Finance and Resources Committee 17 November 2008

Online Renewals & applications update

Executive summary and recommendations

Introduction

Since April 2008, the Online Applications & Renewals project has been led by Greg Ross-Sampson (Director of Operations and Project Lead) managed by Claire Reed (HPC Project Manager), with Marc Seale (Chief Executive & Registrar) the project sponsor.

The purpose of the attached paper is to inform the committee on the progress of the Online Applications & Renewals project.

Decision

The Council/Committee is requested to note the document. No decision is required.

Background information

See attached paper.

Resource implications

See attached paper.

Financial implications

See attached paper.

Appendices

See attached paper.

Date of paper
17 November 2008

Online applications & renewal project update 5 November 2008
Greg Ross-Sampson

Executive summary

Further to the progress made and reported on at the Finance & Resources Committee in 18 September 2008, a great deal of investigation, analysis and due diligence have been undertaken to ensure it meets the project objectives. Specifically to:-
•   Be Useable – the system needs to be easy to use to ensure registrants continue to use this service channel;
•   Be Secure - being a public body and storing 180,000 individuals' personal details, it is paramount that the system is safe and secure to use;
•   Be Scalable – the system needs the ability to increase the amount of current users to the system quickly and efficiently

This analysis has been extremely successful as it has allowed the project team to resolve a range of issues (Eg. usability, hosting, scalability, security) prior to the build phase of the project, and has led to a more detailed project delivery plan and project costs being developed.

The estimated project costs are listed below.

	2008/2009	2009/2010
Capital expenditure	£ 346,220.88	£ 94,094.28
Operating expenditure	£ 5,500.00	£ 18,810.00
YEARLY TOTAL	£ 351,720.88	£ 112,904.28
PROJECT TOTAL		£ 464,625.16

This is from an initial budget of £300,000 capital expenditure and £22,100 operating expenditure in 2008/2009 financial year.

It is the intention of the project team to fund the majority of the difference for 2008/2009 from the project contingency budget of £100,000 or from additional funds elsewhere. The 2009/2010 costs will be budgeted in next financial year.

Any required additional funding will be discussed at a future Finance & Resources Committee if and when required.

Following the analysis, the estimated project roll out date is now 18 September 2009, with the project completion, including lessons learnt review and project closure by 1 November 2009. The last reported completion date was 30 June 2009.

The increase in project duration is as a result of further detailed analysis and due diligence into:-
• whether our incumbent Internet Service Provider (ISP) could meet our requirements
• investigating whether de-scoping and redesigning the requirements to meet our current ISP's service offerings would enable us to remain at our current ISP and deliver the project in a short amount of time and with less risk

- designing a new architecture across three hosting sites, Park House, the current ISP and a new hosting provider
- running a tender process to select a new hosting provider

The increase in project cost is due to:-
- the additional detailed analysis to determine an appropriate hosting provider as outlined above
- new ISP hosting services hardware and software setup costs

This delay and increase in cost is unfortunate however without this additional investigation and analysis, the delivered online renewals service would not have met the project's objectives and would not have been fit-for-purpose.

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Introduction

The Online Applications & Renewals project has been led by Greg Ross-Sampson (Director of Operations and Project Lead) managed by Claire Reed (HPC Project Manager), with Marc Seale (Chief Executive & Registrar) as the project sponsor.

The **objectives** of the on-line systems service is to:-
• Be Useable – the system needs to be easy to use to ensure registrants continue to use this service channel;
• Be Secure - being a public body and storing 180,000 individuals' personal details, it is paramount that the system is safe and secure to use;
• Be Scalable – the system needs the ability to increase the amount of current users to the system quickly and efficiently

The **high level aims** of the project are to:-
• Increase customer services
• Reduce calls about process. E.g. non-value added calls
• Provide a "24/7" service online / self service
• Cope with future increase of registrants
• Provide future additional services more easily
• Reduce renewal calls & paper – cost saving
• Communicate better with registrants – transparent process
• However, it must be a proportional solution to HPC's revenue

Progress to date

Engagement of specialist suppliers

The project team has engaged the services of different third party suppliers to provide technical and expert advice and skills to deliver this service offering. They are :-
• Digital Steps Limited - HPC's software developer
• Etre - selected to deliver the usability of the system and
• NCC Group - selected to provide security and scalability advice and knowledge of system specification and development.

