

Dr Ann Hylton
CEO, Hylton Associates
ann@hyltonassociates.com
ann@annhylton.com
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Measuring & Assessing Knowledge-Value & the Pivotal Role of the Knowledge Audit

Abstract

Corporate knowledge is more-often-than-not invisibly created, captured, distributed and shared throughout the organisation. However, though somewhat illusive and certainly difficult to 'pin-down', organisational knowledge can indeed be quantified, measured and assessed. This is done by examining the tacit knowledge residing with the knowledge-people, and the explicit knowledge residing in the organisation's data and document storage systems. Measurement and assessment further involves detailed examination of the knowledge capture, creation, distribution and dissemination processes and the capabilities of enabling technology that facilitates speed and efficiency of these processes. This paper provides insight and guidelines concerning the pivotal role of the knowledge audit in knowledge valuation. It seeks to demonstrate that the knowledge audit is an essential early step in measuring corporate or organisational knowledge-value, while outlining the main knowledge-values that the knowledge audit itself measures and assesses. In addition, it is contended that the failure of most, if not all, unsuccessful KM initiatives and programmes can justifiably be largely attributed to the exclusion of the knowledge audit. A very brief overview of the principles, methodologies and processes of a comprehensive knowledge audit is given.

Accounting for all the intangible assets, and intellectual property such as: human capital, customer capital, patents and brands is paramount in the new economy. For instance, the greater proportion of most modern manufactured goods is innovation and knowledge: from automobiles to aircraft, from computers to sports equipment, from mobile phones to office equipment. These intangibles must be properly included in the corporate financial accounts. Intangible-knowledge-assets accounting must now show the corporate value of knowledge by demonstrating how it is, or how it can be, converted into purchasable goods and services: for instance, the innovation elements of the modern automobiles. This is the purpose and role of knowledge management.

The problem is that, intangible assets are not easy to quantify, measure and value. The universally acknowledged difficulties encountered in attempting to quantify and measure corporate knowledge-value offers a strong case for the knowledge audit. The knowledge audit is the first major stage in effective knowledge management and corporate knowledge valuation.

The Knowledge Audit & What It Achieves

The knowledge audit (K-Audit) is a systematic and scientific examination and evaluation of the *explicit* and *tacit* knowledge resources in the company. The K-Audit investigates and analyses the current knowledge-environment and culminates, in a diagnostic and prognostic report on the current corporate 'knowledge health'. The report provides evidence as to whether corporate knowledge value potential is being maximised. In this respect the K-Audit measures the risk and opportunities faced by the organisation with respect to corporate knowledge.

The K-Audit is, or should be, the first stage in the KM programme providing, accurate identification, quantification, measurement and assessment of the sum total of tacit and explicit knowledge in the organisation.

The knowledge audit process involves a thorough investigation, examination and analysis of the entire 'life-cycle' of corporate knowledge: what knowledge exists and where it is, where and how it is being created and who owns it. It measures and assesses the level of efficiency of knowledge flow. From knowledge creation and capture, to storage and access, to use and dissemination, to knowledge sharing and even knowledge disposal, when the organisation is no longer in need of particular elements of explicit or codified knowledge. With respect to people, the K-Audit measures the efficiency of transfer of tacit knowledge skills, when particular skills or expertise is no longer needed.

The K-Audit process includes a structural knowledge audit which facilitates the mapping of internal organisational knowledge sources and the flow of knowledge within the organisation and between the organisation and its external environment, in particular partners and customers. It therefore charts the formal and informal knowledge and communication networks and the internal and external relationships that exist within this environment, and spotlights knowledge flow and knowledge gaps, in the organisation.

The knowledge audit is in effect the Knowledge-Valuator, as it computes and assesses the knowledge components and entities in the organisation. By so doing, it provides a clear indication of how well corporate knowledge is currently exploited for business and competitive advantage and, therefore, for profit, and in what way the management of corporate knowledge can be improved.

A K-Audit therefore, contributes to the company's improvement of its market and financial value by providing researched, evidence-based information and knowledge as to the 'real', existing and potential corporate wealth, most of which would remain hidden and undervalued.

KM Failures: Largely Attributable to the Exclusion of the K-Audit!

Knowledge Management initiatives and programmes fail dismally; with only at best 15% success rate. The failure of knowledge management initiatives to achieve targets over the past decade has been the focus of much discussion amongst knowledge management professionals and business analysts. This has intensified during the past two or three years as indications from a number of credible sources suggest that many recent and newly planned knowledge management initiatives and programmes are also doomed to fail.

