THE KNOWLEDGE ECONOMY'S STRATEGY DILEMMA: BALANCING DIGITAL RELATIONSHIPS AND RIGHTS

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Marketing scholars, like their economics and strategic management colleagues, acknowledge the knowledge economy's profound transformation of the business enterprise. Yet, the ethical tradeoffs incurred by enterprises that embrace digital network technology have not been sufficiently explored. This study examines the dilemma posed by the emerging knowledge economy structures and related digital network systems for sustainable business marketing relationships. Unlike the conflict focus presented in the extant literature, a confluent framework of digital enterprise and ethics is advanced by coupling marketing and MIS competences. Accordingly, knowledge economy resources are shown to optimize marketing strategy without obfuscating risks for business customers. Beginning with an examination of knowledge economy drivers, the essential determinants of successful business enterprise alliance are derived from relational marketing strategies and digital information systems. Next, a process is proposed to optimize knowledge economy business-to-business networking strategy, by balancing micromarketing enterprise relationship considerations with macromarketing ethical rights concerns. The resulting knowledge economy relationship management (KERM) process is then applied to a knowledge economy enterprise scenario to demonstrate its conceptual validity and commercial viability. Consequently, by embracing digital ethics rights as a complementary knowledge economy dimension, this exploratory study contributes a more balanced strategic perspective of digital enterprise relationships.

INTRODUCTION

Knowledge economy (KE) relationships among business partners are information intensive. Beneath every business "value chain" (Kotler 1985) is a facilitating "information value chain" (Porter and Millar 1979). Drucker's (2005, 1999, 1993) foresight established knowledge as the essential business asset and customer relationships as the business purpose. These core concepts convey the knowledge economy business premise. However, knowing the knowledge economy business advantages is only the first step towards actualizing them. This study presents an exploratory approach towards actualizing knowledge economy advantages in business to business markets. A framework is developed by coupling the strategic marketing intelligence assets with MIS digital systems intelligence. This fusion of strategic and systems competence is modeled for both collaborative macromarketing intelligence discovery and competitive micromarketing intelligence delivery. The phrase "sense and respond" (Bradley and Nolan 1998; Haeckel 1999) captures this yin-yang intelligence process that constitutes the knowledge economy "information value chain." Therefore, the research purpose is to model strategies and systems that balance micromarketing intelligence relationships with macromarketing intelligence rights in the knowledge economy. By furthering congruence among digital business relationships and rights, the study responds to the call for research exploring information technology's significance within the field of marketing strategy (Varadarajan and Jayachandran 1999).

Knowledge economy (KE) conditions help businesses combine marketing strategies with digital systems to sustain both micromarketing relationships and macromarketing rights. In terms of micromarketing intelligence,

The Marketing Management Journal
Volume 20, Issue 1, Pages 123-144
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knowledge economy relationship management (KERM) must combine the strategic planning tools from both marketing strategy and management information systems. Marketing relationship management techniques help to translate the knowledge economy potential for greater intelligence sharing into practical business marketing advantages. In a complementary manner, MIS digital intelligence mining technologies help to transform computing advances into tailored business marketing applications. Likewise, macromarketing intelligence builds on knowledge economy confluence among business stakeholder networks to embed ethical codes that ensure distributive justice rights. Here again, strategic marketing competence such as customer orientation and relational value permit a compatible alignment of business objectives with technology protocols, regulatory standards and societal norms. In addition, MIS contributes the competence to design digital systems that map enterprise relationships and monitor ethical rights. In many respects, this parallel pursuit of micromarketing enterprise and macromarketing ethics resolves a central knowledge economy business conundrum. Realizing the advantages of digital intelligence relationships requires an assurance of digital intelligence rights.

Business marketing relationships increasingly rely on the privacy and security of intelligence shared over digital networks. This digital intelligence risk has become a strategic success factor for managing knowledge economy micromarketing relationships and macromarketing rights. Business, marketing and economics scholars have mapped this vital knowledge economy territory along three dimensions:

- Meta-level -- broad structural market forces (knowledge economy, digital networks, etc.)
- Macro-level – bounded social market factors (external stakeholders, policies, ethics, etc.)
- Micro-level – business strategy market functions (relationship management system, skill, etc.).

These knowledge economy vectors align business intelligence relationships with digital information rights. In addition, the three vectors chart the literature streams that have surveyed the strategic and systems intelligence for sustaining knowledge economy relationship. The "meta-level" dimension literature extends knowledge economy theory to validate emerging digital network concepts. Typically, these digital network concepts emphasize the unique *structural* composition of e-commerce companies, channels and content. The "macro-level" dimension literature emphasizes the knowledge economy's *societal* context. In particular, "macro-level" directives focus on the role of external environment stakeholders in balancing digital ethics rights and digital enterprise relationships. The "micro-level" dimension literature distills relational and digital intelligence into *strategic* contingencies. These "micro-level" knowledge economy strategies are devised to guide business enterprises and guard business ethics.

