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## **ROI CASE STUDY MICROSOFT BIZTALK SERVER 2004 MILTON KEYNES GENERAL HOSPITAL**

### **THE BOTTOM LINE**

**Milton Keynes General Hospital used Microsoft BizTalk Server 2004 to reduce programming costs while undertaking a mission critical integration project.**

**ROI: 61%**

**Payback: 1.65 years**

### **THE COMPANY**

Located in Buckinghamshire, England, Milton Keynes General Hospital is a 460-bed District General Hospital serving the needs of the people of Milton Keynes and surrounding areas for the past 20 years. Milton Keynes is part of England's National Health Service (NHS), which provides healthcare for all citizens in England, Scotland, Wales, and Northern Ireland, and does so based on need, not the ability to pay.

### **THE CHALLENGE**

All NHS hospitals are subject to the recently-initiated NHS National Program for IT. This is a broad integration initiative across the entire NHS hospital system that will be phased in over a number of stages. Its objective is for each hospital to replace the functionalities of its various local disparate IT systems into a single, cost-effective service that can deliver far greater patient data transmission. Integration requirements under this mandate include the following:

- Paperless or near-paperless transmission of patient files such as documents, care records, and X-rays.
- Viewability of any document from any location.
- Capacity for data entry from any point.
- Elimination of redundant data entry.

NHS is pursuing this degree of integration because it believes that for any given patient, the hospital's ability to provide rapid and effective prognosis and treatment is directly impacted by the ability of the organization to transmit critical patient data among the various departments and hospitals within the NHS system.

In the face of the NHS integration mandate, Milton Keynes determined its existing patient admission system was no longer capable of delivering the requirements of a modern day healthcare system. The patient admission system, which is 22 years old, annually processes 60,000 inpatient admissions and 100,000 outpatient

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**RELATED RESEARCH**

- F109 ROI Evaluation Report - Microsoft BizTalk Server 2004 upgrade
- F105 Research Note: SOA 101
- F102 Microsoft Biztalk Server 2004- St. Vincent ROI case study
- F99 Integration and Self-Service Turbo-Charge Scheduling ROI
- E103 Vendor ROI Score: Microsoft BizTalk Server
- E97 Market Scorecard: Integration
- E20 Microsoft BizTalk Server Case Study: Virgin Entertainment
- C42 Microsoft BizTalkServer Case Study: Solutia
- C39 Microsoft BizTalk Server Case Study: Flextronics
- C38 Microsoft BizTalk Server Case Study: Cinergy
- C36 Microsoft BizTalk Server Case Study: Emery
- C29 Microsoft BizTalk Server Case Study: EBSCO
- C28 Microsoft BizTalk Server Case Study: ENMAX
- C22 Microsoft BizTalk Server Case Study:

admissions, resulting in approximately 1.5 million transactions per year. Upon receipt of the integration mandate, this enterprise was comprised of 28 systems spread across more than 80 servers. There were numerous heterogeneous systems in this configuration. Additionally, there were numerous disparate connections of both a point-to-point and many-to-many nature within the system. As a result, the system was far from rationalized, and required much work in order to comply with the NHS integration mandate.

**THE STRATEGY**

Early in 2005, the hospital began looking for an integration solution that could be used to rationalize its complex patient admission system. Fujitsu, which supports Milton Keynes' portion of NHS, indicated to member hospitals that SeeBeyond was the appropriate integration solution. However, Milton Keynes chose to select the best solution independently by comparing SeeBeyond and Microsoft BizTalk Server 2004. For both products, Milton Keynes visited reference sites and reviewed product demonstrations.

By learning about both products, Milton Keynes determined that the products were both relatively robust, but selected Microsoft BizTalk Server 2004 for several reasons:

- **Interoperability.** Terry Cavender, Deputy Head of ICT for Milton Keynes indicated: "BizTalk is more interoperable all the way through the integration layers and into the specific applications." Specifically, Microsoft BizTalk Server 2004 is more interoperable with existing applications including Active Directory server 2003, Windows XP, and Microsoft SMS. Further, the hospital anticipated that the introduction of SeeBeyond into the enterprise as an integration solution would have jeopardized Microsoft's warrantee after the introduction of Microsoft-based patches.
- **HL7 compatibility.** Microsoft BizTalk Server 2004 is compatible with the SeeBeyond-based HL7 tool that Milton Keynes expects Fujitsu to deploy within NHS during the next several years. HL7 is a standards-based method for electronically defining clinical and administrative data in the health care industry. Several integration vendors offer tool sets that provide HL7 based messaging solutions.
- **Skill set.** The hospital's IT staff already had Microsoft and .Net experience, whereas adoption of SeeBeyond would have required additional Java training.

Subsequent to selecting Microsoft BizTalk Server 2004 as the integration platform for Milton Keynes, the hospital formed a deployment team. Milton Keynes staff members, including a project manager, a systems architect, and an integration and systems developer were joined by four consultants from WCI, a British Microsoft partner. Over a 4-month period, the team completed the necessary development testing and deployment for the Microsoft BizTalk solution. The process concluded with a 3-week long installation of Microsoft BizTalk Server 2004 for interfacing with the existing 28 local departmental systems that are currently tied together with point-to-point interfaces.