Industry analysts predict that by next year, 2003, Fortune 500 companies alone would have lost 31.5 billion USD as a result of failed KM. The question then arises as to what has gone wrong, and will continue to go wrong? Why are knowledge management initiatives failing? There are many sound responses to the question. For instance, KM Guru Thomas A Stewart in his paper "The Case Against Knowledge Management" (2002), pointed out that companies waste billions on knowledge management because they fail to figure out what knowledge they need, or how to manage it. It takes little imagination to work out that a knowledge audit would provide researched evidence to help companies or organisations 'figure out what knowledge they need, and how to manage it'. The K-Audit provides the framework for the audited unit to gain measured knowledge of its existing and potential knowledge value.

It is this author's position that much of the mistakes of both the early and more recent adopters of knowledge management can be traced to the serious oversight of not including the knowledge audit in their overall knowledge management strategy and initiatives.

The knowledge audit is the indisputable first step in KM, and in the measurement and determination of corporate knowledge-value. The failure to incorporate the K-Audit in each and every KM initiative-programme is the single most important reason for poor KM outcomes, and consequent failed efforts at corporate knowledge-value determination.

What gets measured gets managed: What gets audited gets included

KM is about the efficient and effective management of corporate knowledge. A major problem with most past and present KM initiatives and programmes is the failure to properly identify and measure existing and potential knowledge in the organisation. So how then, can knowledge be properly managed?

Once a decision has been made to implement KM in the organisation, the knowledge audit **must** be factored in as the essential, major first step. The role or purpose of the K-Audit in the KM initiative is to scientifically measure and evaluate the current corporate knowledge-wealth, both evident and hidden, so that the right KM programme can be planned and implemented, in the most cost effective way. The rationale here is that without sound measurement and assessment, corporate knowledge cannot be properly managed. Further, because the K-Audit unearths and makes visible hidden knowledge, more of the organisations potentially valuable knowledge can be included in a KM-initiative, than if there had not been a knowledge audit.

Tangible Benefits of the K-Audit in K-Value Measurement

Most senior executives would have to acknowledge that they do not know the full extent of their corporate knowledge-assets and knowledge-capital, and how to identify these assets.

Two recent high profile examples of major corporations that obviously did not know the extent of their knowledge-value, highlights the tangible benefits of the knowledge audit in the knowledge valuation process.

First: UK dominant British Telecommunications company, BT, claims that it has 'owned' the US patent for one of the key elements of the worldwide web, the *hyperlink*, since the late 1980s, which BT alleges that it invented in the 1970s. Although, the internet/www emerged and grew exponentially during the 1990s, the powers that be at BT remained oblivious of this potential and actual goldmine that was hidden away in a well 'secure' vault. It was not until year 2002 that BT accidentally came across the patent during a routine update of its 15,000 global patents. BT is currently feeling the pain of such oversight with a costly and lengthy court case in the USA.

Second: Dow Chemical is a leading science and technology company that provides innovative chemical, plastic and agricultural products and services. The company, reportedly, grossly neglected its immense goldmine patent database, which contained over 29,000 patents. Dow Chemical therefore had not properly measured and accounted for the wealth of intellectual property that existed in those patents. On discovering its error or oversight, the company took rapid and decisive action to correct the situation with the appointment to office of an intellectual asset management director. This specialist was able to properly record and value the company's hitherto hidden and undervalued knowledge assets. It is noteworthy that less than 50% were, reportedly, not properly used for the company's benefit.

The above case studies highlights one of the most significant benefits of the knowledge audit in knowledge-value measurement; notably that it, helps companies and organisations to discover and quantify what they know and own or in other words to 'know what we know' and 'know what we own'.

