# **CBDIReport**

# Shared Services for the UK Public Sector

ABSTRACT: The UK Government has called for responses on their published strategy on transformational government. This short report is provided as foundational input and introduction to the capabilities of CBDI.

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Independent insight for Service Oriented Practice

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# Introduction

New technologies potentially support new modes of joined-up government.

Joined-up government can be viewed from two perspectives. From the supply side (government perspective) it has the potential to deliver greater efficiencies and effectiveness through enhancing the interoperability and orchestration of services from a diverse set of public and private agencies. From the demand side (citizen perspective) it has the potential to deliver a unified experience of public service to the citizen. Citizens can be provided with a more flexible and responsive set of services, which can be customized to the needs of the individual citizen, either by the citizen herself (self-service) or via professional service providers in health, education, social services and other sectors.

Joined-up government requires innovation both at the technological level and at the level of the organizational process. CBDI strongly endorses the emphasis of the UK strategy document, that it is not the technology alone but the use of technology that is important. This is supported by our wide experience implementing service-oriented architectures for several large public sector and private sector organizations.

One of the critical enablers of joined up government is a move away from the traditional silos of public service operation, and a move towards shared services. CBDI welcomes the moves that the UK government is making in this direction, and urges that this should be supported by the most up-to-date technology, and driven by a model-based service management process. CBDI advocates a service provisioning plan (SPP) to identify, plan and coordinate cross-agency and cross-sector shared services.

# **Service Oriented Strategy**

# **SOA Opportunities**

Service Oriented Architecture (SOA) is an enabling strategy. SOA is the sets of policies, practices and frameworks that enable application functionality to be provided and consumed as sets of services published at a granularity relevant to the service consumer that can be invoked, published and discovered, which are abstracted away from the implementation using a single, standards based form of interface. This architectural approach, which can be applied progressively to existing application and infrastructure environments, addresses important concerns for the UK public sector enabling:

- a set of technologies and technical standards that enable invocation and management of runtime capabilities (services), and facilitate interoperability between systems and processes (and consequently between the organizations that use them)
- a policy-driven architectural design approach that guides the use of these technologies and standards to deliver and maintain an appropriate level of business, application and technical loose coupling, together with an appropriate level of standardization and flexibility
- a significant reduction in complexity through improved abstraction and encapsulation

When these elements are adopted together, SOA can be used to support the following strategies.



# Table 1 – SOA Opportunities

# The Public Sector Ecosystem

The public sector is an ecosystem comprising largely autonomous departments as well as relationships with many non-governmental bodies including suppliers as well as other collaborating organizations. The service oriented architecture potentially enables enhanced collaboration between all of these parties on many levels. A key part of the SOA Adoption Roadmap is to discover what collaborations deliver increased value – which may range from collaboration on standards, specifications and processes to seamlessly integrated end-to-end business processes that span multiple organizations.



Figure 1 – SOA in the Public Sector

# Joined-Up Government

Joined-up government is a major objective for the UK public sector. Difficult issues such as social exclusion, drug addiction and crime cannot be resolved by any single department of government,

but need a concerted effort combining several government departments, often central and local government plus public agencies and private and voluntary sectors.

Conventional approaches have emphasized inter-department integration, usually limited by available technologies that constrain joined-up government to the benefits available from improving interoperability and coordination within a single sector, or between sectors. Shared services can be orchestrated from the supply side – however, it is likely that the main benefits of this form of joined-up government will be delivered in the form of supply-side economies of scale, with no directly observable impact on the citizen.



Figure 2 – Two Views of Joined-Up Government

Figure 2 illustrates this internal perspective but contrasts with the advantages of an external perspective that is driven by the overall business or citizen centric process in which joined-up government from the citizen's perspective provides the citizen with a joined-up experience of government and its services. Service oriented architecture brings the potential to orchestrate the consumption of government services from the demand side, and may be supported in doing so either by government itself, or by appropriate independent agents. (For example, healthcare professionals may perform demand-side orchestration of healthcare services on behalf of a given patient.)

