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SMART WORK SCHEDULING IN WATER/UTILITIES

South Staffs & Cambridge Water

Roger Kennedy
BPD Zenith

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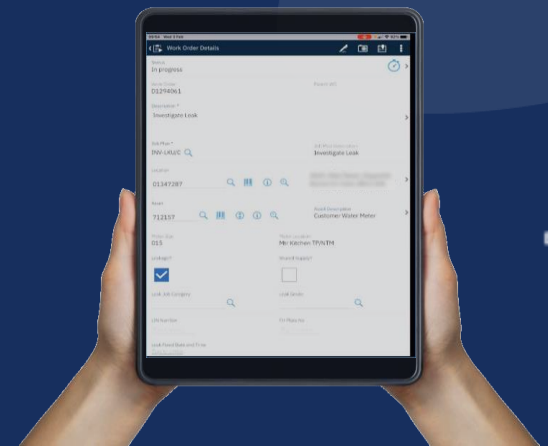

MAXIMO ENERGY USER FORUM

BPD ZENITH

Aberdeen | Thursday 30th June 2022

Oil&Gas | Renewables | Utilities

Agenda

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Smart Work Scheduling in Water/Utilities

- SSC - Background & Business Needs
- BPD - Approach & Tech Stack
- Scheduling Challenges
- Scheduling Optimisation - Availability, Location & Priority
- Anywhere Mobile Deployment
- Result & Benefits
- Next steps
- Q&A

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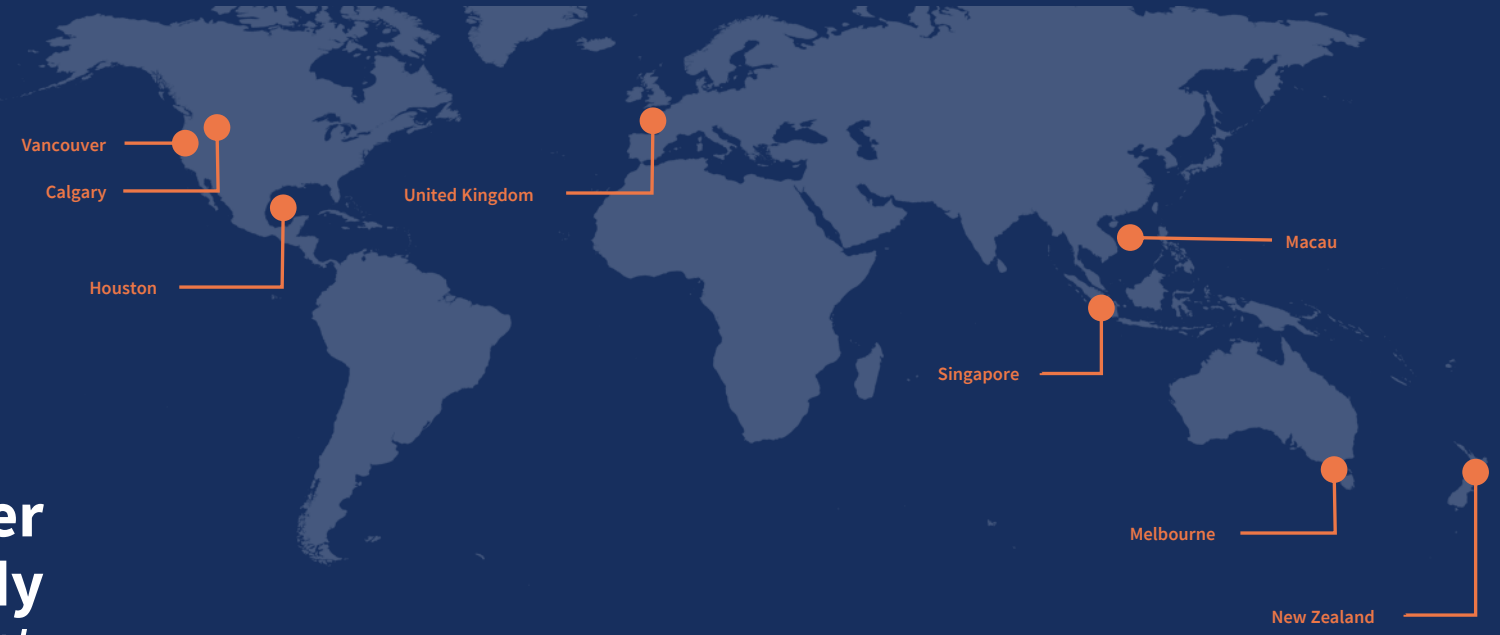
Introductions



Roger Kennedy
BPD Zenith

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- Business Development Manager, Derby, UK
- 4 years of working with Maximo at BPD Zenith

About BPD...

