

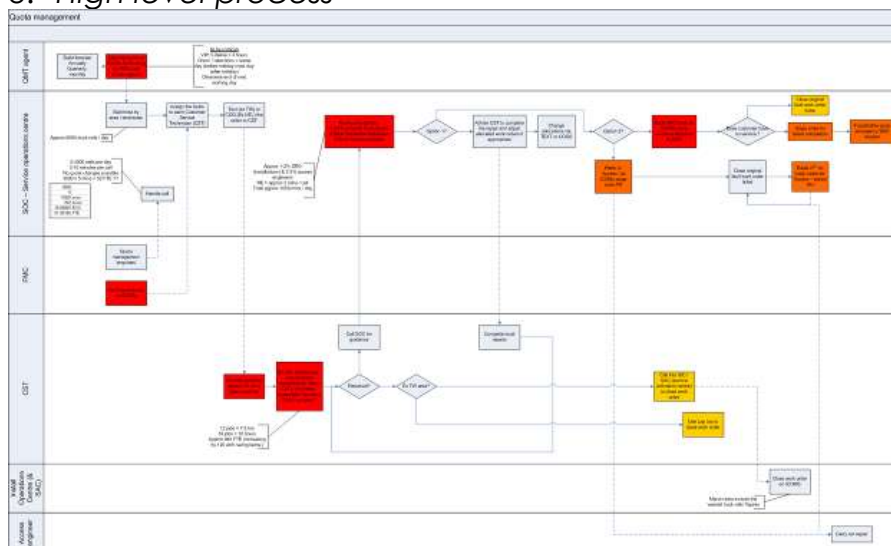
XXXXXXXXXX Service Operations Centre

GENERAL SUMMARY

Date: Jun 2008 – Oct 2008

INTRODUCTION

1. Improvement programme within the XXXXXXXXXX Service Operations Centre in the UK.
2. Basics:
 - a. *The Service Operations centre provides 'on the day' support for Customer Service Technicians (CSTs). In addition, the area creates and manages the daily work quota for each CST.*
 - b. *Located in XXXXXXXX*
 - c. *Shifts 8-7.30 Mon – Fri, 8-4.3 Sat, O/T as required for Sundays.*
 - d. *Approx 150 FTE for 2008,*
 - e. *Main task areas:*
 - f. *Quota & resource management./routing (throughout the day)*
 - g. *Service activation (via calls from service techs) – to be replaced by MWM*
 - h. *Crew chasing & Jeopardy management*
 - i. *Laptop Messages*
 - j. *Booking SRO s and referrals*
3. *High level process*



4. *Issues / challenges identified*
 - a. *High levels of 'failure demand' (e.g. 3-4000 incoming calls from FMC requesting quota changes, at 3 minutes per call, approx 42 FTE).*
 - b. *Currently limited data on overall incoming call types (Call coding), estimates at 10k per day*

- c. Erlang methodology is not being used within the telephony resource planning (although the centre is achieving overall PCA30 requirements - 85%)
 - d. There is a lack of standardisation for work order processing, and dealing with incoming enquiries.
 - e. CST 'behaviour' is inconsistent (e.g. Closing jobs), and although a forum for agreeing process changes is in place, there is no system for managing 'micro' change. A lack of 'Call Management' in terms of structure and content is reinforcing some areas of failure demand
 - f. MWM roll out is ongoing during 2008/2009, and should impact incoming call volumes for job closures
5. Proposed Approach
- a. The area is suitable for the application of a 13 week 'Model office - Bottled Process' (inclusive of Pilot and roll out).
 - b. Additional focus on incoming failure demand (calls) should aim to reduce the associated Waste, and associated FTE.
 - c. Development of best practices through Process User Groups (PUG's), and the installation of Model office 'infrastructure' would address many operational issues within this area.
 - d. Natural links into the IOC and TOC delivers an ideal opportunity to develop a further Lean Coach within the business, and this would reduce the overall cost of consulting resources.
 - e. Experience of similar Lean work streams within IOC, TOC and elsewhere indicates that a 20% productivity should be achievable (either as capacity release or FTE reduction).

SCOPE

1. The scope of the project is all activity within SOC excluding 'Post Calling' which is to be considered out of scope
2. 101 FTE initially in scope

AIM

The aim of the project was as follows:

- Reduce FTE headcount in line with 2008 budget requirements

EXECUTION

General Outline

4. The method employed to complete this project was the usual DMAIC philosophy. This breaks down any project into logical steps:

- a. Define: The project was assigned by the Steering Committee chaired by XXXXXXXX (Director of Quality). The aim is listed above.

Problem / Project definition:

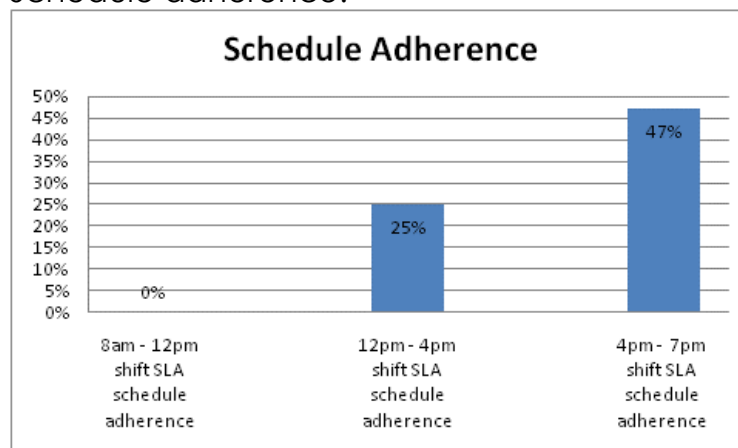
SOC currently has 101 in scope FTE – In line with current budget requirements, this needs to be reduced by 20%