Ultimately, this study proposes a knowledge economy relationship management (KERM) model to synthesize the meta-level, macro-level and micro-level dimension literature streams described above. The proposed KERM process synchronizes micro-level knowledge management with the macro-level and meta-level dynamics of the broader knowledge economy. The coupling of micro-level marketing and MIS competencies reveals parallel knowledge economy considerations at the macro-level and meta-level. First, a foundation is established for the proposed KERM construct by reviewing the literature of knowledge economy functions, factors and forces. Next, the KERM construct is operationalized as a business marketing planning process for balancing digital intelligence relationships and digital intelligence rights. Finally, conclusions are drawn from an exploratory KERM process scenario to further knowledge economy relationship strategy and research.

FIGURE 1
The Evolution of Micro/Macro/Meta Knowledge Economy Dimensions

	Industrial Economy (tangible value) "Loading"	**Service Economy (intangible value) "Linking"**	**Knowledge economy (intelligence value) "Learning"**
I. MICRO-Level Strategic Knowledge Economy Functions			
Marketing	Fragmented Market strategies *separated* in business planning process	Focused Market strategies *synthesized* in business planning process	Fused Relational intelligence management and Digital intelligence mining *synergies*
MIS	Functional Data systems *subordinate* to business planning processes	Facilitative Data systems *supportive* to business planning process	
Day and Glazer (1994)	Info-Exclusive Strategy (Corporation as Compartment)	Info-Intensive Strategy ("Corporation as Computer")	Holistic Context-Dependent Sense/Respond Learning
Germunder and Ritter (1997)	Material Resource Competence Resource Task Management Resource Exchange Capacity	Service Agency Competence Agency Task Management Agency Transaction Ability	Network Competence Relationship Execution Relationship Qualification
Bean and Robinson (2002)	Territorial and Tangible Assets	Interactive and Intangible Assets	Relational and Intellectual Assets
II. MACRO-Level Societal Knowledge Economy Factors			
Achrol and Kotler (1999)	Vertical Market Structure	Horizontal Market Services	Network Market Systems
Castells (1996)	Material Mode and Industrial Paradigm	Social Mode and Services Paradigm	Informational Mode and Network Paradigm
Sweet (2001) Macro/Micro Value Logics	Industrial and Value-Adding	Service and Value-Extracting	Knowledge Web/Network Value Capture and Create
III. META-Level Structural Knowledge Economy Forces			
	Regulation (Intelligence Control)	Reciprocity (Intelligence Convergence)	Rights (Intelligence Collaboration)
Kim and Mouborgne (1997)	Forced Process Enterprise Performance and Compulsory Cooperation	Free Process Enterprise Performance and Voluntary Cooperation	Fair Process Enterprise Performance and Ethical Principles
Allee (2000a)	Material Capital (Protecting)	Human Capital (Sharing)	Intellectual Capital (Learning)
Wilkinson and Young (2005)	Placid Environments (Random and Clustered)	Disturbed Reactive Environ.	Turbulent Environment

STRATEGIC KNOWLEDGE ECONOMY RELATIONSHIP PATTERNS

From a micro-level perspective, strategic business relationships in the knowledge economy (KE) combines the digital core competencies of marketing and MIS. Figure 1 charts the evolving convergence of MIS and marketing techniques from a tangible asset industrial economy, through the intangible asset service economy, towards the intelligence asset knowledge economy. The unique contribution of this study is to decipher the knowledge economy progression as the dialectic between relational marketing and digital MIS strategic competencies. Configuring knowledge economy evolution this way adds continuity between the micro-strategic, macro-societal and meta-structural tiers of economic value creation.

> Research related to information technology and its influence on industry structures is needed, as are efforts toward integration of understanding of environmental changes driven by information technologies, value creation and marketing. (Bean and Robinson 2002, p.206)

Typically, knowledge economy frameworks emphasize the implications of broad structural forces like discontinuous technological innovation or societal factors information privacy on business marketing strategy. Instead, here, the knowledge economy is posited as a bottom up spiral configured around the coupling of micro strategy competencies. Specifically, those competencies sprout from the seeds of marketing relationship strategy and MIS digital systems. Growing the knowledge economy framework from familiar micro-level techniques and technologies imparts greater relevance for business marketing strategy. Still, this competency-oriented conceptualization is validated by knowledge economy research (Day and Glazer 1994; Polonsky 1995; Germunder and Ritter 1997; Achrol and Kotler 1999; Allee 2000a; Sweet 2001; Bean and Robinson 2002; Wilkinson and Young 2005).

Linking Marketing and MIS Strategic Competency Logic

Confluence between marketing and information technology systems is the dominant knowledge economy business logic, because it facilitates the commercialization of intangible and even disembodied intelligence value. Interactive digital technology controls knowledge economy viability and market relationships coordinate knowledge economy value. In the information age's infancy, Day and Glazer (1994) coupled marketing and information technology system competencies to formulate the "market-driven learning organization," an exemplar of knowledge economy dimensions delineated here. Expanding on the market-driven organizational model, Day (1997) explained that information intensity enables marketing and information technology to synthesize knowledge economy strategy and structure. Recent business marketing studies firmly connect relationship value learning with information technology literacy (Walter and Ritter 2004).

Business marketing scholars also contributed to these founding models of competency-oriented knowledge economy patterns. In particular, the business marketing research casts marketing and MIS at the center of value-creating knowledge economy strategies. Gemunder and Ritter's (1997) network competence constitutes a micro level strategy that weds relational marketing and network MIS functions. By contrast, less relational competencies can be ascribed to pre-knowledge economy eras. The industrial economy's material resource architecture is typified by the capacity to exchange tangible goods. Similarly, the service economy's agency design facilitates transactions for intangible provisions. Therefore, the proposed framework's micro level strategy functions concentrate on business marketing network competence (Ritter and Gemunden 2003), but are also compatible with broader knowledge economy factors and forces.

