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IS Capabilities For Supporting Post Crisis Regulatory Compliance

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IS CAPABILITIES FOR SUPPORTING POST CRISIS REGULATORY COMPLIANCE

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Abstract

The financial crisis of 2007-2009, has precipitated large scale regulatory change. Financial organizations are faced with implementing new regulations of considerable breadth and depth. Firms are faced with complex and costly change management programs at a time when profits are diminished. Furthermore, investors are becoming increasingly focused on compliance and are seeking to ensure that organizations can demonstrate robust compliance practices as part of their due diligence process. The role of IS in underpinning compliance is paramount. IS facilitate stable and consistent controls for meeting regulations in order to ensure long term effective compliance. Consequently, our study explores the IS capabilities which support the post crisis regulatory landscape. We identify eight key capabilities: Managing Internal Controls, Measuring, Monitoring and Reporting Transactions, IS Development and Procurement, Managing Third Parties, Sharing and Selecting Best Practice, IS Leadership, Data Management and Enabling Cultural Change.

Keywords: Institutional Logics, Institutional Theory, Compliance, Financial Crisis, Great Recession, IS Capabilities

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Abstract

The financial crisis of 2007-2009, has precipitated large scale regulatory change. Financial organizations are faced with implementing new regulations of considerable breadth and depth. Firms are faced with complex and costly change management programs at a time when profits are diminished. Furthermore, investors are becoming increasingly focused on compliance and are seeking to ensure that organizations can demonstrate robust compliance practices as part of their due diligence process. The role of IS in underpinning compliance is paramount. IS facilitate stable and consistent controls for meeting regulations in order to ensure long term effective compliance. Consequently, our study explores the IS capabilities which support the post crisis regulatory landscape. We identify eight key capabilities: Managing Internal Controls, Measuring, Monitoring and Reporting Transactions, IS Development and Procurement, Managing Third Parties, Sharing and Selecting Best Practice, IS Leadership, Data Management and Enabling Cultural Change.

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1.0   Introduction

As a response to the financial crisis of 2007-2009, we have seen a new regulatory landscape being formed with many post-crisis mandates and pieces of legislation being drafted and passed. In 2009, the G20 met in Pittsburgh and defined new measures aimed at preventing another financial crisis. At this meeting, it was decided that the Financial Stability Board would coordinate and monitor tougher financial regulations and also provide insight into emerging risks (The Economist, 2009). The European Union's response to defining post crisis regulations, to meeting the G20 requirements and to improving the stability of firms operating within capital markets, has been fragmented into several European Directives, including the Alternative Investment Fund Managers Directive (AIFMD), Capital Adequacy Directive IV (CAD IV), European Market Infrastructure Regulation (EMIR), Markets Abuse Directive II (MAD II), Markets in Financial Instruments Directive II (MiFID II), Undertakings for Collective Investment in Transferable Securities Directive V (UCITS V), Packaged Retail Investment Products Regulation (PRIPS) and Regulation on Short Selling and Credit Default Swaps. In contrast, the US has opted to develop a single sweeping piece of legislation known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, passed in 2010. These requirements will necessitate organizations to set limits on specific types of transactions, calculate exposures to certain securities, calculate risk values and perform pre and post-trade analysis. From a systems perspective, the ability to accurately access, structure, monitor and report transaction related information is essential to meeting regulatory requirements.

Capabilities for supporting IS governance and management are well documented (Feeny & Willcocks, 1998; Willcocks, Feeny, & Olson, 2006). Examples of studies which have addressed the use of IS capabilities within specific business contexts include the outsourcing of financial organization's back office functions (Lacity, Willcocks, & Feeny, 2004), mergers and acquisitions (Robbins & Stylianou, 1999), the impact on firm performance (Ravichandran & Lertwongsatien, 2002), competitive positioning (Doherty & Terry, 2009) and supply chains (McLaren, Head, & Yuan, 2004). However, the literature lacks studies which address the capabilities underpinning those technologies facilitating post-crisis regulatory compliance. We argue that the nuances of IS capabilities for supporting the new regulatory landscape are distinct from other industries and so warrant exploration. The post-crisis environment within capital markets is characterised by reduced margins, industry restructuring regulations and enhanced supervision by regulatory bodies (The Economist, 2012). Consequently, organizations are being placed under increased pressure to develop cost efficient but effective capabilities for implementing large scale regulatory change and to ensure on-going compliance. Furthermore, within financial services several cases have highlighted the failure of IS governance and management practices in supporting regulated activities and preventing large fines and the associated loss of an organization's reputation. In 2012, the UK regulator, the Financial Services Authority (FSA), fined UBS £29.7 million for having 'systems and controls failings' which allowed Kweku Adoboli to undertake unauthorised and misguided market calls, creating loses of £1.4 billion (FSA, 2012). In 2006, the FSA fined Credit Suisse £5.6 million, also for systems and controls failings resulting in a lack of transparency which inhibited the supervision, risk management and control of the group (FSA, 2008).

The financial crisis revealed that the failure of financial organizations, such as Lehman Brothers, creates significant systemic risk to our economy (Gillespie, Hurley, Dietz, & Bachmann, 2012). We argue that the enactment of new regulations designed to mitigate such risk and their robust delivery, through compliance practices underpinned by effective IS capabilities, has potential to provide social benefit by somewhat protecting the organizations' stakeholders and the wider economy.

Consequently, our study addresses the following research question: What are the IS governance and management capabilities which support compliance activities? Firstly, we discuss the theoretical underpinnings of our research context. We then outline our research method before outlining our findings and discussing the identified capabilities. Lastly, some conclusions are formulated.