- b. Measure: The following occurred in the Measure Phase:

i. Create a working project team.

ii. Gather baseline data

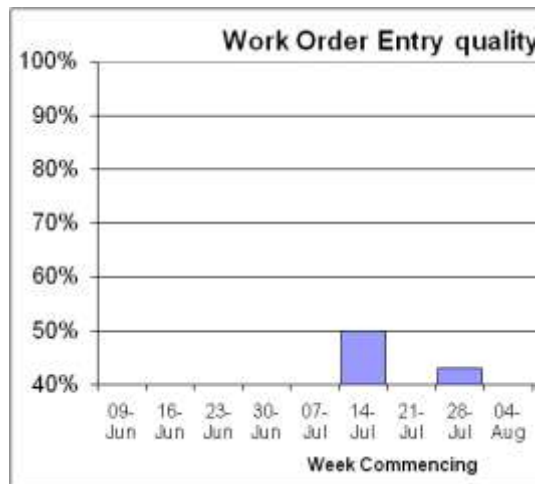
Schedule adherence:



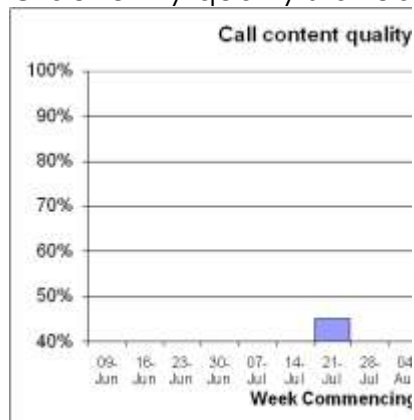
Incoming schedule adherence to SLA:

Quota data received from DMT (note SLA 13.30 daily)						
Date	Time received	Comments	SLA hit	DMT SLA adherence	0%	
16th July	13:35	More to follow	No			
17th July	13:59		No			
19th July	14:04		No			
21st July	14:06		No			
22nd July	14:19		No			
23rd July	13:49		No			
24th July	13:35		No			
25th July	13:48		No			
26th July	13:44		No			
28th July	14:08		No			
29th July	14:33		No			
30th July	14:23		No			

Quality of calls:

