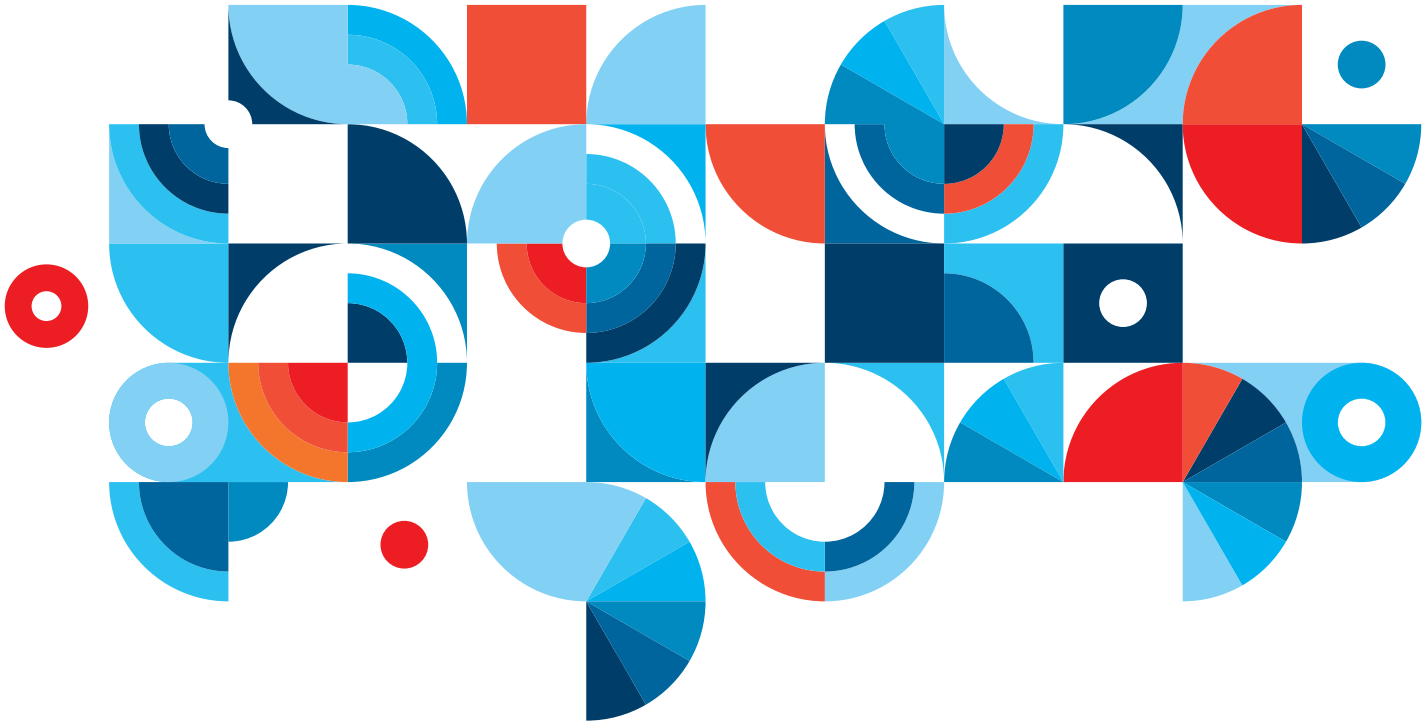
The Future of the IT Department

Exploring the impact of Cloud on IT roles and responsibilities



IBM

Contents

Introduction

It doesn't take much of a trawl through the volume of media articles written about cloud computing before you come across an article suggesting that cloud computing spells the end for the internal IT department of the enterprise. After all, you just use a service provided from somewhere else by someone else don't you? What possible need would there be for an IT department?

Cloud computing engagements with clients however tell a very different story. It is plain to see that most organisations will still very much need an IT organisation. It may well be smaller in size; the standardisation and automation that clouds provide saves cost by removing or reducing the number of IT organisation employees; and what that department will be called upon to do will change considerably from today. The need however still remains. This then raises the question: what will the IT department of the future look like?

As Niels Bohr once observed: "Prediction is very difficult, especially about the future", so to try and help us make some sense of this discussion, let us deliberately take an extreme and provocative perspective: that ALL of the IT needs of an enterprise will come from external cloud providers. It is fully understood that for many organisations, this 100% shift will never occur or if it does, that the time period over which this will occur will be many years long. Looking at this problem from an extreme perspective allows us to better demonstrate the trends that we see occurring rather than getting stuck in the "shades of grey" space between black and white. This helps us to help our clients better prepare, with the full understanding that most organisations will end up some distance down this direction of travel from where they are today rather than going all the way.