Bean and Robinson (2002), explicitly weave marketing and MIS competencies into

knowledge economy value creation, in the form of intellectual and relational assets. Extending the market-based assets premise (Srivastava, et al. 1997), relational assets are attributable to marketing and intellectual assets stem from market-based management of MIS networks. Relational and intellectual skills create micro-level value because knowledge economy markets rely on intelligence sharing to accrue competitive advantage. Yet, this study's competency orientation regards micro-level marketing and MIS properties as both a cause and effect of broader macro-level and meta-level knowledge economy dynamics. Indeed, focusing on relational and intellectual assets can reveal business marketing environmental alliances among societal stakeholders and increase the relevance of structural knowledge economy transformations. The strategic momentum from "market power built on knowledge bases" (Bean and Robinson 2002, p.211) fuels this bottom up framing of knowledge economy dimensions.

For business marketing scholars this competency-orientation towards understanding the knowledge economy structure, society and strategy is referred to as "sense-making" (Weick 1995; Wilson and Woodside 2001). In particular, the process of "sense and respond" (Bradley and Nolan 1998; Haeckel 1999) captures the cause and effect duality between micro level strategic proficiency and the broader societal and structural knowledge economy patterns. A common feature of sense and respond strategy is the prevalence of environmental uncertainty and dynamism – especially for business-to-business electronic markets (Lazoda and Calantone 1996; Bstieler and Gross 2003). However, absent strategic vision (Grewal, et al. 2001) broader knowledge economy dynamics will not be sensed. Therefore, the proposed framework suggests that micro-level business marketers must first acquire the competency to see macro-level and meta-level knowledge economy conditions.

Strategic business marketing competencies are sense and respond determinants of knowledge economy value. In particular, this pertains to relational and intellectual discernment. Sensing, as Haeckel (2004, p. 182) states, is not merely environmental scanning, but "making meaning out of apparent noise." Matthyssens and Vandenbempt (2003, p. 599) articulate this micro level reasons for knowledge economy reality as "cognition-in-context," because "managers enact their environments." Welsh and Wilkinson's (2002) "schemas" are also indicative of a strategic competency-orientation:

> These schemas are the way managers make sense of their world and the interactions taking place with other organizations and represent a different kind of dynamical force shaping relationship and network development. (Welch and Wilkinson 2002, p. 27)

Leveraging Marketing and MIS Business Relationship Logic

Customer relationship management (CRM) operationalizes the knowledge economy process of sensing meta-level and macro-level intelligence, in order to respond with strategic micro-level competences. CRM embeds the "dominant logic" of intangible intelligence resources, collaborative value creation and relationships (Vargo and Lusch 2004), while emphasizing the partnering nature of business to business marketing (Dunn and Thomas 1994; Tuten and Urban 2001). Likewise, CRM arrangements permit adaptive relational and network behaviors (Brennan and Turnbull 1999; Ivens 2004) to calibrate strategic competencies and time effects (Plakoyannaki 2006) in dynamic knowledge economy environments.

Ivens (2004) analyzes the multidimensional relational behavior construct in industrial markets to isolate effects on relationship quality. The findings imply that an array of relational styles will need to be embedded into the strategic competencies of knowledge economy business marketers. Value-oriented relationships achieved higher ratings on the relationship quality criteria of commitment, economic and social satisfaction. Ironically, the

findings also indicate that the most knowledge restrictive style ("defensive relationships") scored highest on the trust criterion of relationship quality. This counter intuitive outcome may tell a narrative of trust as a risk-averse quality that is diminished by knowledge sharing without relational assurances. Morgan and Hunt (1994) firmly ground trust and commitment as pillars of relationship value. Perhaps, commitment was lacking in the non-defensive relational styles analyzed by Ivens (2004). Walter and Ridder (2003) model trust as part of an ensemble of influences, including adaptation and commitment to confirm its role as a key driver of relationship formation.

Marketing and MIS Network Logic

The knowledge economy's macro level societal patterns also reflect the pairing of marketing and MIS competences. Figure 1 shows the "network paradigm" as a determinant of macro level knowledge economy patterns (Achrol 1997; Achrol and Kotler 1999). This adaptive network paradigm for business marketing in the knowledge economy differs from the earlier service economy logic of horizontally enabled social channels, as well as the industrial economy's structured vertical channels. Examining the network paradigm's patterns and properties closely will reveal the combination of relational marketing aptitude for macro knowledge coordination and digital MIS applications for macro knowledge control. As notated in Figure 1, Sweet's (2001) "value configuration logics" directly parallel this pairing of marketing and MIS network logic as a primary determinant of knowledge economy value. Like Sweet, this study's divides knowledge economy relationship networks into "microeconomic paradigms" of business value creation and corresponding "macroeconomic paradigms" of value creation in society.