2.0   Theoretical Underpinnings

The institutional logics perspective, derived from neo-institutionalism, provides the theoretical underpinnings for this study. Neo-institutionalism focuses on how organizations affirm themselves and achieve approbation as a consequence of their alignment and compliance with the institutional contexts of their environment. This occurs through coercive, normative and mimetic mechanisms which create isomorphic organizational structures (DiMaggio & Powell., 1983; Greenwood, Oliver, Sahlin, & Suddaby, 2008; Meyer & Rowan, 1977). Thus, the focus is on legitimacy over efficiency and a rejection of rationality. However, the institutional logics perspective approaches the challenge of institutional analytics by exploring the demarcating content and meanings of institutions. A key assumption is that behaviours are located within specific institutional contexts which act to regularise actions, while providing opportunities for agency and change.

In the post-crisis environment where financial organizations are under increased media and governmental scrutiny, an increasing priority for such organizations is to appear legitimate, credible and trustworthy, not least through complying with post-crisis regulations. Scott (2008 p.50) highlights regulative systems as a, 'vital ingredient for institutions'. Regulatory processes may be conceptualised as including rule setting, the inspection of organizations' conformity to these rules, monitoring and sanctioning. At the heart of regulatory institutions is the need to ascertain violations and set punishments (Scott 2008). Consequently, regulative processes aim to influence future behaviour through coercive mechanisms. Correspondingly, Mahoney and Thelen (2010) identify actions of compliance as a key variable in the investigation of institutional change.

Institutional logics are defined as, "the socially constructed, historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material subsistence, organize time and space and provide meaning to their social reality" (Thornton & Ocasio, 1999 p.804). Such perspectives build on the work of Friedland and Alford (1991) who view institutions as being supra-organizational arrangements which are embedded in both material practices and symbolic systems. Through such practices and systems, organizations and constituent individuals produce and reproduce material practices and construe meaning to their experiences. (Thornton & Ocasio, 2008). A key meta-theoretical principle of the institutional logics perspective focuses on how each institutional order comprises both cultural symbols and material elements which may be intertwined and mutually constitutive (Thornton et al., 2012). Material aspects refer to structures and

practices, while symbolic elements relate to ideation and meanings drawn from culture. Cultural symbols may be embodied in structures and practices. Conversely, structures and practices may express and affect the ideation and meaning of cultural symbols (Zilber, 2008). Within the context of this study, we argue that practices, strucutres and cultutral symbols associated with post crisis institutional logics for enacing regulatory compliance are embedded and reflected within technological systems, which must be supported by appropriate management capabilities. Essential to the reconstruction process will be the effective utilization of technological infrastructures to support new organizational processes and routines (Cule & Robey, 2004). Technology has a key role to play in facilitating change by applying disciplinary effects to enable or constrain practices and thereby, produce new patterns of action for meeting compliance (Labatut, Aggeri, & Girard, 2012).

Another key meta-theoretical principle of the institutional logics perspective is that organizations are historically contingent. Thornton et al. (2012) highlight changing regulatory frameworks as an exemplary case. As regulations change and develop over time they alter organizational arrangements and logics for selecting such arrangements. Furthermore, studies of organization and economic phenomena may be contingently valid only for that time period (Freidland and Alford 1991). This is an important distinction. At the time of writing many of the US and EU's regulatory responses to the financial crisis are still being crystallised and implemented. Scholars have observed that prior to the crisis; there was a move away from regulation towards self-regulation of free markets (Gillespie, et al., 2012; Munir, 2011; Thornton, et al., 2012). We argue that post-crisis there has been a shift in institutional logics aimed at decreasing economic risk in the financial systems through strengthening regulatory frameworks. Prior to the financial crisis, the FSA adopted a principles based or 'light-touch' approach to regulation. This approach was contrary to a prescriptive approach to regulation and allowed firms to, "…have increased flexibility in how they deliver the outcomes [the FSA] require" and focused on, "…moving away from dictating through detailed, prescriptive rules and supervisory actions how firms should operate their business" (FSA, 2007a p. 4 & 6). However, 2009 saw 'principles-based' approaches to regulation abandoned in the wake of the financial crisis. The Chairman of the FSA, Lord Turner, announced a move towards 'intense supervision' (FSA, 2010a; Turner, 2009). This new practice requires a far more proactive approach by the regulator and seeks to actively influence outcomes as opposed to merely reacting to events.

We argue that post-crisis there has been a shift in institutional logics from free markets to intense supervision aimed at decreasing economic risk in the financial systems through

strengthening regulatory frameworks. Shifts in high-order institutional logics, at the macro level, are causing intra-organizational shifts in logics of action for organizing practice. Key to this reconstruction will be the ability to effectively manage and govern the IS capabilities which underpin compliance with new institutional logics.

