential to contribute to competitive advantage, and they suggest increasing such value by means of increasing its benefits and lowering its costs. The other aspect of human capital, its uniqueness level, is related to the fact that such potential to contribute to competitive advantage cannot be imitated or copied. In an extreme situation, unique assets will tend naturally to be developed internally (Lepak and Snell, 1999). Clearly, here, we have a connection to the concept of utility, widely discussed in economic theory of demand, addressing utility and satisfaction of needs and the elements of scarcity and value, the integrative link between the two frameworks analyzed in this paper.

**PERSPECTIVES FROM UTILITY THEORY**

Earlier studies in economics have explicitly addressed utility as a component of the concept of value. Adam Smith’s discussion on the indirect relationship between value of use and value of exchange, linked to the core concept of scarcity (e.g., Water and Diamonds Paradox), is a very interesting example, which is explored by Stigler (1950a) in light of later concepts of utility and marginal utility. Stigler (1950a) also explores additional classic approaches to the concept of utility analyzing early concepts from Bentham, Ricardo, Mill, Dupuit (who advanced the discussion on marginal utility), and Gossen (laws of satisfaction and the fundamental principle of marginal utility). Addressing a modern view of utility theory (UT), circa 1870, Stigler (1950a) discusses key ideas from Jevons, Menger, and Walras affecting the development of UT, and more contemporary approaches (Stigler, 1950b) with perspectives on UT from economists such as Alfred Marshall and Vilfredo Pareto (exploring the idea of diminishing marginal utility). The concept of utility, and its derivatives, has been evolving throughout centuries of economic thought and facing extremely distinct contextual challenges. Its strength may be connected to such evolutionary capacity involving adaptations, while keeping its core assumptions and key elements.
Addressing a problem similar to the one described earlier on investment decisions, UT is based on the idea of satisfying needs via decisions about alternative goods and services. The concept of maximizing utility subjected to budget constraints, under the economic rationality assumption, is at the core of this theory. As economic agents organize their resources, in order to obtain goods and services required to fulfill their needs, a very complex decision process is established, with several variables acting synergistically. Economic theory seeks to explain such phenomenon by means of microeconomics (which, in its essence, studies individual economic units), precisely via its theory of consumer (Pindyck and Rubinfeld, 2001). The theory of demand hosts a significant discussion on utility, focusing on decision-models based on the economic rationality assumption (Ekelund and Hebert, 2002; Pindyck, 1968; Stigler, 1950a, 1950b; Veblen, 1909).

Thus, according to Fishburn (1968), UT focuses on agents’ choices and decisions because “it is concerned with people’s preferences and with judgments of preferability, worth, value, goodness or any number of similar concepts” (p. 335). He develops this concept up to the point of analyzing two distinct categories under UT: predictive and prescriptive. The author also considers that “the predictive approach is interested in the ability of a theory to predict actual choice behavior” and “the prescriptive approach is interested in saying how a person ought to make a decision” (p. 336).

Via UT the amount of utility (e.g., utils) linked to a particular decision can be compared to another amount of utils related to an alternative decision, and these elements are related to the concepts of ordinal and cardinal utility functions (Pindyck and Rubinfeld, 2001). Thus, a decision-maker will be able to analyze a decision involving alternative options and a budget constraint based on the corresponding utility or satisfaction levels.

Ekelund and Hebert (2002) argue that the principle of marginal utility (as discussed by Lloyd in 1832) and the principle of diminishing marginal utility (as discussed by Knies in 1855) are both at the core of the theory of value. Here we can see clear links between utility, benefit, and value, across constructs of demand, supply and scarcity. Close to this idea is the concept of indifference, highly used within UT, which deals with combinations of quantities of competing goods and services yielding exactly the same level of utility (e.g., benefit to the agent). Indifference curves are largely used in studies of UT, addressing situations ranging from perfect complements to perfect substitutes when discussing alternative sets of goods and services. Such curves can be represented by utility functions (Pindyck and Rubinfeld, 2001) and, in the discussion of investment in human capital, the Cobb-Douglas utility function (Gourdel et al., 2004; Lucas, 1988; Pindyck and Rubinfeld, 2001) is regularly used. The function (Figure 2) is based on two goods (x and y) and one constant parameter (α) for demand elasticity. All combinations yielding the same utility level are represented in the curve.

