20 April 2016

██████████

By email

██████████████████████

Dear ████████

Request under the Freedom of Information Act 2000 (the "FOI Act")

I refer to your email of **18th March** in which you requested information under the FOI Act. Since 1 April 2016, Monitor and the NHS Trust Development Authority are operating as an integrated organisation known as NHS Improvement. For the purposes of this decision, NHS Improvement means Monitor.

Your request

You made the following request:

"The joint corporate report for the most recent meeting makes reference to a demonstration of the strategic information platform.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/508965/BM16 25_Joint_Corporate_report.pdf
Can I get a copy of the demonstration please (slides, papers, whatever was used)."

Decision

NHS Improvement holds the information that you have requested.

NHS Improvement has decided to withhold some of the information that it holds on the basis of the applicability of the exemptions in section 40 and 41 of the FOI Act, as explained in detail below.

Where we are able to disclose information to you, it is provided in the attached pdf document.

It may assist you to know that the demonstration given to Technology Assurance Committee was a technical demonstration, aimed primarily at showcasing the vendor software that will be used to extract data from strategic information platform (SIP) and how SIP will benefit future NHS Improvement projects.

Section 40 – personal information

Some of the redacted information is being withheld from disclosure under section 40(2) of the FOI Act on the grounds that it is personal data and that the first condition of section 40(3)(a) is satisfied, namely, that disclosure would amount to a breach of the data protection principles (personal data should be processed fairly and lawfully).

This is because the redacted information is personal data of NHS Improvement employees, who would have a reasonable expectation that their personal information would be withheld. This is an absolute exemption and consideration of the public interest in disclosure is not required.

Section 41 – information provided in confidence

Under section 41 of the FOI Act, information is exempt if it was obtained by NHS Improvement from any other person and disclosure of the information to the public would constitute a breach of confidence actionable by that other person.

The slides include Hospital Episodes Statistics data, which was provided in confidence to NHS Improvement by the Health and Social Care Information Centre; and analysis of that data. That information was provided in circumstances giving rise to an obligation of confidence, and disclosing the information to the public without consent would amount to an unauthorised use of the information. Disclosing to the public would be a breach of confidence, actionable by the Health and Social Care Information Centre.

Section 41 is an absolute exemption and does not require the application of the public interest test under section 2(2) of the FOI Act. However, in considering whether (in an action for breach of confidence) a confidence should be upheld, a court will have regard to whether the public interest lies in favour of disclosure. Where a duty of confidence exists, there is a strong public interest in favour of maintaining that confidence. In the present circumstances, NHS Improvement does not consider that there is a strong public interest in disregarding the duty of confidence owed to the Health and Social Care Information Centre.

Review rights

If you consider that your request for information has not been properly handled or if you are otherwise dissatisfied with the outcome of your request, you can try to resolve this informally with the person who dealt with your request. If you remain dissatisfied, you may seek an internal review within NHS Improvement of the issue or the decision. A senior member of NHS Improvement's staff, who has not previously been involved with your request, will undertake that review.

If you are dissatisfied with the outcome of any internal review, you may complain to the Information Commissioner for a decision on whether your request for information has been dealt with in accordance with the FOI Act.

A request for an internal review should be submitted in writing to FOI Request Reviews, NHS Improvement, Wellington House, 133-155 Waterloo Road, London SE1 8UG or by email to nhsi.foi@nhs.net.

Publication

Please note that this letter and the attached information will shortly be published on our website. This is because information disclosed in accordance with the FOI Act is disclosed to the public at large. We will, of course, remove your personal information (e.g. your name and contact details) from the version of the letter published on our website to protect your personal information from general disclosure.

Yours sincerely,

Derek Cox
Head of Governance and Assurance

NHS
Improvement

Information Services
SIP Capability and
Benefits Delivered

March 2016

Agenda

Topic	Presenter	Duration	Time
Introduction		5 min	10:55 ~ 11:00
Reference Cost Browser	███ Tariff Calculation Manager	10 min	11:00 ~ 11:10
HES Browser Geospatial Analytics	███ behalf of Senior Information Analyst (on behalf of Economic Adviser)	10 min	11:10 ~ 11:20
System Performance Dashboard	███ behalf of Senior Information Analyst (on behalf of Senior Economist)		
Simulation – moving care into community settings	███ Economist	10 min	11:20 ~ 11:30
LHEIU – A&E volume analysis	███ Manager LHEIU	10 min	11:30 ~ 11:40
Strategic Tariff	███ Tariff Design Lead Currency Integration and	10 min	11:40 ~ 11:50
MIST – data loading automation	███ Data Architect	5 min	11:50 ~ 11:55
Wrap-up		5 min	11:55 ~ 12:00

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Purpose and introduction

The purpose of this session

- Demonstrate some of the benefits the SIP programme has delivered to Monitor to date with a number of examples:
  - Reference Cost Browser
  - HES Browser with Geospatial Analytics
  - System Performance Dashboard
  - Simulation – moving care into community settings
  - LHEIU – A&E volume analysis
 - Strategic Tariff

Introduction

- For some solutions / products, a short video clip is to be played to show key features
- Each product owner (or a product team member) will cover:
  - the business problem addressed
  - key features of the solution
  - the target users
  - benefits realised / to be realised

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Reference Cost Browser

Tariff Calculation Manager

Reference Cost Browser – video clip

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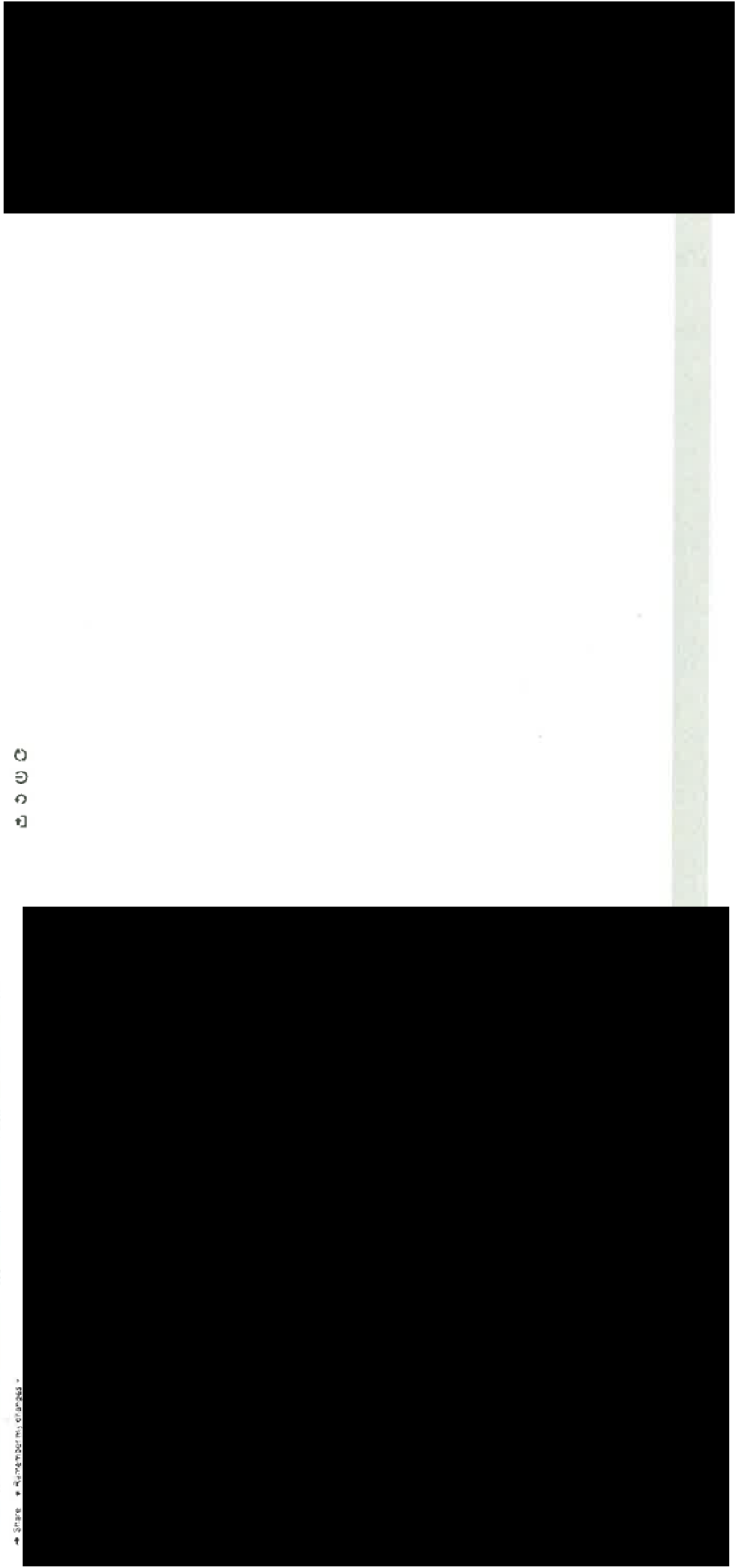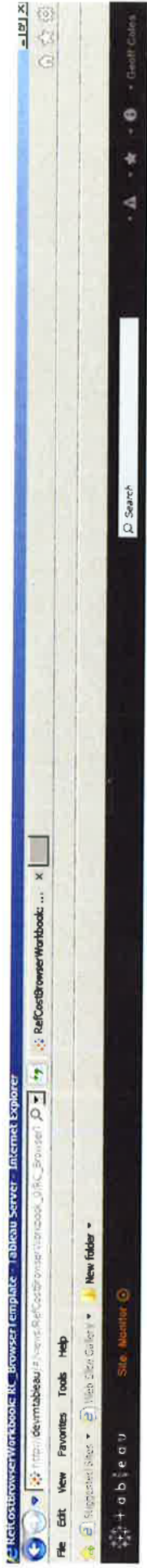
HES Browser and Geospatial Analytics