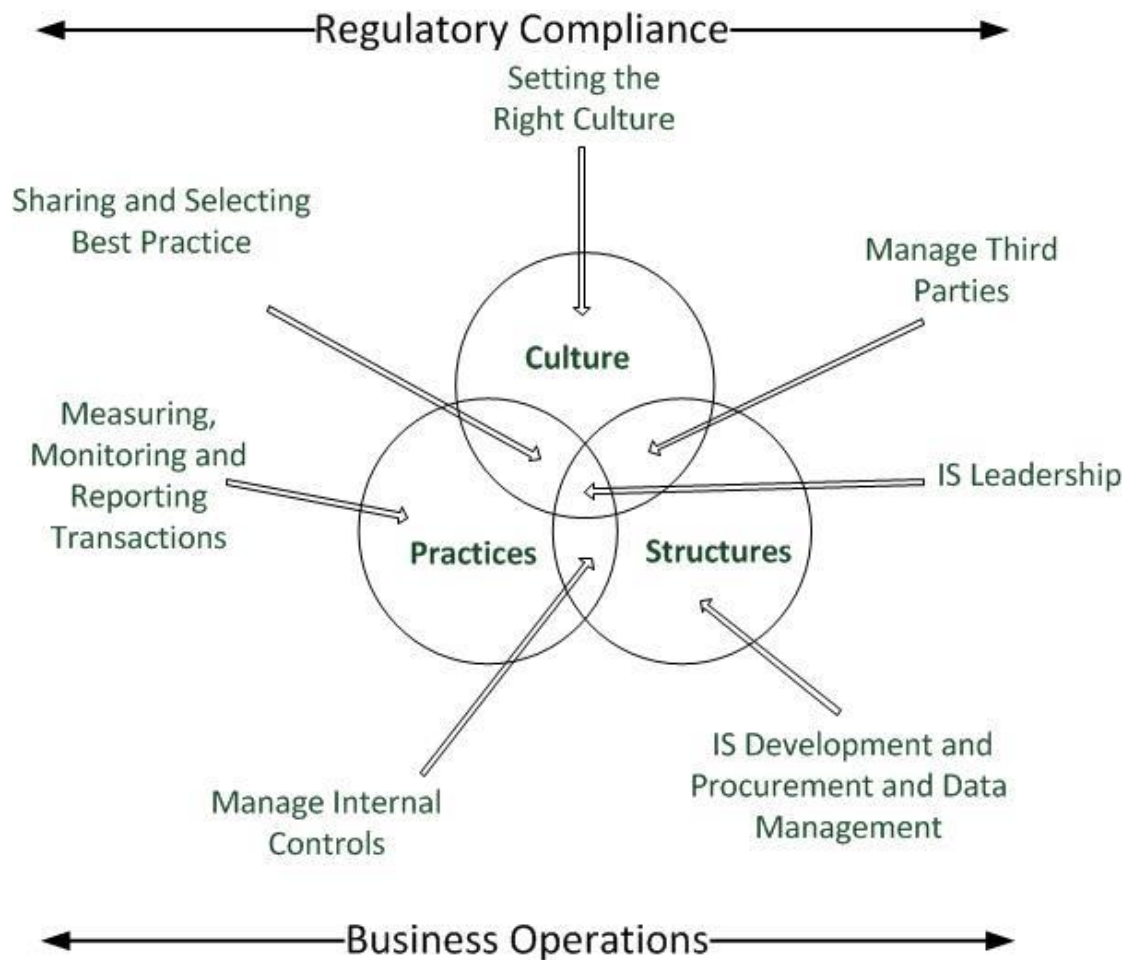Figure 1 outlines a conceptual model of the IS capabilities identified by this study.

Figure 1 IS Capabilities for Regulatory Compliance

Capabilities are defined as a, "distinctive set of human-based skills, orientations, attitudes, motivations and behaviours that, when applied, can transform resources into specific business activities. Collections of capabilities, in turn, create high-level strategic competencies that positively influence business performance" (Willcocks & Griffiths, 2010 p. 178). In this context, the collections of capabilities under scrutiny are those relating to ensuring regulatory compliance across the financial organizations' operational activities.

3.0   Research Method

The study adopted a semi-structured interviewing technique; in-depth interviews were carried out at a compliance systems' vendor site and eight client sites, all of which had previously

adopted their system. In addition, three consultants working in the area of regulation and compliance were interviewed to provide further clarification of post crisis change in the industry. Our objective was to elicit views and comments from interviewees engaged in utilising technology to structure compliance practices. Interviewees provided rich and insightful responses to questions about the post-crisis environment in financial services and the use of information technology for governance and compliance. Organizations engaged in asset management and investment banking activities were selected as the research focus, as these business areas require the on-going trading of financial securities and so are heavily impacted by various areas of post-crisis regulation for capital markets. The study is explorative and aims to provide insight into typical cases of the use of technology for compliance at top tier financial institutions. Our adoption of a 'typical case' sampling strategy required a search for information-rich cases which were illustrative of the use of technology in achieving compliance in such organizations (Patton, 1990). The IMS Vendor was selected under the criterion of being one of the market leading providers of compliance systems, whose customer base included global financial organizations engaged in asset management and investment banking activities trading in high volumes and high values. Sampling criteria for selecting the vendor's clients focused on identifying typical cases and so considered organizations which offered comparable financial products and services with a similar level of regulatory exposure. Semi-structured interviews allowed the flexibility to pursue new topics as the discussion evolved (Punch, 2005). Such an approach has previously proved successful in providing the necessary depth to explore complex and dynamic regulatory phenomena (Tsatsou, Elaluf-Calderwood, & Liebenau, 2009). This method entails the researchers equipping themselves with an interview agenda containing questions. Examples of the types of question used in our interview agenda include, "What is the role of systems in delivering the new pre-trade transparency requirements?" This question provided perspectives of how the systems facilitate key new areas of regulatory obligations. Within the participant organizations considered, the strategy for data collection involved interviewing a diverse range of stakeholders (Silverman, 2001). At the vendor site, senior systems consultants and client relationship managers were interviewed. This was especially insightful as collectively they had much experience of implementing technologies post and pre crisis. Further clarification of complex areas of regulation and post crisis change was facilitated by interviews with external consultants engaged in regulatory change projects. Within the financial organizations, traders, compliance and systems experts were interviewed. In total, thirty-eight interviews were conducted with individuals from the system vendor, and

independent consultancies as well as the eight financial organizations. These interviews were conducted over four phases from 2009-2012. At the end of each data collection phase, time was allocated to reflect on the answers and update the question guide. These updates were based not only on interview responses but also on developments relating to emerging regulatory responses to the crisis. Over this time period, responses to the financial crisis became more developed and demarcated. As the regulations became more defined, the reactions of the system vendor and financial organizations to these changes also became more granular.