At the meta-level of analysis, the network paradigm manifests the collective macro and micro level principles which will optimize knowledge economy navigation. This holistic meta-level direction is epitomized in Castells' (1996) seminal study of "network society." Network society development parallels the knowledge economy's progression. The industrial, service and knowledge economy are distinguished based on the primary mode of economic content and the dominant economic channel paradigm. Whereas the industrial economy prioritized material production and exchange, the service economy elevates intangible social mode processing and interpersonal transactions. Knowledge economy factors are an informational mode and digital network paradigm to disseminate value.

The holistic network society paradigm also poses the knowledge economy paradox of balancing enterprise relationships with ethical rights. Castells (1996) explains that parallel with the evolution of the knowledge economy has been the extensively documented rise in information security risks for e-commerce business enterprises, digital technology networks and general society welfare. These fundamental knowledge economy ethics issues posed by the network society paradigm are within the purview of meta-level structural forces. As Figure 1 shows, meta-level forces encompass digital technology breakthroughs, altered time/space locus and the emergence of knowledge value. However, most importantly, meta-level forces entail the ethical principles that balance the impact of those other structural changes on social macro level environments and strategic micro level enterprises.

Marketing and MIS Ethical Logic

Ethical frameworks for marketing environment navigation and the digital ethics guiding MIS enterprise networks can be applied to knowledge economy considerations at the micro-level, macro-level and meta-level. Kim and Mouborgne (1997) describe their seminal contribution to ethical knowledge economy management as "fair process." By combining micro level trust properties with macro level distributive justice principles, the authors formulate a compatible knowledge economy blend of enterprise performance and ethical cooperation. This proactive pairing of knowledge economy intelligence relationships

and rights can be contrasted with the compulsory ethics controls imposed by industrial economy regulations. Less restrictive service economy regulation fosters intelligence convergence, but fails to forge constructive ethics collaboration. The specific ethical dilemma of knowledge economy network information rights is addressed by a well developed marketing and public policy research stream (Brown and Muchira 2004; Chellappa and Sin 2005; Harridge-March 2006).

Besides the ethical considerations, meta-level forces chart the profound transformations in the knowledge era conception of economic value and environmental change. From an economic perspective, value denomination is a central business marketing measure and motive. Allee (2000a) traces economy value based on an appraisal of resource worth in comparison to preceding eras. This value progression described in Figure 1 depicts how each form of value is exchanged using a particular currency. So, material value is exchanged through financial currency, human value is exchanged with social currency and intellectual value is shared by digital network currency. Environmentally, the knowledge economy represents a transformation in the scope and speed of change. It gauges the pace of change impacted by change, as well as the sufficiency of strategic competency and societal conditions to attenuate that change. Social futurist Alvin Toffler (1970) calls the human effect of this property "future shock." However, Wilkinson and Young (2005) measure the business marketing knowledge economy effect in terms of relative environmental turbulence.

Having traced the knowledge economy's evolution based on converging marketing and MIS competencies -- as well as prevalent information security threats, a process for balancing the business network relationships and rights is presented. The proposed knowledge economy relationship management (KERM) process contributes a more purposeful embrace of ethics intelligence to knowledge economy research in the business marketing literature. The proposed KERM process frames the knowledge economy with a competency orientation, which regards ethics as key to knowledge economy strategy, as well as societal and structural knowledge economy dynamics. At the micro-level ethics intelligence complements enterprise strategy by codifying trust, an essential knowledge economy relationship asset. Likewise, including ethics at the societal and structural level resolves the knowledge economy paradox of balancing digital relationships and digital rights.

KNOWLEDGE ECONOMY RELATIONSHIP PLANNING

Knowledge economy (KE) e-commerce business marketers rely on proprietary customer data to facilitate relational intelligence sharing. Holmes and Srivastava's (1999) research on collaborative electronic data interchange (EDI) outlines the enhancements and inhibitors of strategic intelligence sharing in the pre-knowledge economy context. Knowledge economy relationships must balance the strategic profits derived from intelligence with the data security price (Chellappa and Sin 2005). In the case of business customer information privacy risks, a price is paid to obtain benefits such as EDI system connection, logistical alignment, preferred contract terms and value adding support services. These business market data privacy exchange benefits parallel consumer market rewards, such as customization, fulfillment, price discounts and affinity program services (Gardyn 2001; Norberg and Dholakia 2004). Wind (2006) has called for business marketers to adopt consumer market strategies more aggressively, such as relationship intelligence sharing. Business and industrial marketing networks must also balance intelligence sharing rewards and intelligence security rights in e-commerce knowledge economy relationships (Grewal and Comer 2001; Bean and Robinson 2002; Gronroos 2004). Figuring out which customers will engage knowledge economy e-commerce suppliers in mutually beneficial data sharing is referred to in economics as the "problem of identification" (Bajari and Ye 2003).

In information-intensive e-commerce relationships, data sharing arrangements with knowledge economy suppliers can expose customers to information risks (Culnan and Armstrong 1999; Hoffman, et al. 1999; Zhu 2002; Brown and Muchira 2004; Harridge-March 2006). Because of asymmetric information access and control, business-to-business relationships are vulnerable to these security risks as well (Ringberg and Gupta 2003). These potential information security threats are manifested through data leakage, violation and error, which in turn lead to trust eroding concerns such as identity theft (Friedman 2000).