Senior Information Analyst

CCD Economic Adviser)

(on behalf of

AE   APC   OP   Map   Help

Hospital Episode Statistics

NHS Improvement

| A&E | APC | OP | Map | Help |

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Minimum Count of Spells

Year of Discharge
FY 2015

Month of Discharge
(All)

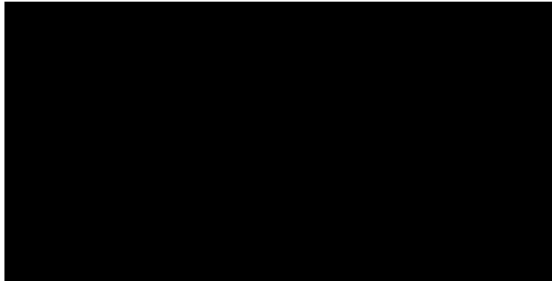Provider Type
(All)

Provider

Commissioner Type

Commissioner
(All)

Patient Classification
(All)

Age Group
(All)

Gender
(All)

HRG Sub Chapter Code
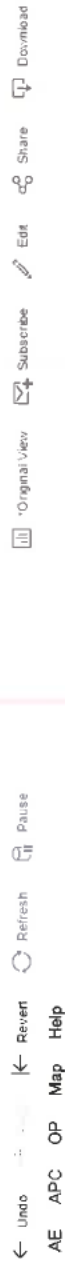(All)

HRG Code
(All)
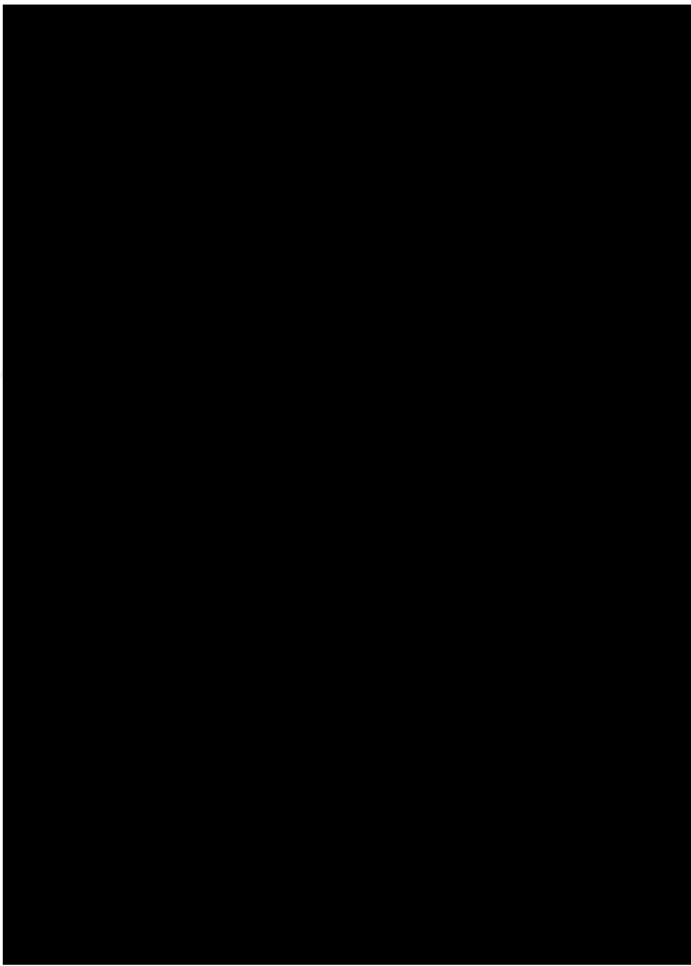
Tags

Edit Tags

Comments (0)

Add a comment

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7.

HES Browser – standard view

- A system to provide analysts easy access to large Hospital Episode Statistics (HES) data sets with built-in report structures to enable self-service BI (Business Intelligence)

HES Browser – data visualisation on map

- This lets analysts quickly see patterns in these very large data sets, enabling rapid exploratory analysis, with help of visualisation, e.g. maps

← Undo → Redo ← Revert ⟳ Refresh ⏸ Pause   ⊞ ∼Original View ☑+ Subscribe ✏ Edit ⚙ Share ⎙ Download

AE APC OP Map Help

Hospital Episode Statistics

| A&E | APC | OP | Map | Help |

Provider Type
NHS Trust ▸

Provider Name
(All) ▸

Year of Discharge
FY 2015 ▸

Patient Classification
Ordinary admission ▸

Admission Method Group
Non Elective ▸

Spell Count
3,650   283,113

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HES Browser – geospatial analytics

■ This more advanced geospatial analytics allows analysts to run 'what-if' analyses of catchment areas via parameters like diving time

A&E   APC   Map   Help   HRG

← Undo   ⟲ Revert   ↻ Refresh   ⏸ Pause

Hospital Episode Statistics

| A&E | APC | OP | Map | Help |

Year of Discharge

2014

Trust Sites

Trust Isochrone

Provider Selection

Q   +   −   ⌂   ▲

© OpenStreetMap contributors

Netherlan

Belgium

Ireland

© OpenStreetMap contributors

HES Browser – data dictionary and data quality info

- Standard reference and data quality information enable accurate interpretation of the dozens of dimensions available for analysis

← Undo → Revert ↺ Refresh ⊓ Pause
AE APC OP Map Help

⊞ Original View ☑ Subscribe ✎ Edit ⚬⚬ Share ⎙ Download

Hospital Episode Statistics

| A&E | APC | OP | Map | Help |

Select Field Description
Provider code ▾

Field
Provider code

Source Field
PROCODET

Description
This field gives a combination of 3-character and 5-character provider codes. Procodet enables you to view a combined list of codes and related data from: 1. Primary care trusts (3 character, beginning with 5) 2. NHS trusts (3 character, beginning with R. Trusts with associated treatment centres will have an '- X' following their code) 3. NHS trust treatment centres (5 character, listed separately to the NHS trusts) 4. Independent providers (5 character, beginning with 8) 5. Independent sector healthcare providers (5 character, beginning with N) For 3-character codes only see procode (provider code - 3 character) and for 5-character codes only see procode (provider code

Category
Organisation

	AE	APC	OP
Availability	True	True	True
2003-04 onwards			

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HES Browser – self-service visual analysis

- Through an intuitive drag and drop web user interface, analysts can develop their own reports, including visualisations, dynamic calculations and custom filters

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HES Browser – CCD product sponsor / owner feedback

"We are happy that the HES Browser delivers the functionality to replace an external supplier, i.e. Dr Foster's PPM and HMM tools."

"The main benefits, beyond achieving a practically like-for-like replacement, is that the Tableau-based tool allows greater flexibility in terms of querying the data. The tool can also be further customised to user requirements as it is internally developed."

- The internal tool also means that users can gain a more in-depth understanding of the data itself, including the ways in which it is 'cleaned', grouped (HRGs), and otherwise manipulated (e.g. spells) before being loaded in the tool.

- There are some additional refinements and tweaks that will need to be made to make the tool 100% customised. These will be handled as business-as-usual requests.

- There is also potential expand the map-based and graphing functions in the tools. Development of these is ongoing.

- A data comparison between HES Browser and external tools is ongoing as part of the user acceptance process.

- A process of concurrent running of HES Browser and an external supplier is expected to continue into the next financial year (16/17) to ensure that the tool is fully embedded into CCD's work and that the users are confident in its contents.