Secondary data was collected from systems manuals, firm's annual reports, websites, emails and sales and marketing literature aimed at the vendor's clients or the system adopters' clients. External data analysed included the websites of regulatory bodies and industry reports on regulatory practices. Typically, interviewees were re-contacted during transcription and analysis in order to provide clarification on key issues. Scope, depth and consistency were achieved by discussing key concepts, constructs and terminology with each of the informants and triangulating the findings across primary secondary and external data sources (Flick, 1998).

During the process of data analysis, primary and secondary data were closely reviewed to determine points of importance and interest. Common themes were identified and categories assigned. Thus, long interviews were simplified through the adoption of simple categories (Punch 2005). The analysis adopted a two cycle approach to coding. The first cycle adopted a 'Descriptive Coding' approach for summarizing segments of data. This method is appropriate for exploratory studies utilising semi-structured protocols (Saldana, 2009). This approach requires the application of a content phrase to a segment of data representing a topic of inquiry. For example, 'Data Gaps', 'Using Spread sheets' and 'Compliance Gaps'. The second cycle adopted 'Pattern Coding' approach to identify major themes by searching for causes and explanations from the data. Such an approach builds on the first cycle of analysis and are, 'explanatory or inferential codes, ones that identify an emergent theme, configuration or explanation. They pull together a lot of material into more meaningful and parsimonious? unit of analysis' (Miles & Huberman, 1994 p.69). Examples of such codes include the IT Capabilities identified such as, 'Data Management', 'IS Leadership' and 'Measuring, Monitoring and Reporting Transactions'. In this way, key issues and experiences were highlighted, isolated and related to the study's research focus. The key was refined as more transcripts were collected and considered after each research phase.

4.0   Findings and Analysis

This section delineates the IS capabilities outlined in Figure 1, which are empirically derived from our study.

4.1 Managing Internal Controls

The post-crisis environment will oblige organizations to set limits on specific types of transactions, calculate exposures to certain instruments, calculate risk and collateral values, perform pre and post-trade analysis, have the ability to perform audits, quickly report executed trades to the market and facilitate the clearing and settlement of transactions. Furthermore, these regulatory rules to which financial organizations must adhere are applied on a transaction-by-transaction basis. These mandates require systems to impose structured controls on the financial organization's activities to ensure compliance. For example, the post-crisis EU Alternative Investment Fund Managers Directive requires that a private equity or hedge fund which holds a designated number of controlling or voting shares in a company must make public the identity of the Fund Manager, as well as its policies for managing communications and conflicts between the fund and the company. In order to comply with these requirements, it is essential that the Fund has appropriate systems in place to monitor the number of voting shares held against the number required to exercise 'control' over the firm.

Unsurprisingly, the compliance executives interviewed stated a preference for automated controls over manual ones. The respondents suggested that controls for ensuring compliance related policies and risk tolerances should, wherever possible, be automated. However, manual controls may also require IS support as they may often utilize systems such as spread sheets or databases. The IS function may also encounter some resistance to automating controls. A compliance executive noted, "*So, I think that* [discussion of controls] *sort of exists on a sort of automated versus manual basis and I think you're always gonna have a group of people within the company that want to stick to the tried and tested, back of an envelope, this is a spread sheet, I wanna do it this way. And then you have the, you know IT advanced individuals in organisations, who say,' you know we should automate this, we should do it with* [systems vendor]'. *We should put the time into the system, into the development of* [systems vendor] *and get this on a real-time basis" and I'm saying that my preference is keep as much of it automated as possible.*" Our study also revealed that the IS function may encounter some resistance to automating controls, as individuals may be used to manual processes, such as spread sheets. Furthermore, in the case of regulatory compliance

or business critical processes, periodic checks of the results of automated processes should also be undertaken. This is often achieved through comparing the outputs of an automated process with the outputs of a manual process.

Controls are essential, not only to set tolerances and limits on financial positions and assets held, but also to enable levels of authority. A compliance executive noted, *"If you've got a compliance breach out there in Brazil, then who can take ownership for that where is the central nervous system for compliance offices? We have them in each location. The rules are set up, the overriding control is happening here in London. But you've got people in Brazil who have got the authority to say, 'Ah, go to London, oh clearly they are asleep, I won't wake them up, I will allow this breach to go through or I will sort of do what I have to do".* Technology plays a pivotal role in preventing opportunities for market abuse and assuring that individuals do not have inappropriate access to processes and systems by which they may commit unauthorised transactions. The FSA's (2010b p.1) Handbook states organizations, *"...should segregate the duties of individuals and departments in such a way as to reduce opportunities for financial crime or contravention of requirements and standards under the regulatory system".* Furthermore, the compliance vendor highlighted the need to separate the process by which investments are selected (for example, by senior traders or fund managers) and the process by which these orders are fulfilled by traders. Thus, a key control is the appropriate segregation of duties to prevent conflicts of interests and unethical behaviour. However, the introduction of new systems may provide opportunities for individuals to circumvent established controls and practices. A systems consultant commented on a scenario which occurred when a new system was being introduced, *"I've seen a situation where the clients have wanted to give the Fund Managers the ability to override violations. Normally we wouldn't do that..."*As a precaution, one organization interviewed conducted an audit of systems' access rights every three to six months.