- In the EAM space for almost 30 years
- IBM Business Partner for over 15 years
- Wide range of industry experience covering every continent

SSC - Background

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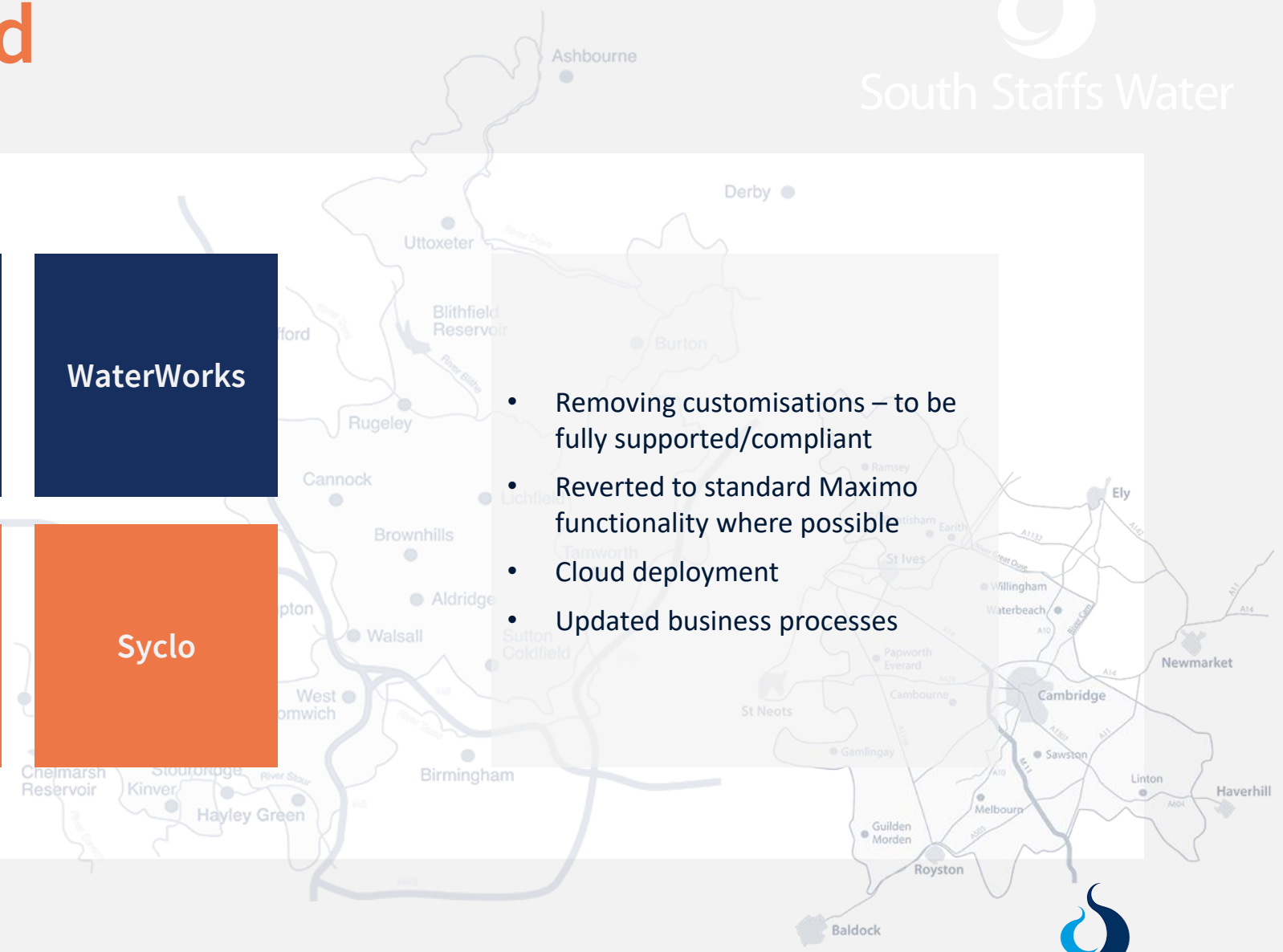
EAM Solutions
previously used