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System Performance Dashboard

Senior Information Analyst
(Senior Economist)

(on behalf of ▮▮▮▮)

Components of Cost Weighted Activity

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Select Region
(All)

Select Sector Type
(All)

Select Provider Status
(All)

Select LHE
(All)

Select STP
(All)

Select Provider Name
(All)

Activity Type
- A&E
- Elective
- Non-Elective
- OP 1stAppt
- OP Follow-Up
- Total

Cost weighted %

8%
7%
6%
5%
4%
3%
2%
1%
0%
-1%
-2%

Apr'09 Jul'09 Oct'09 Jan'10 Apr'10 Jul'10 Oct'10 Jan'11 Apr'11 Jul'11 Oct'11 Jan'12 Apr'12 Jul'12 Oct'12 Jan'13 Apr'13 Jul'13 Oct'13 Jan'14 Apr'14 Jul'14 Oct'14 Jan'15 Apr'15 Jul'15

This chart shows YoY cost weighted activity growth for A&E, Elective, Non-Elective, OP 1st and OP Follow-Up Appts. This shows points at every 3 month intervals.

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System Performance Dashboard (1 of 4)

- An extension of system economics work which provides a high-level view of the system
- Mirrors the system economics quarterly packs, currently produced by Economics team
- Automates the current manual process of data acquisition and reporting

Components of Cost Weighted Activity

Select Region
(All)

Select Sector Type
(All)

Select Provider Status

Select LHE
(All)

Select STP
(All)

Select Provider Name
(All)

Activity Type
- A&E
- Elective
- Non-Elective
- OP 1stAppt
- OP Follow-Up
- Total

Cost weighted %

8%
7%
6%
5%
4%
3%
2%
1%
0%
-1%
-2%

Apr'09
Jul'09
Oct'09
Jan'10
Apr'10
Jul'10
Oct'10
Jan'11
Apr'11
Jul'11
Oct'11
Jan'12
Apr'12
Jul'12
Oct'12
Jan'13
Apr'13
Jul'13
Oct'13
Jan'14
Apr'14
Jul'14
Oct'14
Jan'15
Apr'15
Jul'15

Cost-weighted activity – system-level view

System Performance Dashboard (2 of 4)

- This solution provides a way of diagnosing the problem, what is causing the system to perform the way it is performing
- Activity trends can be easily identified for Sustainability and Transformation Plan (STP) footprints to help with their planning activities for the Five Year Forward View vision

Components of Cost Weighted Activity

Cost-weighted activity – STP-level view

*STP – Sustainability and Transformation Plan

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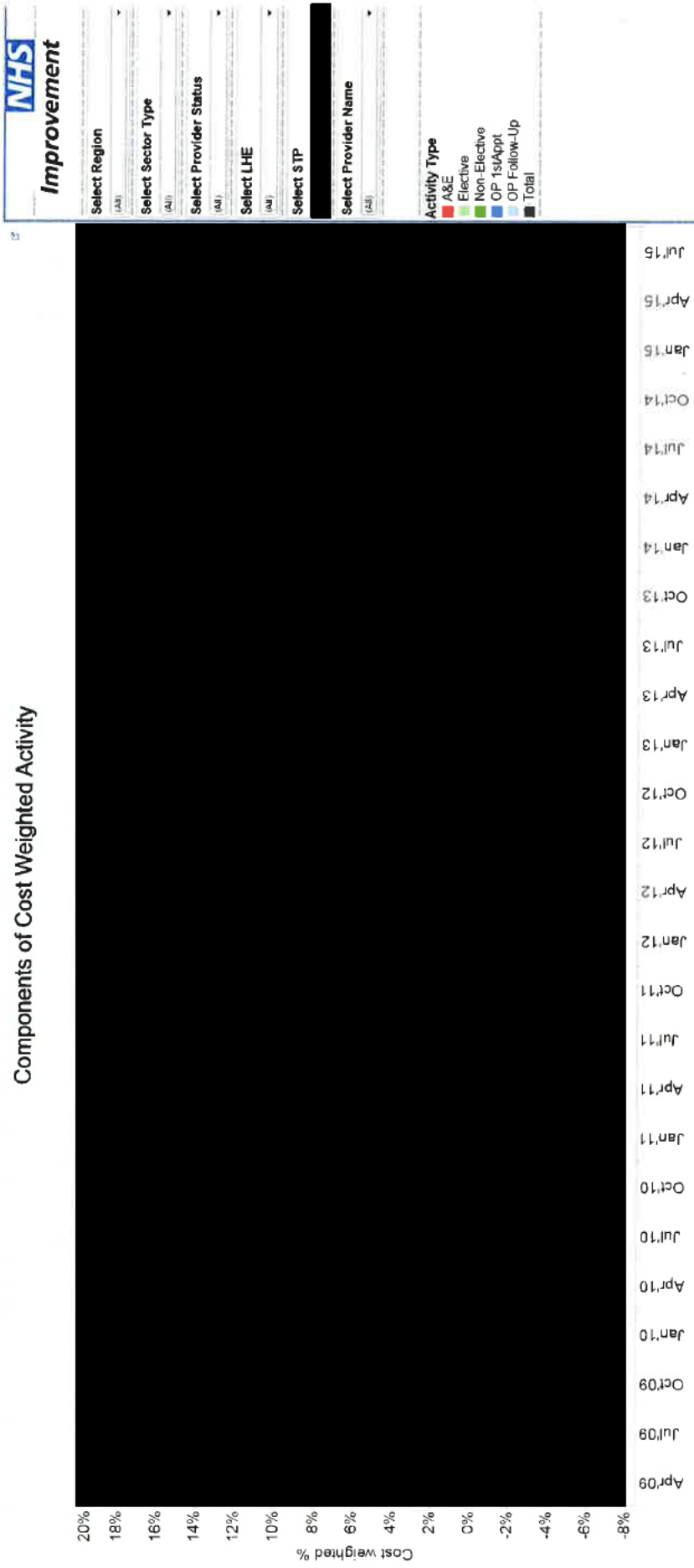
System Performance Dashboard (3 of 4)

This solution allows users to interactively slice and dice data as well as further drill down into details, e.g. STP footprints, LHEs (Local Health Economies), providers, specific regions, types of providers.
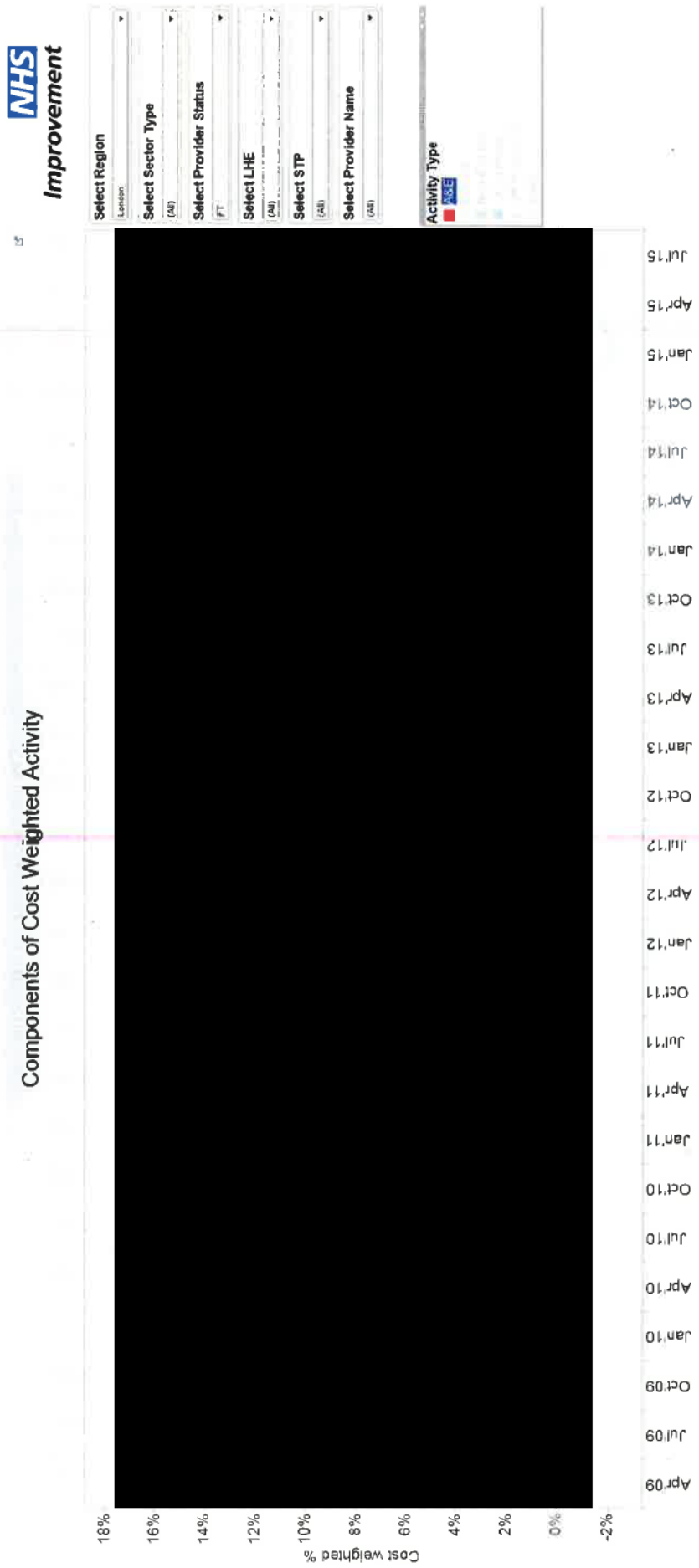
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Components of Cost Weighted Activity

This chart shows YoY cost weighted activity growth for A&E, Elective, Non-Elective, OP 1st and OP Follow-Up Appts. This shows points at every 3 month intervals.