# **Shared Services**

If we take the student/citizen viewpoint in Figure 2 above, we can see that there are various opportunities for shared services at different levels. There are some shared services within a single sector (in this example, we are looking at the education sector). And there are some opportunities for shared services across multiple sectors. For example, prisoner education requires collaboration between the justice department and the education department. And single-parent support may require access to childcare facilities (e.g. nursery) as well as university facilities. To provide a prisoner-student with a consistent and integrated service, it may be useful to have a single resource supporting the generic aspects of all kinds of applications (university, accommodation, parole, crèche) across many sectors.



In addition to business-centric shared services there are opportunities for a wide range of shared services at all levels covering technical infrastructure (for example identity and authentication, logging, transformation), and horizontal business services (for example generic customer services, process automation and case handling, Digital asset services, business analytics and back office services.

# Challenges

# **Architectural Policy**

Successful SOA requires coordination of architectural policy and downstream lifecycle systems across the organization. This requires that an enterprise architecture function is empowered to establish and govern key issues that are almost certainly currently distributed.

# Trust

Shared services by definition require a high level of trust between supplier and consumer. Significant increases in inter organizational dependency will require radical changes in ownership and accountability of data, processes and services.

# Architecture and LOB Tensions

Solution delivery projects will be restructured to commission and use shared services. LOBs may perceive this as unacceptable short term overhead for uncertain longer term gain. Depending on chosen strategy, enterprise architectural integrity may require several iterations and higher cost.

# Governance

Compliance with architectural policy and practice will be essential to maintain business flexibility. However in the early stages policy will be immature. Development, evolution and maintenance of policy will require close collaboration between project teams and an architectural function to establish a practical working policy set.

# ROI

Most enterprises will achieve reuse based ROI on individual SOA based projects very rapidly if basic minimum shared (utility and core business) services have been made available. However business and technical infrastructure will require investment. Depending on the existing situation there may be significant investment to be made in wrapping and enabling services from existing systems, either as a longer term solution or shorter term strategy to support migration to commodity services. Managing existing complexity will probably extend the period before overall payback.

# **Relative Maturity**

SOA adoption represents a significant change in working practices. It will be necessary to identify minimum policy sets, governance compliance practices and life cycle processes to ensure early stage efforts are compatible with the end point architecture.

# **SOA Maturity Model**

The CBDI approach to SOA Adoption is based on a purpose designed capability maturity model. The maturity model provides guidance on capabilities that need to be put in place to support particular types of activities at four levels of maturity.

A maturity model is a guide for process improvement. The nature of any generalized maturity model is that there is no right or wrong approach, rather the model is a framework that provides a set of benchmarks which may be helpful to an organization in developing its own approach. The maturity model is a basis for planning and managing change. It suggests areas where capability can be measured in a systematic manner so that the appropriate level of trust can be vested in the organization at a given point in time, tempering the optimism of the over enthusiastic with practical assessments of actual capability.

Level	Project Focus	Service Deployment Emphasis
4. Cultural	Citizen Centric Processes	Services are ubiquitous
Integration		Federated services collaborate and create complex products with individual services provided from potentially many providers
		Services are designed to support the enterprise ecosystem, not in a company specific system or service
		Many business services may have become pervasive
3 Reengineering	Joined-Up Government	Enterprise level processes, with common supporting services
		Services implemented as an integral part of business products
		Supported by guarantees and standards based measurement and monitoring systems
		Enabled by a wider selection of available

Table 2 illustrates a generalized maturity model example.

		services both inside and external to organizations
2 Integration	Core Shared Services – investment in data centric, business logic bearing service components	Legacy wrapping, Composite applications New build components
1. Early Learning	LOB / process centric solution with adjusted scope to encompass minimum architecture context	Mostly internal Low-risk external Using existing security mechanisms Not mission critical Focused on better application integration

Table 2 – Example SOA Maturity Model

# **Roadmap Process**

The CBDI adoption roadmap methodology is based on an established CBDI framework which is used as a basis for developing an enterprise specific plan. The roadmap plan is broken out into six primary streams or topic areas, each stream providing an organization independent focus for change management.

