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The ePortfolio and Human Capital Accounting

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Introducing Human Capital Accounting

The implementation of Human Capital Accounting (HCA) is an OECD-recommended means of improving the efficiency of human capital investment and utilization. The concept of HCA has been explored and developed by the OECD as a means to understand and implement the necessary adaptations individuals and nations must make to measure and utilize knowledge assets – knowledge resident in human beings – in relation to economic performance and prosperity. In 1996, the OECD concluded that public policy must focus on the development of better signals for competence validations, valuation, accounting and financial reporting. Firms had begun to think of employees as investments rather than costs, and as the cost-to-investment-based thinking evolved, the transition continued towards full accounting of human capital investments as assets that produce returns over an extended period of time. The OECD publications *Measuring What People Know: Human Capital Accounting for the Knowledge Economy*¹ and *Human Capital Investment: An International Comparison*² extend the treatment of physical capital to human capital in a discussion of knowledge production, diffusion and consumption in light of the disciplines of economics, accounting and education.

¹ *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996)

² *Human Capital Investment: An International Comparison* (OECD, 1998)

Human capital is defined as *the knowledge that individuals acquire during their life and use to produce goods and services or ideas in market or non-market circumstances.*³ According to the OECD, this definition of human capital is non-committal about the source, nature or validation of embodied competences; and helps to focus on two issues: (1) the productive capacity arising from knowledge; and (2) the utility of improving the methods for assessing the productive capacity of human capital. HCA is a method of systematically identifying, measuring and presenting information about the human resources of an organization. It is related to and sometimes confused with such other concepts as: intellectual capital,⁴ intellectual potential,⁵ knowledge management, Human Resources Accounting (HRA), Human Capital Management (HCM), intangible investments⁶ and/or intangible assets – which range from the intellectual property rights of patents, trademarks, copyright and registered design through contracts; through trade secrets and public knowledge such as scientific works; to the people-dependent or subjective resources of know-how, networks, organizational culture, and the reputation of product and company.⁷ FuturEd has concluded that the concept of HCA is also directly related to human resources management in the knowledge economy, lifelong learning, PLA/PLAR, electronic LMI management, and the electronic learning record or ePortfolio.⁸

The basis for interest in the ePortfolio, the assessment and recognition of non-formal and informal learning, and Knowledge Management is expediency. Expediency in the areas of human resources development and management, from the individual to the national level, is needed to address the challenges presented by the emerging Knowledge-based Economy, skills shortages, education/training reform, and structural unemployment. For example, in their analysis of the International Adult Literacy Survey (IALS) results, Human Resources Development Canada (HRDC) and Statistics Canada have concluded “that the ‘new’ economy requires workplace arrangements that empower employees to make workplace decisions and challenge them to use existing skills and develop new ones.”⁹ The Organization for Economic Co-operation and Development (OECD) has deemed it important that nations concern themselves with how and why they invest in and use human capital because a commitment to improving the skills of citizens is one of the principal means for dealing with economic uncertainty. The

³ *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996), p. 22.

⁴ Intellectual capital is proprietary information and knowledge that lowers costs or increases customer value; it is human capital plus structural capital such as databases and documents. Examples are patents, trade secrets, copyright protection, trademarks and contracts. An “intellectual capital” reading list is available at [Hhttp://www.icmgroup.com/biblio.html](http://www.icmgroup.com/biblio.html)H

⁵ *The Austrian Approach to the Measurement of Intellectual Potential* (Schneider, 1999) at [Hhttp://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html](http://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html)H

⁶ Intangible investments, in this context, include research and experimental development, training, organizational change, marketing and software.

⁷ Hall, R. 1992. The Strategic Analysis of Intangible Resources, *Strategic Management Journal*, Vol. 13.

⁸ For more information on the ePortfolio, see other FuturEd papers, e.g., *The ePortfolio and HRD Policy Goals* (Barker, 2003) available at [Hwww.FuturEd.com](http://www.FuturEd.com)H .

⁹ *Employee Training: An International Perspective* (Kapsalis, 1997), p. 9.