Cost-weighted activity – regional-level view

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System Performance Dashboard (4 of 4)

- The vision is to have a solution to help understand drivers behind the system performance
- The key drivers included now are 'Activity' and 'Input Cost' (workforce) which together make up productivity
- Financial data is to be included in future
- Potential to include Carter metrics in future

Components of Cost Weighted Activity

Cost-weighted activity – provider-level view

Select Region
(All)

Select Sector Type
(All)

Select Provider Status
(All)

Select LHE
(All)

Select STP
(All)

Select Provider Name

Activity Type
A&E
Elective
Non-Elective
OP 1stAppt
OP Follow-Up
Total
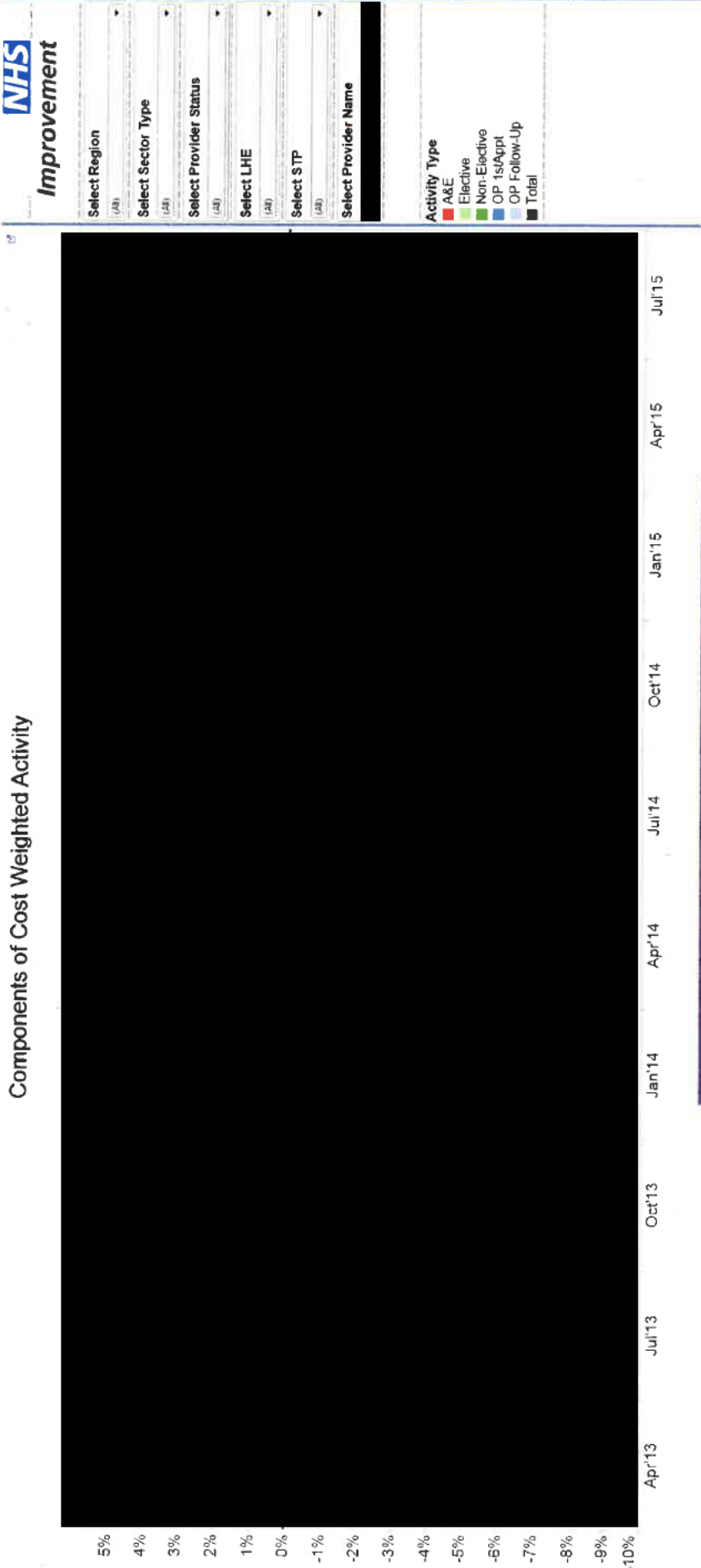
Simulation – moving care into community settings

Economist

Simulation – video clip

21
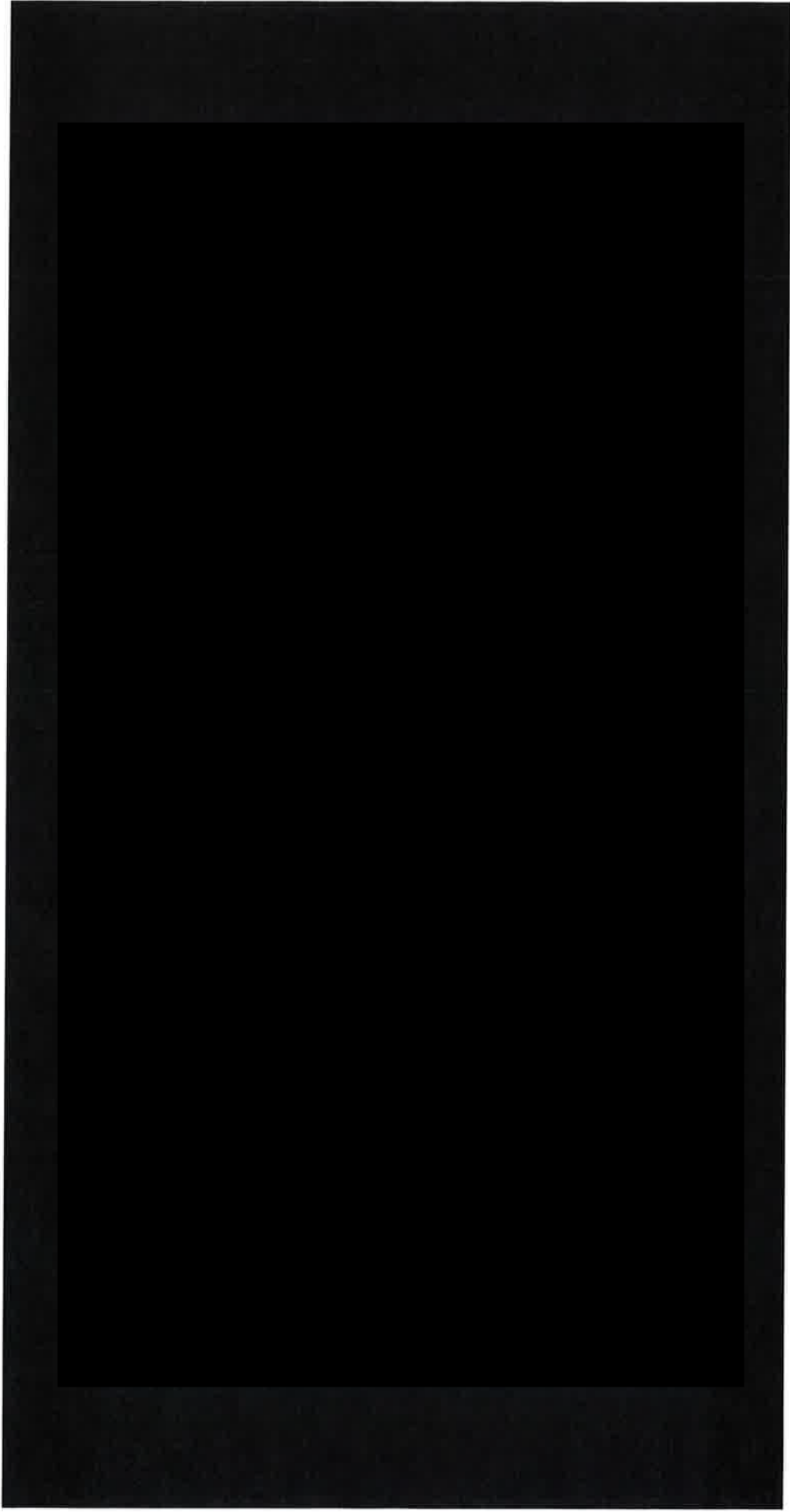
Simulation – overview

Why we were doing this work?