4.2 Measuring, Monitoring and Reporting Transactions

The next IS capability relates to the need to manage and report across all compliance activities within the organization and also to report transactions to markets and regulators. The study revealed that the measurement, monitoring and reporting of compliance activities enables strategic thinking at both the business and IS levels. The role of IS, in ensuring reporting requirements, is to facilitate the various channels of communication which are necessary to provide the appropriate data and to collate it and format it as required. Furthermore, compliance management technologies allow the measurement, management and reporting of controls and risk tolerances associated with transactions. These are benchmarked

against internal policies and regulatory requirements, as well as industry best practice and standards. A key compliance system adopted by the respondent organizations aggregates and monitors the positions held in accounts and portfolios to ensure the organization's total holdings are compliant on an on-going basis. The system allows regulatory rules relating to limits on transactions to be transcribed into automated rules. The system facilities orders and automatically checks them against the automated compliance rules when the orders are scoped and also during an overnight batch process once they have been processed. These checks are performed in real-time as they consider the actual holdings against live market data.

Reduced margins have focused financial organizations on improving the efficiency of their compliance arrangements. A senior compliance manger described how his organization is seeking to streamline monitoring activities, *"My new job specifically is trade surveillance with a view to market abuse. So we have a centralised group that they've built here recently, in the last year, in the compliance department which looks at things from a holistic point of view rather than being at the coal face and doing the job. So, there's a separate group that does the day-to-day surveillance and monitoring of traders but I'm looking at things from a strategic perspective. And I have colleagues in the US and Asia and Zurich who are looking at it in their own regions and we talk together and talk about a global perspective as to how we are handling our trade surveillance and how we can do it better, which there is pretty much universal agreement we could do it better."*

The compliance vendor has responded to the need to provide enhanced surveillance and monitoring by introducing additional services. Their 'Compliance Monitoring Services' comprise specialists employed by the vendor to review and assess compliance incidents and provide a daily summary of alerts, warnings, actions taken and items requiring escalation. This service is deemed as complimentary and is not designed to facilitate the wholesale outsourcing of monitoring activities. Instead, it compliments existing arrangements and so allows organizations greater assurance of maintaining compliance.

4.3 IS Development & Procurement

This capability relates to obtaining required functionality, either by purchasing capabilities from a vendor or through internal development. Either way, the organization is required to develop a clear understanding of the new controls and associated functionality required. For example, the MiFID II Directive requires that post trade information be published as close to real time as is technically possible (Linklaters, 2012). This requires organizations to adopt new systems enabling real-time reporting to markets.

The study revealed that the introduction of new regulatory requirements may cause gaps in compliance systems as new requirements come into force before internal development teams or vendors are able to develop the necessary functionality to bridge the gap. A senior systems expert noted in 2011, *"Understanding what's between the functionality being on tap and what's really required* [is key]. *That's one of the big topics at the moment – is the compliance gaps."* In the meantime, organizations may be forced to adopt riskier manual processes as vendors lag behind developing new areas of functionality. Furthermore, a senior compliance executive commented on the gaps in systems which occurred as a result of the new regulatory requirements and the difficulties faced in overcoming these gaps through bespoke development, *"So for example, if I wanna monitor for compliance* [against new regulatory rules]*, there weren't any reports that came as standard with the system and we were working to put some in place, but they weren't brilliant, even after a lot of work from IT".* Systems supporting compliance must be continually developed and improved to stay current with the organization's changing regulatory exposure and dynamic business environment. As a senior relationship manager for a compliance systems' vendor observed, *"this company spends over 20 million on R&D, huge amounts, there's 180-odd people who are just there beavering away at the next version and doing all these types of development"*

Our study revealed that organizations needing to implement new systems in order to meet new regulations may be forced to source such systems externally, as they may not have the resources to develop the necessary systems internally within required timeframes. A senior compliance executive noted, *"If we develop in-house, we have the internal IS cost, and all the rest of it, head count, that we need to bring in to do that. Um, so we have to balance the cost of doing that and having the people on board and the on-going maintenance with paying a license fee and putting a package in place"* and *"I mean the trade-off is the time though. I mean we can get an off-the-shelf system put in, in and up and running within three to six months. If we start an analysis process in-house to build this thing that we want to do exactly what we want to do, it'll be a couple of years at least."* Furthermore, the availability of new functionality for enabling compliance may also act to initially displace older systems. A compliance manager advised, *"*[systems] *have evolved…, new technology becomes available. You know someone develops a bit of software and then you say, "Oh we can actually do this now, which we couldn't do before." Let's run 'em side by side for year and see what happens".* The new MiFID II EU Directive requires that organizations ensure new products/services comply with all applicable rules and that risks associated with new products are adequately managed (Linklaters, 2012). Correspondingly, several systems experts

suggested that technologies underpinning compliance must be continually developed and improved to stay current with the organization's changing regulatory exposure.

Organizations may find that well-developed compliance systems with advanced functionality may provide an income stream as such systems are sold on to other entities. As one compliance executive noted, *"I mean, sorry to say, in most investment management firms* [compliance] *is a cost centre, but here actually those compliance services can be sold to other entities that might want to use your compliance platform, pulling in data from the accounting system, running compliance, because they don't have one. So it can be sold, so it can be a profit centre, which it is here."*

4.4 Managing Third Parties

Where outsourcing/offshoring arrangements are in place, contracts must reflect the level of service required to support compliance activities, adhere to internal policies and meet regulatory obligations. When meeting regulatory requirements, organizations should not assume that outsourcing key processes means that they have delegated responsibility to their provider. The FSA also states that, *"when relying on a third party for the performance of operational functions which are critical for the performance of regulated activities…* [firms must] *on a continuous and satisfactory basis, ensure that it takes reasonable steps to avoid undue additional operational risk."* (FSA, 2007b p.1). This requirement applies where organizations outsource the coding of compliance related controls into systems. The study revealed compliance systems' vendors may provide their clients with data feeds and prewritten automated compliance rules as part of their service offerings, thereby allowing clients to outsource areas of data ownership and raw coding. Furthermore, knowledge and process outsourcing arrangements may have to be evaluated to ensure that the new practices do not degrade internal controls. Here, the role of IS management is to contribute to the creation of SLA/contracts by examining how new arrangements with third parties impact on systems' controls and operations. When this capability is optimised, contracts and SLA agreements consider regulatory requirements, policies and risk tolerances and are aligned with business and IS strategies. The IS department is consulted when defining performance measures and controls for third parties.