OECD has concluded that improvements to the systems of human capital acquisition, measurement, accounting and valuation are key factors in helping a nation's firms to compete in the globalized economy. "Investment in education and training helps form the human capital – the skills and abilities – that is a vital element in assuring economic growth and individual advancement and reducing inequality. It is an important element in combating unemployment and social exclusion."¹⁰

Human Capital in the Knowledge-based Economy

In the Knowledge-based Economy, simple capitalism is replaced by intellectual capitalism.¹¹ Stewart says: "Thinking and invention are the assets upon which knowledge work and knowledge companies depend....The question for companies is how to acquire as much human capital as they can use profitably. Human capital grows two ways: when the organization uses more of what people know and when more people know more stuff that is useful for the organization. The ePortfolio is a means by which organizations can assess what people know and can do, i.e., the intellectual or human capital assets, and then use it to maximum advantage. "To use more of what people know, companies need to create opportunities for private knowledge to be made public and tacit knowledge to be made explicit." Clearly, the first step is to inventory the private knowledge and tacit knowledge that individuals hold. Interestingly, Stewart notes that the paradox is that, when individuals are able to capture for themselves almost all the value of their human capital, they often become independent contractors.

HCA to Promote Lifelong Learning

The concept of HCA is related to lifelong learning and the need to develop a lifelong learning culture. On the one hand, HCA addresses the challenge to the reliance on credentials for employment and advancement. There is a growing body of literature about rampant credentialism and the dubious utility of some academic credentials. The OECD acknowledges that "usually education certificates are used to measure actual competencies, but these achievement certificates are imprecise at best."¹² The OECD foresees a situation where "any new investment in learning will be undertaken with more attention to type, method and content. In other words, quality of education will be more important than quantity."¹³ The ePortfolio facilitates, perhaps encourages, the acquisition and recognition of skills and knowledge outside the formal credential-acquisition system.

¹⁰ *Counting Human Capital* (Healy, 1998).

¹¹ *Brain Power: Who Owns It...How They Profit From It.* (Stewart, 1997) at [Hhttp://www.pathfinder.com/@_@VMxyFQcAT*x9@7yn/fortune/1997/970317/cap.html](http://www.pathfinder.com/@_@VMxyFQcAT*x9@7yn/fortune/1997/970317/cap.html)H

¹² *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996); p. 20.

¹³ *Redefining Tertiary Education* (Wagner, 1998) at [Hhttp://www.oecd.org/publications/observer/214/article4-eng.htm](http://www.oecd.org/publications/observer/214/article4-eng.htm)H

On the other hand, while individuals, indeed all of society, are urged to adopt lifelong and life-wide learning, there is an acknowledged lack of incentives other than formal credentials. The OECD asserts that individuals need to be able to see their investments in skill formation as a lifelong commitment to building assets. It has been hypothesized that an ePortfolio, by accurately reflecting an individual's acquired skills and knowledge, could increase access to training, appropriate employment and/or career advancement – ostensibly incentives for some.

Fundamentally, the most basic incentive is lacking: acquired skills are not considered to be assets by banks. The OECD poses the rhetorical question: “in capital markets, will banks and other lenders recognize human capital stocks and acquisition in ways that reflect asset values?” The current answer is “no;” and fewer adults are willing to invest in human capital acquisition – e.g., advanced degrees – when other investments are considered to be tangible assets. As noted by the OECD, the continuing emphasis on lifelong learning reinforces the need to reform the information and decision-making mechanisms that determine learning acquisition choices. They recommend that “reforms should take into account, for individuals, their lifetime pattern of investment in human capital, and for institutions, the existence of multiple distinct learning pathways and the need for mobility and linkages between them.”¹⁴

HCA to Promote Return-on-Investment

The concept of HCA is also directly related to “return-on-investment” (ROI) in education and training, and education/training reform. The OECD notes that it is common practice in most countries, industries and firms to make budgetary decisions on funding for compulsory schooling based on the assumption that the social and economic benefits outweigh the costs; however, in many areas, the requirements of the knowledge-based economy increase the pressure to improve the effectiveness and efficiency of human capital formulation. It is concluded that “a variety of problems are posed by the predominant methods for assessing human capital that are geared to the needs of an education system that extracts fees by controlling credentials as opposed to a system where the output potential of human capital is measured on the basis of competence to produce regardless of how much knowledge was acquired.”¹⁵

Further to that, “one of the obstacles to measuring the output potential of human capital is the segmented and oligopolistic character of educational and professional certification... rooted in the historical power of universities, guilds and professions to forbid the utilization of acquired competences without certification...largely explained as ways of extracting rents from investors in human capital. The traditional state-sanctioned assertion of property rights over the knowledge acquired when people invest in human capital is one way of resolving the paradox of knowledge as a public good and as inalienable

¹⁴ OECD, 1996; p. 73.