Economics and Policy delivered a project looking at the impact of OOH schemes
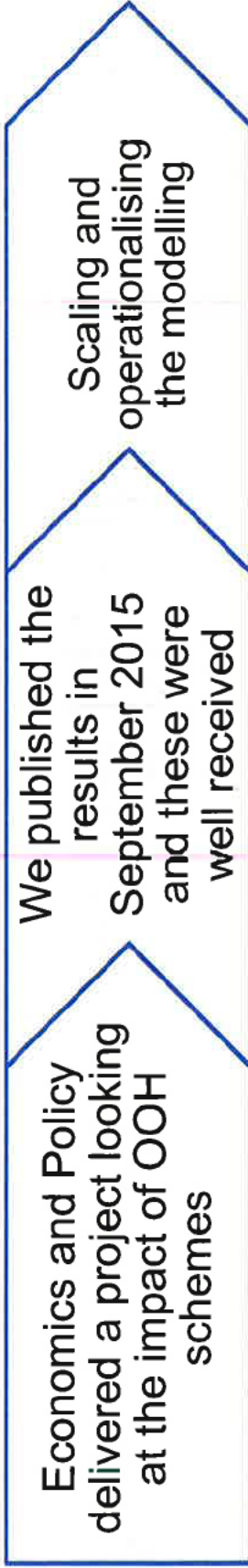
We were asked:
"Under what circumstances does moving care from acute to out-of-hospital settings bring about financial benefits for the sector?"

"How does the impact differ for different members of the sector?"

We published the results in September 2015 and these were well received

Publications: Included case studies, financial impacts, implementation considerations etc.

Scaling and operationalising the modelling

During publication:
79% of providers surveyed wanted Monitor to 'Support NMC work through using this simulation model and the practical findings [from it and the report]'
They ranked using the model in this way as the most important next step of this work.

The key findings

There is an opportunity for well-designed schemes to deliver benefits in the long term

It is difficult to cut costs across a local health economy especially in the short run

Better data is needed and improving system incentives will help

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Simulation – data collection and preparation with Alteryx

Making the modelling realistic

- Using real data (the lots we have) to model real patients
- Quickly able to explore the data and tailor our requests
- Quickly able to pull data for individual trusts and local health economies

HES_withoutagefiltcrand_allHRG.yxmd ×

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Simulation – discrete event modelling with Simul8

Modelling capacity and engaging audiences

- Modelling capacity in units leads to greater accuracy
- Inherently visual
- Useful for a variety of other future improvement and modelling work (A&E, etc.)
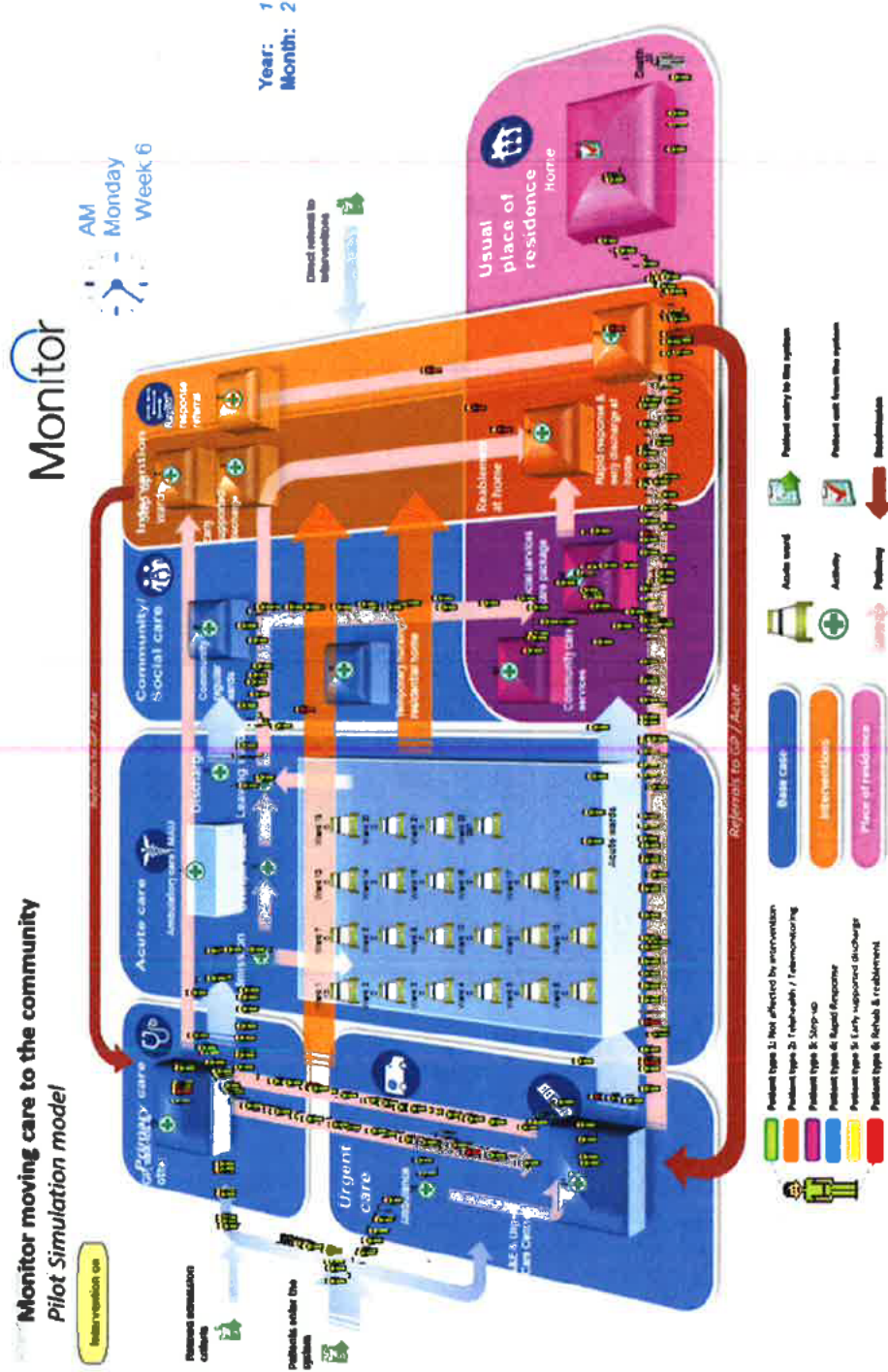
Simulation – visualisation of model output with Tableau

- Outputs can be easily and clearly sent to stakeholders
- Allows stakeholders to view the detail (without being able to edit)
- Interactive and exploratory, e.g. comparing scenarios
- Explored with trusts and partners

LHEIU – A&E volume analysis

Manager LHEIU

LHEIU – A&E volume analysis (1 of 3)

(A2) Footprint 27 (North West London) - Overview of the population (density, distribution), site locations & travel times

Overview – The table below provides a contextual overview of the population (including population density and distribution of the population across urban/rural/city & towns). A&E site locations & scale are also highlighted. Potential for collaboration between providers is highlighted by relative travel times.

