

Mind-of-the-Product

At the Heart of GRC Knowledge Integration

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Abstract: The organisational capacities to absorb, adapt and reconfigure resources in response to market challenges, regulatory reform and complex stakeholders and their expectations is necessary to achieve the strategic growth businesses need. Through the *Mind-of-the Product* (MotP) concept we outline how the variety of targets demanding business attention can cohere to support innovation grounded in compliance-centred processes. The MotP is developed as a foundational leadership concept for integrating organisational knowing, innovation and knowledge management.

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1 INTRODUCTION

The *Mind-of-the-Product* (MotP) is developed as a foundational concept for organisational knowledge management. It has particular resonance for large multi-product, multi-market organisations. It arises as the outcome of current trends and developments in enterprise information technologies and systems that capture and store organisational knowledge capability in the form of the self-referential product i.e. the Product that knows itself.

The power of the concept in practical terms is provided in an application within the GRC (Governance, Risk and Compliance) realm, notwithstanding its broader potential. Its place within the strategic growth context of business is outlined in Section 2. The Compliance context is the focus of Section 3 where Compliance is defined to include both legal (involuntary) and supra-legal (voluntary) requirements across a spectrum from laws, statutory requirements, regulations, to businesses' voluntary codes, guidelines and strategic goals. Elements of the integrating and integrative MotP concept are elaborated in Section 4 in terms of its organisational information technology (IT) implications. Innovation-related considerations in Section 5 emphasize implications for transforming how ideas are generated, and selected for organisational diffusion. Conclusions are provided in Section 6.

2 INTEGRATION/GROWTH: A TWO-SIDED COIN

If a recent KPMG Report (2011) is representative, less than 10% of businesses demonstrate full integration of their GRC activities and business strategy. The implication is that many growth opportunities remain unseen. Untapped potential in organisational interstices - those gaps between functional silos and areas of responsibility - offer scope for greater integration to drive organisational transformation. There is much yet to be understood about the mechanisms through which integration and performance are related (Turkulainen, and Ketokivi, 2012). Where integration is achieved, it would be evident in improved capacity to transfer, process, interpret and exploit information across functional sub-units - flows of information would be frictionless (Barki and Pinsonneault, 2005).

Knowledge integration across business functions is the basis of modern competitive advantage where previously it resided in access to physical resources, and efficiency. The strategic growth-orientation of a business is the governing force for such integration.

2.1 Strategic Growth

Strategic growth includes several elements and is oriented to both long-term business sustainability and innovative enterprises as evidenced by high-

wage, high-value-adding companies producing innovative products and/or services.

Innovation and how it is managed by business is a central aspect of strategic growth. In order for sustainability to become a strategic business imperative it must be identified and promoted as a route to competitive advantage (Nidumolu et al. 2009; Porter and van der Linde 1995).

For some organisations this implies a substantial cognitive shift to re-frame sustainability as a business opportunity rather than a risk, where practices such as 'green' procurement and production, product safety, longevity, end-of-life management, corporate social responsibility, financial transparency, and ethics are treated as value-adding attributes.

Growth ordinarily describes increases in sales, output or profit but its second meaning is most relevant here. This relates to improvement in quality as a result of a process of development or progressive change i.e. qualitative change in how an organisation functions (Penrose, 1959). Growth is strategic when quality is viewed as conformity to all requirements (Crosby, 1979) including those relating to innovation and sustainability.

Treating all requirements in a singular way is an act facilitating sound execution of the leadership function. Thus, knowledge management IT tools across business functions are the interconnected building blocks of quality.

2.2 Capacity for Integration: Compliance and Innovation

GRC's central contribution is rarely, if ever, defined in terms of sustainable or strategic growth. It tends to be defined around ensuring commitments – mandatory or voluntary – are fulfilled to avoid expensive breaches, business disruption or worse. GRC's potential as an energising source of growth is notably absent from the GRC space, representing a substantial and underexploited opportunity.

