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1 **Case Study:**
2 **UK National Health Service NPfIT**
3 **Uses ebXML Messaging**

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13 **Abstract:**

14 The UK's National Programme for Information Technology (NPfIT) is the world's largest civil IT
15 project. A central component of the NHS Care Records Service is the Transactional Messaging
16 Service (TMS) Spine using the ebXML Messaging Service OASIS Standard and is likely to
17 become one of the largest applications of this technical specification.

18
19 All background information provided in this case study is derived from the following public NHS
20 documents:

- 21
 - 22 • [Introducing .. The National Programme for Information Technology](#)
 - 23 • [NHS Care Records Service](#)
 - 24 • [NHS National Spine](#)

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37 1 Executive Overview

38 1.1 Business Need

39 Better information leading to better health and care for every patient is at the heart of the National
40 Health Service's National Programme for IT (NPfIT) in the United Kingdom. The NPfIT is about
41 transforming the way information flows around the health service, making it possible to deliver
42 faster, safer and more convenient patient care. In time it will give patients the information they
43 need to look after their own health.

44 1.2 Project Description

45 The UK's National Health Service (NHS) is deploying IT systems and services that will link up to
46 health care professionals to improve sharing of patients' records with those health professionals
47 involved in the care of the patient across the NHS. It will eventually allow patients to look at their
48 own health records from home using a protected link into the NHS. Health care records,
49 appointment details, prescription information, and up-to-date research into illnesses and
50 treatment will eventually be accessible to patients and health professionals whenever they need it
51 to make health or care decisions.

52 Patient records will be stored electronically and be available to those authorised to see them.
53 Access controls will be strict, and people will have different views of the record based on their role
54 in the patient's care.

55 In the past, much essential patient information was written down and filed away. In recent years
56 some information has been kept on computers in an individual NHS organisation but has only
57 been accessible to NHS staff working in that organisation. The NHS Care Records Service will
58 securely store patient information and be available to the right people when it is needed. It will
59 even be possible to see images of the patient's X-rays and scans.

60 There are other benefits as well. Using new electronic booking services ([Choose and Book](#)),
61 patients will be able to book initial hospital appointments from the GP surgery at a time and place
62 of their choice. Prescriptions may also be sent electronically from the GP to a local chemist.

63 The NHS Care Records Service (NHS CRS) is central to NHS reform and will transform the way
64 health and social care information is managed. It aims to give health and care professionals
65 access to patient information where and when it is needed. It also aims to meet the needs of
66 patients and to give them access to their own private health records.

67 Currently, health information is held as a mixture of paper-based and computer records that can't
68 easily be shared. Even records held electronically are effectively 'locked away' on computers that
69 can't talk to one another. The NHS Care Records Service plans to change this by setting up a
70 system that allows information to be shared safely across the NHS. For the first time ever there
71 will be a central summary record of a patient's care.

72 An individual is likely to be treated by a variety of care professionals in a range of locations
73 throughout their life. The NHS Care Record is a means of ensuring that a summary of details of
74 the care and treatment are held in a single, easily accessible, electronic record. The record will
75 store an individual's essential personal details like their address, date of birth and NHS number.
76 Eventually, it will show their health and care history. It will include information, such as whether a
77 patient is diabetic or has a drug allergy, as well as details of the treatment and care they have
78 received, building up a comprehensive patient history. It will also hold a summary of a patient's
79 contact with all care providers and will record the patient's consent for care professionals to view
80 their NHS Care Record.

81 Patient-centred care requires information to follow the patient so that it is available wherever and
82 whenever it is needed. The NHS CRS is designed to allow this to happen. The National
83 Programme for IT has awarded the national contract for NHS CRS to BT, which will provide
84 software and support to connect all NHS organisations (including GPs, acute trusts and
85 community and mental health trusts) in a single secure system. Local IT systems and support
86 services will be provided by a Local Service Provider (LSP) in each of the five clusters of strategic
87 health authorities.

88 The NHS Care Records Service will hold a summary record at a national level; more detailed
89 information about all of a patient's contacts with the NHS will be held at the local level, where
90 most health care is administered. The key nationally available information, together with the more
91 detailed local information, combine to produce the complete Care Record of a patient.

92 **2 Participants**

93 British Telecom is a member of OASIS and has actively supported the development of the ebXML
94 specifications. The chair of the OASIS ebXML Messaging Technical Committee is a British
95 Telecom employee. Other British Telecom employees have contributed to other technical work
96 within OASIS.

97 BT provides consultancy and systems integration services including business consultancy,
98 complex program management, and custom systems design, development and operation. Within
99 the NHS Care Records Service, BT is responsible for delivery, enhancement and long-term
100 support for several key components of the Spine, including the Transaction and Messaging
101 Service (TMS) .

102 **3 OASIS Standard or Specifications Used**

103 The ebXML Messaging Service specification has been developed within the framework of [OASIS](#),
104 the not-for-profit, global consortium that drives the development, convergence, and adoption of e-
105 business standards. Members themselves set the OASIS technical agenda, using a lightweight,
106 open process expressly designed to promote industry consensus and unite disparate efforts.
107 OASIS produces worldwide standards for Web services, security, conformance, business
108 transactions, and interoperability within and between marketplaces. Founded in 1993, OASIS has
109 more than 4,000 participants representing over 600 organizations and individual members in 100
110 countries.

111 The ebXML Messaging Service is an approved OASIS Standard that enables secure and reliable
112 exchange of business documents between or within organizations. It is a modular part of a suite
113 of specifications that is designed to support advanced integration requirements, whether in a
114 private sector (e-business) or public sector (e-health, e-government) context.

115 Along with three other components of the ebXML framework, the ebXML Messaging Service was
116 approved by the International Standards Organisation as ISO/TS 15000-2 in March 2004.

117 OASIS hosts the ebXML Web site, <http://www.ebxml.org/>, which serves as the international
118 repository for ebXML-related information, such as case studies, implementations, ongoing
119 developments, and other information. The OASIS ebXML Messaging Technical Committee was
120 originally formed in 2001 and is currently working on the third version of the ebXML Messaging
121 Service specification.

122 4 Technical Description

123 The Transaction and Messaging Service provides the communications infrastructure for the
124 National Programme. It serves to interconnect regional network clusters managed by Local
125 Service Providers (LSPs) and national services such as systems for electronic booking and
126 transmission of prescriptions. The technology framework used for TMS is based on a large
127 number of advanced technical specifications and standards. This includes the ebXML Messaging
128 Service OASIS Standard, as well as the Security Assertion Markup Language (SAML) OASIS
129 Standard and other Web services specifications.

130 Within the TMSSpine, ebXML is used to provide reliable messaging functionality. National
131 services such as the Electronic Booking Service (Choose and Book) and Electronic Transmission
132 of Prescriptions are accessed using pairs of XML request and response documents. These
133 documents are transported within the NHS network as ebXML messages.

134 5 Benefits and Challenges

135 With an anticipated yearly volume of over 5.000.000.000 message by 2010, TMS is likely to be
136 among the largest messaging systems in production in the world. For this very reason, TMS is
137 also likely to be among the larger systems worldwide that will use the ebXML Messaging OASIS
138 Standard.

139 **6 Future Plans**

140 The first service to become available is electronic booking of appointments. Called **Choose and**
141 **Book**, it is beginning this summer in a few GP surgeries in London and Yorkshire. Over the next
142 few years it will become available in surgeries across England. The new services are being
143 introduced gradually, but by 2010, it is foreseen that the NHS Care Record and electronic
144 prescriptions will be fully up and running.

145

146

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