Chapter Two

Roles for e-government in financial regulation and monitoring

Governments are deploying new information and communications technology in response to the global financial crisis. These electronic government technologies have the potential to deliver imaginative options for policy-making processes as well as for the debates that surround them. For governments, the current most critical issue is how to rebuild trust in a system of financial weaknesses and governmental responses that has proved so highly untrustworthy to date. At this time, however, no one knows what these attempts at rebuilding trust might consist of, much less what they could possibly achieve in terms of refashioning the entire financial system – ideally, a system with more effective policies in place for financial regulation and monitoring.

In two historical analogies – the Great Depression and the Asian financial crisis – new technology embedded in capital formation alongside government efforts played some part in the subsequent stages of recovery. These historical comparisons demonstrate how alike the ‘causes’ of past and present financial crises may be, as well as the patterns of circumstances and behaviours that emerge. Moreover, these comparisons inform the discussion about the role of new technology and especially governmentally underpinned technology (such as rural electrification in the 1930s) in recovery. In the recent Asian experience, government actually made use of ICT, which provides the technological backbone of e-government, to advance recovery.
2.1 E-government risks and benefits

E-government has a great deal to offer in the reform of the financial regulatory system. Such reform should aim to promote the transparency, integrity and efficiency of the financial sector and sectors that are linked to it. This is what e-government does best, so long as its practitioners are well-versed in carrying out such objectives. E-government carries the additional advantage of being able to effect such outcomes in ‘real time’.1

Most e-government is embedded in ICTs, which are connecting more and more people to a wider variety (‘breadth’) and profundity (‘depth’) of information. ICTs are connecting participants who had not previously been connected, which is enhancing the complexity in ‘breadth’ (the number of connections involved) of the market and the product.2

Consider the number of participants in the home mortgage, for example: homeowners, commercial banks, savings and loan associations, investment banks and other issuers of mortgage-backed securities, purveyors of collateralized debt obligations and credit default swaps, mortgage lenders, brokers, servicers, trustees, credit-rating agencies, insurance companies, investors (including hedge funds, pension funds, sovereign wealth funds and mutual funds), regulators, government-sponsored enterprises, and politicians and their constituents. The number of financial institutions and investors entering this sector increased as a result of the in-depth securitization following the 1980s and the repeal of Glass-Steagall Act in 1999. At the same time, the increasing complexity of the product design attracted increasing numbers of consumers who had not been able to access the traditional mortgage.

As the number of connections has grown, so too has the sophistication of the financial sector. This increasing ‘breadth’ can be seen in the design of more and more sophisticated financial products, based on advanced mathematical models. The derivative products are designed as portfolios originating from different sources and including multi-layer securities. In this way, securitization has broken down the traditional relationship between borrowers and lenders.

This leap forward in terms of complexity both in breadth and in depth in the financial sector created ideal conditions for the use of e-government technology in problem-solving efforts. In the recent mortgage meltdown, however, as the regulators and major product providers worked to resolve the problems there proved to be a ‘downside’ associated with e-government. Regulators encountered problems linked to secrecy rather than transparency, problems associated with the skills and competences of those individuals entrusted with coping with e-government, and problems with the opacity of the new derivative financial products themselves. In terms of e-government, all of these factors lowered the performance of regulators.

Another potential downside is that once e-government begins to develop and become more sophisticated, citizens will be compelled to interact electronically with the government on a larger scale, which could potentially lead to a lack of privacy for civilians as their government obtains more and more information on them. Increased contact between government and its citizens can be a positive or negative experience. Other pitfalls of particular relevance to financial monitoring include the potential for high cost for little return on investment, lack of access for groups such as the poor, and a false impression of transparency given that governments control the information.

E-governance

E-government refers to a rather motley and eclectic variety of front-office and back-office operations that happen to be carried out by government and that has in places become properly systemic. There is a broader term than e-government. The notion of ‘e-governance’ refers to the wider process of bringing about the corresponding transformation in society.3 Pippa Norris, McGuire Lecturer in Comparative Politics at the John F. Kennedy School of Government at Harvard University, describes the difference in views held by optimists and pessimists about e-government:

“Cyber-optimists are hopeful that the development of interactive services, new channels of communication, and efficiency gains from digital technologies will contribute towards the revitalisation of the role of government executives in representative democracies, facilitating communication between citizen and the state. In contrast, cyber-pessimists express doubts about the capacity
of governments to adapt to the new environment, stressing that it is naïve to expect technology to transform government departments as organisations that are inherently conservative, hierarchical and bureaucratic.\(^4\)

For practitioners of policy, neither of these extreme viewpoints might appear particularly useful, yet Norris offers the promise of effective ICT based on good governance:

“If practitioners bear in mind the factors of inclusiveness, equity, democratic accountability, transparency, civic engagement and other values embedded in the notion of ‘good governance’ to provide a substantial ethical grounding for e-government, it is possible to devise and implement a series of interventions involving ICTs that help address ... key challenges facing governments in developing nations today.”\(^5\)

Thus good e-government can be said to be founded on good e-governance. However, the converse is also true: good e-government also contributes to realizing good e-governance.

### An interim assessment

E-government is becoming a meaningful solution to providing better communication between the government (as policy maker and implementer) and citizens, and between the government (as regulator) and the financial sector. In fact, e-government has been put into practice since the early 1990s in industrialized countries such as the United States. However, in most of these countries, e-government has been used on a task-by-task basis rather than in a systemic manner. Certainly, the construction and implementation of e-government is a dynamic and ongoing process.\(^6\) Many e-government websites, particularly those established and operated by governmental agencies, are still in their infancy stage and cannot as yet provide services that are satisfactory in either quantity or quality.\(^7\)

To deal with the financial crisis in particular, the central issues promoted here are transparency, integrity and productivity, since these can permit the extension of operations. Eventually, this could result in the emergence of a new system of government and a new paradigm for governance.\(^8\) The road from a task-by-task basis to a properly functioning system is, however, a long and rather tortuous one, involving cutting through or across many vested interests. Again there is much to gain from contemplating past historical evidence on how large systems came together, e.g. in electricity or railway networks.\(^9\)

Regarding citizen participation, e-government issues remain somewhat controversial, and the impact seems to be evolving unevenly across populations. Some researchers argue that an increase in citizen participation in government decision-making could not be relied on to produce positive effects.\(^10\) Moreover, the transparency of information disclosure may actually worsen the digital divide.\(^11\) This may be the case if the policy makers are risk-averse, or if they are simply addressing the interactive comments they receive from certain vocal citizen participants rather than fulfilling their mandate or responding to the public interest.\(^12\) A study of the central banks found that it was the independence of central banks that brought about their transparency, and not the reverse.\(^13\)