\[ U(x,y) = x^\alpha y^{1-\alpha} \]

**Figure 2: Cobb-Douglas Utility function**
Expanding this discussion, the idea of marginal utility can be used to identify the optimal decision (Baumol and Blinder, 2000). Pindyck and Rubinfeld (2001) stressed that marginal utility measures the “additional satisfaction obtained from consuming one additional unit of a good” (p. 90), while also stressing the law of diminishing marginal utility, which implies that “as more of a good is consumed, consuming additional amounts will yield smaller and smaller additions to utility” (p. 90). By analyzing the marginal utility (MU) of a good or service in relation to its price (p) the concept of monetary benefit (MU/p) will be in practice. A key assumption under the marginal utility perspective is that optimal combinations of goods and services will be reached in the point where the ratio between marginal utility and price (MU/p) is the same for each of the goods or services under consideration. This is known as the economic equimarginal principle, and according to Pindyck and Rubinfeld (2001, p. 91) “only when the consumer has satisfied the equal marginal principle … she [or he] will have maximized utility.” From this perspective it is possible to tackle investment decisions based on resource allocation aiming at competing options, supported by the analysis of corresponding ratios of marginal utility and price of each option.

Taking the reflection into an even more real-world context, another key element present in the discussion of UT is risk (Fishburn, 1978; Rabin, 2000) and its tolerance scale: risk-aversion, risk-neutral and risk-seeker (Pindyck and Rubinfeld, 2001). Basically, by adding this component to the investment decision model, the actual decision toward a particular investment, under the assumption of economic rationality, will be driven by the risk tolerance of the decision-maker, in addition to factors such as those already discussed in UT. Risk is also explicitly part of discussion on human capital investment decisions, as argued by Levhari and Weiss (1974).

Based on these elements, the utility approach infers subjective value from choices, while also considering the decision-making process under risk conditions. Thus, investment decisions can be explained, modeled, and supported by the UT framework. The main idea here is that when an agent is about to decide upon a particular investment, and is considering distinct options, the UT framework will be in place, even if it is not explicitly acknowledged. Abstractions related to assumptions such as that ‘scarcer goods and services tend to have higher marginal utility’ are present in our every-day decision-making process, even if we do not measure or operationally process them. Under constraint situations, it is acceptable that weighting different options according to the potential net benefit linked to each of them is a natural part of the decision-making process. Reasoning about foregone opportunities (when deciding on option A, what is that the decision-maker is giving up?) is directly connected to this UT framework and at the core of the economic rationality assumption.

**FINDINGS: AN INTEGRATED VIEW AND STRATEGIC ROLE OF HR**

As we could observe, the concern with investment decisions is manifestly present across the frameworks analyzed, both based on the ICA and on the UT. From Becker’s (1962) perspectives on investments on (a) specific human capital (e.g., on the job, with clear benefits to the firm, involving firm’s decision) or (b) general human capital (e.g., general education, with clear benefits to the individual, involving individual’s decision) to the ICA approach to (a) core, (b) compulsory, (c) ancillary, or (d) idiosyncratic investments (Snell et al., 1999; Lepak and Snell, 1999), we can argue that they both deal with competing options of investment decisions limited by budget constraints. This is exactly what is studied and focused by the UT, throughout centuries. While the ICA proposes a way of setting priorities in terms of intellectual capital development needs and benefits, aiming at properly informing investment
decisions, the UT approach shed light on the same context, via a different rationale, but also extremely capable of informing such investment decisions, addressing scarcity and value.