Among the key tangible and measurable benefits of the K-Audit are the following:

- It provides scientific evidence to determine if corporate knowledge value potential is being maximised
- It offers a formalised and evidence based accounting of knowledge that exists or is embedded in the company, and how that knowledge moves through the company
- Via the inventory it details 'what knowledge exists in the company and where it exists', which is crucial in determining corporate knowledge-wealth and value
- It helps to identify and unearth dormant and potential knowledge resources; in particular people based knowledge, so that this knowledge can be productively used
- It enables the mapping of internal and external knowledge flow and formal and informal communications networks. This facilitates the identification of inefficiencies reflected in duplication of efforts, knowledge gaps and knowledge-bottlenecks
- It helps the company to identify and chart the knowledge that is required to support its goals and the individual tasks and activities
- It allows for the measuring and assessing of the relative value of the knowledge entities as perceived by the initiators and users, i.e. the employees
- It offers valuable measurement and assessment of the effectiveness of corporate knowledge capabilities and competency outside of the company, in particular customers, partners and even competitors
- It can gauge how efficiently and effectively the organisation captures and use knowledge held by the company's external interests, such as customers and partners
- It allows hidden knowledge to become highly visible, knowledge assets to become more tangible, and therefore more measurable and accountable
- It facilitates more efficient and effective KM initiatives and programmes
- It produces independent and objective, evidence-based knowledge-value indicators, which can then be used to plan, implement and further measure the KM project's success in achieving its defined goals

What Knowledge Value does The K-Audit Measure and Assess?

All K-Audit methodologies should ensure measurement of the quantity and quality of existing knowledge and the efficiency and effectiveness of current KM practices to determine if knowledge value potential is being maximised. Different knowledge audit models will place different levels of emphasis on the key indicators and measurement.

The rest of this paper is focused on this authors K-Audit model and methodology, the ©HyA-K-Audit. This K-Audit includes a needs analysis of the precise information and knowledge that employees should or must have to perform their jobs efficiently; how efficiently they are able to access their needed information and knowledge; and how this information and knowledge is delivered to them. The K-Audit then goes on to measure and assess how the knowledge resources are actually used by the recipients and their team members.

The ©**HyA-K-Audit** is a people-centred knowledge audit. It measures and assesses the level of efficiency and effectiveness in which knowledge is being channelled, used and shared.

Most importantly, it measures the peoples' **perception** of the organisation's knowledge management efficiency and effectiveness. The People contribution will come firstly from the employees, but should also come from customers, partners and stakeholders. The value of customer knowledge is of particular importance in the ©HyA-K-Audit.

The ©HyA-K-Audit measures the health and strength of the relationship between the core elements of knowledge management namely: knowledge-people (human resources, human capital); the process by which people access, transfer and share knowledge; the technology that enables speed, efficiency and security of the handling of knowledge documents; the quality and relevance of knowledge content contained in documents and information systems. The full lifecycle of corporate knowledge is measured: from accumulation via knowledge capture and creation process, to knowledge storage, access and retrieval, to knowledge dissemination and sharing.

There are numerous knowledge-valuation indicators that the ©HyA-K-Audit uses to assess the social and financial corporate knowledge health and wealth. Some of the key ones are noted below.

- With an emphasis on people capital, the ©HyA-K-Audit measures the demographics of the human capital potential, via a number of indicators such as: age, gender, formal education, technical training, job position, and so on
- It measures and assesses how well corporate human capital is managed via indicators such as job satisfaction and opportunities for career development
- Customer knowledge value is measured using indicators such as customer interaction and feedback opportunities, customer satisfaction and customer retention
- Corporate knowledge sharing and collaboration culture is measured using indicators such as opportunity for exchange of knowledge, frequency of exchange of knowledge, knowledge incentive and reward policies and practice
- Measurement of the knowledge-value to be found in the organisation's explicit and codified knowledge is carried out using indicators such as information and documents volume, type, and usefulness; number of patents, trademarks and licences
- The management of structural knowledge capital is measured via indicators such as: the enabling storage and access technologies: and the processes to facilitate efficient dissemination, flow and use of knowledge information

The Measurable Difference That the K-Audit Makes to a KM initiative

The K-audit has a key role in the measurement and assessment of the corporate-knowledge-value and return on investment in knowledge and KM. The evidence-based information resulting from the K-Audit facilitates better prediction of the costs and revenues of the KM project and the investment in knowledge. Key **measurable** cost-benefits of the knowledge audit to the KM initiative and programme include the following:

- The contribution that the K-Audit makes to the direct and indirect savings of the process of determining corporate knowledge-value. Measurement results will reveal significant savings resulting from accurate information obtained from the K-Audit.
- The direct and indirect savings of the management and leveraging of corporate knowledge as a result of the evidence-based information produced from the K-Audit can be measured. Measurement results will reveal that because the K-Audit helped

the KM-leaders and practitioners to more accurately *'know what we know and don't know, and to know what we need to know'*, they were able to make more accurate judgements, more quickly, resulting in significant time/resources/and expenditure savings.