Current timetable and budget

Further to the progress made and reported on at the Finance & Resources Committee in 18 September 2008, a great deal of investigation and analysis have been undertaken to develop a detailed project plan and the associated project costs.   The high level project delivery plan is in appendix D and the estimated project costs are detailed below.

					2008/09		2009/10
PLANNING & DESIGN	Etre	Usability analysis and design		£	77,970.20		
	NCC	Architecture analysis and design, ISP analysis		£	66,499.40		
	DSL	Requirements capture, FDS and design documentation		£	31,399.50		
		PLANNING & DESIGN SUB-TOTAL		£	175,869.10	£	-
IMP & TESTING	HPC	Operational costs - legal advice, training		£	5,500.00	£	18,810.00
	3rd parties	Load & penetration testing , software system development (estimated)*		£	56,288.65	£	56,288.65
	New ISP	Hardware system development (estimated)		£	76,257.50	£	-
	New ISP	6 months ISP hosting service cost (estimated)		£	37,805.63	£	37,805.63
		IMPLEMENTATION & TESTING SUB-TOTAL		£	175,851.78	£	112,904.28
		YEARLY TOTAL		£	351,720.88	£	112,904.28
		PROJECT TOTAL				£	464,625.15

* These costs have been merged together for commercial reasons

This is from an initial budget of £300,000 capital expenditure and £22,100 operating expenditure for financial year 2008/2009.

It is the intention of the project team to fund the majority of the additional £45,000 capital expenditure for 2008/2009 from the project contingency budget of £100,000 or from additional funds elsewhere. The 2009/2010 costs will be budgeted for in next financial year.

We do not have formal estimates for the application build or for the ISP & infrastructure setup. Finalised costs will be available at the end of the design phase and at the end of the tender (RFP) process. See Appendix D.

Any required additional funding will be discussed at a future Finance & Resources Committee if and when required.

The estimated project roll out date is scheduled for 18 September 2009, with the project completion, including lessons learn review, and project closure complete by 1 November 2008. The initial project completion date was 30 June 2009.

Usability

Usability is a term used to describe the the effectiveness, efficiency, and satisfaction with which users can achieve tasks in a particular environment of a product. High usability means a system is: easy to learn and remember; efficient, visually pleasing and fun to use; and quick to recover from errors.

Since July 2008, Etre have developed the usability requirements (a set of requirements the system needs to meet to ensure it abides by industry standards and best practises), wire frame diagrams (low fidelity screen snaps shots of the system) and designed a working prototype of the online renewals system. This working prototype was tested with 10 registrants under laboratory conditions, the results of the testing were analysed and a list

of improvements were produced. Etre are now in the process of implementing these improvements and modifications into the prototype and are creating a functional specification and a working functional user interface. This piece of work is schedule for completion for November 2008.

Scalability and security

Scalablity is the term used to describe how well a solution will work when the demand increases. In HPC's case, HPC want to ensure that the online renewal system performs adequately when a large number of registrants access it concurrently and that we can more easily "scale up" to meet excessive demand.

Security is the term used to describe protection against unauthorised access to, or alteration of, information and system resources such as CPUs, storage devices and programs. Security includes:-
- Confidentiality - preventing unauthorised access; integrity - preventing or detecting unauthorised modification of information.
- Authentication - determining whether a user is who they claim to be.
- Access control - ensuring that users can access the resources, and only the resources, that they are authorised to.
- Nonrepudiation - proof that a message came from a certain source.
- Availability - ensuring that a system is operational and accessible to authorised users despite hardware or software failures or attack.
- Privacy - allowing people to know and control how information is collected about them and how it is used.