4.5 IS Leadership

Effective leadership and project planning is essential for supporting compliance activities. Our research findings suggest that IS management must be clear about what existing systems, architectures and data will allow when consulting with compliance executives. In addition,

time frames and milestones for establishing appropriate systems must be well managed and communicated, due to tight deadlines imposed by the regulator.

Our respondents suggested that IS should be represented on any committees which review new compliance practices or the alteration of existing approaches. Compliance executives should also be consulted when developing new systems. One risk executive described the structure of project teams, *"I've worked in a risk and controls team, which is sort of between compliance and business. But you will see a similar generic breakdown of functions, which is somebody who understands the business and comes from the business, such as a lawyer or a regulator or an internal compliance person. Somebody who understands the system and then perhaps people in-between who will put it into practice"*.

A senior compliance executive suggested that the creation of a compliance focused senior committee, consisting of compliance directors and senior management from effected business functions, was essential. In her view, it is crucial that IS should be well represented on this committee. Within her organization, regular monthly meetings occurred between middle management and a monthly compliance report was prepared for their 'Operating Management Committee'. However, an executive noted that in his firm, *"…governance committees are infrequent and the actual real business is done on this ad hoc basis…"*

IS leadership may contribute to understanding and evaluating the costs and benefits of adopting different approaches to compliance. Furthermore, strong IS leadership is required to ensure systems' vendors are developing in alignment with the organization's changing regulatory requirements. Increasingly, firms have to demonstrate compliance capabilities to attract clients. The IS function may provide a reassurance to clients by demonstrating compliance systems and thereby support sales and marketing activities.

4.6 Sharing and Selecting Best Practice

Our research revealed that many IS professionals were confused about the contribution of industry-recognized frameworks and best practice to the emerging regulatory landscape. A complete review of the various frameworks and standards is beyond the remit of this paper. However, Figure 2 highlights some of the more well-known frameworks.
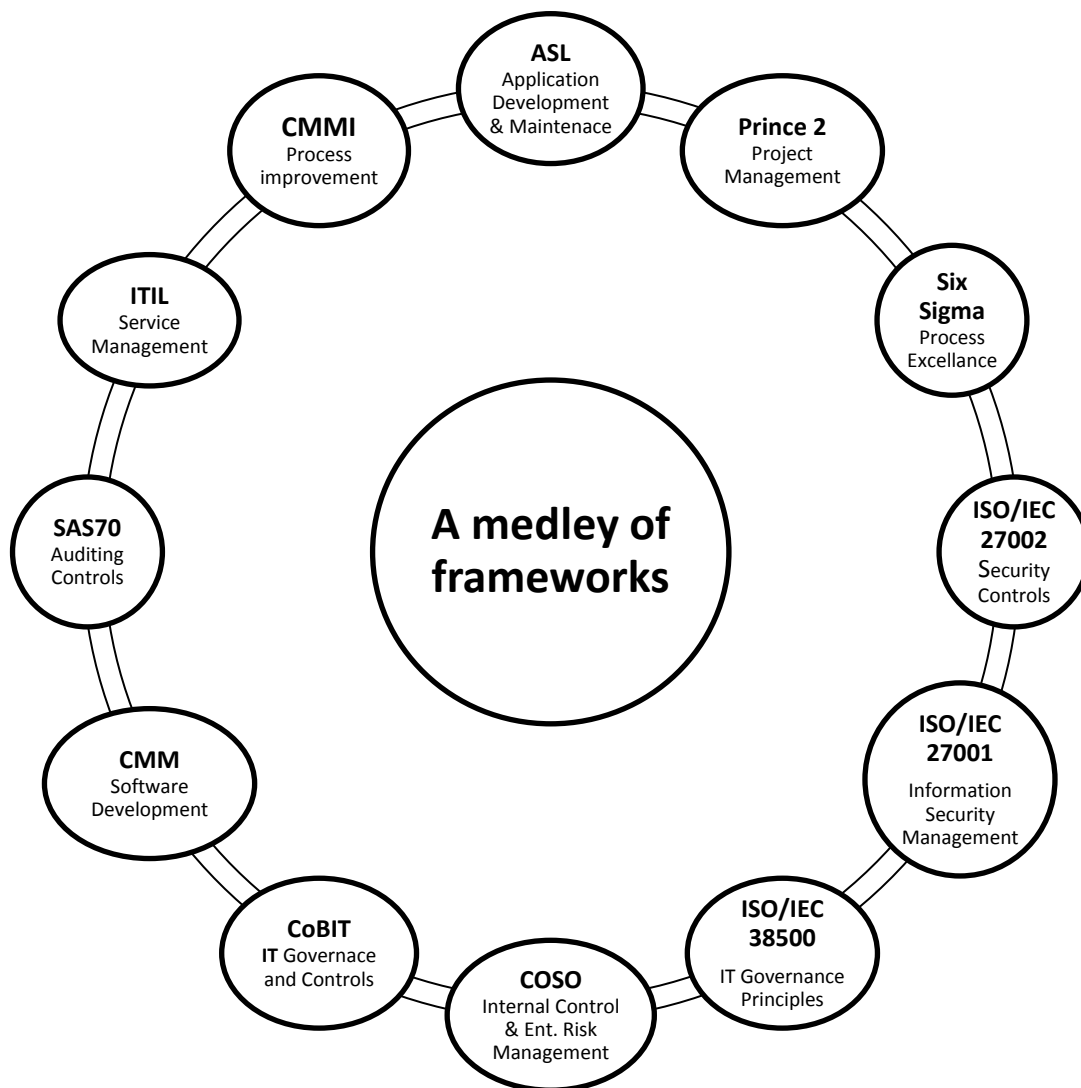
Figure 2 Relevant standards of best practice for regulatory compliance

All of these frameworks have a very different focus but give organizations insight and a point of departure from which to structure their compliance arrangements. Established standards provide operational foundations, incorporate best practice and facilitate knowledge sharing. Crucially, they are auditable and are well recognized by stakeholders including regulators, shareholders and clients.