Category		
Key findings		
Overall considerations		
Location of the population		
Location of acute A&E sites		
Future changes		
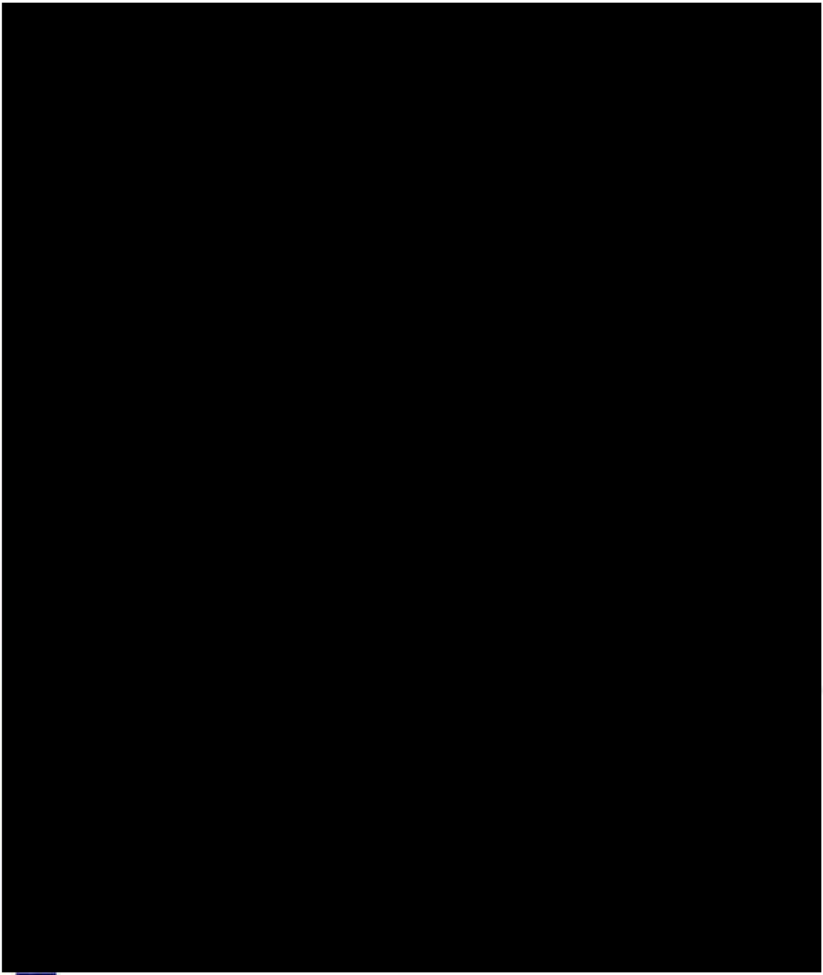
	1	2	3	4	5	Avg.
	33	45	58	51	47	
	28	26	36	41	33	
	39	26	31	47	36	
	38	40	26	24	32	
	43	40	35	22	35	

Travel time key

<30 mins – potential for collaboration (travel times not a barrier)
30 to 45 mins – potential for collaboration for tertiary services
45 to 60 mins – potential for collaboration
60 mins or more - limited potential for collaboration

Source: Google travel times, to & from each site. Average. column is the providers average distance from all other providers, indicating overall isolation level.

(A3) ⬛ NHS acute volumes / scale analysis

Overview – The table below provides an overview of the NHS acute volumes as indicated by HES FY14/15 data (including acute and specialist providers, but excluding mental health and community providers). The analysis aims to highlight whether there are any providers that may be operating at sub scale, or any key acute services operating below average or below royal clinical guidelines (where guidelines for minimum safe volume levels are available).

(1) Data analysis of prima facie evidence of sub scale providers or individual service lines 2014/15 HES A&E and HES APC analysis

Trust/Site Name (1)	Peer group	AE attendance Type 1 HES AE (2a) 000s	AE attendances Mjr & Std HES AE (2b) 000s	Non Elective surgery spells HES APC (3) 000s	Non Elective medicine spells HES APC (3) 000s	Paediatric spells HES APC (3) 000s	Maternity spells HES APC (4a) 000s	Deliveries HES APC (4c) 000s	Scale risk?
									Y

Source:
Units:
Benchmarking thresholds applied (see methodology below):
Service lines flagged red are based on the following lower quartile thresholders: <66k <36k <4k <14k <3k <8k <2k
Service lines flagged amber are based on the following lower quartile < median thresholds: 66k to 88k 36k to 50k 4k to 7k 15k to 19k 3k to 5k 8k to 10k 2k to 3k

Multi-site providers & sites highlighted

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LHEIU – A&E volume analysis (3 of 3)

- 36 tabs of data manipulation and lookup tables

- After an initial data cleansing and aggregation of four different files, each containing data for one quarter

- This process normally takes one WTE 6 weeks

- The Microsoft Power Query, executed in a few seconds, produces the same output
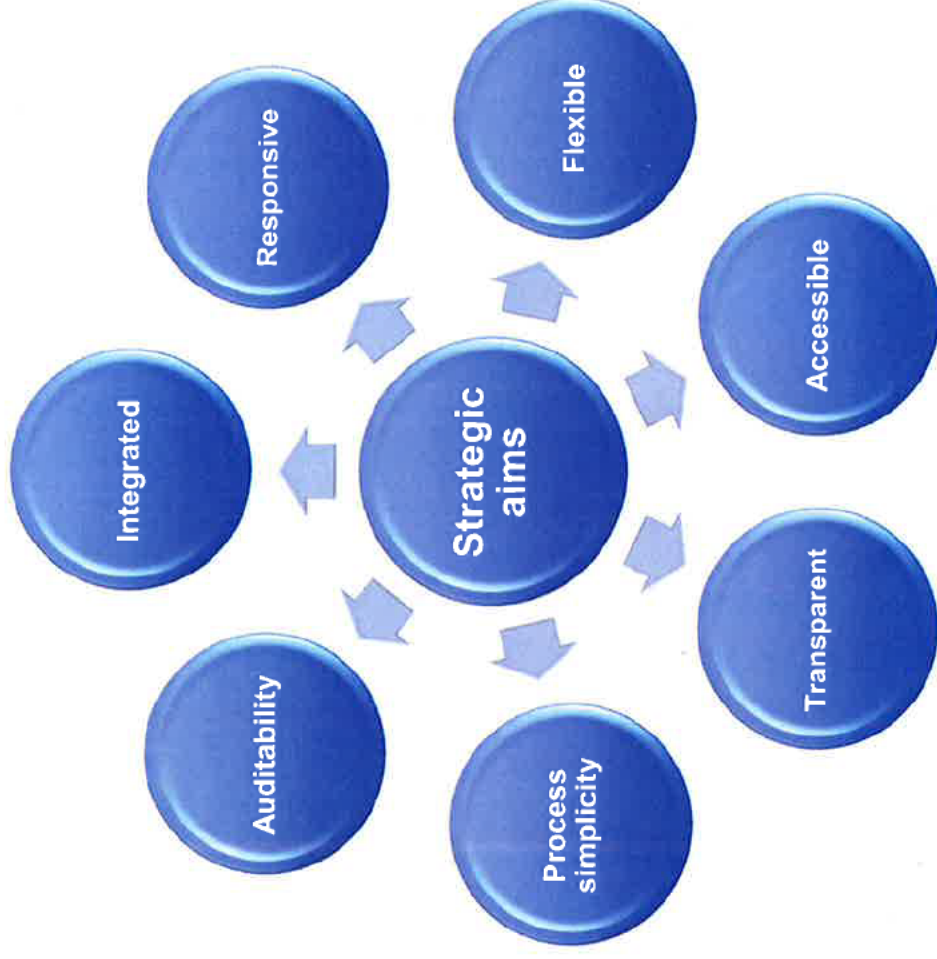
Q1   Q2   Q3   Q4

Strategic Tariff

Currency Integration and Tariff Design Lead

Strategic Tariff – project vision

"In a properly automated and educated world, then, machines may prove to be the true humanizing influence. It may be that machines will do the work that makes life possible and that human beings will do all the other things that make life pleasant and worthwhile"

Isaac Asimov, *Robot Visions*

Strategic aims

- Responsive
- Flexible
- Accessible
- Transparent
- Process simplicity
- Auditability
- Integrated

- To provide Monitor with an integrated approach to setting price relativities and all their distributional impacts which satisfied all of the strategic aims

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Strategic Tariff – target users