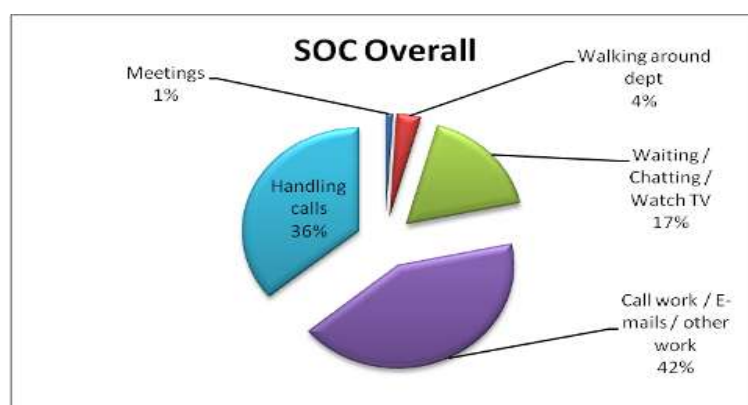


Order entry quality started out at 45 – 50%

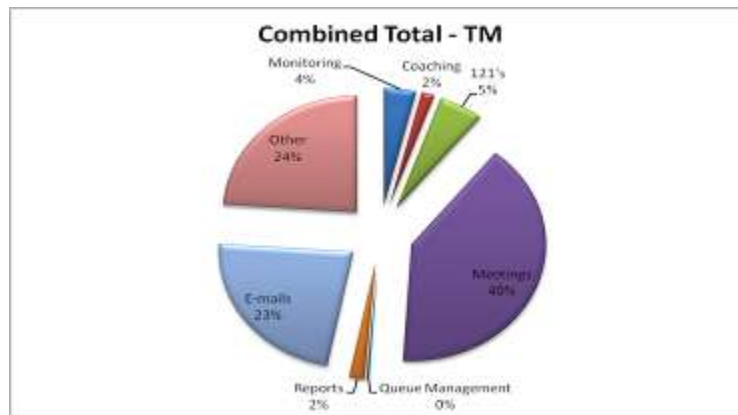


Call content quality started out at 45%

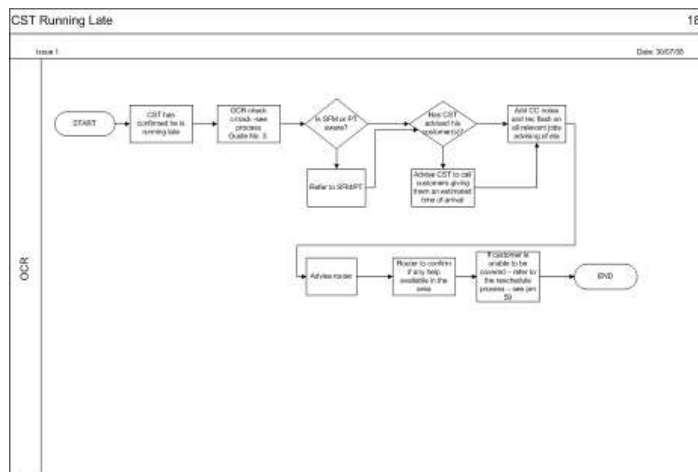
Activity Sampling Worker activity



Activity Logging – Team Managers

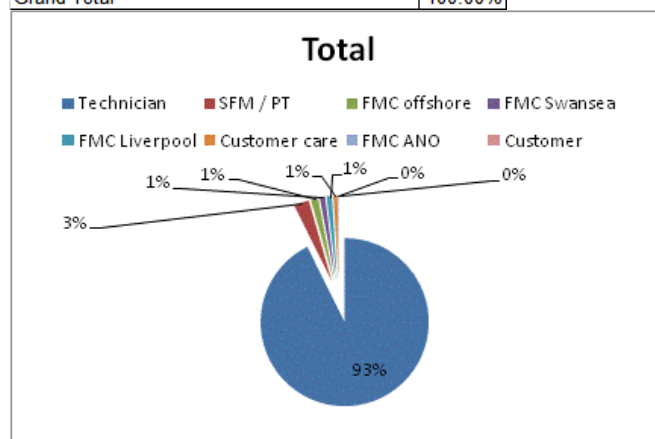


- iii. Map all processes
All processes were mapped using Cross functional flowcharts – example shown below:

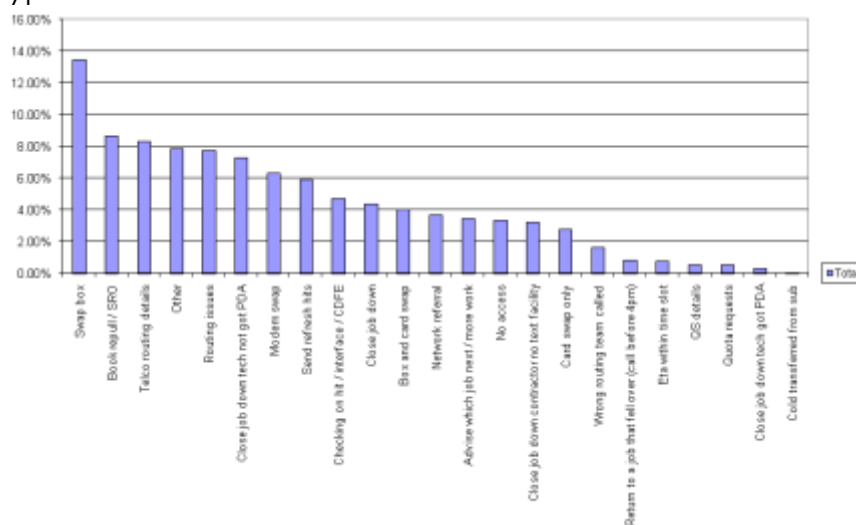


- iv. Measure types of incoming calls to determine Value adding versus non value adding

From	(All)
Actual Category	(All)
Sum of Total	
Reason	Total
Swap box	13.48%
Book repull / SRO	8.63%
Telco routing details	8.34%
Other	7.88%
Routing issues	7.74%
Close job down tech not got PDA	7.30%
Modem swap	6.31%
Send refresh hits	5.93%
Checking on hit / interface / CDFE	4.73%
Close job down	4.40%
Box and card swap	4.02%
Network referral	3.70%
Advise which job next / more work	3.48%
No access	3.32%
Close job down contractor no text facility	3.24%
Card swap only	2.77%
Wrong routing team called	1.65%
Return to a job that fell over (call before 4pm)	0.83%
Eta within time slot	0.78%
QS details	0.56%
Quota requests	0.56%
Close job down tech got PDA	0.31%
Cold transferred from sub	0.04%
Grand Total	100.00%



Above is shown the source of the calls and below is the Pareto of the types:



c. Analyse:

Team/Function	ADDON & PARTS EQUIPMENT
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Task #	Process Step	Potential Failure Mode	Potential Effect of Failure	R P V	Potential Causes	O C C	Current Controls	R P V
PM101A, T2-18	Take Machine No. 1 Area and tech ID's wait (K for address)	Tech gives wrong machine's area	IOC rep cannot find job, causing tech to sign in again		Tech error		IOC rep using tech ID on different machine	
		IOC rep chooses wrong machine	IOC rep cannot find job, causing tech to sign in again		Address error		IOC rep using tech ID on different machine	
		Logic not yet designed to lock	IOC rep cannot find job, causing tech to sign in again		Tech's supervisor has not yet completed reassigning jobs		IOC rep using account number instead	
		IOC rep types in tech ID incorrectly	IOC rep cannot find job, causing tech to sign in again		Address error		IOC rep performing tech ID	
PM101B, T2-18	A/C rep searches for property via account number	Tech does not have account number available	IOC rep cannot find job, causing tech to sign in again		Tech misplacement		IOC rep takes house number and postcode instead	
		Tech gives incorrect account number	IOC rep cannot find job, causing tech to sign in again		Tech error		IOC rep takes house number and postcode instead	
		IOC rep types in incorrect account number	IOC rep cannot find job, causing tech to sign in again		Address error		IOC rep takes house number and postcode instead	
PM101C	Select correct ID's	There are several ID's for someone. IOC rep chooses incorrect one	IOC rep address work is different to what tech has as his address. Tech address he cannot do that job		Address error		Back office checks not done 100%	

The high RPN items identified through the FMEA were then used as the basis for Standard Operating procedures (User Guides) as shown below:

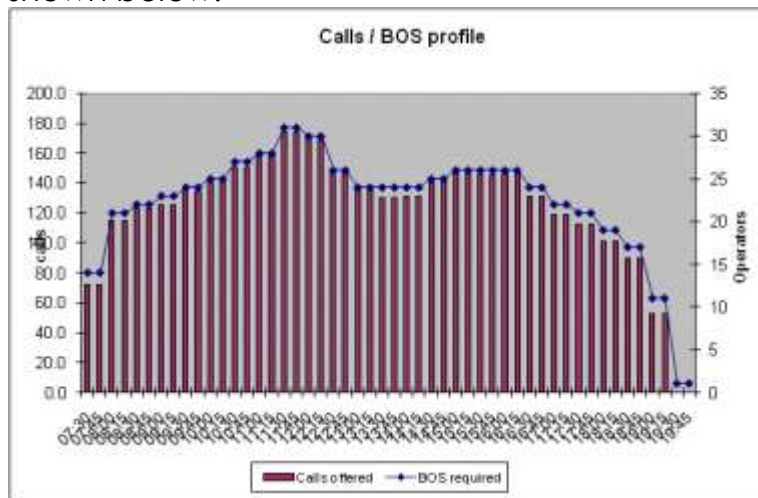
User Guide - CCP3																																																	
Version	Revision	Date	Range																																														
1																																																	
			CCP3 Covered		Depot SOC																																												
					Date: 07.04.08																																												
			CCP3 - Checking Balancing and Occurrences		Prepared by: E. Wilkins																																												
Ref No	CCP Name	PM Ref	Action Required	Impact of Failure	Additional Information																																												
CCP3	Check Occurrences	PM 4 - IV0 1 PM 4 - IV0 2 PM 5.1	Go to the Balancing Screen to find out what occurrences your equipment needs to be on.	If the occurrences are incorrect, the equipment will never receive the hit, and will not work. Ultimately, will delay the CST and another call into the SOC	<div>Site ID : 022</div> <div>GCM BA Cust. Info</div> <div>Maj Min</div>																																												
CCP3			Look at the occurrences on the Balancing Screen and note down the Category code (Ctg) and Occurrence Number for each piece of equipment.		<div>Refresh Pending Services</div> <table> <tr> <th>Ctg</th><th>Service</th><th>Qty</th><th>Occurrences</th></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> </table>	Ctg	Service	Qty	Occurrences	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3
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CCP3			Check the categories of the cards.		<div>Refresh Pending Services</div> <table> <tr> <th>Ctg</th><th>Service</th><th>Qty</th><th>Occurrences</th></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> </table> <p>The cards for these packages are going to be on Ctg G, Occurrence 1 and 2, so the cards will be on C1 and C2. We can write this down:</p>	Ctg	Service	Qty	Occurrences	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3
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CCP3			Check to see if any of the cards have V+ packages.		<div>Refresh Pending Services</div> <table> <tr> <th>Ctg</th><th>Service</th><th>Qty</th><th>Occurrences</th></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> <tr> <td>G</td><td>BA</td><td>1</td><td>3</td></tr> </table> <p>One of these sets of boxes & cards is going to be a V+ (The service code starts D20... and the package will say V+ - IV0...). This package is on Ctg G, Occurrence 1. The card in the V+ box will be C...</p>	Ctg	Service	Qty	Occurrences	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3	G	BA	1	3
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Workshops were also run to establish the optimum work organisation within each of the teams. (Shown below)
This would later form the basis of the work balance boards for the teams.



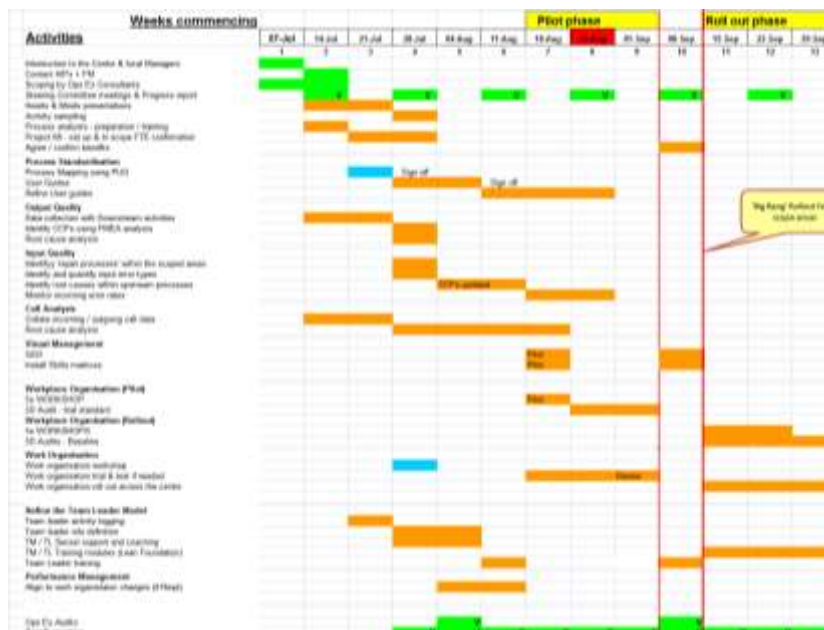
Analysis of the call profile revealed that the optimum number of FTE were not being used for call taking throughout the day.

The use of Erlang 'Queueing theory' methodology was not being employed within the planning and resourcing functions. A 'flat line' resourcing method was being used rather than the optimum shown below:



d. Improve: A pilot was run within SOC:

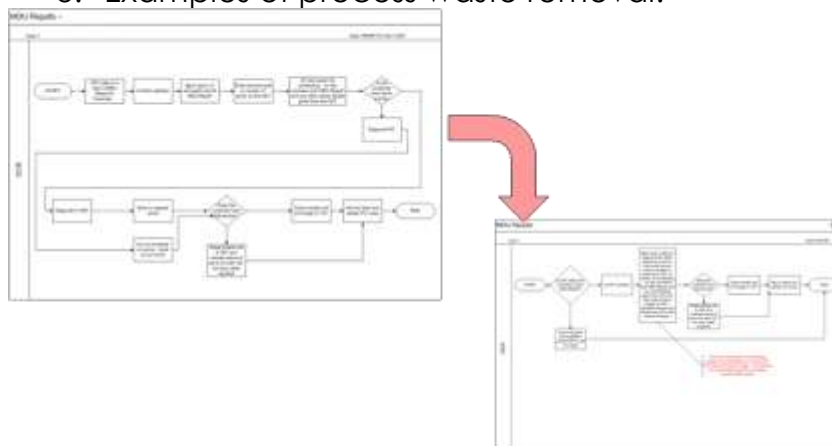
A detailed Pilot and Implementation plan was used for the Pilot stage and subsequent roll out (Shown below)