¹⁵ OECD, 1996; p. 47.

from the person in whom it is embodied.” At the heart of this paradox is the reality that human capital must be embodied in humans while rents that accrue from the utilization of that knowledge in production must be shared in order to finance learning institutions. The OECD is clear that new forms of human capital accounting are needed in order to increase return on investment in human capital formation.¹⁶

HCA and the Assessment of Acquired Learning

The link between HCA and ROI leads to the connection between HCA, Prior Learning Assessment (PLA)¹⁷ and learning records. According to the OECD, PLA offers to individuals reduced risk of investing in human capital. For firms, it makes HCA simpler and less expensive. For governments, there is the incentive of more efficient expenditure allocation during times of fiscal pressure. PLA “renders knowledge acquisition methods neutral,” giving all forms of learning equal chances at being validated.¹⁸ Imbedded within HCA, PLA has the general impact of reducing the transaction costs both for individuals seeking to invest in human capital or enter into a contract to rent their skills and for the firm’s internal and external labour market decision making.

Using PLA to reduce the cost and duration of incremental human capital investments relative to an individuals existing asset base is a contribution to efficient allocation of individual resources and an investment incentive that reflects rates of return to recurrent education. To reap the benefits of PLA and human resources accounting practices, the OECD asserts that the state should:¹⁹

- ◆ strengthen market valuation of training and competences, develop a system for measuring competences designed to favour modular and continuing learning, and “reduce the lumpiness of investment imposed by the current certification system”;²⁰
- ◆ encourage and/or capitalize firms to collateralize and amortize knowledge;
- ◆ give clear title to well-defined competences through universal institutions for assessment and broadly recognized mechanisms for financial accounting;
- ◆ generate transparency in labour contracting by revealing employee assets and employer benefits;
- ◆ validate alternative learning acquisition.

Based on the work of Drucker and Reich, the OECD concludes that individuals, firms and governments are making choices and using resources to invest in the acquisition of human capital based on signals or

¹⁶ Human Capital Investment: An International Comparison. (OECD, 1998)

¹⁷ Different terms are used to capture the notion of the assessment of non-formal and informal learning.: Prior Learning Assessment, Prior Learning Assessment and Recognition (PLAR), Recognition of Prior Learning (RPL)>

¹⁸ OECD, 1996; p. 82.

¹⁹ Ibid., p. 83-84.

²⁰ Ibid., p. 82.

institutions developed under significantly different economic conditions; and that it might be useful for them all to consider the role of improvements to the financial accounting and reporting of training and labour force qualifications as an innovative, supportive or even alternative method of enhancing active labour market policies. They should consider new institutions and regulations that (1) improve the transparency and certainty with which human capital is valued for all new members of the labour market, and (2) establish the collective parameters and guard the general interest when it comes to defining competences, assessment methods and recording conventions based on processes that are simultaneously inclusive, decentralized, and based on a common general framework.²¹ “Measuring and recording competence acquisition, in order to improve human capital information and decision-making, requires the development of low cost, universally accepted, and labour market relevant systems for defining and assessing knowledge acquired for use in the workplace. They need to (1) accommodate entry-level as well as adult learners; and (2) balance the competing interests of employers, employees, educators, professional associations, citizens, equity-seeking groups, and different regions.

HCA and the Future of Labour Relations

The concepts of HCA and the ePortfolio are also related to labour law, the challenge being to apply contract law to investments in human capital. For example, a firm may be encouraged or required to invest in training, but the reciprocal obligation of the employee to acquire additional human capital is not equally enforceable. The question is posed: “will firms negotiate contracts that recognize the achieved and validated competence assets of workers?” The OECD concludes that a method of overcoming this problem is to provide market type incentives to labour by attaching value to the acquisition of human capital, i.e., by enabling both employers and employees to internalize the costs and benefits of investment in human capital acquisition.

In this respect, HCA and electronic learning records are also linked to the new forms of accounting for production and consumption, e.g., the United Nations Human Progress Indicators and the assessment of women’s unpaid work. Since most OECD countries do not provide formal recognition of human capital as an asset in financial accounting and reporting systems at any level, individuals find it difficult to establish readily accepted records of the asset value of their skills beyond the conventional certificates of human capital acquisition.²² It has been argued that the measurement of human capital is untenable because human-embodied knowledge is non-physical, non-appropriable, unmeasurable, and inherently incompatible with the conventions and institutions that guide the day-to-day transactions recorded by financial accounting and reporting. However, human capital is an asset – an economic resource

²¹ Ibid., p. 81.