To address the knowledge economy e-commerce "problem of identification" in an operational mode, a three-step KERM process combines the micro level competencies of marketing relationship *strategies* and MIS data mining *systems* into a viable business model for e-commerce value creating exchanges (Goel and Carter 2004). In many respects, this process parallels Glazer's (1997) fusion of marketing and IT for information-intensive strategy. Glazer's strategic sequence includes information acquisition, distribution, interpretation and organizational memory sense-making. However, because the proposed KERM process is purposefully aimed at balancing intelligence strategy and security, identification of mutually beneficial partners and classification of data exchange value thresholds are prerequisites. The KERM process commercialization step, however, is logically viewed as organizational memory sense-making. Figure 2 diagrams the three KERM steps and associated factors.

Step 1: Identification: Realize Relationship

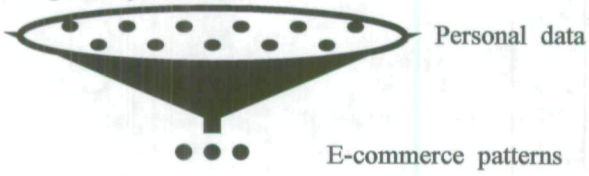
a) First *criterion* for *identification* in KERM comes from realizing shared strategic roles in achieving value-creating knowledge economy goals. The business strategy literature's "value chain" construct provides guidance for fashioning a KERM process that bridges the two seemingly divergent knowledge economy goals of *value delivery* and *information security*. Porter's (1985) original value chain presented a channel connecting inbound resource flows from suppliers, operational "value-adding" activities and outbound resources flows to customers. By connecting suppliers, firms and customers like links in a unified chain, the focus is trained on value creation rather than vested separation.

Each link in the value chain has a role to contribute towards supporting (suppliers), creating/delivering (firm) and sustaining (customer) value. Customers provided preference information, which indirectly informed suppliers about the nature of inbound resources and directly enabled the firm to calibrate operations to align supplier resources with customer requirements. Of course the value chain could just as easily send signals from supplier through the firm to customers (e.g., resource innovations or shortages), or allow firms to send signals bi-directionally to customers and suppliers (competitive attack or defense). The strategic advantage provided by "value chains" is the ability for suppliers, firms and customers to operate in strategic relationships and not by separate rules. Increasingly, these strategic intelligence dialogues are mediated by digital "agents of exchange" (Carter 1997; Wind and Mahajan 2001). KERM embraces value chain message digitization to robustly identify signals of shared knowledge enterprise relationship roles.

b) Second *criterion for identification* comes from managing relationships to learn which *customers are loyal*. Customer relationship management (CRM) is a relational marketing competency (Grewal and Comer 2002) for profiling and tracking customer patterns to accrue the strategic merits customer loyalty. Identifying and modeling customer loyalty factors improves relationship quality, such as commitment, trust and adaptability over time (Morgan and Hunt 1994; Gronroos 2004; Ulaga and Eggert 2004).

Data mining is an MIS intellectual competency (Grewal and Comer 2002) supporting CRM to

FIGURE 2
The Knowledge Economy Relationship Management Process

KERM Process Steps	Conceptual Premise and Criterion Principles	Knowledge Economy Advantage
(1) Identify	(a) *Finding* E-Commerce "Value" Exchanges (Virtual Value-Chain) 	Suppliers and customers have core competency knowledge connections
	(b) *Forming* Knowledge Identity Relationships (Customer Relationship Management [CRM]) 	Suppliers and customers synchronize knowledge profiles and processes
(2) Classify	*Filtering* Anonymous Identities 	Suppliers and customers configure trust-based knowledge networks
(3) Commercialize	*Fitting* Knowledge to Learning Need (*Trust* = *Sharing*) a) Disposition to Trust – Interpersonal Value b) Institution-Based Trust – Digital System Access c) Trusting Beliefs -- Value-Creating Learning d) Trusting Intentions – Strategy Sharing	Suppliers and customers create trust-based value -learning knowledge asset relationships

address the problem of identification. It is precisely through data mining that knowledge economy enterprises employ the digital networks to identify loyal customer profiles that support the e-commerce business model. In this manner, marketing relational *strategies* and MIS digital *systems* are fused to further KERM objectives. The second KERM *classification* step addresses the paradox of balancing knowledge economy relationships and rights.

Step 2: Classification: Anonymity Aids

The *sole classifying criterion is to collaboratively filter customer identities into anonymous privacy actuary sets.* In a very real sense, the "information age" is manifested in the capacity of business-to-business (B2B) and business-to-government (B2G) customers/clients to "spend" their proprietary data as "information currency" in the digital marketplace (Carino and Jahnke 1995; Moore 2002). Those customers that are willing to "spend" proprietary information help knowledge economy e-commerce suppliers formulate profitable business models that deliver higher customer value. On the other hand, strict adherence to information privacy by business and government customers limits the profitability of e-commerce business models (Essler and Whitaker 2001; Gurau and Ranchhod 2002), in much the same manner that poor driving limits the profitability of the auto insurance business model, or for that matter that unhealthy lifestyles limit the investment returns of medical insurance company shareholders. The classification step attempts to create customer portfolios that balance intelligence relationship advantages with intelligence assurance rights. Similar portfolio management methods have improved business marketing relationship success (Yorke and Droussiotis 1994; Zolkiewski and Turnbull 2002).