A McKinsey survey (2012) found that half of organizations segregate their innovation portfolio among distinct innovation functions and so independent silos characterise the functions. This implies numerous innovation models are employed across business units with little, if any, integration across projects. A lack of consistent governance, (where action has an active eye to all evolving requirements, regulatory and voluntary) among innovation activities is identified as contributing to poor performance tracking and bounded decision-making across siloed innovation structures. To

achieve sustainable innovative performance a business needs strong corporate governance to influence decisions, allocate resources and exert organizational control for cohesion of purpose.

Belloc (2011) identifies corporate governance as a key determinant of innovation capabilities and a key reason why companies operating in the same market space achieve varying levels of innovation success. The role of governance in innovation is to bring cohesion between human and physical resources based on a structured relationship between corporate ownership, corporate finance, and labour, in order to derive benefit from investment decisions.

Organisational capacities to adapt and reconfigure resources in response to market challenges, regulatory reform and complex stakeholder influences and expectations is necessary to achieve strategic growth. Integrating the functions of Governance, Risk and Compliance (GRC) and Innovation in the context of leadership offers a comprehensive drive for strategic growth attending to quality, and including the innovation and sustainability imperatives of business.

3 GROWTH-ORIENTED GRC

GRC activities refer to organizations' focus on identifying and assessing risks of all kinds, and particularly monitoring compliance with regulatory requirements. Monitoring, reducing risk and meeting compliance requirements are obviously key activities in all areas of decision-making and the GRC function has become a focal point for these tasks (OCEG, 2012; Ponemon Institute, 2011).

Within many companies opinions diverge as to whether risk management should be opportunity (upside) or risk (downside) focused. A survey by KPMG revealed 66% of respondents considered their "board is unable to leverage risk information it receives to improve strategy" and risk management is often focused on a more operational level (KPMG, 2011:13). From his work with GRC professionals one GRC expert asserts that risk management is about influencing decision-making and achieving objectives through the provision of high-quality information (Marks, 2012).

While risk management can potentially drive performance, many companies are not yet prioritising GRC as an engine for sustainable growth which can open up new opportunities for innovation and enhanced decision-making. The implication is that opportunities are lost when GRC's full value-adding potential is not recognised. Businesses'

perspective on GRC needs to balance both the up-side and down-side of risk management. Compliance-Innovation offers such an opportunity-oriented perspective.

3.1 Compliance-Innovation

Compliance-Innovation (C-I) refers to an integrated organization-wide approach to innovation processes and GRC activities (Doyle, McGovern and McCarthy, 2014). It requires elevating GRC from its traditional tactical-level focus to a leadership tool where opportunity recognition, innovation, and business sustainability are at the heart of all strategic thinking (Hansen and Birkinshaw, 2007; Zahra and George, 2002).

Successful compliance leads to conformance to both legal (involuntary) and supra-legal (voluntary) requirements covering a spectrum from laws, statutory requirements, regulations, to businesses' voluntary codes, guidelines and strategic goals (Doyle, 2007; Tarantino, 2008). Such a definition is purposefully broad encompassing and integrating the strictly legal connotation.

Successful innovation leads to the commercial exploitation of new or existing knowledge (Freeman, 1997) or new combinations of knowledge (Schumpeter, 1934). In essence, innovation involves taking either a new or pre-existing idea from its conceptual state and orienting it towards satisfying consumer need before finally offering a new product or service to a market. Organisational innovation occurs when new methods are implemented for distributing responsibilities and decision making among employees for the division of work within and between firm activities (and organisational units), as well as new concepts for the structuring of activities (OECD, 2005). C-I represents such an organisational innovation

An example would be the integration of Customer Relationship Management, Product Lifecycle Management and Compliance Knowledge Management systems (CKMS), with an eye to the moving target of sales drivers across various markets right from the product concept phase.

4 MIND-OF-THE-PRODUCT

Given advances in technological capabilities and applications to enterprises and their IT infrastructures we identify a concept of 'I-Product' or *Mind-of-the-Product* which has resonance in contemporary market places. It offers a mirror to

'landscape' metaphors for the business environment through the parallel of an organisational 'mindscape' within which products and services are envisioned, designed, developed and delivered.