However, individual compliance requirements in each organization will differ due to nuances in their business environment, product portfolio, resources, strategy and regulatory obligations. Due to this and also as no single framework or standard provides a complete compliance solution, our study revealed that organizations may often review these frameworks and then plan an approach that blends the best practices of each along with the needs of the organization.

Our findings suggest that in the post-crisis environment, IS experts and compliance managers are more willing to share approaches across organizations. Internally, different business functions and geographical divisions impacted by the same policy or regulation may also seek to share best practice. The study revealed that organizations with similar systems and regulatory exposures share best practice for dealing with common compliance issues. Informal networks are deemed especially valuable for sharing proposed practices for dealing with new regulatory requirements. The findings revealed that firms may also collaborate with other organizations to determine industry standards for defining compliance metrics, monitoring processes and reporting structures.

Organizations with in-depth knowledge of a specific regulation may contribute at the industry level, through associations with high-level bodies and can also assist with the development of systems. A senior risk manager noted, *"I am involved in the IMA, Investment Management Association, which is a UK body and I've sent out the information to them, just trying to get people to think about* [EU Regulation: CESR 10-788]. *And then I shall be contributing to software houses. We use* [system vendor], *and I've agreed that when they start to do their coding, I'm ready to have my brain picked on it."*

4.7 Data Management

Our study found data to be a key challenge when developing complex controls. As one systems' consultant noted, *"what we find with a lot of clients, is they may not… have all of their supporting data."* A senior compliance manager also noted*," …the data really is key. I always say to the guys at work. You can code the perfect compliance test and if it's not supported by the data it's useless"*. Furthermore in the case of controls relating to regulatory compliance and risk tests, such as stress testing and scenario analysis, data may have to be sourced externally. Our research also highlighted how changes in compliance requirements, often due to changes in regulatory obligations, will require new data. New regulations and mandates may require changes in data requirements. A systems consultant advised, *"... sometimes the regulation comes out and the systems aren't capable of fully supporting, you know in general aren't. And the data may not be fully available to support the regulation. That's common. I mean that has happened…"*

A key factor is the availability and format of the data which supports the controls. A systems consultant remarked that this is often the *"biggest chore"* when implementing a rule. Furthermore, changes in compliance related activities may require a change in controls which in turn may require additional data, which must be appropriately formatted so that it can be shared across systems. A relationship manager for the IMS vendor observed that when the

system was upgraded, *"We introduced parameters that required certain data that the client can use and they have to make sure that they have that data available."*

Gaps in the data required to support controls relating to polices emanating from compliance activities may influence a firm's ability to meet customer requirements and trade. In addition, gaps in data or functionality relating to compliance affected activities may require processes to be performed manually. This in turn may reduce the effectiveness of controls. A consultant stated "[Previously] …*it was a manual process and they had to do this manually whenever... Let's say... the functionality wasn't fully there or maybe they didn't have the data fully in place to correct the functionality"*.

Changes in business objectives may also require further data as new products must meet internal and external polices and established risk tolerances. Analysis derived from such data may alter business objectives and policies. A compliance executive noted, "[new products may require] *...more data may impact the business to a degree. To the extent that they may find that the calculations weren't what they were expecting initially."*

In summary, our findings suggest that the appropriate management and sourcing of data is essential to support all compliance activities. Consequently, effective IS governance is integral to defining policies which control data sourcing, formatting and management.

4.8 Enabling Cultural Change

A key challenge is to create the right culture. One senior compliance executive observed, *"I think there's a huge emphasis on compliance and you know a firm's culture, the compliance culture. You know, is this gonna be another one that blows up, do you know what I mean? Things are volatile right now and people wanna know that you're in a good safe place and it all starts in compliance and that culture then resonates through the rest of the firm."* One systems manager suggested that, prior to the crisis, senior traders and fund managers had increased control over the systems used for conducting transactions and for applying automated controls. However, since the regulators' move to 'intense' supervision this culture has changed, *"There are regulatory clamps now being pushed upon* [senior fund managers] *and what they are enforced to do is to use certain audited system to provide accountability and traceability. And this has meant that they are being told really in no uncertain terms* [by the FSA], *if you don't use the process that we're suggesting, then woe behold you if there are any financial problems or irregularities. So the culture is one where they feel that they can do whatever they want, but they're now being pushed into the corner where they're being forced to used the electronic order management systems."* Furthermore, respondents highlighted that adopting appropriate IS systems to provide controls reinforces a commitment

to a culture of compliance. One senior compliance executive commented, *"It's a good culture for people to know that they're being monitored and reviewed"*. Another systems consultant suggested that systems and controls act to influence culture by ensuring changes in behaviours, *"The* [compliance system] *is essential in influencing people's behaviour, because they now know they're audited. As all their processes and transactions are being stamped in the system, then clearly their approach or their attitude shifts towards, 'I'm now being scrutinized. I therefore, will have to work properly now, if I didn't work appropriately before. "*COSO's well-established Internal Control Framework explicitly requires organizations to develop a control environment in order to influence employees' attitudes and goes as far as suggesting that such a culture is the foundation for effective internal control. Effective corporate governance is dependent on creating a culture which supports 'doing the right thing' (COSO, 1992).