Step 3: Commercialization: Know Need

The sole *criterion to commercialize* e-commerce knowledge economy relationships is to *learn knowledge needs.* Following step 2 of the KERM process, a set of B2B and B2G customers has been anonymously profiled. Now, in step 3, commercialization draws upon detailed data mining insights to better understand customers' knowledge needs in order to fulfill the primary value proposition of *learning*. Learning, as represented in Figure 1, is the definitive knowledge economy outcome and value determinant. Learning demonstrates the effectiveness of strategic micro level competencies, societal macro-level collaboration and structural meta level controls.

Learning in information-intensive environments is a prime source of organizational advantage (Sinkula 1994; Slater and Narver 1995; Stewart 1997; Hurley 2002; Sinkula 2002), as well as business network competence (Ritter 1999; Welsh and Wilkinson 2002; Ritter and Gemunden 2003; Ritter, et al. 2004). As a valid method for generating return on relationship knowledge assets and intellectual capital (Bontis 2001; Gummesson 2004), learning strategically balances knowledge economy intelligence relationships and rights (Mohr and Sengupta 2002). Moreover, Perry, et al. (2002) identify both social and technology elements in the learning process that strengthens business marketing relationship bonds.

However, *commercializing* data mining insights through knowledge management requires knowledge economy enterprises to understand how *learning* creates value. In essence, *commercialized* KERM achieves a level of trust that encourages sufficient information sharing for the learning process to be achieved in a manner that is distinct, enduring, measurable and highly valued. Learning is a fundamentally human process that harnesses value by first establishing *trusted* connections with what Malhotra (2000) describes as human "knowledge creators" within the "virtual organizations" that comprise knowledge economy providers and customers. The added security for organizational and inter-organizational e-commerce knowledge sharing enables knowledge economy providers to plan market *strategies* and digital *systems* that generate distinct, enduring, measurable and highly valued learning outcomes. Therefore, in

the third KERM step, *commercialization* is measured by the level of trust gained by learning value returns on the knowledge sharing investments of e-commerce customers.

Trust is both a marketing strategy and MIS construct. The marketing strategy literature identifies trust as a determinant of the successful knowledge exchanges in e-commerce relationships (Morgan and Hunt 1994; Sirdeshmukh, et al. 2002; Schoenbachler and Gordon 2002), because of customer insistence on data privacy protection and anonymity. A critical mass of information systems research also converges on trust-embedded protocols for securing digital CRM networks (Kueter and Fisher 2000; Udo 2001; Kleist 2004; Katsikas, et al. 2005), as well as to mitigate the negative consequences of data mining practices (Mosbasher, et al. 2001; Danna and Gandy 2002; Lindell and Pinkas 2002).

With respect to knowledge economy enterprises, Debreceny, et al. (2003) and others (Jevons and Gabbot 2000), regard trust as a behavioral inhibitor of intra-organizational and inter-organizational participation in e-commerce exchanges. Moreover, trust operates as a continuous function (not a dichotomous variable) to simultaneously reduce the risk of knowledge sharing and raise both the quantity and quality of knowledge content provided. This makes trust a vital barometer of knowledge economy exchanges.

For knowledge economy providers, a "typology of trust types" guides the implementation of the third KERM step of *commercialization*. Adapting the B2C web-based e-commerce model developed by McKnight, et al. (2002, 2001) to this study's B2B/B2G knowledge economy enterprise context, Figure 2 itemizes four trust construct indicators of *commercialization*:

- Disposition to Trust – Interpersonal Socio-psychological Value
- Institution-Based Trust – Digital System Access
- Trusting Beliefs – Value-Creating Learning
- Trusting Intentions – Learning Maximization Strategy

Knowledge economy enterprises are first encountered on an interpersonal socio-psychological level and the KERM process proposes to increase trust through (a) "embedded anonymity" data mining and tailored customer service programs to gain (b) institution-based access to knowledge assets stored and exchanged via digital systems. After establishing relationships by effectively managing interpersonal ("disposition to trust") and digital systems ("institution-based trust"), the engagement is elevated to unite knowledge economy missions (c) value-creating learning competencies ("trusting beliefs") and strengthen strategic collaboration (d) shared relationship marketing strategy ("trusting intentions").

The KERM process, accordingly, posits the "privacy actuary measure" (PAM) as an information assurance metric to monitor relationship intelligence learning and monetize customer trust. PAM is formulated as a knowledge valuation mechanism for maintaining the integrity of knowledge economy relationship decisions, because trust – not treasury – sets the exchange value for knowledge providers to engage knowledge customers. The knowledge linkages connecting global e-commerce, virtual companies and digital customer markets are denominated in terms of privacy value, not economic worth. Because of proliferating network content, market making in the knowledge economy means that buyers and sellers place a premium on information assurance, authentication and accuracy. These prized knowledge asset criteria, in turn, require data privacy preservation, identity theft protection and network security.