As part of this rapid adoption of cloud services, enterprises need to start looking now at the implications that this will have for their organisation as a whole. The mantra of "Rethink IT. Reinvent Business" has never been more true. Without making changes to the ways that organisations work and use the technologies that cloud can offer, much of the business benefit is unlikely to be fully realised. This in turn has implications for the tasks that organisations will need to perform and the roles and number of professionals that will be required to do this. Given the speed at which the marketplace is moving, starting sooner rather than later is imperative.

Using a business model to assess change

In trying to answer this question, we need a means to analyse what a typical IT department does today. There are various means to do this, but we're going to use a technique developed to help executive teams model their businesses in terms of key components; the IBM patented Component Business Model™ (CBM) for the Business of IT. This is designed to help CIOs and their teams take a business-oriented, strategic approach to IT.

The component modelling approach helps executives identify priorities for innovation and investment by breaking their IT organisations down into functional areas, or components. These components can then be assessed for strategic differentiation and effectiveness and mapped against spending and staffing.

		Plan and Manage					Build		Run
		IT Customer Relationship	IT Business Strategy	IT Business Administration	Business Resilience	Information	Service and Solution Development	Service and Solution Deployment	Service Delivery and Support
Strategic	Direct	C111 – Customer Business Intelligence	C211 – Business Technology and Governance Strategy	C311 – IT Business Model	C411 – Business Risk and Compliance Strategy	C511 – Information Strategy	C611 – Development Strategy	C711 – Deployment Strategy	C811 – Service Delivery Strategy
		C112 – Customer Transformation Needs Identification	C212 – Portfolio Management Strategy						C812 – Service Support Strategy
			C213 – Enterprise Architecture		C412 – Business Resilience Strategy				
			C214 – Service Management Strategy						
Tactical	Control	C121 – Market Planning and Communications	C221 – IT Management System Control	C321 – Financial Control and Accounting	C421 – Business Risk and Compliance Control	C521 – Information Architecture	C621 – Service and Solution Lifecycle Planning	C721 – Service and Solution Implementation Planning	C821 – Service Delivery Control
		C122 – Customer Transformation Consulting and Guidance	C222 – Portfolio Value Management	C322 – Site and Facility Administration	C422 – Continuous Business Operations Planning				C822 – Infrastructure Resource Planning
		C123 – Service Demand and Performance Planning	C223 – Technology Innovation	C323 – Human Resource Planning and Administration	C423 – Security, Privacy and Data Protection	C522 – Information Lifecycle Planning and Control	C622 – Service and Solution Architecture	C722 – Change Deployment Control	C823 – Service Support Planning
				C324 – Sourcing Relationships and Administration					
Operational	Execute	C131 – Service and Solution Selling	C231 – Project Management	C331 – Procurement and Contracts	C431 – Business Compliance Analysis	C531 – Information Content	C631 – Service and Solution Creation and Testing	C731 – Technology Implementation	C831 – Service Delivery Operations
		C132 – Service Performance Analysis	C232 – Knowledge Management	C332 – Vendor Service Coordination	C432 – Business Resilience Operations		C632 – Service and Solution Maintenance and Testing	C732 – Service and Solution Rollout	C832 – Infrastructure Resource Administration
				C333 – Customer Contracts and Pricing	C433 – User Identity and Access Processing				C833 – Service Support Operations

Figure 1: The standard Component Business Model for the Business of IT

When business leaders employ this modelling approach, they use the component map that includes all the functions that drive the organisation. Each component can then be assessed for the degree to which it contributes to the company's strategic differentiation in the marketplace. For example, some functions may not distinguish the company in the eyes of its customers, but may still be necessary to operate it. Senior management can also examine how well the company performs each function and resources – people and money – consumed by each.

Here, we are not using the CBM for the purposes of differentiation, but rather to provide a comprehensive list of the functions an IT department does.

Before we put this into practice, it is worth explaining the key terminology we will be using. First the concept of a component which is a collection of all the people, processes, technologies, expertise and other resources necessary to perform a specific function and to deliver those services to the enterprise. These components are assembled into a CBM which provides a framework for organising and analysing an enterprise in terms of these non-overlapping business functions. The *Component Business Model Map for the Business of IT(CBM-BoIT)* is the result of using Component Business Modelling to describe the IT organisation. *Components* are grouped into *competencies*. Each *competency* within the model has strategic, tactical and operational aspects each of which contains one or more *components*.