In contrast to these pessimistic critics, proponents of citizens’ participation via the Internet or other ICT methods are making their case. Michael R. Ward suggests that the spread of Internet usage would reduce the cost of political activities, as well as the possibility of ‘circlet politics’, though he emphasizes that the conclusion still needs to be tested through empirical studies.\(^14\) Steven L. Clift suggests democracy can be deepened and become more participatory with the effective implementation of ICTs.\(^15\) Many ICT industry observers, along with members of the current United States administration under President Barack Obama, also advocate the democratization of data.\(^16\)

In any event, citizen participation via the Internet is not in the foreground of our discussion about e-government and the financial crisis. It is generally agreed that ‘transparency of information’ is good for democracy, the quality of regulation, international coordination and the competency of the general public in dealing with corresponding matters.
Beyond this point, the discussion is organized into four main sections. In each section, the largely defensive, reactive tone in the earlier parts is replaced later by scenarios in which a better society could be built by making more aggressive and proactive use of e-government, and by shifting focus from surviving in the short run, to faring better in the medium- to long-term.

2.2 Restoring trust after times of volatility

Beginning in mid-2007, a number of influential people issued warnings at various stages about the global financial situation. Most of the financial sector and the general public ignored these warnings, thereby propelling themselves and their societies into recession and then depression. Questions remain concerning the following:

- Would societies have listened to ‘better’ information and advice had it been offered, as the concept of ‘social capabilities’ suggests, or is this possibility refuted by propositions like ‘irrational exuberance’, ‘herd instinct’ and ‘herd mentality’?17
- Did the e-technologies linking global financial centres actually make things worse than the absence of such technologies in the past?
- Could better and wiser governance of financial systems have averted recession, not to say depression, especially through more extensive adoption of e-government principles? And if so, did the basic shortcomings lie in the institutions associated with those financial systems, or can they be attributed to the failings of individuals and/or the particular organizations in which they were embedded?

Stated in this fashion, these questions cannot be adequately answered from the information currently available. The more enduring question to ask instead is: What are the opportunities for using e-government to ward off crises in the future? The pressing challenge then becomes one that has been skirred around several times already in this chapter, of how to go about restoring trust in what is widely regarded as a failed system. But to what extent can this be done without being in possession of a valid ‘model’ of the ways in which the present system may be malfunctioning?

The remainder of chapter two thus looks at financial regulation first in terms of models and then in terms of risk and other problems, before turning to what e-government might do better.

2.2.1 Starting from the right financial model

With the views of economists and policy makers subject to change and sometimes caprice, who is correct? For any solution to financial problems, including the use of e-government technology, the key is to start from a valid viewpoint or model. This can be seen, for example, in approaches to financial regulatory policy, whether we are discussing the Great Depression in the 1930s and its aftermath or the ongoing financial crisis of recent times.

By the 1980s the monetarist school of thought had eclipsed the rival Keynesian school and was putting forward as its base the theory of ‘rational expectations’, a modeling theory in which outcomes do not differ systematically from what people expect them to be. Rational expectations are based on probabilistic choices, as opposed to irrational expectations based on instinct. One of the direct implications of the rational expectations theory was an overt preference for government policies to follow certain rules. The reasoning behind the preference for governments following expressed rules was twofold: i) it reduced the risks and uncertainties involved in decision-making by the private sector; and ii) it would reduce and maybe even eliminate arbitrary decision-making by the ‘untrustworthy’ public sector.

Monetarist economists therefore for a time pursued the enforcement of ‘rules’, in particular rules about what could and could not be done in terms of expanding the country’s money supply, in order to avoid inflation with all its costs. By way of a riposte to the asserted preference for rules, an opposing financial economist named Charles Goodhart formulated one rule (or ‘law’) that did always seem to work, namely that the imposition of any particular rule would ultimately subvert that rule. This would cause people to divert their efforts towards devising clever ways of circumventing the original ‘rule’, thereby negating the opportunity for the rule to work as it was designed to do.
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When the limitations of the monetarist focus on rules became evident, this left the way clear in principle for exercising the obvious alternative of ‘discretion’ in policy-making, for instance in being more flexible about monetary expansion than the imposition of rules would allow. In an approach favouring discretion, e-government measures and techniques would seem to be ideal.

The most basic point to emphasize is that one cannot make any real progress through e-government or any other technological ‘fix’ if one begins from a specious set of assumptions about how the world really works, i.e. from the wrong model. The clear inference is that to implement a policy one must first make a serious effort to get the ‘initial conditions’ at least roughly correct or valid.

Systemic risk
The essence of the ongoing financial crisis is that the capability for control lags behind the pace of innovation in the financial sector. Therefore, the complexity of the activity has kept driving it onwards. For many years, the situation has been one in which the regulatory controls have failed to catch up with, for example, the proliferating markets for derivatives or the new methods for handling mortgages. The e-government solution could come into play through a call for greater transparency or greater speed, to allow the government to establish a much firmer and more responsive basis for a decision to intervene (or not) in the operations of a particular bank.

The transparency offered by e-government, however, often runs counter to practices in a highly competitive activity such as modern finance. Participants are in practice usually more inclined to maintain their own business secrets, rather than having them out in the open. Several elements have been widely blamed as being inaccurate or too opaque, including the risk evaluations of rating agencies, the creation of structured investment vehicles, and the design of other derivative financial products offered by hedge funds and banks. To the financial product providers, these non-transparent aspects contributed to their competitiveness, and were even encouraged by the government and regulators in the name of risk-sharing. The pursuit of high-profit investment opportunities was backed by massive foreign capital inflows, and long-term interest rates remained low over the course of nearly a decade – in turn, these factors encouraged financial practitioners to head for profit-taking in spite of risks they did not properly understand. So-called experts were not able to manage the risks effectively and often could not even define and measure the risks explicitly.18

The kinds of risks described above are rooted in financial systems; they are ‘systemic’ in that sense. ‘Systemic risk’ here refers to risks associated with enlarging operations at the level of macro ‘systems’, such as the financial system or the foreign trade system at the national level. ‘Cross-systemic risk’ refers to those linked to any conflict among those substantial components, such as barriers between the financial system and the technological or industrial system.

As regards the source of systemic risk in the global financial sector of recent times, there are a variety of viewpoints. Some insider experts insist that the crisis was caused by discontinuities in the financial market. These serious hiccups were based on “the innate human responses that result in swings between euphoria and fear” and were taken as “only a peripheral addendum to business-cycle and financial modeling”.19 This is to claim that low-probability events caused by the ‘animal spirits’ of human beings, i.e. contexts not portrayed in previous risk-related econometric models of ‘rational expectations’, destroyed these models in practical terms.20 In other words, much like Milton Friedman said of the Great Depression, the systemic collapse was triggered by a chain of accidents.