- The knowledge-audit serves as a risk and opportunity assessment. Post the KM initiative/programme actual costs and revenues, based on a baseline figure, can be calculated to measured and determine the level of accuracy of the predictions.

How Does the K-Audit Measure Knowledge-Value

There are different K-Audit methodologies for the identification and valuation of corporate knowledge. This author's methodology, the ©HyA-K-Audit, places great emphasis on the quantification and measurement of **human** knowledge capital, existing and potential. What follows is the methodology of the ©HyA-K-Audit, of which there are three main elements:

1. **©HyA-K-Audit K-Survey** – collecting, collating, analysing and measuring corporate knowledge data and information via the voice of the knowledge people. It includes Face-to-Face interviews
2. **©HyA-K-Audit K-Inventory** – stock-taking and measurement of *tacit* and *explicit* knowledge to determine the actual and potential knowledge wealth
3. **©HyA-K-Audit K-Map** – building and development of a corporate knowledge map of the structure and flow of knowledge, highlighting who has what knowledge and how they disseminate and share knowledge in the corporate knowledge community

The Knowledge Survey & Face-to-Face Interview

The very unique nature of knowledge makes it essential that knowledge-value be measured and assessed not just in terms of outputs and outcomes, but also in terms of knowledge-people-perceptions. Every person in an organisation will have their own view or perception of what knowledge is valuable, and its worth, as well as when a given piece of knowledge ceases to be of use or value. The creation, existence and character of knowledge depend almost exclusively on people; it is people who are the containers of pure or tacit knowledge (as opposed to documented or codified knowledge). It is individuals who make the decision of how and when to use their tacit knowledge in their job-tasks. This is the overriding reason that the Questionnaire-Survey, followed by Face-to-Face Interviews, is the first major stage in the ©HyA-K-Audit.

The ©HyA-K-Audit **K-Survey** is a qualitative measure of KM efficiency and effectiveness, from the people's view point. It is aimed at eliciting the perceptions and opinions of the company's knowledge people on corporate knowledge health. It gathers subjective, quantifiable information on the perceptions of the knowledge, quantity, quality, access, use, sharing and effectiveness in the organisation. Most importantly it serves to quantify and measure the subjective assessment of the knowledge potential in the organisation, the degree to which this corporate potential is hidden or unknown, and the levels at which they are exploitable.

Intrinsic to the ©HyA-K-Audit K-Survey is the position that corporate objectives must be tightly and inextricably linked to the knowledge that the people in the organisation contribute to its bottom-line. The questionnaire-survey is therefore designed to ensure that the knowledge-value of each and every person in the organisation can be easily counted, and accounted for, i.e. audited, since every person's potential 'knowledge' contribution is deemed worthy and valuable. This means that ideally the questionnaire-survey should be all inclusive, to

embrace every single employee in the company. I have discussed this in much more detail in a previous paper.¹

Some of the main measurement indicators of the questionnaire-survey are:

- *Skill levels*: peoples qualifications, skills and experiences
- *Corporate knowledge culture*: practices re knowledge sharing, collaboration, innovation, team spirit, reward
- *Knowledge codification*: levels and quality of documentation of tacit knowledge
- *Knowledge access*: efficiency of knowledge access and retrieval processes/systems
- *Knowledge use*: efficiency and effectiveness of the leveraging of knowledge
- *Skills & competency enhancement*: opportunities for training and development
- *Career development-reward*: opportunities for promotion and skills-to-job matching
- *Staff relationship*: nature and health of management and line staff relationship
- *Employee satisfaction*: level of happiness with job and the company as a whole

The Knowledge Inventory

The [©]**HyA-K-Audit K-Inventory** is the knowledge *stock-taking* within the knowledge audit, involving the counting, indexing and categorising of corporate tacit and explicit knowledge. Analysed information gathered from the earlier *questionnaire survey* and *face-to-face* interviews is included in the knowledge inventory. The outcome of this stocktaking is an objective identification and measurement and valuation of the existing corporate knowledge assets.