MotP is a powerful conceptualisation at product-by-product levels of what a truly integrated organisational knowledge platform entails. Through information in the platform each product (or product-in-development) knows itself sufficiently to identify the most important features that matter for its current and potential domains (including geography, supply chain, marketing attributes, etc.). MotP is the conceptual interface between traditional business perspectives where value was created based on company assets and resources and the modern value-added perspective where the customer is central (see Figure 1). The key interrogations of the business addressed through MotP relates to processes that integrate the material aspects of the business – its assets, products etc. – with the identifiers and sources of value i.e. the customers, integrating information on requirements and timing.

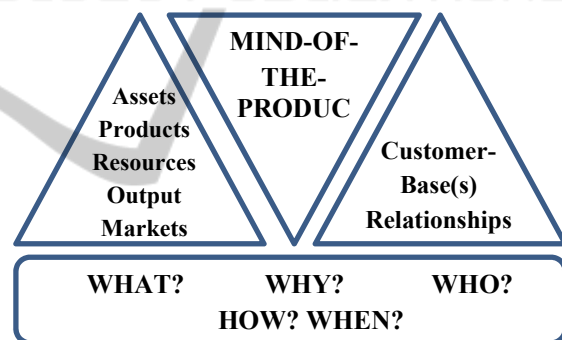


Figure 1: Mind-of-the Product: Integrating Concept.

The contemporary view is that business starts from the customer, with value flowing to the business (Norman, 2001). The information revolution permits and supports not only separate production and customer relationship competences but can integrate them further into new organisational value-creating systems.

Technology offers opportunities in mobilizing resources for novel economically feasible options targeting customers whose preferred attributes in their purchase could include longevity, warranty, carbon-footprint, corporate citizenship initiatives, brand, not to mention *cost*. The MotP-centred platform highlights attributes corresponding to each product, possessing specialist knowledge on both product attributes and consumer preferences to better understand and deliver valuable customer experience and loyalty.

4.1 MotP Knowledge Platform Features

To achieve strategic growth, strategic thinkers must be identified and supported to consider the entire business environment which includes both internal and external contexts (Barney, 1991). Effective strategy formulation and implementation requires a holistic and consistent view of the internal organization (including C-I processes) and the external environment of marketplace, regulation, competitor positioning etc.. A contextual knowledge base for decision-making processes and action plans supports developing shared meanings of current circumstances (OCEG, 2012a).

Business domains across sales, marketing, legal, environment, design, CSR, and quality (as the appropriate umbrella function) can assimilate and transform contextual knowledge for C-I purposes. These purposes guide and support the organization's innovation processes and the delivery of high quality products and/or services i.e. focusing on delivering a positive customer experience.

Dealing with separate knowledge bases in an effective and integrated manner is obviously challenging. In its raw state knowledge is often unstructured and, in many cases - especially when it encompasses potential for innovation - knowledge is tacit and difficult to share (Leonard and Sensiper, 1998). Regulations are not crafted to be machine readable, are in this way unstructured, and are generally produced without the regulatory processing needs of their business 'consumers' in mind. IT is currently not leveraged to bridge the gap between production and consumption of either regulations or standards.

An effective platform for managing compliance knowledge, a Compliance Knowledge Management System (CKMS), managing all requirements, including the meaning of all terms found therein, allows managers to connect internal and external contextual imperatives by integrating all refined data in a central repository. The platform is, therefore, the beating heart of shared understanding and innovation thinking.

4.2 From Dumb to Smart Documents

A long term commitment to move from dumb documents to smart data is essential. Ease of use, worker role and responsibility oriented user-experience, inbuilt learning, training and incentivisation must nurture expertise and knowledge sharing not only to serve immediate workbench and workflow processes, but also deeper innovation goals and strategic growth commitments.