The intent of the roadmap planning process is to develop strategies and capability states that are coordinated across the streams, such that for example the organizational and architectural capabilities at the Integration stage can support the planed project characteristics with acceptable risk.

Stream	Focus	Description
Management	WHY	Driving and coordination of the whole adoption program.
Architecture	HOW	Alignment between the demands of the organization (WHY) and the constraints imposed (via Policy and Process) over the Projects (HOW).
Infrastructure	WHERE	Creating the technology platforms and standards (WHERE)
		Split into Operational Infrastructure and Service Lifecycle Infrastructure
Process	WHEN	Alignment between the Infrastructure (what the technology is capable of) and the Projects (how the organization is using the technology)
Organization	WHO	Developing the individual and collective capability, through assignment of role and responsibilities.
Projects	WHAT	WHAT is being done that uses the SOA technology within the SOA organization

Table 3 – Stream Definitions

The roadmap planning process then develops a view of the stream and level intersections as follows:

# 1. Goals

Understanding overall vision and objectives for an enterprise is critical. These will vary considerably and have a major impact on the roadmap. While SOA is generally focused on flexibility and adaptability, in practice there will be much more specific goals that should be articulated.

### 2. Architecture

At the earliest opportunity it is important to obtain an insight into the shape of the overall architecture. CBDI methodology techniques are used to rapidly identify candidate shared services and policies. These are typically mapped to value chains and existing systems to allow an assessment of priorities, opportunities and strategies.

It is also useful to establish an early view of the business priority for flexibility, and to use outline techniques such as Geoffrey Moore's core/context identification to understand the applicability of commodity and custom strategies.

From these architectural sketches it is then possible to develop tactics. CBDI have tactic templates which provide an enterprise with multiple choice options that cover topics such as:

- enterprise roles (supplier/consumer . .
- consumption scope . . .
- supply scope . . .
- planning sequence . . .
- provisioning tactics . . .
- policy development tactics . . .

### Projects

Based on the initial architectural view it is then possible to develop approaches to project strategy, identifying practical and cost/justified strategies.

### Organization

Major changes required in roles and responsibilities are identified including:

- Project profiles
- Coordination mechanisms

### Process

Process change impacts are identified including:

- Governance strategies
- Procurement strategies
- Life cycle strategies
- ...

#### Infrastructure

Infrastructure support strategies are developed including:

- Operational support environment
- Federation requirements
- Security requirements
- Management requirements
- ...

# Management

Finally outline investment requirements are assessed by stage.

# **About CBDI Forum**

### Introduction to CBDI

CBDI is widely acknowledged as an authoritative source of commentary and practice guidance on software componentization including Web Services and SOA. We are a research organization and think tank delivering continuous analysis, generating innovative concepts and defining practices that are widely used by many leading enterprises.

Our mission is to facilitate the transition to the service oriented environment providing unique and independent insight and guidance for business enterprises and governments.

The CBDI topic footprint covers business design through technology and application architectures, practices and processes across the entire life cycle. All research material published by CBDI is exclusive and rarely syndicated elsewhere. The majority of material is published by our own analysts, or commissioned from others under strict editorial control.

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- **Consulting Services** for vendors and enterprises including methodology development and customization, business/technology strategic guidance, adoption roadmap guidance and technical and business evaluation for investment purposes.
- Education Workshops and seminars briefings and intensive workshops covering adoption, architectures, processes and practices, often in conjunction with consulting services.

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We have over 15,000 registered members who are the technical leaders in their organizations. Our membership base is genuinely worldwide, with 40% membership in North America, 50% in Europe and considerable presence in Asia Pacific.

Members are typically technical leaders in major corporations and governments with roles including application and technical architect, business analyst, product manager and CTO.

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