Following the development of the functional and non functional requirements a conceptual design of the system architecture was developed with NCC Group. As part of the analysis, doubts were raised about whether our current Internet Service Provider (ISP), could meet these requirements and ensure the system would be secure and scalable.

Further analysis work was conducted around the chosen architectural to a level that an ISP could build the solution. Following this, our current ISP was requested to provide information as to whether they could meet our requirements. Our current ISP could not provide the project team with a satisfactory level of assurance so the project team developed further architectural options to determine whether the architecture could be de-scoped to a level of service that our current ISP could support. Following an extended period of technical discussion and analysis of our current ISP's service offering, it was determined that they could not support an architecture that provided the level of security and scalability we had specified.

The alternatives available to the project team were to find a new ISP provider to host the new online renewals system and either:-

Option	Pro	Con
Option 1 - move all of HPC's current externally hosted services[1] to the new ISP provider.	This option would ensure that all website services and disaster recovery services were neatly integrated with the online system because they would be physically hosted within the same hosting provider	This option would add an additional level of delivery risk, complexity and time to the project turning the project from a new system development to a new system development and a internet service relocation project
Option 2 - keep our existing externally hosted services with the current service provider, and host the new online renewal service at the new hosting provider	This would create a more complex hosting topography by triangulating services between the three sites at HPC Park House, our current ISP and the new service provider	This solution ensures a "short as possible" build and delivery.

Specific design consultancy was sort from Oracle [2] Consulting to detail the options available to HPC to ensure a reliable and performant database architecture. This was at the heart of the design.

A formal analysis report is due from Oracle at the time of writing of this document however all parties are satisfied with the verbal assurances from Oracle that there are a number of relevant achievable options for HPC to create an appropriate solution. In short the overall conclusion from our security and scalability experts, NCC Group and the project team was that the triangulated, multiplaced platform solution will deliver our requirements (option 2).

Tender process for hosting services

A request for proposal (RFP) for the provision of internet hosting services for the online renewals system has been sent to 7 suppliers. The RFP timetable is below:-

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[1] Our current externally hosted services are the main website www.hpc-uk.org, on-line register portal www.hpcheck.org, record of health regulators, and professional bodies for the health professions www.healthregulation.org, council and committee member extranet and disaster recovery provisions for our core application Net Regulate, mail and print services, SQL server databases, file and print services, Domino Lotus Notes business services, remote client VPN access, data link to the internet, SQL server application, JAVA, Net Regulate Oracle application

[2] Oracle is a powerful relational database management system that offers a large feature set. Oracle is widely regarded as one of the two most popular full-featured database systems on the market today and is the database that HPC's core application Net Regulate utilises.

Milestone	Date
RFP Request Issue Date	3 November 2008
Return acknowledgement of receipt	7 November 2008
Deadline for questions	13 November 2008
Submission of RFP response (Due Date)	14 November 2008
Finalist presentations	25 November 2008
Final decision (Subject to Contract)	28 November 2008
Award contract	1 December 2008
Infrastructure operational	12 January 2009

Key milestones for the next project reporting period

The key milestones for the next project reporting period are:-

Key milestones	Date
Digital Steps Limited (DSL) to deliver their formal estimate for the system build (Functional Designs Specification - FDS)	28 November 2008
Select a new Internet Service Provider	December 2008
System build complete	March 2009
User acceptance testing (UAT)	May/June/July 2009
Load testing	July/ August/ September 2009

Challenges over the next reporting period

Apart from DSL's confirmation of system build duration and cost in November 2008, the next project challenge will be confirmation of build duration and cost of the new hosting service, and then the load testing of the system. The project team have worked hard to ensure that the system architecture, design, implementation and system code will ensure the system is scalable and resilient however, it will not be until the system load testing phase that we can validate this. The system load testing is scheduled July/ August/ September 2009. Following the load testing, if it is concluded that the system is not meeting the system requirements or throughput targets then the system build or system architecture will need to be tweaked or modified to address these performance issues.