²² Ibid., p. 39.

controlled by the entity with an objectively measurable acquisition cost – by the following four accounting condition.²³

- ◆ It is measurable by the output potential of specific competences and is, therefore, predictable.
- ◆ The fruits of investment in human capital can be appropriated by the investor as they accrue.
- ◆ The cost of buying or “renting” can be objectively determinable.
- ◆ Day-to-day transactions recognize estimates of the value of the output potential of human capital investments.

The concept of an ePortfolio is congruent with what the OECD set out as one of three means of measuring human capital:²⁴ testing people for their competencies. A second means is to look at the cost of acquisition of certified knowledge; however, “in most countries, a large proportion of diplomas, degrees and other certificates are fairly general in nature and often fail to provide any precise assurance of particular competences.”²⁵ A third means involves estimating productivity based on such achievement indicators as personal income, job security, occupational status, and past references; however, this depends on the flawed assumption that competence is accurately reflected by labour market status. The OECD concluded that not enough consideration had been given to the first measure and that “without a sanctioned or generally accepted financial record, the costs and benefits of human capital acquisition and utilization cannot become fully transparent and predictable elements of monetary transaction-based information and decision-making systems.”²⁶

Issues of Measurement and Validation of Learning

Validation of competences is the most crucial issue. “Without adequate measures of acquired competence, there is little incentive for individuals or firms to collect or develop high quality human capital information... and without practical recognition of human capital as an asset, there is little incentive to establish even inexpensive high quality systems for the identification and validation of competences.”²⁷ This means that, in part, efforts to implement PLAR and occupational skill standards must be accompanied by efforts to implement human resources accounting or they serve to perpetuate the status quo in training than to promote the necessary changes for the knowledge-based economy. In aid of developing adequate measures, an Austrian scholar has proposed that “measures should on the one hand be thoroughly researched but on the other hand immediately at management’s disposition. They should be easy to remember and few, in order to be an applicable controlling tool and at the same time reflect the whole body of new theories on organizational learning, knowledge management and value

²³ Ibid., p. 44.

²⁴ Ibid., p. 21.

²⁵ *Education and the Economy in A Changing Society* (OECD, 1989); p. 34-35.

²⁶ OECD, 1996; p. 37.

²⁷ Ibid., p. 51.

generation. They should be as reliable and unbiased as possible and still predict future success based on soft factors such as culture and stakeholder satisfaction. Last but not least, they should be accessible without high administrative costs and suited to provoke decisions that lead to higher profits.”²⁸

In this regard, HCA is related to reforms in assessment processes. Traditional assessment has been limited, e.g., to norm-referenced, standardized tests; and new forms of assessment include authentic, embedded, competency-based, standards-based and/or “alternative” assessments. Competence-based assessment, a fundamental of human resources accounting, provides a framework for adult learning and reflects a shift in the workplace away from the simple connection between the well-defined, stable skills required for production in the manufacturing era and the cognitive / behavioural competences instilled by the compulsory educational system. In all OECD countries, there is a trend towards more socially organized and explicit systems for recognizing acquired competences, as reflected by the PLA literature. As well, there seems to be general recognition of the need to improve incentive structures surrounding human capital investment and utilization.

Implementation of HCA and the ePortfolio

To implement HCA and an ePortfolio system, a nation-wide effort may be required. The OECD notes that firms do not have the capabilities or financial means to pursue assessments that are often imprecise or expensive; nor do they have the negotiating experience to allow them to enter into contracts that explicitly validate the estimated value to the firm of a person’s acquired skills. “In the absence of nation-wide efforts to establish appropriate and affordable human capital information and decision-making systems, firms are unable or unwilling to develop such systems on their own are likely to suffer from lower productivity growth and reduced ability to compete because they will be less effective and efficient in acquiring and using human-embodied knowledge.”²⁹ To this end, the OECD acknowledged PLA as a most promising area of innovation, referring to it as “achievement-based evaluation of human capital accumulation.” They note that “explicitly negotiated and transparent links between competence validation and market validation have not yet been made; however...there is a new and growing potential to turn measurement into valuation as new active labour market policies are combined with reform of educational financing and closer ties between learning institutions and the workplace.”³⁰

²⁸ *The Austrian Approach to the Measurement of Intellectual Potential* (Schneider, 1999) at <http://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html>

²⁹ OECD, 1996; p. 54.

³⁰ *Ibid.*, p. 59.

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