For the purposes of this analysis, we have worked on the basis of an enterprise that used to perform all of these competencies and components itself and has subsequently moved the delivery of all IT services to a cloud provider. Though throughout this document the term "cloud provider" is used, this should be taken to mean provider or providers because it is unlikely that a single cloud provider will be able to provide all of the cloud services that an enterprise is likely to want or need. An enterprise may well choose to source cloud services from multiple providers as a matter of policy. Consequently, relationships with multiple cloud providers will be the norm.

Unsurprisingly, the move to cloud has a greater impact on the operational layers within the component model where the delivery of these components comes from the cloud provider. In many cases, the requirement for the business to maintain the operational aspects of a particular competency largely disappear. The scope of other competencies and components will also change. The scope of some decreases. It should not all be viewed as negative, however, as some components become much more important in this new world.

Let's have a look now at the CBM in the post cloud era.

The IT department "after cloud"

The following diagram shows the same CBM for the Business of IT as before, after the move to cloud:

Areas in dark grey are no longer needed in the new model; those in light grey have their scope reduced and those outlined in red are the components whose importance grows following the adoption of cloud. Components that remain as before are largely unchanged. Having seen the big picture, let us look now at each competency in more detail.

"So tell me: what roles should I be recruiting for as we move our IT to the cloud?"

— HR Manager – Pharmaceutical Company

		Plan and Manage					Build		Run
		IT Customer Relationship	IT Business Strategy	IT Business Administration	Business Resilience	Information	Service and Solution Development	Service and Solution Deployment	Service Delivery and Support
Strategic	Direct	C111 – Customer Business Intelligence	C211 – Business Technology and Governance Strategy	C311 – IT Business Model	C411 – Business Risk and Compliance Strategy	C511 – Information Strategy	C611 – Development Strategy	C711 – Deployment Strategy	C811 – Service Delivery Strategy
		C112 – Customer Transformation Needs Identification	C212 – Portfolio Management Strategy						C812 – Service Support Strategy
			C213 – Enterprise Architecture		C412 – Business Resilience Strategy				
			C214 – Service Management Strategy						
Tactical	Control	C121 – Market Planning and Communications	C221 – IT Management System Control	C321 – Financial Control and Accounting	C421 – Business Risk and Compliance Control	C521 – Information Architecture	C621 – Service and Solution Lifecycle Planning	C721 – Service and Solution Implementation Planning	C821 – Service Delivery Control
		C122 – Customer Transformation Consulting and Guidance	C222 – Portfolio Value Management	C322 – Site and Facility Administration	C422 – Continuous Business Operations Planning				C822 – Infrastructure Resource Planning
		C123 – Service Demand and Performance Planning	C223 – Technology Innovation	C323 – Human Resource Planning and Administration	C423 – Security, Privacy and Data Protection	C522 – Information Lifecycle Planning and Control	C622 – Service and Solution Architecture	C722 – Change Deployment Control	C823 – Service Support Planning
				C324 – Sourcing Relationships and Administration					
Operational	Execute	C131 – Service and Solution Selling	C231 – Project Management	C331 – Procurement and Contracts	C431 – Business Compliance Analysis	C531 – Information Content	C631 – Service and Solution Creation and Testing	C731 – Technology Implementation	C831 – Service Delivery Operations
		C132 – Service Performance Analysis	C232 – Knowledge Management	C332 – Vendor Service Coordination	C432 – Business Resilience Operations		C632 – Service and Solution Maintenance and Testing	C732 – Service and Solution Rollout	C832 – Infrastructure Resource Administration
				C333 – Customer Contracts and Pricing	C433 – User Identity and Access Processing				C833 – Service Support Operations

Figure 2: Potential impact of cloud on the standard Component Business Model for the Business of IT

"IT has to get closer to the business than ever before. They've always been at arm's length. I think the cloud is the catalyst to get them thinking like this."

— CFO – Large Retail Organisation

IT Customer Relationship

The *IT Customer Relationship* competency is focused on the management and optimisation of the communications and interactions between the customers and providers of IT within the enterprise. Having moved IT to the cloud, this communication now needs to be facilitated between the user communities and the cloud provider.