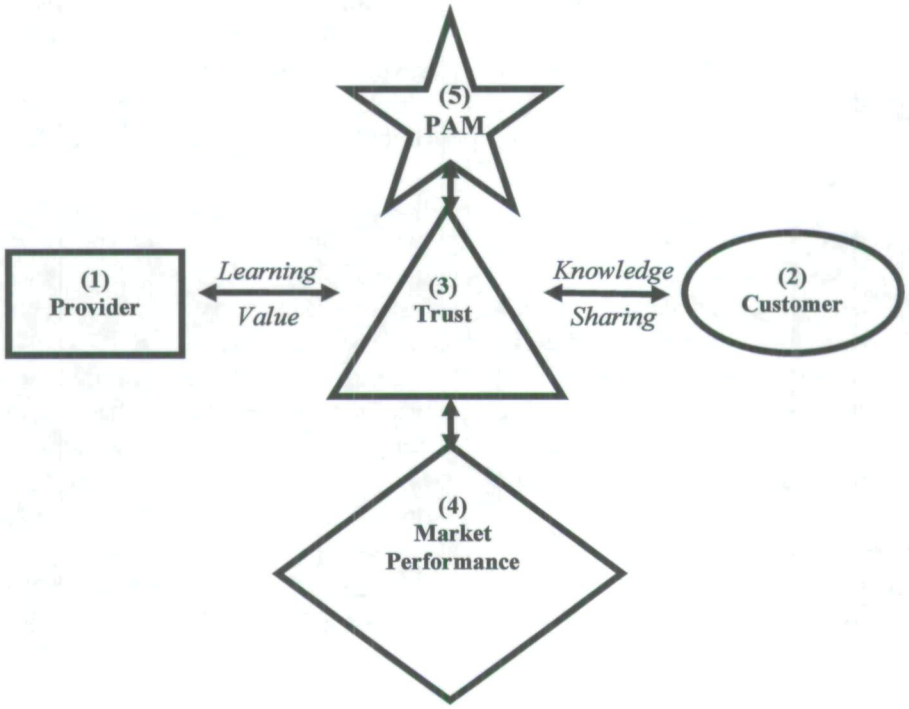
So, just as maintaining currency exchange rates preserves traditional global commodity trade, managing information currency exchanges through privacy value measures aligns potential knowledge economy providers with prospective knowledge economy customers. With comparable privacy exchange rates, knowledge

economy customer relationships can efficiently and electronically match the learning value sought by companies with the knowledge sharing benefits desired by customers. In this respect, the PAM is central to identifying and planning knowledge linkages among the three *networked modes* – customer (micro-level), company (macro-level) and global commerce (meta-level). The PAM operationalizes the alignment of knowledge economy micro-level, macro-level and meta-level dimensions. Consequently, the PAM triangulation of knowledge economy dynamics facilitates KERM process delivery by business marketers (see Figure 3).

KERM PROCESS: A DIGITAL HEALTH ENTERPISE SCENARIO

To demonstrate the ability of KERM to triangulate the knowledge economy's (KE) micro-level, macro-level and meta-level dimensions, a practical scenario is presented. This scenario uses the example of a generic knowledge economy e-commerce exchange provider, which is given the name "Medical Knowledge Services" (Med-Know), to highlight the advantages of the strategic intelligence of PAM. By illustrating vital knowledge economy relationship patterns and proficiencies, the medical services scenario presented here is comparable to the business marketing medical relationship value network analysis performed by (Allee 2000b, p. 4). Med-Know delivers value to B2B and B2G knowledge economy customers through electronic medical records transfer, storage, maintenance, data retrieval/display/analysis and decision support services (Alshawi, et al. 2003; Kovac 2005). Like all knowledge economy e-commerce enterprises, Med-Know seeks to develop a business model that optimizes the learning value delivered in the form of customized/personalized services, in exchange for customers' willingness to share knowledge.

FIGURE 3
Embedding Trust in Knowledge Economy Learning Relationships with PAM



Because of the widely acknowledged inefficiencies in healthcare records, processes and customer relationships (Alshawi, et al. 2003), Med-Know believes its organizational learning core competencies are able to deliver value to B2B and B2G customers, as well as build a differential advantage over knowledge economy competitors. Dwivedi, et al. (2008) demonstrates the importance of relational digital intelligence in healthcare for reducing the cost and time associated with medical benefit packaging, service scheduling and treatment planning. In addition, the "digital healthcare ecology" (Crane 2005; Kovac 2005) recodes stored data to customize information delivery/display and personalize healthcare options. These efficiency and customization benefits are strategically relevant for the knowledge economy B2B and B2G organizations because they (a) endow employee morale through better quality benefits, (b) enhance human capital investments through performance consistency and reduced absenteeism, (c) enable operation planning that accounts for pertinent employee medical profile contingencies, as well as (d) ensure asset gains by decreasing healthcare liabilities.

However, this business model advantage is constrained by the level of access to customer knowledge and gaining of their trust. The promised value of efficient, customized/personalized and strategically beneficial mining of healthcare information will simply not be feasible unless Med-Know can obtain human resources data -- and in some instances organizational intelligence -- from prospective customers. In addition, customers, such as private sector companies (e.g., Microsoft, UPS, General Motors) and public sector organizations (e.g., United Way, colleges/universities, U.S. government agencies), will only contract with knowledge economy digital healthcare providers capable of preserving the information privacy concerns of individual human employees. In part, this concern for data security stems from corporate accounting provisions (Sarbanes-Oxley 1996), healthcare patient privacy standards (HIPPA 1996) and digital online consumer privacy regulation (FTC 2000). In many instances, these employee data access risks can be attributed to personal identity characteristics such as gender, age, race/ethnicity, address, household/family composition and medical profiles. In other situations consumers fear the asymmetric power advantage held by organizations, digital networks and third-party vendors that is perceived to curtail employee control and certainty.