Greg Ross-Sampson
Director of Operations and Project Lead, Online Applications and Renewals Project

Appendix A - Benefit analysis

Unquantifiable benefits

Benefits to employers
- Fewer registrants having to be downgraded to assistant following lapsing
- Fewer registrants having to work as an assistant following lapsing
- Less impacts on patient care

Benefits to registrants
- Instant confirmation of transaction after completing details (for direct debit payers)
- Independent of the postal service and of hardcopy renewal forms
- Renewal from anywhere – home, work, on holiday, abroad
- Provides an additional customer service channel outside of office hours
- Improves customer service in the call centre
  - Spend less time on simple calls ie. *"have you processed my registration renewal?"* and more time on value-added calls ie *"Why does my registration renewal say I need to pay £36?"*

Environmental benefits
- Reduction in paper – destroy less trees!

Quantifiable benefits

We expect calls to be significantly reduced, possibly back to 2005 - 2006 registrant/call ratios.
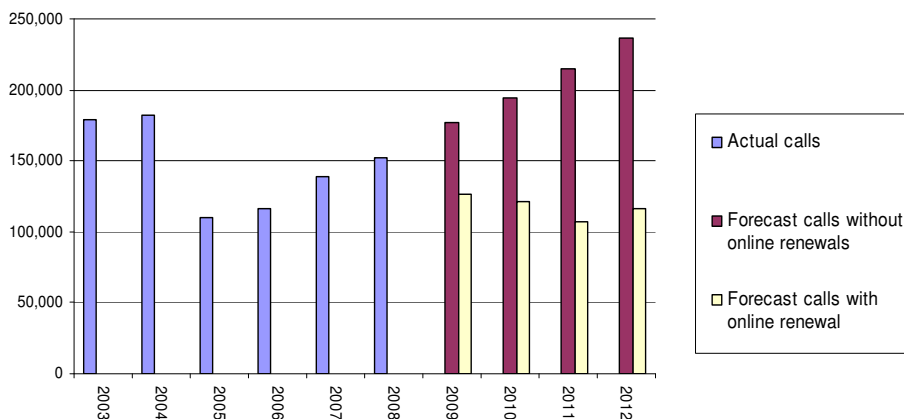
Assumption: There will be a 5% net increase in on-line renewal customer service related calls.

We expect a significant reduction in hard copy renewal form costs.

We expect not to increase registration employees by another 10 people in 2009.

Appendix B – Cost benefit analysis

	£000's
NPV Scenario One - "Do nothing" option	(2,640,385)
NPV Scenario Two - "Online renewals" option	(718,631)
Difference	1,921,754

Notes

1   NPV = Net Present Value i.e. current and future cashflows expressed in today's monetary terms.

2   The Discount Rate used is an estimate of HPC's opportunity cost of capital.
This is the weighted average cost of capital plus an adjustment for project risk.

3   The weighted average cost of capital is an average of HPC's borrowing rate and notional cost of capital (3.5% in 06/07) charged by H.M Treasury.

4   In Aug 05, the borrowing rate charged by NatWest on HPC's £0.5M loan was 6.5% per annum.

At that time, the Bank of England base rate was 4.5%.

5   Cash flows are estimated over a five year horizon for evaluation purposes.

6   To evaluate several scenarios, cashflows rather than accounting numbers are used.

7   For simplicity, only the relevant cashflows impacting the decision are included.

Business Case	Cash Flow							
Scenario One			2008	2009	2010	2011	2012	2013
"Do nothing" option	Qty	**Yr 0**	**1**	**2**	**3**	**4**	**5**	

Benefits
Additional Income
Cost Savings

		0.0	0.0	0.0	0.0	0.0	0.0

Capital Costs

		0.0	0.0	0.0	0.0	0.0	0.0

Operating Costs
Additional RAs to answer phone calls

10 registration advisors £35,650 / £29,181			356,500.0	291,810.0	291,810.0	291,810.0	291,810.0
5 registration advisors £35,650 / £29,181				178,250.0	145,905.0	145,905.0	145,905.0
6 registration advisors £35,650 / £29,181					213,900.0	175,086.0	175,086.0
4 registration advisors £35,650 / £29,181						142,600.0	116,724.0
5 registration advisors £35,650 / £29,181							178,250.0