At the strategic level, there will still need to be a requirement to understand the competitive environment and current operational activities as well as key business stakeholder opinions on IT service provision. There needs to be an understanding of the high-level business requirements of the enterprise user community and a matching of these to enabling IT capabilities. The mapping of these business requirements to cloud provider services is a key role to be performed by this competency and one which becomes increasingly important to avoid a mismatch between services required to support the enterprise and those supported by the cloud provider.

Tactically, there remains a need to define the types of services that will be provided and to communicate details of these to the enterprise. The role here, though, now changes to one of advertising the Service Catalogue to customer communities and stakeholders. It could be, though, that now this role could be easily subsumed into the component that actually provides the Service Catalogue i.e. the need remains but who provides the capability could change. The requirement to provide consulting assistance to customer communities, enabling them to better define and plan their IT-enabled business transformation or process improvement opportunities remains largely unchanged. *Service Demand and Performance Planning* establishes the mechanisms by which the business demand for IT services is balanced with the IT function's delivery capabilities. Whilst this delivery capability is now provided elsewhere, this component will have a key role going forward in understanding IT service requirements, forecasting service demand, and establishing service level agreements between customer communities and the cloud provider.

Operationally, *Service and Solution Selling* is now a redundant function. *Service Performance Analysis* changes its focus to provide the link between the enterprise and the cloud provider over the management of service level agreements (SLAs). The role of this component still includes analysing service metrics and trending data, identifying service improvement opportunities, and collecting and responding to customer satisfaction feedback. It is just that this is now being performed in conjunction with the cloud service provider rather than the internal IT organisation.

IT Business Strategy Competency

In a traditional IT organisation, the *Business Technology and Governance Strategy* component integrates business strategy with technology capabilities. It provides a mapping between business capabilities and the support of these by current and emerging technologies. It also is responsible for articulating those strategic assumptions shared between business leadership

"Without some pretty clever analytics, we're not going to be able to predict what the business is going to need and when."

— Operations Director – Retail Bank

and the IT function with a view to creating a framework within which the organisation can optimise and innovate in the use of technology, resources and alliances for improved business agility. In the cloud world, this mapping is now one between cloud provider capabilities and the business.

There is still a requirement for the identification of new cloud services and providers but the other responsibilities of this component will be reduced as responsibility moves outside of the business. *Portfolio Management Strategy* and *Service Management Strategy* are still required to analyse investments and ascertain the business value of these. This is particularly important to determine how to get strategic advantage from standard services. The *Enterprise Architecture* component will be significantly simplified.

Tactically, *IT Management System Control* will also have a much reduced scope. Though it will still retain some budgetary control, much of its other oversight, coordination and reporting responsibilities would be better done elsewhere in this new IT organisation. Consequently, it has to be questioned as to whether this component should continue to exist in its own right or to have its responsibilities taken over elsewhere.

As in the strategic layer, *Portfolio Value Management* and *Technology Innovation* have a reduced scope as much of their roles and responsibilities are now within the remit of the cloud provider. *Project Management* survives the move to cloud. *Knowledge Management* also survives albeit with a reduced scope because best practices and experiences still need to be tracked even though technology is now externally sourced.

IT Business Administration Competency

In order to run the IT organisation like a business in its own right competencies in business administration are necessary. Many IT organisations lack many of these skills because of the underlying business model within which they operate (e.g. cost centre, service centre or profit centre). In the strategic layer of a traditional business we find the *IT Business Model* component. This defines the overall business and operational framework for the IT function. Many of the activities of this component are no longer required when IT comes from a cloud provider. Those remaining activities such as the sourcing strategy and high-level process frameworks will remain but otherwise the overall scope of this component is very much reduced.

Tactically, the *Financial Control and Accounting* component will continue to establish and manage all financial aspects of IT function operations. Activities include creating functional and service-based budgets and accounting controls, establishing project accounting and funding mechanisms, processing and recording all IT financial transactions, and providing financial management of IT assets. *Site and Facility Administration* is no longer required when services are provisioned and managed in the cloud; this being the responsibility of the cloud provider. *Human Resource Planning and Administration* will continue to be a required role but it is likely that the number of people this component needs to support will be reduced as a large number of roles are now provided from within the cloud provider. Consequently, the size of this component will likely reduce too.

In an environment where all IT is being provided from the cloud the *Sourcing Relationships and Selection* will be particularly key. This provides for the initiation and management of relationships with vendors and partners in line with the overall service delivery and sourcing strategies. Activities here include identifying vendors and alliance partners, negotiating contractual arrangements and service levels, and evaluating ongoing vendor and alliance partner performance.