Med-Know must engage prospective knowledge economy customers using a KERM process that builds relationships by *identifying* value compatible enterprises and *classifying* their knowledge sharing potential in order to deliver *customized* learning advantages. Of course, the trust construct mediates this learning value proposition and Med-Know is strategically vested in the capacity to perform "embedded anonymity" data mining (Goel and Carter 2004), a KERM clustering procedure that preserves individual level identity. The "embedded anonymity" data mining method also gives knowledge economy providers like Med-Know the distinct advantage of statistically "learning" the economic value which individuals assign to personal data variables, for organizational customers (aggregated) and their employees (disaggregated) over time.

This modeling of information privacy risk/return ratios based on the choice to share proprietary data in exchange for economic or other exchange benefits is designated as a *privacy actuary measure* (PAM). In terms of its relationship purpose, PAM is comparable to return on relationship measures formulated for the business-to-business context (Gummesson 2004). Like the return on relationship metric, PAM serves as a trust measure and mediator to signal which customers present Med-Know with the most viable knowledge sharing opportunity. Core organizational learning competencies can be focused on customer relationships above the required trust threshold for required knowledge sharing.

CONCLUSION: KE ECONOMY RELATIONSHIP PROSPECTS

Balancing the promise of digital relationships with the protection of digital rights is the dilemma faced by business marketers in the knowledge economy. These complex knowledge economy contingencies require business planners to combine the strategic competencies of marketing and MIS. Relationship management has traditionally determined strategic success among business marketers. However, digital technology advancements and expanded digital content availability shift the focus of business marketing relationships from interpersonal meetings to intelligence mining. To optimize these emerging e-commerce based relationships, knowledge economy business marketers can merge marketing relational strategy and MIS digital system competencies. Yet, leveraging those strategic competencies requires a balance between relationship intelligence and intelligence rights. This condition, while replete in the consumer marketing literature, is noticeably void in business marketing research. The KERM process is advanced as a viable heuristic for combining knowledge economy enterprise and knowledge economy ethics in business marketing strategy. Specifically, the KERM process aids two venues:

- Academic literature: statistical data modeling, decision science data mining, marketing and digital consumer behavior and customer relationship management in electronic commerce environments.
- Management practice: Improved customer targeting and profiling, higher data mining certainty with improved privacy preservation, effective customer relationship management through distinctive competencies and the resulting consumer loyalty related to privacy preserving data tracking methods.

Advancing KE B-to-B Marketing

Constructively, the KERM process addresses the rising information security concerns among e-commerce providers and customers by incorporating both the digital system and relational strategy competencies that pattern the knowledge economy dimensions. Therefore, this study advances a model for balancing knowledge economy relationships and rights. In particular, KERM contributions can be stipulated as follows:

- Preserves the anonymity of digital market consumers while including meaningful transactional patterns in data mining through clustering and modeling techniques.
- Creates specific dynamic profiles of service/product/interest---not customer prototypes.
- Establishes the basis for information privacy actuaries capable of translating online consumer privacy risks into dollar denominated economic exchange values. These economic values directly align data mining as a market intelligence function, information privacy as corporate governance and marketing ethics function and the revenue generating e-commerce business model.
- Expands the revenue generating potential of e-commerce business models through "privacy risk insurance" and "anonymity policy" packages tailored to specific classes of online data sharing markets (e.g., auto, healthcare, home, credit card, education, etc.)

The study presented a cursory digital health case scenario to demonstrate the KERM process contribution to e-commerce business marketing relationship strategy. Critical success factors such as trust and market intelligence learning were codified into a "privacy actuary measure" (PAM). The digital health scenario reinforced the strategic importance of coupling marketing MIS strategic Knowledge economy competencies.

Limitations and Future Research

The study's KERM process for knowledge economy business marketing is limited by its formative stage and conceptual formulation. The cumulative body of knowledge economy research has only recently been synthesized and widely acknowledged. E-commerce strategies

that combine relational marketing and robust MIS data mining are even more nascent. While there are numerous studies documenting digital marketing approaches, few of these purposefully merge MIS and marketing intelligence competencies – with a precise emphasis on preserving data privacy. Consequently, the proposed KERM process is limited by its formative framing of knowledge economy business marketing. The objective of synthesizing knowledge economy factors with digital marketing and MIS functions narrowed the inclusion of relevant e-commerce business marketing research.

In addition, the focus on logically framing a KERM process led to a conceptual research methodology. Construct development typically prioritizes the definition of terms and delineation of theoretical territory. This laying of conceptual foundations, however, can lead to frameworks without practical merit. Notwithstanding the illustrative role of the digital health case presented, absence of more structured empirical case studies and transactional data validation, compromises the strategic application benefits realized by knowledge economy business marketers.

Future research may draw upon this study's conceptual framing of digital strategy considerations for the knowledge economy and provide a more formally structured quantitative analysis of the merits of the KERM process steps and PAM tool outlined above. An operational statistical technique for conferring "embedded anonymity" is plausible using the HMM method, which has been shown to benefit data mining for market relationships (Netzer, et al. 2005). These practical tests of "embedded anonymity" concepts validate the knowledge economy synergies shared by marketing and MIS, which have been advanced here in an exploratory mode.

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