Other insider experts argue that such systemic risk was essential to the relevant risk-related econometric models. However, the developers of these models were unable to inform the public about the risk, or maybe did not take on the ethical responsibility to do so.21 Still others argue that the point is not whether the modeller ever informed the public about the systemic risks; rather, they say that the formal mathematical models essentially could not help to understand the complex relational structures and mechanisms involved, because of the inherent analytical biases in those models.22 This position has much in common with the Keynesian views of Eichengreen and Temin regarding the 1930s, cited in section 2.1.1 above.
Yet another stance is taken by Peter Gowan, who suggests that both modelers and regulators did perceive the systemic risk beforehand, but thought they could control the risk. The required financial technical innovations had been developed and were in place before 2001, before the rise of the housing bubble that led to the ongoing crisis. Therefore, the bubble inflated under the intentional gaze, and in some cases the actual participation, of these modelers and regulators – just as had happened with bubbles before.

The rapid decline in the housing and real estate services sectors, the financial services sector, then primary materials and finally secondary industry suggests that the individual sectors are not isolated from each other, nor from even broader, macro-level interactions. This raises the possibility of the dynamics of deflation in the style depicted by Kindleberger for the late 1920s and beyond, operating at the cross-systemic level. What this phrase suggests is the association – or sometimes collision – between already highly aggregated ‘systems’.

Cross-systemic risk
Handling such a situation might sound like a classic application of risk management and containment, but success depends on first knowing how the policies for financial regulation are to be chosen. Rather than (insurable) ‘risk’, this would raise issues of genuine ‘uncertainty’ or worse: a lack of knowledge (or true ‘ignorance’) about what the present problems actually are. Without going into great detail about either the causes or the course of the ongoing financial crisis, it does not seem difficult to aver that the problems rapidly became systemic, and indeed in our sense cross-systemic.

Thus, as in the United States or Europe in the 1930s or South-East Asia in the late 1990s, the difficulties quickly began to pervade the real as well as monetary facets of globally oriented economies. The loss of faith in first one and then the other recalls Kindleberger’s notion of the (interacting) ‘dynamics of deflation’, and worked like a pair of pincers by greatly exacerbating systemic risk and uncertainty.

So what could e-government improvements have done about ‘systemic risk’? Or what might they do in any future re-run of this scenario? The answer depends a lot on how much emphasis one places on social psychology, and on such beliefs in the vagaries of human nature as ‘herd mentality’. Using the Internet allows incorrect information as well as correct information to be circulated more rapidly; so how is any recipient in a position to arbitrate between seeing a particular item of information as correct or incorrect, especially when in reality the alternatives are likely to be much greater in number and much grayer in contrasting tones (i.e. offering less stark situations than choosing between black and white)?

Raising awareness that there is a problem can be half the struggle, though unfortunately not many governments are brave enough to do this when it matters most, namely at the outset. Clearly much will depend on the citizens’ faith in the governmental office or officers concerned.

The ‘shadow banking system’
The scale of the non-bank financial system (the ‘shadow banking system’) had been growing very rapidly before the crisis set in. According to Timothy F. Geithner, the aggregate size of shadow banking, including the structured investment vehicles, auction-rate preferred securities, tender option bonds and variable-rate demand notes, along with assets financed overnight in tri-party repos (repurchasing agreements) and hedge funds, was approaching the asset levels of the traditional deposit banking system by early 2007.

The neglect of regulation of the shadow banking system was a key factor underlying the financial crisis, as noted by Geithner and Krugman. The shadow banking system had not been regulated nearly as strictly as the depository banking system, especially in terms of capital reserves and liquidity. This allowed the shadow system a remarkable degree of leverage on its capital, mainly via borrowing from the short-term, highly liquid money market, to speculate in long-term, less liquid markets.

From the mid-1980s on, few efforts were made to extend regulation to the growing shadow banking system. On the contrary, moves were made in the opposite direction. Before the crisis, even regulators had no idea as to approximately how much capital had been engaged in such a system, and also had no clear mastery of the practical process.
of transactions. In the words of the director of regulation at Spain’s central bank, structured investment vehicles and conduits were “like banks but without capital or supervision.” Without effective regulation, the increasingly complex structures of derivatives as financial products promoted resource allocation (for speculation), while becoming, in Warren Buffett’s words, “financial weapons of mass destruction.”

In the continuing absence of the kinds of fundamental reforms that must be carried out, it can be predicted with a high degree of confidence that introducing or developing e-government practices will remain largely irrelevant. As it is, too large a proportion of financial speculation activity nowadays still takes place below the radar of regulation. On the other hand, this lacuna offers great prospects for e-government once the gap in regulation is successfully overcome. At that stage, e-government can fully come into play, both to aid in the implementation of the regulatory code itself, and to monitor its consequences.

### 2.2.2 Roles for e-government in financial monitoring

Effective communication should be regarded as the foundation of measures to allow the financial services sector to recover, especially in light of the complexity in breadth and depth of the issues involved. The transparency of the financial engineering is important for regulators trying to build up a robust supervision system. Information disclosure is also critical to restore the confidence of the entire market, and to maintain long-term rationality in customer attitudes towards the market after the crisis has abated.

E-government can add agility and flexibility in real-time responsiveness to events that will inevitably arise, and this is important in light of calls for more dynamic regulation. As the CEO of Goldman Sachs said in a recent speech:

“Capital, credit and underwriting standards should be subject to more ‘dynamic regulation’. Regulators should consider the regulatory inputs and outputs needed to ensure a regime that is nimble and strong enough to identify and appropriately constrain market excesses, particularly in a sustained period of economic growth.”

Financial activities will be reformed in a number of countries, as is currently being emphasized by global leaders. The focus for reform is stricter regulation of shadow banking systems, and correspondingly the securitized derivative financial products. In July 2009, for example, the incoming Obama administration proposed legislation to require hedge-fund managers, as well as managers of private equity funds and venture capital funds, to register with the Securities and Exchange Commission. However, in an ever-changing and for the most part advancing world, it would seem unlikely that the regulation of the financial sector would be pulled back to the situation that existed before the mid-1980s, which would imply sharp declines in, say, speculation via securitization and/or hedge funds. Rather, governments and regulators will try to promote the effectiveness and efficiency of monitoring. This means that the targets of reform should be at least twofold, involving promoting the safety of derivative financial activity, and minimizing the depressive effects brought about by the reform of financial innovations.

The critical point of reform is not to discourage financial innovation, but to require information transparency, and enhanced supervisory capabilities on the part of regulators. Currently, a series of reforms is likely to be carried out, as has been observed by regulators around the world over the past few months. E-government can provide effective tools for these reforms as a platform to buttress communication among different actors from the government, industries and the public.