On the operational side, two aspects of this competency – *Procurement and Contracts* and *Vendor Service Coordination* become increasingly important to manage the complex relationships between the enterprise and cloud provider. *Customer Contracts and Pricing* will evolve to act as an intermediary in the creation and management of contracts between the cloud provider and internal consumers of cloud services. It will also play in important role in the allocation of cloud costs to internal budgets as well as acting as an aggregation point for these same internal clients to get a single bill for services that hides the fact that these services likely come from multiple providers.

Business Resilience Competency

The *Business Resilience* competency focuses on risk management, enabling firms to rapidly adapt and respond to any internal or external opportunity, demand, disruption or threat. Risk management for a business has many implications for IT. The breadth and complexity of these cause many organisations to approach resiliency and compliance from a more strategic and integrated perspective. A holistic approach examines all layers of a resilient business: strategy, organisation, processes, applications and data, technology and facilities.

In the strategy layer, *Business Risk and Compliance Strategy* continues to be required. Cloud does not allow the transfer of the requirements arising from regulation or legislation to a cloud provider so the requirement of this capability takes on new importance in assessing the ability of the cloud provider to adequately address these regulatory requirements or compliance with corporate policy. The *Business Resilience Strategy* capability also needs to grow its scope and influence to encompass the external provider within the identification and evaluation of risk. Note that although identification of risks falls within their remit, mitigation of the risk will lie with the cloud provider. It thus becomes the responsibility of this component to determine whether that mitigation allows the enterprise to meet its legislative requirements or not.

Tactically, the adherence to required IT business practices and operational processes remains the responsibility of *Business Risk and Compliance Control*. Again, most technology legwork falls on the cloud provider with the enterprise function solely acting more as a reporting vehicle. Security and privacy are viewed by many as inhibitors to the adoption of cloud. There is no reason why this should be the case provided organisations can assure themselves of the capabilities of their cloud provider. Consequently the *Security, Privacy and Data Protection* competency will play a key role in addressing the issues and risks related to the control of access to business/personal information and data assets. The scope however will be reduced as in many other components where the cloud provider is operating the environment.

As with higher levels in this competency, *Business Compliance Analysis* will largely cede the monitoring of conformance to the cloud provider. The main retained function here will be acting as an interface to auditors, both internal and external, to ensure that the cloud providers claimed capabilities allows the enterprise to pass its external audits. *User Identity and Access Processing* is all about the control of user access to online applications, data, and resources. Again, the scope here is reduced as responsibilities in this space likely move to a cloud provider.

Information Competency

The *Information* competency focuses on the capture, management, and distribution of business information. The ability to process information and refine it into useful insight is essential to achieving the business objectives of the enterprise.

Strategically, *Information Strategy* establishes an organisation's overall approach for managing business information as an asset, and for ensuring that the necessary content and capabilities are available to support the business strategy. It works closely with *Enterprise Architecture* to understand how business processes use information, and to determine ways to efficiently implement and optimise them. It includes establishing governance policies and processes for business information, as well as assessing the information management implications of new technologies. This component is largely unchanged by the move to cloud though there will be some loss of control because they will need to operate within those standard information management processes of the cloud provider.

At the tactical level, *Information Architecture* provides the structure for organising and maintaining business information, based upon the organisation's overall information requirements. It is the primary means for ensuring that the information required for by the business is known and available. It includes defining the enterprise information architecture, determining external information access requirements, establishing data ownership and custodianship, and developing an information architecture transition plan. Again, this role is largely unchanged but will have to work within those capabilities offered by the cloud provider. *Information Lifecycle Planning and Control* defines the day-to-day administration framework of policies, standards and procedures for data and information. Again, scope here will be effectively limited to those capabilities offered by the cloud provider.

Operational components of this *Information* competency including data rationalisation, content management, etc. now reside with the cloud provider.

Service and Solution Development

As its name suggests, the *Service and Solution Development* competency focuses on IT development activities throughout the enterprise. Where the enterprise is solely buying in standardised cloud services from an external provider, it is plain to see that this competency has largely lost its rationale to exist. Its main function in the new world is the integration of services sourced from multiple providers into something consumable by the business unless this has also been outsourced.

Developing new IT services is both challenging and expensive. Use of externally-developed cloud services hence offers the potential for reduced costs though this needs to be tempered with some warning. Services that are misaligned with requirements or those that offer no differentiation from those of your competitors will only lead to missed business opportunities.