This requires corresponding commitment to innovative IT design, systems integration, and interface excellence where knowledge is captured, structured, situated, passed on, and serves to support and incentivise workers and catalyse and fertilise innovation. In the context of Figure 1, the Knowledge focus is around how to generate, share and store knowledge so that *knowing* is facilitated rather than an emphasis on static information.

4.3 Semantic Annotation and Meaning

Refinement through semantic annotation offers opportunities for the enrichment of 'dumb' documents using ontology-based systems (Kiryakov et al., 2004). These provide search, interpretation and aggregation functionality for unstructured data by reading and marking-up text with attributed semantic meanings (Uren et al., 2005). Paper-based documents may be transformed into virtual text files that understand their own content and can process data without the need for human interaction or analysis. These principles can be applied to any business domain once a shared ontology (i.e. standards, syntax, and meaning of concepts) is defined to allow machine processing. Semantic annotation technology (i.e. semantic tagging) can automatically interpret dumb documents to index and build relationships between the words of its collective content.

For example, the appearance of "Cadmium" in a regulatory document could automatically be linked to the predefined and described concepts of "Hazardous Substance", "Product A", "Department X", "Region 5" etc., reducing complexity, clarifying and making widely visible the impact of the regulation across the business. Each concept may be automatically mapped to related content, as designated by identified relevant holders of responsibility, allowing more meaningful query results. Metadata such as date, author and regulation deadline can be recorded. Any list of definitions which could be enhanced to include key non-defined terms can then be sorted to allow grouping and, therefore, faster and deeper understanding of regulatory or internal guidelines, standard operating procedure documents and other documents containing requirements of any kind.

5 INTEGRATION, INNOVATION AND VALUE

The organisational *Innovation Value Chain* (Hansen

and Birkinshaw, 2007) identifies three distinct phases of innovation as, idea generation, conversion and diffusion and a set of six knowledge-related activities of internal sourcing, cross-unit sourcing, external sourcing, selection, development, and company-wide spread of the ideas.

Knowledge integration, an example of a combinative capability (Kogut and Zander, 1992) is the unstated imperative for an organisation to innovate. The integrating capacity of CKMS characterizes the demands on the contemporary Knowledge Worker who is required to make conceptual as well as instrumental use of data. Maltz et al. (2001) explain that instrumental use relates to solving a specific problem whereas conceptual use requires using data in a way that changes thinking processes - without necessarily leading to relatively immediate concrete action. As a result, rebalancing use of Compliance information towards the conceptual facilitates and supports its potential for strategic purposes to emerge.

5.1 Idea Generation

To support idea generation the CKMS permits integration of several data sources allowing cross-functional teams to share and collaborate (Alavi and Leidner, 2001). Supporting knowledge recording and sharing prevents valuable knowledge from leaking from the company e.g. when information capture operates at an individual not corporate level (e.g. industry association feeds to an individual's laptop rather than a corporate repository), or when a knowledge worker leaves the company (Osterloh and Frey, 2000). Current and later generations can benefit if comprehensive knowledge is preserved on decision processes, lessons learned and cumulative experience of the GRC and innovation domains (Eisenhardt and Martin, 2000). The processes underscoring knowledge work and what it entails must be made visible. Along with greater breadth of available information, clarity on roles and responsibilities for action is required.

5.2 Idea Conversion

C-I helps funding assessments and idea conversion by providing decision-makers with actionable information to evaluate the viability of ideas in light of commercialisation and sustainability goals, visible in the CKMS. Dashboards would provide information for assessing business cases according to their associated compliance requirements, risks, costs and value-adding potential while supporting

prioritisation of investments based on the overarching governance strategy. This structured approach to business case analysis supports the fit between investments and strategic objectives as well as transparency (Ross and Beath, 2002; Ward, Daniel, and Peppard, 2008). GRC and innovation data could be centrally monitored in real-time to facilitate conformance to all strategic imperatives. In cases where innovation portfolio projects were cut idea generators can more clearly understand the rationale from CKMS data and criteria employed.