In addition, to promote regulation, some responsibilities attributed to particular regulatory agents would be strengthened. Some government entities, including the United States Department of the Treasury, propose that this kind of regulation could be carried out partly through representation by professional departments and agencies. However, this has to be balanced against the likely augmentation of relevant regulatory bodies. In a context of ‘lean regulation’ or in Obama’s terminology ‘smart regulation’, accelerating the ICT foundation of regulation to promote information transparency...
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To undertake process supervision
Considering the complexity of the financial sector at present, static data at a particular point of time are not sufficient to master the dynamics of the transactions. To avoid another credit crisis, regulators should address the financial engineering process of derivative product designs. In other words, the requirement of transparency should cover credit rating, product package modeling, pricing among counterparties, and so on. If regulators can obtain such data, this would enhance the competency levels of the regulators.

In fact, the proposed reforms aim to build a capillary network of information to cover the financial sector both in depth and in breadth. Only an ICT-based network can achieve such a target. It requires not only the construction of ICT infrastructure, but also the building of new institutional arrangements. New compulsory regulation procedures could be closely connected to an ICT network.

To improve the timeliness of regulation
E-government is important if regulators are to effect timely supervision. In comparison with traditional bank activities, those needed to regulate derivative activities have special characteristics, especially those developed for over-the-counter markets (OTC derivatives). These transactions could occur without standard contracts, and without transparent and regulated venues and counterparties. These features allow the current shadow banking system greater flexibility to adjust to the dynamics of targeted industries and price fluctuations. The transactions can be carried out flexibly with respect to both time and place (of course, before the crisis, many activities were even held offshore). This flexibility is an important source of the competitiveness of the shadow banking system led by United States and United Kingdom. For the regulators, however, it becomes very difficult to master the complexity of the financial engineering process.

Timely monitoring is critical. Only a digital regulatory network can work compatibly with the automated data feeds of regulation. Through a Web 2.0 framework and the Internet accounts of these financial institutions, data on the transactions

and process supervision would appear to be a good way forward. In constructing an e-government system, it is also helpful to build up the capacity for systematic analysis by the unit responsible for supervision in the country concerned, so that it can respond to the ebbs and flows and general processes of the crisis. A case in point is the Capital Markets Safety Board recently proposed by Andrew Lo, which would appear to be a more flexible and comprehensive way of coping with the rapid and progressive dynamic evolution of the financial sector.

To collect information
E-government can provide information tools for regulators to develop and then implement regulations related to the shadow banking system. Reform of the shadow banking system should aim to put the system back on the radar screen of regulators. Most requirements to the deposit banks would be transplanted to the shadow banking system, such as the requirement of adequate capital reserves, liquidity, and so on.

Regulators need to uncover more information compared with what has to be supplied under the existing regulations. The activities of banking are highly connected, and their transactions, as previously emphasized, do not happen in traditional ways, i.e., in regulated venues and via transparent counterparties. Therefore, new categories of information should be explored and collected to support the analysis of the regulators, as is broadly recognized by industrial practitioners and regulators. For example, Verena Ross of the United Kingdom’s Financial Services Authority, says that more resources should be devoted to the supervision of high-impact firms, and more focus ought to fall on the details of bank accounting. Generally speaking, data may need to be revealed to the regulators regarding the shadow banking system’s leverage, liquidity, correlation, concentration, sensitivities and connectedness.

Mass information should be explored and analyzed by regulators, as it is rapidly increasing in terms of both depth and breadth. E-government is a suitable method for regulators to carry out the data collection.
could be collected automatically by the timely input of financial practitioners, for analysis and supervision by the regulators.

**To prevent periodic bubbles**

The ultimate solution is to prevent economic bubbles from forming in the first place – a conclusion drawn by reconsidering the economic bubbles and bursts in recent decades, when the leading countries were implementing aggressive monetarist policies. An economic wave is usually the outcome of an interaction between technological and industrial changes and financial investment. It reflects the natural reaction of human beings, with their capital and limited rationality, to pursue potentially highly profitable opportunities. However, according to events witnessed in the past few decades, some of the bubbles came about in the context of overheated ‘exuberance’, with the blind following the blind, and neglect on the part of analysts and regulators. Therefore, as a counterpart institutional arrangement, governmental intervention should have the capability to influence the formation of such bubbles more directly and effectively if need be. In fact, the existing e-government methods do have the potential to influence the financial markets, as is demonstrated in a case study in Russia by Melvin et al. The intervention of government should be associated with a coherent structure of regulation towards all components of the financial system, as well as an effective communication system with the public, namely the common investors. A potential system needs to be explored via e-government. The question is how to express the information supplied to and from the regulators clearly and directly in the market, and how to build a bridge for such information and the market feedback to reach the public, while also stressing minimum disturbance to the operation of the market.

Common standards are required to realize effective information communication via e-government. Common standards of data collecting and processing are needed for the different agencies, namely those in different places and those in charge of different professional tasks. Only with such cohesive cooperation can regulators build up an integrated capability to cope with the systemic risks of the increasingly more complex financial sector.

### 2.3 Confidence, capabilities and competencies

#### 2.3.1 Panics and restoring confidence

Panics among common investors and even among financial managers and institutional investors are not difficult to understand as being a natural human response to the downturn of the bubble economy, as happened during 1930-1933, 1997-1998 and 2000-2001. Unlike in the past, however, the recent panics also arose from people’s inability to handle the complexity of financial products and markets. As already seen, the securitized derivative products of recent times had actually broken down any effective information channel between borrowers and lenders. People felt fearful in the face of downhill potentials they did not know well and evidently were not able to measure. Through these means, the panics were more likely to be the consequence than the cause of the industrial structure and the absence of effective regulation.

The crowded nature of the financial markets also contributed to the panics because when a downturn signal was identified, people knew that it was impossible for everyone to get out at once. The panic among financial practitioners and investors resulted in a herd-like crowding into a flight-to-quality in asset holdings. For the highly connected financial sector, the fear quickly spread to other parts of the industry. Finally, the highly leveraged derivative products became a ‘death spiral’ confronting their investors, and the whole financial system collapsed. The supposedly super-safe, super-senior derivative products, such as collateralized debt obligations, rapidly tumbled to the level of becoming junk securities.

There are lessons here for the operation of markets. Thus the head of Goldman Sachs has implicitly argued for what are frequently referred to as ‘organized markets’:

“To increase overall transparency and help ensure that book value really means book value, regulators should require that all assets across financial institutions be similarly valued. Fair value accounting gives investors more clarity with respect to balance sheet risk. How can one justify that the same instruments or risks are priced differently because they reside in different parts of the balance sheet within the same institution?”
“But, if we abandon, as opposed to regulate, market mechanisms created decades ago, like securitization and credit default swaps, we may end up constraining access to capital and the efficient hedging and distribution of risk, when we ultimately do come through this crisis.”