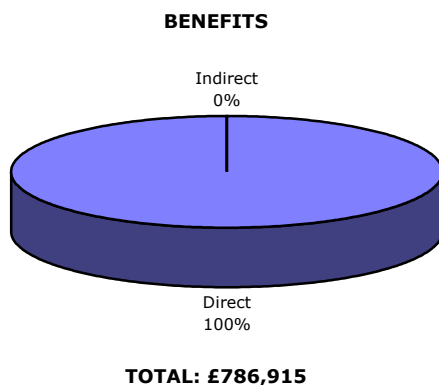
During the deployment, Milton Keynes made extensive use of some of HL7 accelerators and adapters. These are pre-built messaging tools designed for health care institutions and which can accommodate local compliance requirements such

as those requested by the Health Insurance Portability and Accountability Act (HIPPA). These tools are now being used to simplify many of the existing connections in the patient admission system. HL7 functionality is a feature that was added to the Microsoft BizTalk Server in the 2004 version.

### KEY BENEFIT AREAS

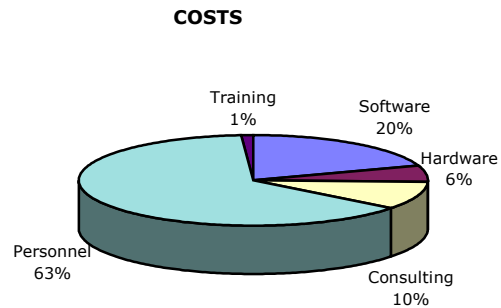
By integrating the existing patient admission system with Microsoft BizTalk Server 2004, Milton Keynes is now able to accelerate its IT integration, reduce costs, and improve patient service. Key benefits included:

- Rapid system rationalization. The hospital can now transform the current state of the patient admission system from one characterized by numerous point-to-point and many-to-many connections to one resembling a hub-and-spoke structure.
- Reduced programming costs. Because Milton Keynes will make vigorous use of the accelerators within Microsoft BizTalk Server 2004, the hospital can complete its integration tasks with far less programming costs than had been budgeted.
- SOA adoption. Microsoft BizTalk Server 2004 is viewed as an enabler of new practices, including solution reuse, business-to-business integration, and business activity monitoring. These are viewed as critical going forward, as other systems within Milton Keynes are rationalized and integrated as required under NHS National Program for IT.
- Improved patient service. By improving data flows, the hospital will be able to provide better scheduling, diagnostic services, and treatments to its patients.



### KEY COST AREAS

Key cost areas for the deployment included personnel, software, and consulting. The primary cost was personnel for ongoing support, which consisted of three full-time equivalents to support the integration solution. Software was the next largest expense and was comprised primarily of Microsoft BizTalk Server 2004, and to a lesser degree SQL Server Enterprise Edition, as well as several other tools including the package of HL7 tools. The balance of costs was comprised of four servers and a storage area network, and consulting from WCI.



**TOTAL: £629,639**

### **LESSONS LEARNED**

Milton Keynes's deployment of Microsoft BizTalk Server 2004 was smooth, and the hospital's first integration project came in under budget, which allowed for additional purchases of data warehousing capacities. The project exceeded expectations in that Microsoft BizTalk Server 2004 is now a powerful enabler of strong SOA-based integration practices — reuse, business-to-business integration and business activity monitoring — across the various departments in the hospital. The initiation of this cultural change is expected to be a substantial asset in future integration projects that will allow the hospital to comply with NHS National Program for IT.

### **CALCULATING THE ROI**

Nucleus calculated the costs of software, hardware, consulting, personnel, training, and other investments over a 3-year period to quantify Milton Keynes's total investment in Microsoft BizTalk Server 2004. Direct benefits included the avoidance of programming costs resulting from both use of both pre-built tools and reused tools.

# DETAILED FINANCIAL ANALYSIS

## Milton Keynes General Hospital

### SUMMARY

Project:	<b>Microsoft BizTalk Server 2004</b>
Annual return on investment (ROI)	<b>61%</b>
Payback period (years)	<b>1.65</b>
Net present value (NPV)	<b>36,822</b>
Average yearly cost of ownership	<b>209,880</b>

<b>ANNUAL BENEFITS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Direct	0	262,305	262,305	262,305
Indirect	0	0	0	0
<b>Total Benefits Per Period</b>	0	262,305	262,305	262,305

<b>DEPRECIATED ASSETS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	0	0	0	0
Hardware	0	0	0	0
<b>Total Per Period</b>	0	0	0	0

<b>DEPRECIATION SCHEDULE</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	0	0	0	0
Hardware	0	0	0	0
<b>Total Per Period</b>	0	0	0	0

<b>EXPENSED COSTS</b>	<b>Pre-start</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Software	86,047	12,907	12,907	12,907
Hardware	35,395	0	0	0
Consulting	63,726	0	0	0
Personnel	0	132,720	132,720	132,720
Training	7,590	0	0	0
Other	0	0	0	0
<b>Total Per Period</b>	192,758	145,627	145,627	145,627

<b>FINANCIAL ANALYSIS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Net cash flow before taxes	116,678	116,678	116,678
Net cash flow after taxes	58,339	58,339	58,339
<b>Annual ROI - direct and indirect benefits</b>			<b>61%</b>
Net cash flow after taxes (direct only)	58,339	58,339	58,339
Annual ROI - direct benefits only			61%
<b>Net present value (NPV)</b>			<b>36,822</b>
<b>Payback (years)</b>			<b>1.65</b>
Average annual cost of ownership			209,880
3-year cumulative ROI			38%
3-year IRR			37%

### FINANCIAL ASSUMPTIONS

All government taxes	50%
Discount rate	15%