Service and Solution Deployment

The *Service and Solution Deployment* competency provides for all aspects of change and release activity. In environments where there is no development of new services there is no need for this competency either.

Service Delivery and Support

The *Service and Delivery Support* competency is responsible for the delivery of the IT services defined by the IT Service Catalogue. Though services are now supplied by a cloud provider, responsibility to the business for service quality and service level attainment lies with this competency. Strategic responsibilities of this competency; namely the definition of the organisation's overall approach to the delivery of IT services performed by *Service Delivery Strategy* are likely to remain in-house however, tactical and operational responsibilities will move to the cloud provider. Be aware that an argument can be made that once the strategic decision has been made to solely source services from cloud that this strategic responsibility also becomes largely redundant.

"Traditionally we'd have needed 40 people to run this infrastructure. Cloud takes this down to three."

— IT Director – Global IT Service Provider

Help desk and desk-side support services that are responsive to end-user needs are essential activities so *Service Support Operations* is likely the only part of this competency that will remain in-house. All support beyond the initial level 1 will be offered by the cloud provider however, so this component is largely only providing a first-point-of-contact function together with escalation management. Capacity Planning functions within this competency are likely to find themselves subsumed into the *Customer Contracts and Pricing* component that deals with financial planning.

Conclusions

In this paper, we've looked at the way cloud computing will change the role of the IT department. Many roles will move from the enterprise to the cloud provider and we've seen how the responsibilities and importance of the surviving IT roles will change in this new world. Hopefully this puts paid to the initial premise we started with: namely that cloud removes the requirement for an IT department.

These new roles and responsibilities will ensure that the IT departments have a much greater involvement in the financial planning process than ever before and we invisage that large enterprises will need to invest in analytics and modelling to help them make the most cost-effective use of the resources they have. Strategic and tactical functions will have greater longevity than operational ones. This implies that IT professionals will need to ensure they have the right skills to meet these new challenges.

We deliberately took the provocative view of an organisation, which moves all of its internal IT to external cloud providers and to those organisations that will emerge to offer capabilities such as cloud integration or cloud broking also on a service basis.

Whilst there are several notable examples of companies who have done just that, many organisations are moving to the cloud workload by workload; using this as an opportunity to streamline and standardise what they do. Larger organisations will move more slowly than smaller ones. Even so, for many organisations this is likely to be a multi-year journey.

There are examples of companies, where ~80% of the budget is spent to keep the lights on. This leaves 20% for introducing new and innovative IT solutions today, but any budget cut would readily hit this ability to add innovation, because it is much harder to shut down ongoing operations[1]. The percentage available for innovation to transform the business will be a smaller number still. As we have seen, the adoption of cloud computing dramatically brings the IT department into line with the way that the company operates its business and takes away; moves to the cloud if you will; much of that "keeping the lights on" spend which further improves, from the business perspective, the economics of cloud thus making this move more, rather than less, likely to occur.

The future is not as bleak as it might initially seem. There will still be careers and career paths in these IT organisations but they will not be the same as those of today. Much greater business alignment and focus will be the name of the game for IT professionals. We see how many current practices and processes will need to be fundamentally changed for enterprises to realise many of the benefits that cloud promises. We've always known that cloud computing is disruptive.

As The Economist put it in 2008, "*The rise of the cloud will transform the information technology (IT) industry, but it will also profoundly change the way people work and companies operate.*"[2]
I think we've just seen how that is likely to play out.

About the author

John Easton is an IBM Distinguished Engineer and the Chief Technology Officer for IBM Systems and Technology Group in the UK & Ireland. He is internationally known for his work helping commercial clients exploit large scale distributed computational infrastructures, particularly those utilising new and emerging technologies.

Previous to his current role, John was the Chief Infrastructure Architect for a first-of-a-kind core banking infrastructure replacement programme. John is a member of the IBM Academy of Technology and a Senior Technologist in the IBM Innovation Network.

For more information

If you would like to respond to this whitepaper or ask for further information about the Model discussed, please send an email to vickygillies@uk.ibm.com

More information on IBM SmartCloud can be found online at: **ibm.com**/uk/cloud

References

1 IBM Research 2010 GTO topic: "The Future of Legacy"

2 Economist "Let it rise" Report.
http://www.economist.com/node/12411882

IBM United Kingdom Limited
76 Upper Ground
South Bank
London
SE1 9PZ

Produced in the United Kingdom
January 2012

Please Recycle

ITW03003-GBEN-00