This authority draws the conclusion that markets cannot thrive without confidence:

“We have to safeguard the value of risk capital ... while enhancing investor confidence through meaningful transparency, effective oversight and strong governance. But, there should be no doubt; markets simply cannot thrive without confidence.”

E-government offers information transparency of the financial system and the improvement of citizens’ capabilities in risk assessment and risk control – these are the twin keys to promoting market confidence and public trust, which are regarded as critical for restoring a robust financial sector.

2.3.2 Shortcomings in skills and abilities

The more irrational social desires cannot be eliminated by the effective communication or information transparency brought about by e-government, yet the goal of pursuing better lives is a worthy one. Indeed, this goal is the basic motivation for continuing economic development. To what extent do social desires for improvement conflict with social capabilities to bring about a self-sustaining development process? To resolve this and similar issues in regard to implementing e-government, we need to dig deeper into the nature of ‘capabilities’ – a subject that existing studies normally take for granted.

To exchange knowledge and change in real time

No amount of purely technical inputs into e-government will work in the absence of the skills (competencies and capabilities) needed to supply, produce and use equipment and technological inputs. In contrast with much of the management literature, which tends to use these terms interchangeably, we are here sharply differentiating – at least in theory – the nature of ‘capabilities’ from that of ‘competences’ or ‘competencies’. If the problem is one of incompetence, the individuals who might be blamed for the financial crisis fell short of the minimum actions required by the circumstances, notwithstanding their apparent qualifications to do the job at hand, as reflected in résumés and other standard measures of ‘human capital’. If, on the other hand, the problem is one of incapability, then other factors, including many that would lie outside the individuals’ power to do much about, could be held to account for much of the current crisis.

Seminal studies by Wesley Cohen and Daniel Levinthal have explored the development of ‘absorptive capacity’, i.e. the ability of a firm or other organization to master and utilize technologies taken from others. They argue that it rests to a considerable degree on trying to replicate the findings of earlier research and development efforts by others, partly because of the gamut of difficulties that are likely to arise by simply copying ideas previously developed elsewhere. In a later paper, these authors argued that “such a capability [‘absorptive capacity’] not only enables a firm to exploit new extramural knowledge, but to predict more accurately the nature of future technological advances.”

Two kinds of capabilities are of special concern to the development of e-government specifically and indeed to production practices in all walks of life. One type refers to ‘interactive capabilities’, and involves knowledge exchange with other entities. This knowledge exchange may take place along a supply chain (a company is likely to be involved in many of these); with corporate or non-corporate organizations in research, finance and marketing, etc.; and with transnational organizations and corporations in other countries (‘international technology transfer’ or interchange). A second type of capability concerns the now-popular phrase ‘dynamic capabilities’, implying the ability to change one’s capability base in ‘real time’, i.e. within a time period that is appropriate for dealing with pressing competition (explicit or implicit) that may be arising on a number of fronts at roughly the same time. Dealing successfully with such ‘dynamic competition’ will normally involve having adaptable, flexible and communicable resources in the system. It is worth bearing in mind that all that has just been said about the capabilities and competencies of firms applies equally to non-profit organizations such as state universities or governments.

This is where e-government comes back to center stage. It is the mixture of flexibility and agility with transparency, integrity and efficiency that is
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the key to ‘success’ in this arena, but all of these elements involve good people capable of working on good equipment. While in the financial industry certain actors are being blamed for the financial crisis, it is predicted that e-government and associated e-technologies might curtail such negative outcomes in the future.

**Specific failings in the broader system**

As it stands, the specific problems can be summarized as follows:

1) The rating agents and their inaccurate credit ratings on mortgages created the bubble in the housing market. This whole area of more or less collective blunder has been blamed on many factors. Some question the agents’ underlying business model and argue that the implicit conflicts with practice inclined them to give unduly high ratings. Lo discloses the continual ‘brain-drain’ from the rating agencies to their clients, namely the banks and shadow banks, which usually benefited the rating agencies in the short run but over the medium term deprived them of sufficient talent to deal with the complex situation that they were now confronting.

2) Regarding the oversights in relation to the shadow banking system (see section 2.2.1 above), one of the key questions relates to enhancing the competencies and capabilities of the regulators. In terms of their capabilities, regulators must have sufficient methods and means to identify and supervise the growing number and coverage of innovative financial activities, in terms of competencies, and display better understanding of the world they are facing, including the realm of shadow banking. Otherwise Goodhart’s Law will prevail, such that the imposition of any rule will ultimately undermine the effectiveness of that rule.

3) The financial sector, given its scale and scope, lacks qualified human resources. For example, in 2007 the Massachusetts Institute of Technology produced only four PhD graduates in finance, compared with 337 in various fields of engineering. To make up for the shortages of expertise in advanced mathematics and modelling, many financial institutions recruited employees from technically sophisticated disciplines, such as physics, mathematics, computer sciences and astronomy to work as technical supporting forces. However, these employees were not essentially financially educated, and had only limited ability to respond to the sophisticated dynamic market evolution. This led to weaknesses in risk assessment, risk management and control.

4) Financial model developers did not inform the public about the systemic risks. Colander et al. argue that systemic risk did exist, and the financial model developers, namely the financial economists and financial engineers, did not inform the financial sector in general, much less the public at large. Lawson and recently Hodgson insist that the fundamental problem is not whether the modelers had ever been informed; it was that the pre-selected mathematical models could not interpret the complex, highly interconnected and dynamically evolving economic practices. The former interpretation relates to cases involving ‘asymmetries of information’ and thus competencies, while Lawson’s position has much more in common with what we refer to as ‘asymmetries of knowledge’, and therefore with (inadequate) capabilities.

5) The integrity of managers in the financial sector was called into question, for example over their compensation and ‘bonuses’, which struck many of the more moderate public observers (including the Governor of the Bank of England) as immodest in scale and positively harmful in terms of the incentives on offer. The incentives actually appeared to negate the clear need to enhance risk accounting, as well as the need to reform the regulatory requirements on corporate governance to make sure that risk management was effectively deployed in the financial sector. Meanwhile, transparency of information is also needed for regulators to identify their transactions properly.

6) The securitized derivative financial products were so sophisticated that they disrupted effective information connections between borrowers and lenders. The derivatives products were in theory designed to disperse risk. Regulators such as the United States Department of the Treasury admit that the very process of securitization created conflicts of interest; it did so by breaking down the traditional relationships between borrowers and lenders, which market discipline failed to correct. As previously mentioned, even many financial managers did not fully understand the products they transacted, to say nothing of the common investors, who
were at the mercy of rating agencies that often failed to describe the risks of relevant products accurately. Originally, the motive behind bundling derivative financial products was to disperse risks. However, over the past 20 years these products gradually became extremely risky, especially after 1999, when they became more or less totally opaque to buyers. In fact, they became a major source of contagion.