5.3 Idea Diffusion

A central CKMS repository would house common organisational-wide requirements and goals and help ensure all stakeholders are on the same page through its dynamic knowledge-sharing facilitation, unlike the siloed partial knowledge-sharing mediums offered by desktop tools (Alavi and Leidner, 2001).

Idea diffusion is needed to win support from stakeholders i.e. business units, subsidiaries etc. C-I helps generate momentum behind ideas. Clarity on potential benefits and risks can build a strong value proposition for an innovation project and can foster buy-in across the firm. Importantly, social functionality through content tagging, forums, and secure messaging supports diffusion of approved ideas and breaks down silos to facilitate sharing and consensus building (Cohen and Levinthal, 1990). Organisational buy-in is key to spread and monetise new ideas across channels, customer groups and geographically dispersed locations. Integration of regulatory requirements at early stages can support effective decision making.

To the extent that a CKMS supports Government Affairs teams to influence the evolution of laws and standards, surveillance and enforcement, it can create opportunities and maximise market influence.

6 CONCLUSIONS

Compliance-Innovation is a prime example of the combinative processes needed to create and maintain the type of business environments required for effective and productive knowledge workers where integration is required and facilitated through a knowledge platform. The *Mind-of-the-Product* offers a cross-cutting concept for linking all necessary processes from the business landscape through customer requirements, current and imagined. Such links offer sources of ideas for value creation developed by businesses and tested in the market.

The *Mind-of-the-Product* is a provocative concept generated from integrating knowledge for managing and innovating. To put it into practice is demanding technologically but increasingly possible. It is not strictly organisation-centric since it requires substantial information from external sources, crucially an answer to the basic question ‘who wants to buy me?’ and the underlying sources of value for which customers are willing to pay. It also demands information and system-integration internal to organisations so that, for example, systems for managing Customer Relationships and Product Life-Cycle Management speak to each other. MotP has the potential to facilitate the visible integration of information to track conformity levels and impacts enabling strategic growth and directly supporting those delivering on leadership functions.

The product that knows itself is the ‘embodiment’ of integrated knowledge. A key purpose of MotP lies in allowing organisations’ to drill into current (and future) sources of *consumer value* embodied in that knowledge. The virtualisation arising from separating the material product from its embodied knowledge generates possibilities for re-combining some of the knowledge in new and innovative products. Early visibility on the fit of a product with future production, regulation, and consumer trends challenges an organisation’s means for generating value.

While technology is one limiting factor in novel resource mobilization and value creation, the role of imagination is also central. In Compliance terms, applying MotP implicates coordinating and integrating organizational routines in new ways. Substantial changes in habits may be required to refocus leadership attention on balancing the pursuit of business opportunities with the management of risk so central to many compliance domain experts.

In terms of consumers, businesses are limited in their ability to inform on whether, or the extent to which, they conform to product attributes that consumers demand. MotP addresses this information asymmetry offering transparency on e.g. supply chain partners, local community impacts, animal welfare, treatment of employees (own and partners) etc.. Whatever feature consumers identify as related to sustainability can be accounted for within MotP so consumers can identify those producers that supply ‘sustainable’ products.

It is entirely conceivable that hand-held mobile devices could be used to scan a product’s codebar communicating product attribute information, exploiting MotP. ‘Buyer power’ would take on a

qualitatively different meaning with implications far beyond price into the myriad non-price attributes that consumers target in their purchasing – enabling comprehensive consumer choice.

Central to the interests of Boards is the need to attend to three fast-moving business targets i.e. (i) new regulations (policy, law, standards) (ii) product evolution (new and improved) and (iii) evolving intra-organisational strategic and operational imperatives. Suitably developed platforms have the potential to serve as a critical system supporting organizations in commercially exploiting knowledge, through a central repository of data appropriately structured for needs and which is accessible to *any* business actor with conferred permission.

By developing a central CKMS incorporating GRC and Innovation activities, and building on MotP, it follows that a company’s knowledge workers are better facilitated to acquire, assimilate, transform and exploit knowledge for commercial gain. The scale of the impact cannot be predicted although we contend the potential is substantial.

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