As observed, HRD has a relevant role in this discussion, based on its stronger presence as an advocate of developmental interventions in organizations, and could create conditions so that actions aiming at promoting the integration of such perspectives (ICA and UT) can be initiated. The object of discussion of this paper can be easily linked to program evaluation, among other areas of HRD. The relevance of measuring the economic utility of training programs, for instance, is clearly stressed by Birati and Tziner (1999) by acknowledging training as a “major cost factor for many firms, requiring substantial resources” (p. 158). Moreover, the field of HRD presents a rich environment where discussions of specific interventions and both direct and indirect outcomes can be observed. The key question of measuring benefits of HRD interventions, largely debated in the field of HRD (Bartel, 2000; Flanholz, 1999; Macy and Mirvis, 1982; May, Sherlock and Mabry, 2003; Phillips, 1996; Russ-Eft and Preskill, 2005; Silber, 2002; Sutton and Stephenson, 2005; Swanson, 2001; Wang, Dou and Li, 2002; Wang and Spitzer, 2005), is related to issues of measurement theory, information theory, and decision theory, also being debated for several years in other fields such as accounting, economics and finance. The perspective from UT adopted in this paper brings an example of a set of integrative ideas to support this ongoing discussion in the field of HRD.

Moreover, concerns related to the communication of utility from HRD interventions (Macan and Highhouse, 1994), can also benefit from the objectivity of these two frameworks (ICA and UT) in terms of better informing ex ante and ex post decisions, dealing with scarcity and value of the set of resources influenced by specific HRD interventions. Not only the communication can benefit from it, but also the essential perception of the agents involved (directly and indirectly) with such interventions and their respective net benefits (Ruona et al., 2002).

This integrative view offers room for expansion of the ex ante approach to HRD investment decision models, which are still rare within the field of HRD. A direct and clear example of this is the argument made by Swanson and Gradous (1988), noticeably stressing that “in the HRD benefit-forecasting model, the specific benefit to be derived is the value of the future changes in performance after the costs to achieve that change are deducted” (p. 19). Both models analyzed here, when integrated, present the conditions so that such ex ante approach of any HRD investment decision can be better supported. Another pertinent aspect of this integrated view is that the use of indifference curves (e.g., Cobb-Douglas utility function) presents a clear and strong supporting argument to the perspective of congruence or fit across the quadrants (core, compulsory, ancillary, and idiosyncratic) of the HR system as proposed by Lepak and Snell (1999). The main idea behind indifference curves is that they represent a continuum where the decision-maker can identify all combinations of goods or services yielding the same level of utility. This concept is strongly aligned with the idea of managing the entire HR system, as mentioned by Lepak and Snell (1999), suggesting the existence of an optimal combination of investment allocation across the quadrants.

CONCLUSION AND RECOMMENDATION

After analyzing mainstream literature addressing intellectual capital architecture (ICA) and utility theory (UT) in light of the HRD framework, we can argue in favor of an integrative perspective based on both the intellectual capital architecture and utility theory, due to the fact that they discuss elements of scarcity and value of a particular set of resources at organization’s reach. Scarcity
(uniqueness) and value of intellectual capital, in general, and of human capital, in particular, are explicit drivers of potential benefits linked to the specific set of resources targeted by HRD interventions. Thus, via the contingent view of HRD, agents can incorporate utility as a central element supporting human capital investment decisions. Based on these two frameworks, decisions on developing human resources within the organizational context, involving limited resources allocation, are affected by the expected utility yielded by each option. So, not only the nature or essence of the human capital about to be developed (as proposed by the intellectual capital architecture), but also the expected benefit (as suggested by utility theory) to be achieved from the intervention on that particular human capital category, should be considered in such situations. Thus, an integrative view of ICA and UT can provide a better support to HRD investment decisions.

In summary, investment decisions are an integral part of both ex ante and ex post perspectives of program evaluation, when respective net benefits of such interventions are considered. As discussed here, these are the key elements of both UT and the ICA. Thus, there is a strong rationale and a specific place for expansion of investment decision investigation in HRD. Further studies exploring such elements are, in deed, relevant and bear the potential of supporting, with sound arguments, HRD as both a field of practice and an area of research.

CONTRIBUTIONS

This study carries relevant implications for both theory and practice of HRD. Based on the elements discussed here, new studies exploring specific aspects on utility theory and intellectual capital architecture can be developed in light of strategic HRD, expanding the field of program evaluation with a bolder intersection with the investment decision. In similar way, as a field of practice, HRD can benefit from this integrative perspective by employing concepts from both utility theory and intellectual capital architecture in designing decision models for investment in human capital.

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