2.3.3 A platform to reconsider public expectations

E-government can aid in providing a platform for the public to reconsider their expectations. In the financial system as it was, the ‘animal spirits’ of people at large were also included among the factors involved in the making of the bubble. This came to be associated in the public mind with the political desires and vanities of politicians, in spite of the increasingly huge trade deficit that underlay a comparatively slow or stagnant growth of productivity. The rapid expansion of the housing sector was achieved by the massive participation of citizens, while the governmental solution to advocate and support such desires was also to create structured investment vehicles such as Fannie Mae and Freddie Mac (which provided “creative accounting” for the domestic housing industry in the United States). The inappropriately fast and continuous expansion of desires finally contributed to the primary determinant of this crisis, even though it is technically termed systemic risk.

The ongoing crisis provides its citizens and opinion leaders with a chance to re-think the essential problems of social, political and economic life. E-government, with the transparent data, analysis and interaction it can exhibit, can provide a valid instrument for individuals to connect themselves with practical macro analysis, which might help to promote an understanding of the internal conflicts in society.

2.4 International cooperation and e-government

2.4.1 Problems from a global perspective

With financial markets integrated worldwide, the crisis inevitably went global, as the United Kingdom’s Verena Ross asserts:

“The current crisis has been truly global in its nature and has highlighted significant shortcomings in the international regulatory framework. Growing risks were not properly identified and monitored, standard-setting bodies varied in their effectiveness and cross-border crisis management arrangements did not work well.”

Global architecture

A paper from the International Monetary Fund acknowledges that the present financial crisis “has revealed important flaws in the current global architecture” and specifically identifies four areas where the “existing architecture failed to respond adequately as growing vulnerabilities eventually produced a crisis.” Of these areas, two are related to systemic risk, namely across-the-board financial regulation and the international coordination of macro-prudential responses to such risk. The other two areas noted by the IMF are the need for cross-border coordination and arrangements for financial regulation “to avoid a repetition of the ‘go-it-alone’ strategies seen in this crisis”, and the need for additional IMF-style funding.

In the ongoing crisis, a global perspective is crucial for understanding the transmission, overall dimensions and causes of the crisis, which had deep roots in imbalances in international trade and capital flows and the disparity of regulation across countries. There is an element of chaos theory operating across international frontiers, in which something as small as the flutter of a butterfly’s wing in China might affect the weather in New York City. The part of the butterfly was played by an Austrian bank in 1931 (the Creditanstalt), by property-price inflation in Bangkok in 1997, and by Icelandic banks in 2007/8. The lessons learned so slowly and painfully in the mid-1930s about the necessity for international cooperation at the highest levels (“hang together lest we hang separately”) were then forgotten until recently, when economic crises again became painfully evident.

The international level of the crisis can be seen in the flows of credits from one part of the world to another. This flood of credit was supported by low long-term interest rates, which were in turn supported by enormous growth in the amount of foreign capital flows. These massive foreign capital flows were at the mercy of rating agencies that often failed to describe the risks of relevant products accurately. Originally, the motive behind bundling derivative financial products was to disperse risks. However, over the past 20 years these products gradually became extremely risky, especially after 1999, when they became more or less totally opaque to buyers. In fact, they became a major source of contagion.

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inflows were linked to imbalances in international trade, significant global macroeconomic misalignments over the last decade, and in particular the build-up of large current account surpluses in Asian and oil exporting countries. Meanwhile, there were growing current account deficits in the United States as well as in the United Kingdom and other European countries. Thus foreign exchange surpluses were accumulated by China, other East Asian countries and countries exporting oil in large volumes.\(^5\) Much of this money went back to the major countries such as the United States and the United Kingdom through investing in a large capital pool, or buying up substantial portions of the national debts. This provided support for their levels of ‘over-consumption’ based on credit and for the prosperity of asset-backed trading and other securities, both directly as well as indirectly (via the domestic credit-fueled booms).

In principle, the international situation has e-government in its solution – yet e-government is usually national in nature. Most e-government schemes up to the present day, other than those launched by supranational or international bodies, start from a national and sometimes rather nationalistic perspective, with corresponding sets of political and policy assumptions. These assumptions may not square with the need for international tact and discretion, much less training programmes. Lloyd Blankfein of Goldman Sachs notes the need for supervision at the global level and what it would require to be effective:

“As recognized at the recent G20 Summit, the level of global supervisory coordination and communication should reflect the global interconnectedness of markets. Regulators should implement more robust information sharing and harmonized disclosure, coupled with a more systemic, effective reporting regime for institutions and major market participants. Without these, regulators will lack essential tools to help them understand levels of systemic vulnerability in the banking sector and in financial markets more broadly.”\(^5\)

Regulating offshore funds
Regulators are presented with a critical difficulty in the case of offshore transactions, and especially those linked with the shadow banking system. Most activities of this kind do not have transparent, regulated venues and counterparties for their transactions.

About half of all hedge funds in existence in 2008 were registered offshore, according to estimates. Tax havens were the most popular location for the offshore hedge funds. Offshore havens were located in places such as Bahrain, Bermuda, British Virgin Islands, Cayman Islands, Ireland, Luxembourg and the Netherlands Antilles. Onshore havens were located in the United Kingdom and United States. Registering in tax havens freed the hedge funds from paying tax on the increase in the value of their portfolios. More importantly, the host countries of the offshore hedge funds built up accommodating jurisdictions, which on the one hand attracted the relocation and residency of relevant pools of capital, and on the other hand freed the hedge funds from ‘annoying’ regulatory interference. Policing such offshore operations was not impossible, but was considerably more difficult. Moreover, for a long time the general consensus, at least in the United States, was that there was no need for such policing.\(^5\)

This exacerbated disparities in regulation, and added to the difficulties of regulators trying to identify the prices, values and processes of the shadow banking system.

International coordination or greater national powers?
Potential room for misalignment between national and global regulatory policy was paralleled by potential room for misalignment in e-government principles and practices. Take, for example, the Icelandic banks operating in the United Kingdom. As Ross points out in relation to the gap in regulatory power:

“Landshanki was free to operate in the UK as a branch over which the FSA [Financial Services Authority] only had limited powers, as responsibility for its prudential supervision rested with the Icelandic regulator. UK depositors were also later dependent on the Icelandic deposit insurance scheme, with resources that proved inadequate and requiring the intervention of the UK authorities.”\(^5\)
The ‘options’ seemed to consist of strengthening internal controls on the national front vs.
greater external coordination on the supranational (European) front. The Financial Services
Authority could see the benefits of pursuing both at the same time, without dwelling too much on
the costs side of that particular ledger. This is what political scientists tend to refer to as ‘multi-level
governance’,61 in which spatial hierarchies dominate political decision-making, and from time to
time find their ‘solutions’ in setting up top-heavy bureaucratic nightmares.