32
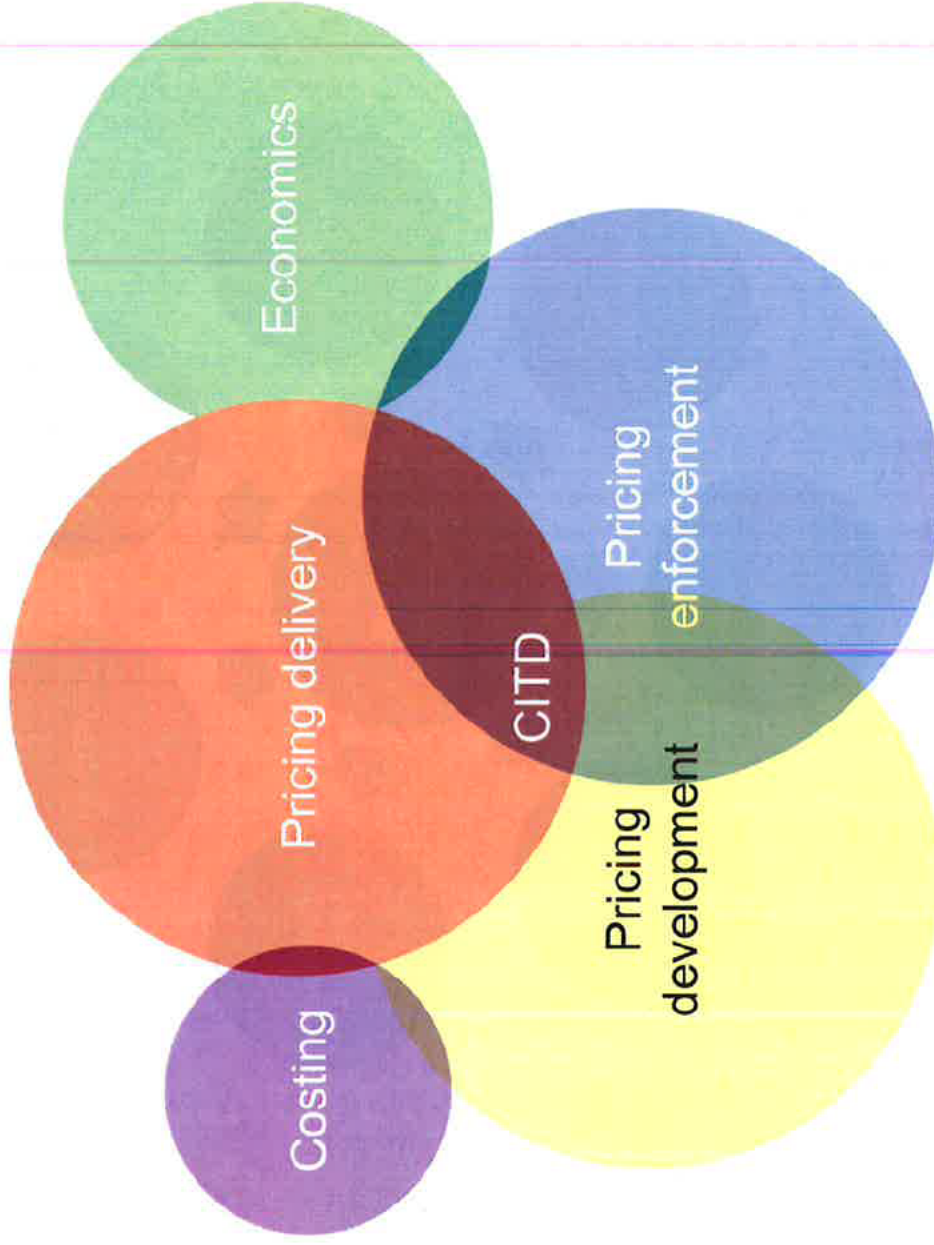
Strategic Tariff – proof of concept
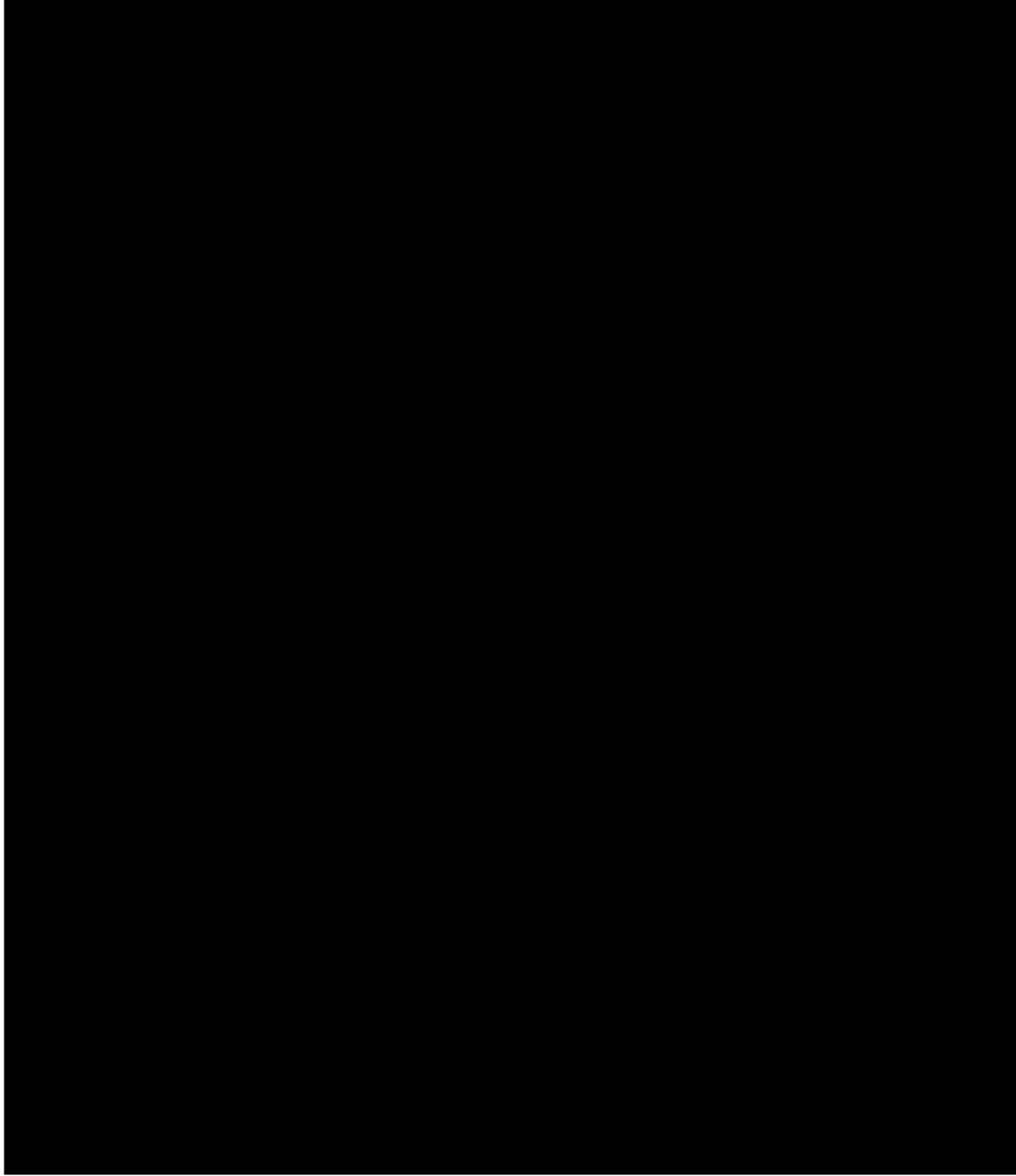
Replication of the APC model:

STATA

SQL

Excel

Strategic Tariff – APC model architecture

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Monitor
Making the health sector
work for patients

APC Strategic Tariff Engine

Version No.
Engine run No.
Maintenance:
Email:

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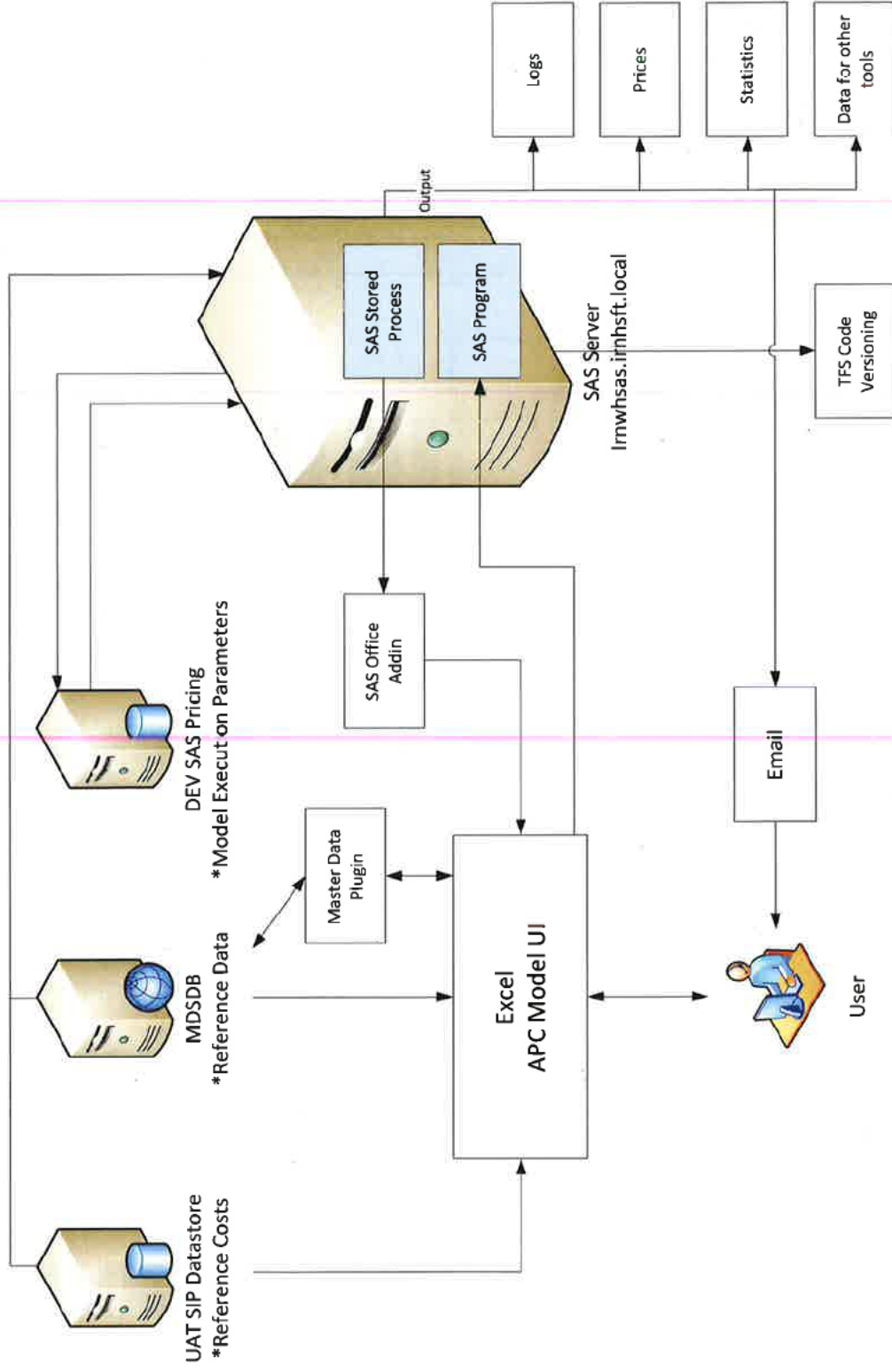
Strategic Tariff – immediate benefits of the project