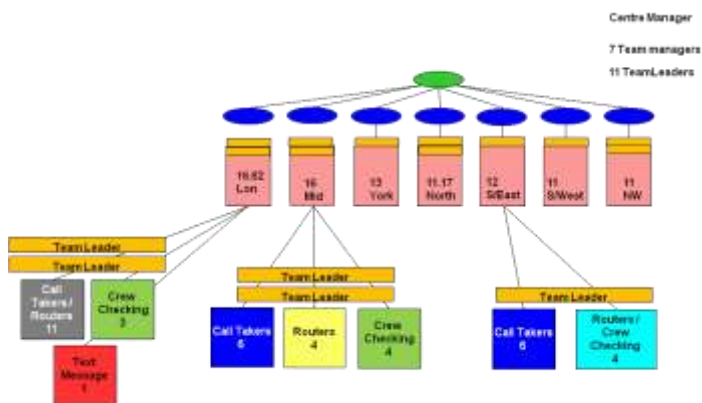
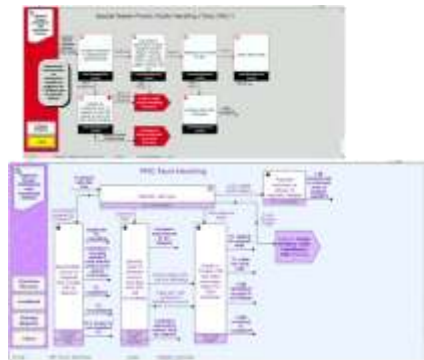
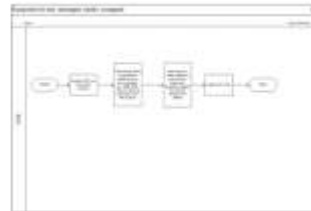
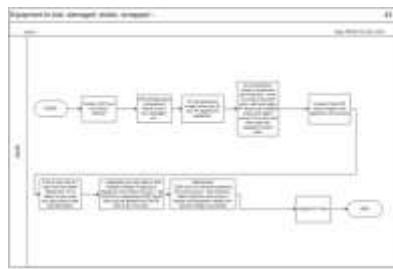


1. Observations from the Pilot

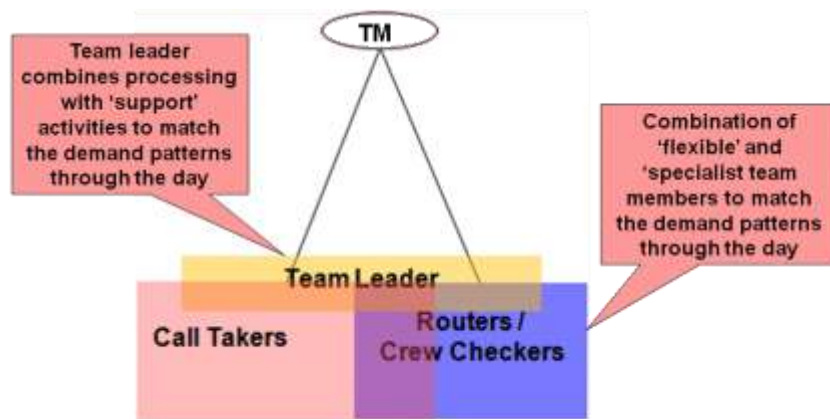
a. Previously teams were allowed to 'work their own way' with no standardisation

- b. London isn't 'Different'. The people in the London team operated differently based on behaviours inherited from former culture.
 - c. Remote call monitoring proved to be 'Tricky' – (Side by side will be the preferred option going forward.)
 - d. DMT quality 'repair costs' takes up to 10.5 processing FTE within the SOC (Mainly Team leaders)
 - e. Flexible working requires regular progress monitoring against the workflow board (Yamazumi) and escalation where staff cannot be re-allocated
2. Improvements' summary:
- a. NVA removed from processes during PUG (See 3 examples)
 - b. AHT reduction within Pilot team – 20% (Current 110 secs)
 - c. SLA Adherence 22% - 60% (Initial improvement. This was then impacted by Text going down and DMT)
 - d. Processes mapped to One Best Way (OBW), with Critical Control Points identified
 - e. Quality assurance scores:
 - f. Control group = 50% adherence
 - g. Pilot = 100% adherence
 - h. Skills matrices introduced into teams
 - i. QCD measures identified for the Teams
 - j. 5S
 - k. TM's & TL's trained and accredited to LERC 1A
 - l. Accurate capacity planning based on demand and REs, AHTs and Erlang analysis
 - m. Pilot Teams structured in standardised way with flexible working model
 - n. Workflow (Yamazumi) model / work organisation
3. Examples of process waste removal:





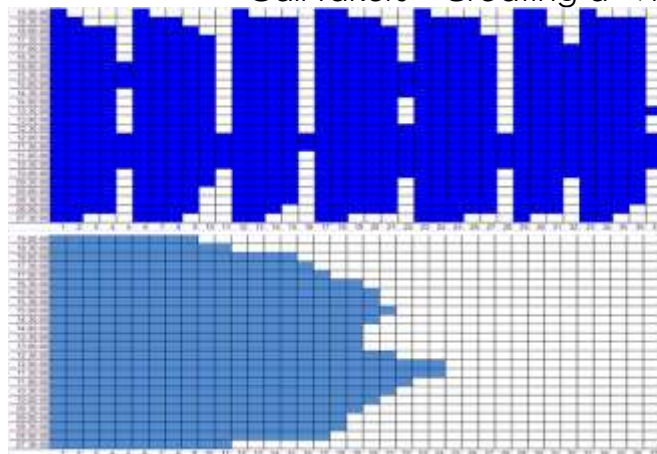
- New Team Structure put in place:



- Workflow – to manage resources and flex team members to match demand patterns



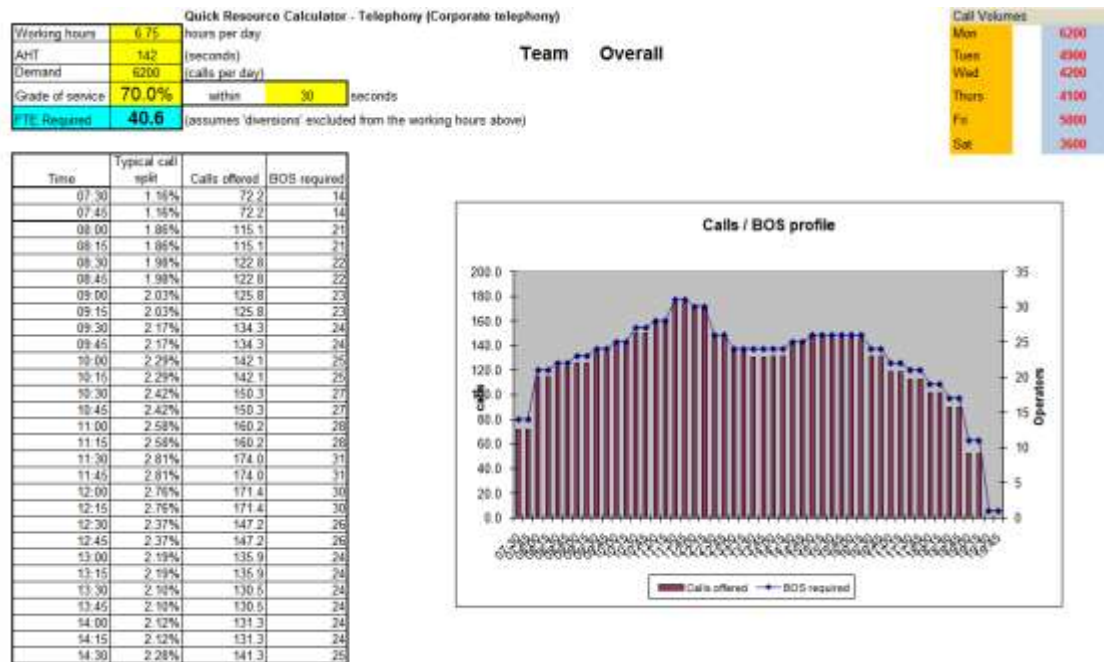
- Call takers – Creating a 'Virtual cloud'



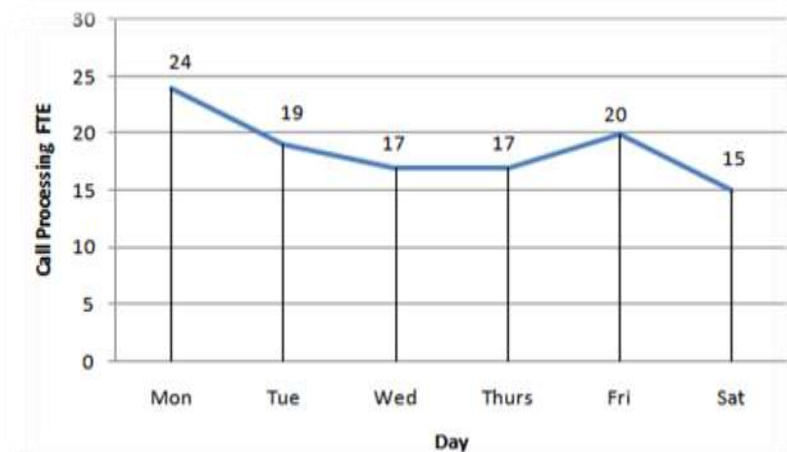
Call Takers required
With previous structure
= 37 across Centre at
peak time (61 FTE)

Call Takers required
With Primary /
Secondary structure
= 24 across Centre at
peak time (36 FTE)

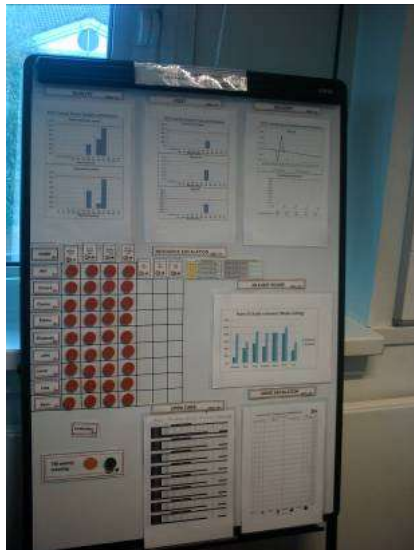
The above is based upon the optimum as calculated via Erlang Queueing Theory – GOS 70% PCA 30 with 27% shrinkage(See below)