- IBM Maximo v7.1
- WaterWorks

Mobile Solutions
previously used

- EZMaxMobile
- Syclo

- Removing customisations – to be fully supported/compliant
- Reverted to standard Maximo functionality where possible
- Cloud deployment
- Updated business processes



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SSC Business Needs

Different processes for different areas…

- Some job tasks delivered by **mobile**
- Some job tasks delivered by **email**
- Some job tasks delivered **over the phone**
- Each day job tasks are planned and allocated **manually**
- Tracking progress of work also a **manual process**

As part of the upgrade project SSC wanted to replace basic, repetitive tasks and those prone to human error with automation - freeing-up key resources to be utilised more efficiently

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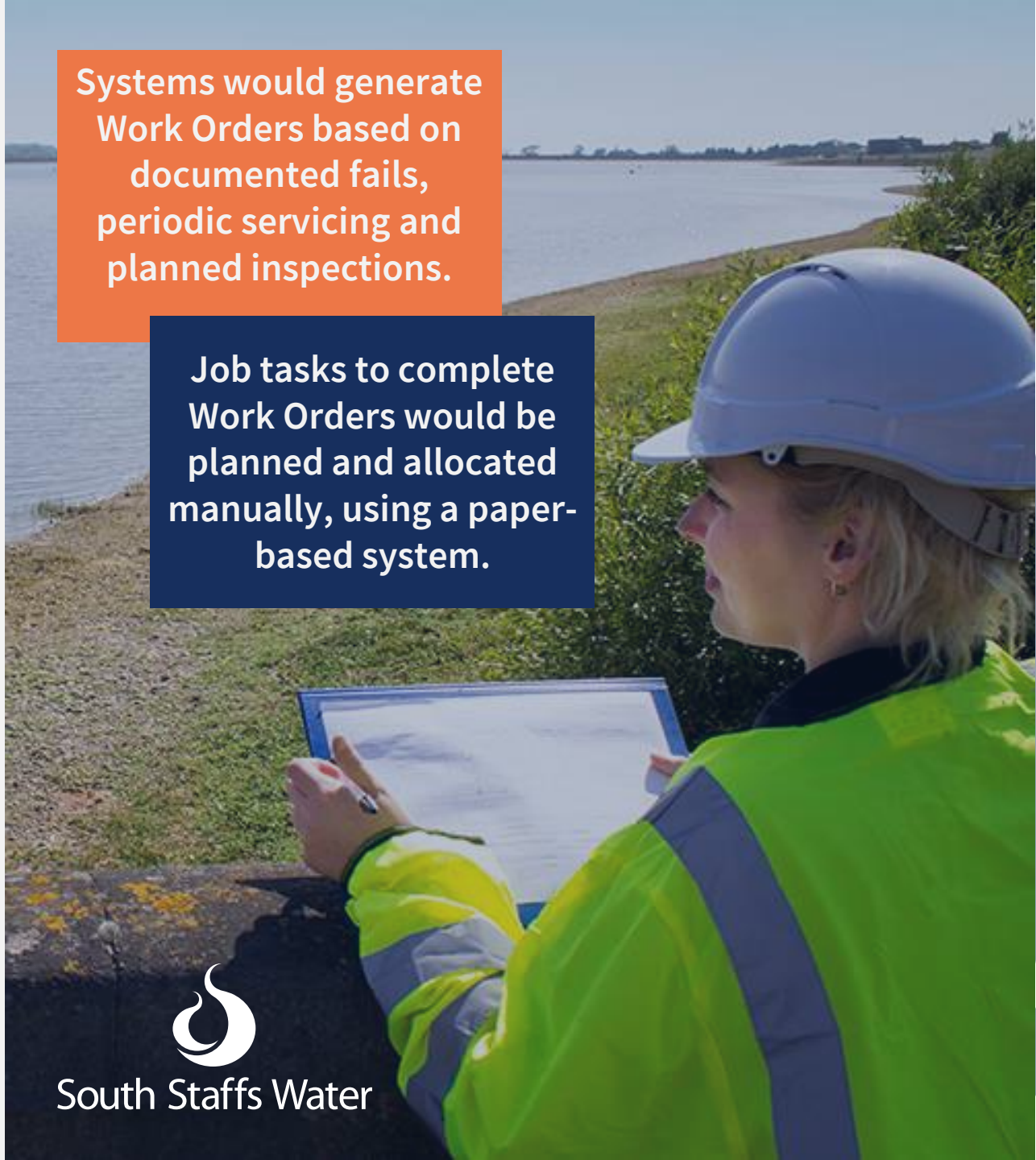

SSC Business Needs – BPD's approach

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Discovery Phase

By understanding SSC processes and use of desktop Maximo, we can look at better ways to leverage Maximo and Anywhere to achieve their desired outcome.