However, several respondents highlighted concerns regarding the development of a dominate control culture. Many organizations have built up considerable innovative and creative capabilities in order to think and act differently as a reaction to dynamic markets and ever-changing business environments. Thus, management has focused on developing a culture which ensures that organizations can change at the pace demanded. Our responses suggest that, if compliance is misunderstood, there is a danger of a culture of overt control developing which may stifle innovation. A compliance executive suggested that compliance could act as an aide to innovation by helping to, *"find alternatives if problems exist"* and that good compliance was about, *"business protection not business prevention"* and that *"if compliance is acting as a barrier, it is not performing its role properly."* Furthermore, one risk manager commented that a culture where individuals are more risk aware could have a positive effect on innovation by helping to, *"identify new opportunities"* and situations, *"where risks were worth taking"*.

Our respondents had much to say regarding the appropriate cultural tone. One compliance consultant observed that an important aspect of developing the right culture was the need for individuals to, *"take pride and gain recognition"* for doing the right thing. She suggested that the often championed *'learning culture'* where people do not apply blame is in in contrast with the nature of compliance which is to*, "hold people responsible for their actions and behaviours"*. A compliance executive noted that, in his opinion, organizations, *"need to accept that compliance is quality"* so that the attitude within sales, for example, is that a, *"trade is not a good trade unless it is a compliant trade"*.

In summary, firms should strive for a culture where individuals are aware of the expectations placed on them with respect to ethics, risk and legal regulations. However, this culture is balanced by a culture which simultaneously supports innovation. Compliance is welcomed and viewed as enabling new products and services innovations by ensuring they are legally compliant. IS has a key role to play in influencing behaviours and thereby changing cultures.

5.0   Discussion

Trust in financial organizations and regulatory institutions have severally diminished in recent times. At the societal level, there is considerable public anger regarding the origins of the Great Recession and the organizations and regulators who contributed to it. Furthermore, numerous scandals which have occurred since 2008, including the Libor manipulation scandal, have further diminished confidence in financial organizations. Consequently, key stakeholders just as investors, auditors and regulators are increasingly looking for organizations to be able to demonstrate not just current compliance but also robust and quality practices in place for underpinning successful compliance in the long term.

The IS Capabilities identified provide a series of categories from which organization may evaluate their own abilities in each area. Maturity in each capability may be calibrated on a scale. At one end of the scale they are a set of fragmented or loosely interconnected activities and technologies focused on risk, regulation and policy. At the other end of the scale IS capabilities for compliance may be conceptualized as an enterprise wide initiative with the potential to improve governance through developing an in-depth understanding of risk and compliance on business performance. By adopting an enterprise-wide approach to compliance and involving IT leadership, expenditure on compliance becomes more transparent.

The management of internal controls is essential to ensure rules are adhered to and limits respected. The outputs of such controls should be monitored and benchmarked and results reported to key stakeholders. Procurement and development of systems capabilities must ensure that new parameters and controls to meet upcoming requirements are incorporated and that data and system's architecture's will effectively underpin new practices and avoid causing an overreliance on manual process, while technical gaps are bridged. Where third parties are employed, their own abilities to support compliance practices should be considered and evaluated on an on-going basis. Meeting new compliance requirements which are still being reviewed and refined close to the deadlines is challenging, as are revaluating existing requirements in relation to shifting markets and the introduction of new and the

retirement of old products. Strong IS leadership is important to ensure that IS has a voice when considering such changes and the impacts on the firm's regulatory exposure.

Often compliance is not perceived as contributing to a competitive advantage and so organizations' should not be deterred from seeking to overcome the challenges of short implementation deadlines and shifting environment factors by seeking to share best practice and approaches. Effective data management practices underpin all compliance efforts. Planning early and establishing the key data sources which will underpin controls and reporting requirements may assist organizations to build appropriate interfaces between systems which may in turn take time to test and refine. Changing cultures associated with pre-compliance views on appropriate trading behaviours is a huge challenge, which goes beyond the deployment of specific IS capabilities. By developing strong controls, robust systems and clearly structured and appropriately segregated workflows, organizations demonstrate a commitment to compliance culture. Furthermore, IS systems have the ability to both constrain and enable specific types of behaviour and so may contribute to the desired cultural reforms.

6.0   Concluding Remarks

The global financial crisis has drastically altered the business environment for firms engaged in capital markets and is likely to continue to do so as new regulatory requirements are drafted and come into effect. Regulatory institutions are being radically amended at the macro level. The primacy of institutionalised logics, predominately based on market forces, are being challenged by new logics espousing the need to further safeguard investors, employees, and crucially, the larger economy. Coercive mechanisms for control are enhanced as further restrictions are applied, sanctions increased and supervision intensified. Consequently, associated logics of action, functioning at the intra-organizational level, are also being challenged. This phenomenon has forced financial organizations to consciously act and reconsider their regulatory exposure, as well as their strategies for delivering compliance and thereby re-evaluate the cultural symbols and material structures and practices they employ at the meso level, through rules and technological tools. The logic of previously embedded compliance practices and structures becomes questioned as the regulatory framework is enhanced and its sphere of order influences lower level logics of action.

To conclude, compliance practices are likely to become increasingly critical to the organizations' ability to cope with crisis and change caused by evermore dynamic environments. As a consequence, both internal and external stakeholders are likely to

continue to take a deep interest in organizations' ability to deliver quality compliance practice and the IS capabilities which underpin them.

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