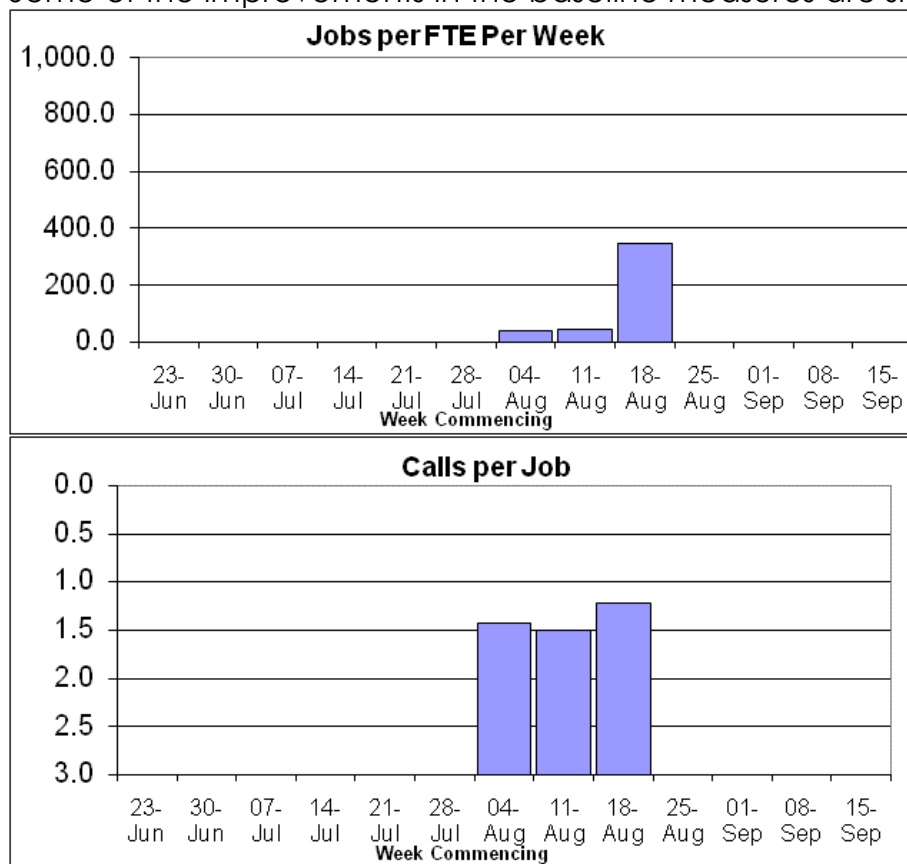
This also took into consideration the variation of volumes across different days of the week –

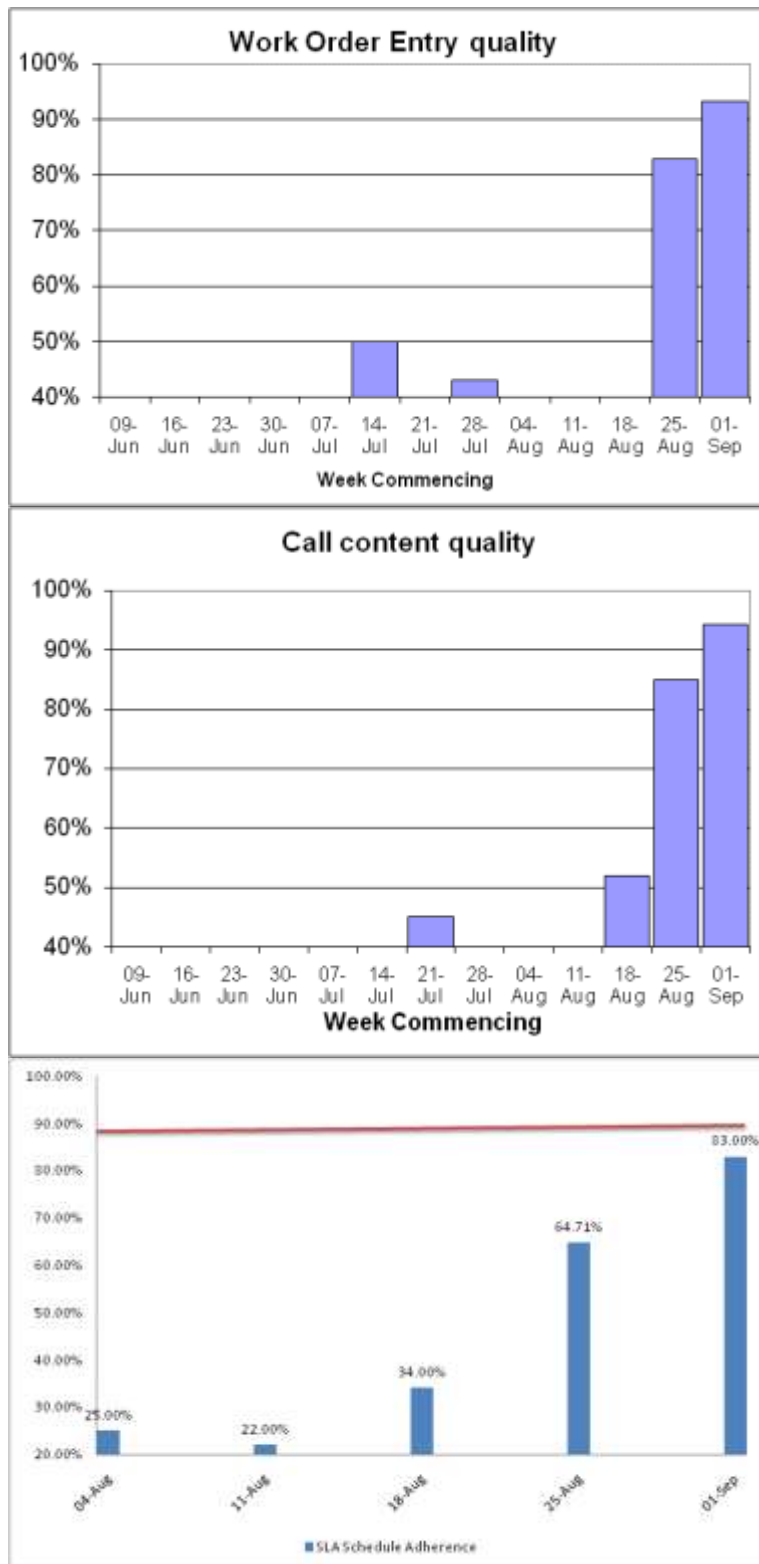


- QCD Team boards and skills matrices were installed in the teams as part of the Improve phase and these will also be used during the Control phase as a sustaining action. Examples shown below:



