Chapter 11

Engineering Business Reasoning, Analytics and Intelligence Network (E-BRAIN): A New Approach to Intangible Asset Valuation Based on Einstein’s Perspective

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ABSTRACT

“Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius: and a lot of courage—to move in the opposite direction.”...Albert Einstein. This chapter details a performance-based theoretical model of intangible asset valuation: Engineering–Business Reasoning, Analytics and Intelligence Network (E-BRAIN). E-BRAIN’s origin started with the construction of a validated taxonomy of intangible asset value drivers: Framework of Intangible Valuation Areas (FIVA) (Green 2008). E-BRAIN is a culmination of research and practice and offers valuable insights into the emerging discipline and field of intangible assets. Using systems engineering and organization memory (cognition) as the foundation for its structure, the model identifies the path from intangible key performance indicators to performance measurement. This chapter introduces E-BRAIN as a systemic and holistic approach to intangible asset valuation that starts with a set of metrics by which business leaders can account for intangible or non-financial factors that affect value creation in the knowledge era business.

BACKGROUND: THE EVOLUTION OF E-BRAIN

In 2004, Annie Green conducted research to identify and define intangible valuation areas for the business enterprise. Green’s (2004) empirical research provides significant evidence that when a corporation uses standard and consistent intangible asset taxonomy to define and develop their intangible asset valuation models, it increases the firm’s ability to identify, measure, account for, and validate more intangible assets. The Framework of Intangible Valuation Areas (FIVA), the result of this research, is an intangible asset taxonomy that represents a validated set of business value drivers.
FIVA establishes a path to determine the importance of interactions between intangible mechanisms, processes, representation and goals that compose the basic concepts of organizational memory within a business. It sets the foundation to capture intangible measures and indicators that align with the business enterprise value drivers.

Additional empirical research conducted by Andreas Andreou (Andreou, Green and Stankosky 2007) defines some of the antecedents of FIVA. This empirical research presents a concept that allows a business to identify and link performance measurements/indicators to its intangible value drivers and subsequently capture measures to monitor and evaluate leading and lagging intangible indicators. It identifies performance focus areas and their respective critical success factors resulting from the interaction of the employee value driver with other value drivers (i.e., customers, competitors, partners, information, technology, processes and products/services).

Expanding on her original research and the research conducted by Andreou, Green evolves FIVA into a cognitive intangible asset valuation model termed: Business Reasoning, Analytics and Intelligence Network (BRAIN) (Green, 2009). BRAIN is one of many models as there are numerous efforts by researchers and individual companies to develop methods and tools to account for intangible assets ((Sveiby 2001) (Bontis 2000) (Hurwitz et. al. 2002) (Shand 1999) (Edvinsson & Malone, 1999) (Sullivan 1998) (Lev 2001). What differentiates BRAIN is that it starts with intangible value drivers that support the capability of business leaders to tailoring their models to a specific industry as opposed to being case-based or limited to one industry or organization. Figure 1, the BRAIN concept, depicts the BRAIN’s valuation components and their relationship to each other.

BRAIN links business value drivers (such as employee, customer, technology…etc.) and their intangible indicators to business operational and historical data. The business value drivers are correlated to determine the strength of the relationship between them. The correlation of the value drivers, intangible indicators and operational and historical data, provides intelligence into understanding the importance of interactions between intangible assets and business operations. This intelligence can be used to make decisions surrounding the development of improvement initiatives targeted at more efficient and effective operations of businesses.

BRAIN begins with operational and historical data and transcends through the cognitive layers (intelligence, knowledge, learning, change, and performance measurement) of the business mind. Below is an example that walks-through a single business thought using the BRAIN concept.

This is a simple example that focuses on two business value drivers: Customer and Employee. It also focuses on one intangible asset for each of these value drivers. An intangible indicator for customer is their Satisfaction with the services and/or products of the providing organization. An intangible indicator for an employee is the Training they have received and apply in the performance of their work.

The cross-pollination of Customer/Satisfaction with Employee/Training indicators linked to operational and historical data presents the following results:

Relational Intelligence:

- **Operational Data Indicators:** Customers with a high satisfaction rating are aligned with employees that have successfully completed specific training requirements.
- **Operational Data Indicators:** Customers with a low satisfaction rating are aligned with employees that have not successfully completed specific training requirements.
- **Historical Data Indicators:** Prior to implementing Employee Training Requirements, Customer Satisfaction ratings were low and Customer Longevity (an
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