To manage such contexts satisfactorily, and to avoid their worst excesses, e-government becomes
essential. It is not merely an elegant accessory but an indispensable tool when one is even considering such a complex system (or ‘system of systems’). Whether the ground-rules for
effective e-government can hold is open to debate. Desiderata such as transparency and integrity may prevail to greater or lesser extents. But any deroga-
tion of decision-making duties to ICT networks must at the same time be sustained by the very di-
versity of the e-government structures which they would already have helped to create.

It seems unlikely that powerful new interna-
tional agents will be set up to establish interna-
tional e-government that is transparent and satisfies international needs. Citizens and nations ought to enhance the potential for information-
sharing and harmonized disclosure offered by e-government, based on existing international
platforms such as The Group of Twenty Finance Ministers and Central Bank Governors, IMF,

2.4.2 Common standards for better regulation

Regulators have come to realize that common accounting principles and regulation standards
should be implemented in countries where financial activities, such as those based on securitized
derivative products, have developed Internet-based connectivity far beyond the country’s bor-
ders. There is, however, the additional need for these electronic networks to be inter-connectable,
which is what makes information-sharing practical. For this purpose, cross-national coordination
is needed during the process of building or reforming e-government in such countries. Effective in-
ternational cooperation depends on common standards for data collecting and processing,
common or interoperable software platforms and high-speed communications. These elements are
crucial. The most critical need is for mutual understanding, which would permit the countries to
share data and analysis in real time, and to achieve coordinated action. Perhaps this could be imple-
mented firstly in international alliances, such as the European Union, OECD, North American
Free Trade Agreement, and United Nations Conference on Trade and Development.

In fact, in the economic stimulus packages of different countries, large amounts have been
invested in the infrastructure category, which

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Box 2.1 Reports on the Observance of Standards and Codes agreed by the IMF and World Bank, November 2002

<table>
<thead>
<tr>
<th>Transparency standards</th>
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<tr>
<td>The standards in these areas were developed and are assessed by the International Monetary Fund to cover issues of data and policy transparency:</td>
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<tr>
<td>• Data transparency: IMF’s Special Data Dissemination Standard/General Data Dissemination System</td>
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<tr>
<td>• Fiscal transparency: IMF’s Code of Good Practices on Fiscal Transparency</td>
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<tr>
<td>• Monetary and financial policy transparency: IMF’s Code of Good Practices on Transparency in Monetary and Financial Policies, which is usually assessed by the Fund and the World</td>
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<th>Financial sector standards</th>
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<td>The standards in these areas were developed by other institutions and are generally assessed under the FSAP:</td>
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<tr>
<td>• Banking supervision: Basel Committee’s Core Principles for Effective Banking Supervision</td>
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<tr>
<td>• Securities: International Organization of Securities Commissions’ (IOSCO) Objectives and Principles for Securities Regulation</td>
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<tr>
<td>• Insurance: International Association of Insurance Supervisors’ Insurance Supervisory Principles</td>
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<tr>
<td>• Anti-money laundering and combating the financing of terrorism: Financial Action Task Force 40+8 Recommendations</td>
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<th>Standards concerned with market integrity</th>
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<tr>
<td>Standards in these areas have been developed by relevant institutions and the World Bank is in the lead in undertaking assessments. Some of these areas may be assessed under the FSAP:</td>
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<tr>
<td>• Corporate governance: OECD’s Principles of Corporate Governance</td>
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<tr>
<td>• Accounting: International Accounting Standards Board’s International Accounting Standards</td>
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<tr>
<td>• Auditing: International Federation of Accountants’ International Standards on Auditing</td>
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<td>• Insolvency and creditor rights</td>
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includes the investment in ICT infrastructure. This could provide an opportunity to appeal to member countries of these international entities to build up harmonized software platforms and coordinated institutions. But at more or less the same time as the East Asian economies – inspired by China in this respect – have begun to embrace the concept of harmony, western nations have rejected harmonization, in the EU’s case in favour of ‘open methods of coordination’, i.e. the primacy of national over supranational systems.

Standards and codes
After the Asian financial crisis of the 1990s, the IMF prepared a set of recommended Standards and Codes that remain relevant to e-government. Countries subject to reporting to the IMF and World Bank would be required to prepare Reports on the Observance of Standards and Codes, as explained in a statement made when the recommendations were published:

“The IMF and World Bank have endorsed internationally recognized standards and codes in areas as important for their work and for which Reports on the Observance of Standards and Codes (ROSCs) are prepared. Standards in the areas of data, fiscal transparency, and monetary and financial policy transparency have been developed by the Fund while others have been developed by other standard setting bodies including the World Bank, the Basel Committee on Banking Supervision, and the Financial Action Task Force (FATF).

“ROSCs are prepared and published at the request of the member country by the IMF and/or World Bank in each of the 12 areas. ROSCs covering financial sector standards are usually prepared in the context of the Financial Sector Assessment Program. In some cases, detailed assessments of countries’ observance of standards are also published.”

The IMF and World Bank published their list of ROSCs in November 2002. The areas addressed in this list could also serve as set of principles to guide countries as they seek to use e-government.

2.4.3 The financial crisis and developing countries
Developing countries face the challenge of ‘catching-up’ to developed countries when it comes to investing in e-government. On the one side are the cyber-optimists (to re-use Norris’s helpful phrase), who speak in terms of ‘leapfrogging’ and even overtaking the more advanced industrial countries. Being unencumbered with the ‘penalty of an early start’, in the form here of large fixed landline communication systems and networks, developing nations are supposedly free to invest in cheaper and much more flexible mobile systems. On the other side again lie the cyber-pessimists, who envisage these high-tech activities as almost inevitably being dominated by the advanced industrial countries.

To be sure, a number of the larger developing countries, led by the so-called BRIC countries (Brazil, Russia, India and China), have public sectors that are large enough to keep some of the alleged depredations of multinational companies at bay, but most of them do not fall into this category. In the meantime, the countries best equipped in terms of e-skills (both competencies and capabilities as in section 2.3.2 above) are likely to wrest away most of the gains which, in their view, would belong to the knowledge-rich, earlier-industrializing countries. In the end, the predictions of the pessimists may turn out to fit reality better. But at the same time, e-government opportunities are within the grasp of each developing country itself – not simply in the hands of over-powerful foreigners.