Some of the improvements in the baseline measures are shown below:

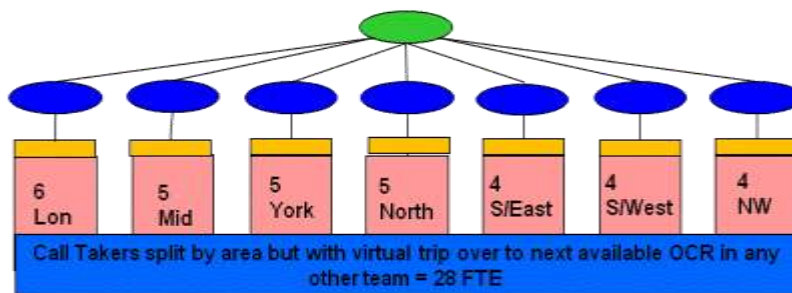




Team Managers were trained and accredited to LERC 1A Lean Basics (Accredited by Cardiff University) Leading a Lean Team.

They then trained their teams in standardised processes, Critical Control Points, User Guides, skills matrices.

- Work Organisation – Final State:

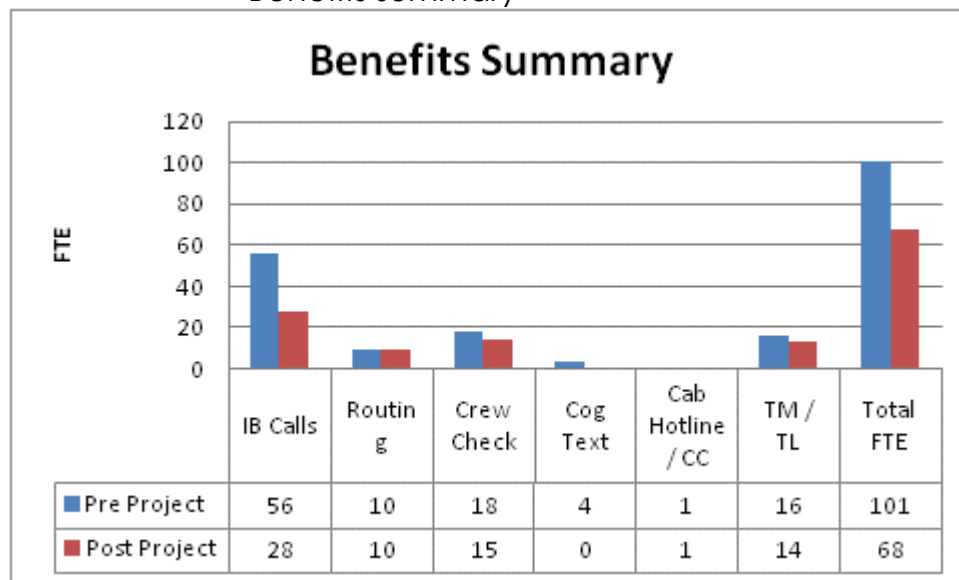


Centre Manager
7 Team managers
7 TeamLeaders
68 FTE

7 Team Leaders as teams are now smaller

Failure Demand calls reduced by 50% due to CAT and call management

- Benefits summary –



e. Control.

- The following measures have been implemented and are planned:
- Management Coach left in place (Xxxxxxx) is a Team Manager who was seconded full time to the project and has a full understanding of the principles that were employed during that time). She will be responsible for the following actions –
- Carrying out Gemba audits with the centre management team until such time that they become self sustaining
- Sustaining actions – see below:

What	Who	By When
Use Gemba Audit template weekly with TMs	EW	Mid Oct
5S cross Audit rota to be set up for PO's	EW	Mid Oct
Sustainability audit to be scheduled for SOC	RC	Oct
Deliver remaining 3 x 5S training sessions	JC/EW	Oct
Refresher training (based on Leading Lean Team) to TMs as gaps identified in TM skills matrix on Centre Board following Sensei support from EW	JC	Oct
CAT sessions to focus on Failure Demand	JC	?
EW incl. in monthly Lean Coach meetings	RC/EW	Oct
Introduce 'new' enhanced 5S audit at SOC	RC/EW	Oct
Develop 18 month SOC sustain plan	RC/EW	Oct
Add map locations to team layout visuals	RC/EW	Oct
Add TM 'Model Desk' visual to 5S inventory	RC/EW	Oct
Ensure compliance with QA requirements (in particular call monitoring)	RC/EW	Oct
Further analysis of self induced Failure Demand	RC/EW	Oct

SUMMARY

8. This project has been a success due to the hard work of everyone involved. The fact that XX have now appointed a 'Lean Management Coach' in it's SOC to ensure the 'Control' phase of the programme is sustained is testament to it's commitment to ensuring the Lean Sigma philosophy grows within the organisation.

Paul Swift – Lead Consultant XXXXXXXXXX Service Operations Centre
Lean Sigma Programme.