Non Staffing

		0.0	356,500.0	470,060.0	651,615.0	755,401.0	907,775.0

Surplus/(Deficit)		0.0	(356,500.0)	(470,060.0)	(651,615.0)	(755,401.0)	(907,775.0)

Discount Factor		1.000	0.95012	0.90273	0.85770	0.81491	0.77426
Present Value		0.0	(338,717.3)	(424,335.2)	(558,888.0)	(615,586.6)	(702,858.2)
Net Present Value		**(2640385.3)**					

Discount Factor for Calculation		5.25%

Business Case

Scenario One

"Do nothing" option

	Qty	Yr 0	2009 1	2010 2	2011 3	2012 4	2013 5
Benefits							
Additional Income							
Cost Savings							
		0.0	0.0	0.0	0.0	0.0	0.0
Capital Costs							
		0.0	0.0	0.0	0.0	0.0	0.0
Operating Costs							
Additional RAs to answer phone calls							
10 registration advisors £35,650 / £29,181			356,500.0	291,810.0	291,810.0	291,810.0	291,810.0
5 registration advisors £35,650 / £29,181				178,250.0	145,905.0	145,905.0	145,905.0
6 registration advisors £35,650 / £29,181					213,900.0	175,086.0	175,086.0
4 registration advisors £35,650 / £29,181						142,600.0	116,724.0
5 registration advisors £35,650 / £29,181							178,250.0
Non Staffing							
		0.0	356,500.0	470,060.0	651,615.0	755,401.0	907,775.0
Surplus/(Deficit)		0.0	(356,500.0)	(470,060.0)	(651,615.0)	(755,401.0)	(907,775.0)
Discount Factor							
Present Value							
Net Present Value							

Discount Factor for Calculation

Business Case ==Cash== Flow

Scenario Two Option

"Online renewals" option	Qty	**Yr 0** 2008	1 2009	2 2010	3 2011	4 2012	5 2013
Benefits							
Additional Income							
Cost Savings							
40% renewal notices not packed & posted				30,231.0			
53% renewal notices not packed & posted					42,945.0		
64% renewal notices not packed & posted						53,999.0	
70% renewal notices not packed & posted							58,753.0
		0.0	0.0	30,231.0	42,945.0	53,999.0	58,753.0
Capital Costs							
Project costs		346,220.9	94,094.3				
ISP running costs				123,375.0	123,375.0	123,375.0	123,375.0
		346,220.9	94,094.3	123,375.0	123,375.0	123,375.0	123,375.0
Operating Costs							
Project op ex costs		5,500.0	18,810.0				
		5,500.0	18,810.0	0.0	0.0	0.0	0.0
Surplus/(Deficit)		(351,720.9)	(112,904.3)	(93,144.0)	(80,430.0)	(69,376.0)	(64,622.0)
Discount Factor		1.000	0.95012	0.90273	0.85770	0.81491	0.77426
Present Value		(351,720.9)	(107,272.5)	(84,083.5)	(68,984.5)	(56,535.4)	(50,034.5)
Net Present Value		**(718631.4)**					

Discount Factor for Calculation	5.25%

Business Case

Scenario Two Option

"Online renewals" option

	Qty	2008 Yr 0	2009 1	2010 2	2011 3	2012 4	2013 5
Benefits							
Additional Income							
Cost Savings							
40% renewal notices not packed & posted				30,231.0			
53% renewal notices not packed & posted					42,945.0		
64% renewal notices not packed & posted						53,999.0	
70% renewal notices not packed & posted							58,753.0
		0.0	0.0	30,231.0	42,945.0	53,999.0	58,753.0
Capital Costs							
Project costs			115,407.0	146,771.7	146,771.7	31,364.8	
ISP running costs				123,375.0	123,375.0	123,375.0	123,375.0
		0.0	115,407.0	270,146.7	270,146.7	154,739.8	123,375.0
Operating Costs							
Project op ex costs							
		0.0	0.0	0.0	0.0	0.0	0.0
Surplus/(Deficit)		0.0	(115,407.0)	(239,915.7)	(227,201.7)	(100,740.8)	(64,622.0)
							(747,887.2)