One reason for this positive conclusion is that a fairly small country or region may have a comparative advantage if it has relatively stable existing social networks lodged within a communicative social structure. This may explain the good overall position of e-government development of countries such as Estonia and New Zealand. The growing accentuation of a positive role for public procurement in policy-making is another point that can favour a small- to medium-sized developing country, so long as it maintains a clear vision of what it stands for, as in the Republic of Korea’s approach to high-speed broadband.

The concerns of developing countries in respect to e-government lie less in any natural barriers to the diffusion of e-government and more on the side of human resources and their disposition, i.e. their ‘capabilities’ in policy-making, technology and consumption, as per a study by Guida and Crow. Their main points are quoted in the following page:
Chapter Two
Roles for e-government in financial regulation and monitoring

If e-government technology is correctly deployed and suitable governance systems are in place, one may end up with the happy situation of both more government capacity to intervene when needed and more freedom for markets to function as they ought to in due course.

- From a practitioner’s perspective, the most challenging issues in the implementation of technology-dependent government services derive from the governance aspects of the initiatives;
- For governments in the developing world, the most important benefits of adopting a standards-based architecture lie in the area of procurement of applications and application-based services;
- Mobile phones, in providing affordable broadband network access, can offer a valuable means of delivering e-government services;
- There is high risk associated with e-government investments, and though the rewards are potentially substantial they may be hard to quantify;
- Capacity-building and formal change management strategies are essential if e-government programmes are to be effective.

The above factors range quite broadly over the terrain covered in this chapter, including references to governance, standards, risk and capabilities, as well as to technology. It is time to draw some conclusions from our study.

2.5 Conclusions
E-government clearly has a potential role in alleviating the worst symptoms of the ongoing financial crisis. The benefits in comparison with the costs are likely to rise over time, as a consequence of two mutually reinforcing trends: the improvement in e-government systems themselves, including more widespread access, faster operating and transmission speeds, and the increasing capabilities – and willingness – of the public to make use of the technologies involved.

At the same time, it is all too easy to fall into the trap of advocating little more than a technological ‘fix’ for the problems that have arisen. Certainly, such ‘fixes’ by themselves will not work. Potential roadblocks include inadequate competencies (e.g. hemorrhaging of talent, poor models) and limited capabilities (e.g. lack of exercise of good judgment). Technology alone will not cure these deficiencies, even if it becomes more user-friendly, and fault-tolerant. It remains a challenge for e-government to attempt to make processes more transparent as well as more accurate. An example of this would be in formulating credit ratings.

The main point to emerge from recent history is much the same as for the Great Depression: no amount of good practice by e-government or other means can withstand the consequences of beginning with a false set of assumptions.69 Included among these faulty assumptions must be the notion that freedom from regulation is the solution. Another misleading assumption is that the solution lies in only allowing self-regulation, which has its limits:

“For policymakers and regulators, it should be clear that self-regulation has its limits. At the very least, fixing a system-wide problem, elevating standards or driving the industry to a collective response requires effective central regulation and the convening power of regulators.”70

That is, in the words of the CEO of Goldman Sachs, allowing the financial world to monitor and regulate itself would be a measure based on the erroneous idea that the effects of systemic and especially cross-systemic risks can be safely overlooked.

Coping with financial panics requires immediately addressing the first signals of the crisis. This calls for what we can describe in this summary as ‘dynamic interactive capabilities’, so as to achieve a robust financial system and effective regulation. It may be recalled that ‘dynamic’ refers to real-time responses, which probably require a set of relevant and effective system-oriented competencies to be already present and at hand. The term ‘interactive’ refers to functioning two-way interchanges already in place in the financial system and around its edges. Both the dynamism and the interactivity could in theory be augmented by new approaches based on high-speed technologies, such as e-government. These possibilities can be drawn on for solving some of the longer-term negative fallouts from the crisis, especially through using e-technologies.

All stakeholders admit that there were considerations beyond the previous economic models and regulatory systems that destroyed the stable pattern of development preceding the global financial crisis. In the past 20 years, human response in periods of fear ought to be included in these models and mind-sets, as they are at least equally important as those of the “euphoria” noted by Alan Greenspan, former Chairman of the United States Federal Reserve. But this view is not widely welcomed by
the public which, on the contrary, is more inclined towards the comment from Krugman that systemic risks come from neglect on the part of regulators. Therefore, it would seem reasonable that critics and the general public question the ethical responsibilities of the model developers, and possibly the regulators as well.

E-government provides the public with an opportunity to have their views expressed. Whether governments take notice may be another matter, but they will have their ‘wriggle-room’ drastically reduced, as a result of the associated increase in transparency and democratization. If the technology is correctly deployed and suitable governance systems are in place, it still may be possible end up with the happy situation of both more government intervention for a while but more freedom for markets – admittedly ‘organized markets’ – to function as they ought to in due course. Thus paradoxically, in this scenario, more government discretion in the short run may lead to less arbitrary forms of government discretionary power over the longer haul. There are any number of precedents for such an optimistic outcome to be realized, yet innate pessimists will match this story of an upward-pointing virtuous circle or spiral by citing possibilities of downward vicious circles.

What then of the balance between cyber-optimism and cyber-pessimism? For the last words on this, consider the conclusion of the Economist Intelligence Unit, which had this to say in 2009 on the subject of e-government development:

_In rich and poor countries alike, however, thorny policy issues arising from the very success of digital development remain largely unresolved... The delicate social contract between digital consumers and the operators of digital channels will be tested in the coming years, as intensified revenue pressure increases service providers’ need to utilise the Internet for intrusions that are both annoying (for example, inbound advertising) and potentially privacy-infringing (‘deep-packet’ inspection systems).

The environmental impact of ICT usage is also likely to remain a concern for governments as long as climate change and carbon reduction remain high on the global agenda... The expansion of one of the global economy’s most essential resources – information – is having an unintended knock-on effect on other precious resources... [E]-readiness is not fostered in a digital vacuum, but rather in a complex web of social, cultural, economic and political factors, ultimately driven by the usage imperative._

In other words, the cross-systemic risk factor is evident at the national and global levels, and not just within the ICT sector itself.

Can e-government then be recommended on balance for financial regulation? Yes, but if government policies enable financial players to escape scrutiny, then e-government will not improve regulation although it can still enhance efficiency. Overall, e-government is built for speed and for managing complexity, qualities that make it well-suited to financial monitoring and regulation. At the same time, it should not be regarded as a technological ‘fix’. E-government especially, of all the e-buzzwords, can only be as good as the ‘dynamic interactive capabilities’ of the policy makers who apply their principles and models to its design, together with those of the people who construct and operate its systems._