Partners/Sector

- Greater transparency: Transparency Tool already shared with Paediatric and Orthopaedic EWGs, excellent feedback
- Policy Modelling: EL/DC split for 17/18 specialist work stream – cannot be done easily with current system

Monitor

- Policy modelling tool for APC
- More accessible (self-service)
- Technical improvements: execution speed, new infrastructure and architecture (SIP/MDS), version control, consistency and repeatability
- Auditing vastly improved (KPMG), more complete QA than the current audit process

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Strategic Tariff – medium-term benefits of the project

Partners/Sector

- Greater transparency: Transparency tool can be shared with all EWGs
- Tool can be shared with key sector partners: NHSE, HSCIC
- Policy Modelling: EL/DC split for 17/18 specialist work stream – cannot be done easily with current system
- Transparent and consistent results and model logic can be shared widely with the sector

Monitor

- Rapid, consistent, modular, repeatable APC run (17/18 shadow run of tariff a possibility)
- Policy modelling tool for APC for multi year tariff
- Predict a reduced audit spend (KPMG)
- Additional tariff areas (A&E, OPROC, IA, Payment engine)
- Cross team working

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Strategic Tariff – much more efficient execution

Current APC component

- Run time = 1 day: bottlenecks between handover of different components
- Single iteration of the SQL at any one time ONLY
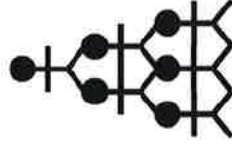- Having more staff ≠ faster execution
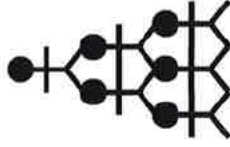
1 person = 1/day   Many people = 1/day

Max. APC runs = 220

STE POC

- Run time = a few hours (max.)
- As many iterations as you have users
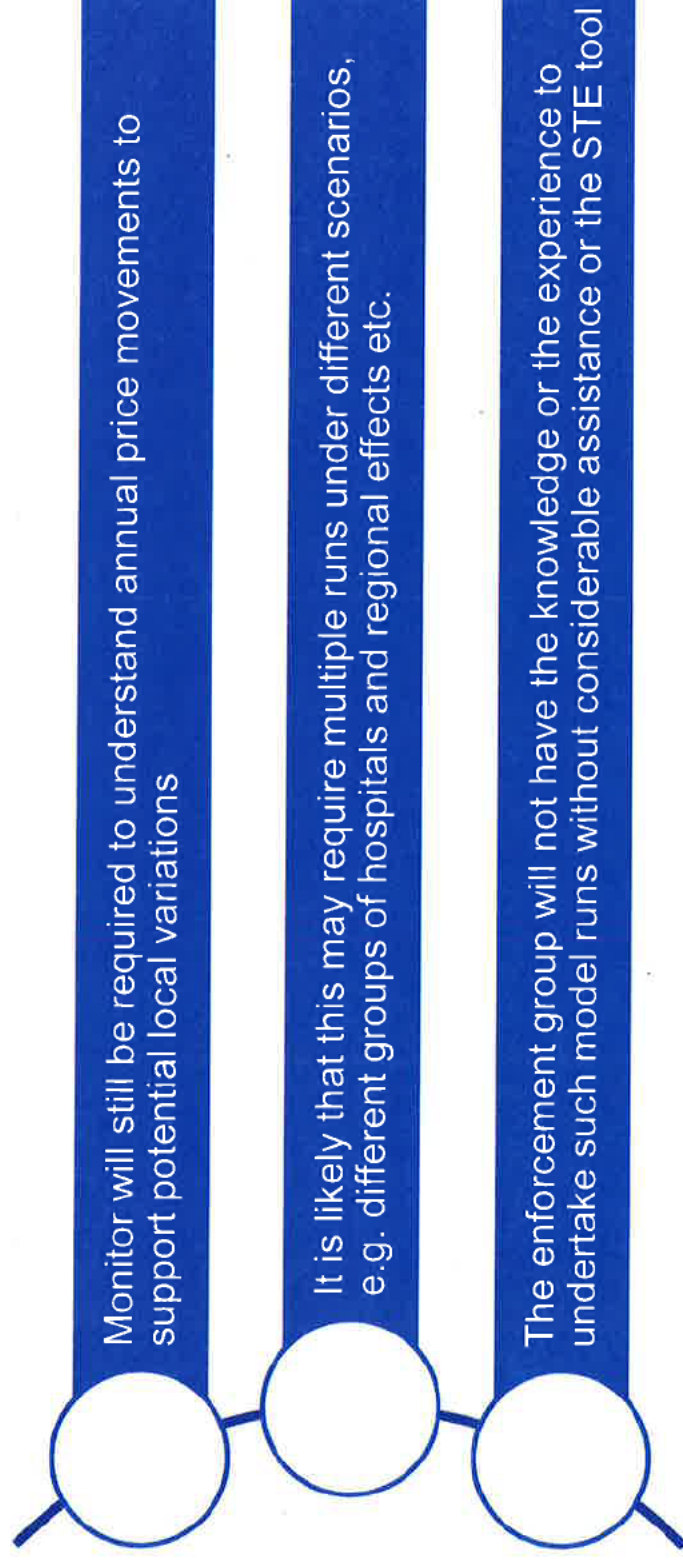
1 person = 2/day   6 people = 12/day

Max. APC runs (6 people) = 2640

Moving to this approach means you can accomplish every possible IA scenario and policy combination in advance

Strategic Tariff
The role of the strategic tariff under a multi-year tariff

The need for STE is likely to increase rather than decrease with any move towards multi-year tariffs because:

Monitor will still be required to understand annual price movements to support potential local variations

It is likely that this may require multiple runs under different scenarios, e.g. different groups of hospitals and regional effects etc.

The enforcement group will not have the knowledge or the experience to undertake such model runs without considerable assistance or the STE tool

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MIST – data loading automation framework

Data Architect

MIST – data loading automation framework

- Automates the end-to-end data loading process
- Reduces lead time to load new data sets from several weeks to several days
- Enforces standard development and data management patterns with full traceability
- Decreases testing overhead through automated testing
- Allows staff to focus on value-adding analytics work

MIST File Load Report

Report as of Date: 9-Mar-2016

Number of File Types on Backlog	36
Number of Working Days till April 1st	18
Files Rq'd per Day	2
Files Loaded v Committed	0

Av. Analysis Bklg Days	Average Dev Bklg	Average DIT Bklg Days	Average SIT Bklg Days	Average UAT Bklg	Average Bklg Prod Days
7	3	6	5		

Number of File Types in Each Stage

	Analysis	DEV	DIT	SIT	UAT	PROD
	32	2	1	1	0	0

File Type & Sub Type	Analysis Backlog Days	DEV Backlog Days	DIT Backlog Days	SIT Backlog Days	UAT Backlog Days	PROD Backlog Days
MIST_Load_Place_OrganisationAssessment	13					
MIST_Load_FriendsFamily_Inpatient	6					
MIST_Load_FriendsFamily_Mental	6					
MIST_Load_FriendsFamily_Maternity	6					

Wrap-up