It is widely acknowledged and accepted that 80% to 90% of corporate knowledge is hidden in the form of *tacit know-how*, knowledge that people carry around with them privately. Hence the weight of balance in a [©]**HyA-K-Audit K-Inventory** is on *tacit* knowledge identification, and categorisation, with some of the main indicators of tacit knowledge being:

- *Who we have*: number and categories of (knowledge) workers
- *Where they can be found*: location in the company/departments/teams
- *What they do*: job types and levels
- *What they have achieved*: formal academic and professional qualifications
- *What they know*: core knowledge skills and experience inc. personal hobbies/ interests
- *What are their future potentials*: on the job training and learning & development

¹ A knowledge Audit must be People-centred & People Focused – available at www.AnnHylton.com

Even in cases where knowledge has been properly and efficiently codified/documentated corporate memory is short, and more-often-than-not the organisation forgets about knowledge-assets that are housed in its storage and archive systems. Thus while the ©HyA-K-Audit K-Inventory has a high focus on tacit knowledge, great attention is given to identification and categorisation of explicit/codified knowledge, via such indicators as:

- *What we have*: number, types and categories of knowledge documents
- *Where they are*: location in the company/departments, as well as external homes
- *Purpose & relevance*: why they exist, how appropriate and relevant they are
- *Distribution & access*: who needs to get them and how easy is access and retrieval
- *Use*: who actually uses them, when, and what for

It is important to emphasise that pertinent information gathered from the earlier questionnaire survey and face-to-face interviews is included in the ©HyA-K-Audit K-Inventory.

The Knowledge Map

The final output of the knowledge audit is the knowledge map, which serves the purpose of visually representing the outcome of measurements and valuation of corporate knowledge. This will often be the most exciting output of the knowledge audit.

The ©HyA-K-Audit K-Map offers a visual representation of the corporate knowledge network, and the level of connectedness and inter-connectedness within the organisation. It is largely concerned with the identity and location of tacit or people-based knowledge, but will also by necessity point to systems-based knowledge. From the knowledge map, knowledge flows, gaps and deficiencies become evident.

Once information about the corporate knowledge sources, ownership, distribution and use has been gathered, from the knowledge inventory, that information can now be mapped to visually demonstrate who has what knowledge, where these persons are located, the level of accessibility to them, and with whom they most often share and exchange knowledge.

With regard to knowledge-value measurement, the knowledge mapping process visually represents the measured corporate knowledge-value. It also facilitates further quantification and measurement of the internal and external pathways to corporate knowledge, in much the same way that a community geographical map visually represents, quantifies and measures the different modes of access to areas and services in the community.

Some of the main pathway indicators that a knowledge map offers:

- *Knowledge source*: pathway to who has what knowledge and where can they be found
- *Experts beneficiaries*: to whom knowledge experts transfer and share their knowledge
- *Non-access*: who needs to benefit from experts knowledge but is not able to
- *Knowledge transfer*: how regularly, efficiently and effectively knowledge is transferred from owner to others who need it
- *knowledge codification*: how well expert knowledge is codified for independent access

From these and other indicators, further analysis can be carried out to measure and assess knowledge gaps and flow, so that gaps can be filled and the knowledge flow improved.

Using the knowledge map, the knowledge management planners and implementers can more knowledgeably design and execute the appropriate and effective corporate KM-programme, transparently and cost efficiently.

In Closing

The new economy is a knowledge-based economy, and is therefore, by default a people-centred economy. This means that by-and-large corporate knowledge-assets are largely hidden, (in the heads of employees) and knowledge-capital is likely to be more potential than actual as they are very often not evident.

Just as in the old economy, valuable natural resources were often hidden below the surface and had to be mined and 'processed' to extract the value, so also must the hidden and untapped human knowledge in organisations be mined and processed in order to gain the valuable knowledge capital. In addition, because knowledge largely resides with people, knowledge as a potential asset cannot be treated like a natural or man-made physical resource. This human-capital-asset must be carefully nurtured in order to extract the capital value from it.

I am ever mindful to emphasize and re-emphasise that in seeking to measure and value corporate knowledge, the company's executives and KM-practitioners must be prepared to harness the knowledge of all employees, not just the chosen elite.

The knowledge audit is the most important first stage in knowledge-asset extraction, processing, and nurturing. By providing sound-scientific measurement and valuation of the existing corporate knowledge health, the knowledge audit facilitates further and more accurate corporate knowledge valuation, and vastly improves the likelihood that knowledge potential will be maximised culturally and financially.

Finally, on deciding to implement a new KM-system, or to improve on the existing one, the knowledge audit is not an option, it is essential.

Your comments will be welcomed.

Dr Hylton can be reached at ann@hyltonassociates.com or ann@hyltonassociates.com

Her company's web site can be accessed at www.HyltonAssociates.com and www.AnnHylton.com

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