Discount Factor

Present Value

Net Present Value

Discount Factor for Calculation

Appendix C – Work programme timeline

Beginning April	
Mid April	Project initiation & business requirements gathering
End April	
Beginning May	
Mid May	
End May	
Beginning June	Communication of business requirements to NCC
Mid June	
End June	
Beginning July	Conceptual design of system architecture by NCC
Mid July	
End July	Documentation of the 4 options outlined during conceptual design Plus cost estimation
Beginning August	Infrastructure review and supplemental
Mid August	Detailed analysis around the chosen architectural option to the level that an ISP could build the solution
End August	
Beginning September	Detailed analysis of chosen architecture requirements & STAR questionnaire
Mid September	Architectural options around de-scoping the architecture, partially moving or fully moving ISP
End September	Detail around 3 sub-options & statement re STAR
Beginning October	
Mid October	
End October	Finalised detail around de-scoping the architecture or moving ISP
Beginning November	Analysis in lay-persons terms around architectural options

This activity raised doubts whether STAR could support the proposed architecture

Tender process and appointment of usability experts - Etre

Definition of usability requirements & design of wireframe

Design of prototype and usability testing with registrants

Analysis of usability findings and remediation of issues

Production of usability functional specification

Appendix D – high level project delivery plan

		Duration	Start	Finish
1		371 days	Thu 03/04/08	Fri 18/09/09
2		13 days	Thu 03/04/08	Mon 21/04/08
3		63 days	Mon 14/04/08	Wed 09/07/08
4		98 days	Tue 15/07/08	Fri 28/11/08
5		98 days	Tue 15/07/08	Fri 28/11/08
6		98 days	Tue 15/07/08	Fri 28/11/08
7		81 days	Tue 22/07/08	Wed 12/11/08
8		41 days	Mon 03/11/08	Mon 12/01/09
9		21 days	Mon 03/11/08	Mon 01/12/08
10		20 days	Tue 02/12/08	Mon 12/01/09
11		67 days	Thu 13/11/08	Fri 27/02/09
12		55 days	Mon 01/12/08	Fri 27/02/09
13		15 days	Thu 13/11/08	Wed 03/12/08
14		135 days	Mon 02/03/09	Fri 04/09/09
15		55 days	Mon 02/03/09	Fri 15/05/09
16		45 days	Mon 18/05/09	Fri 17/07/09
17		35 days	Mon 20/07/09	Fri 04/09/09
18		45 days	Mon 20/07/09	Fri 18/09/09
19		10 days	Mon 20/07/09	Fri 31/07/09
20		10 days	Mon 07/09/09	Fri 18/09/09

Gantt chart task labels:

1. ONLINE APPLICATIONS AND RENEWALS
2. Project initiation
3. Systems definition
4. SYSTEMS DESIGN
5. Architecture design — 28/11
6. Application design — 28/11
7. User interface design
8. ARCHITECTURE SET UP
9. Internet Service Provider Tender
10. Architecture build
11. SYSTEMS BUILD
12. Application build — 27/02
13. User interface build
14. TESTING
15. Systems testing — 15/05
16. User acceptance testing — 17/07
17. Load and security testing — 04/09
18. TRAINING AND IMPLEMENTATION
19. Training
20. Roll out — 18/09

Quarter headings:
1st Quarter: Apr '08 | May '08 | Jun '08
2nd Quarter: Jul '08 | Aug '08 | Sep '08
3rd Quarter: Oct '08 | Nov '08 | Dec '08
4th Quarter: Jan '09 | Feb '09 | Mar '09
1st Quarter: Apr '09 | May '09 | Jun '09
2nd Quarter: Jul '09 | Aug '09 | Sep '09
3rd Quarter: Oct '09 | Nov '09 | Dec '09
4th Quarter: Jan '10 | Feb