'Hands-on' approach - in the office

-Learn SSC's current processes and culture across all departments
-Identify process pain points
-Understand how these processes are implemented.
-Identify potential improvements

Out in the field - with SSC engineers

-Learn how Customer Network Technicians operate and document their work activity.
-Identify 'in-the-field' pain points

Upgrade Tech Stack

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- ✓ Latest version of Maximo - 7.6.1.x
- ✓ BPD MaxiCloud (Azure)
- ✓ Scheduler Plus
- ✓ Optimisation Engine
- ✓ Mobile Solution (Anywhere)
- ✓ Spatial

IBM MAXIMO

MAXI CLOUD POWERED BY BPD ZENITH

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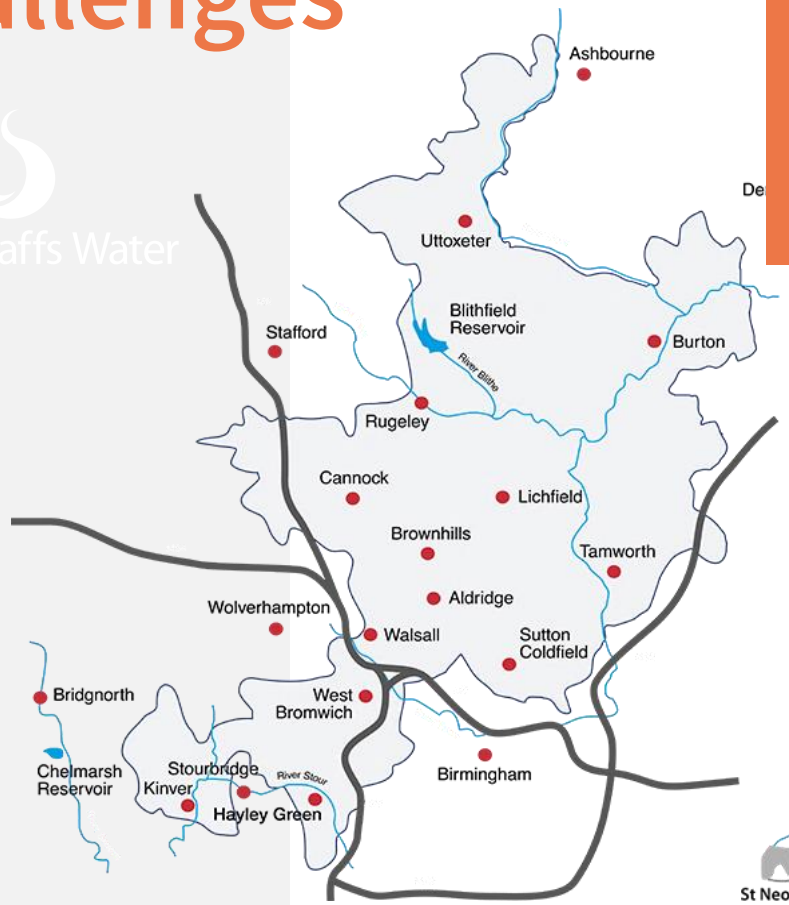
SSC Scheduling Challenges

SSC Work Orders (jobs) have different levels of priority, from emergency repairs to regular inspections…

- Emergency jobs must be actioned *immediately* according to SLA
- jobs can be time specific and by appointment
- Some jobs have lower priority and can be more flexible

Priority Levels must be considered when allocating jobs to Field Service Engineers

PRIORITY 1 (P1)	PRIORITY 2 (P2)	PRIORITY 3 (P3)
Emergency *-attend immediately!*	Must attend within 24hrs	Must attend within 72hrs



With such large geographical areas to cover, Field Service Engineers often have to travel considerable distances to complete their jobs…

Travel time can really impact the number of jobs an engineer can complete in one day!

Travel times must also be considered when allocating jobs to Field Service Engineers

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SSC Scheduling – addressing the challenge…

- **Graphical Scheduler** - manual scheduling of work, along with resource levelling
- **Graphical Assignment -** Assign work based on skills and availability
- **Optimization Engine** - Optimize work based on *Priority*, *Target start date*, *Target finish date*, *Start no earlier than* and *Finish no later than*
- **Appointment Books** - modified for SSC so that a fixed, precise time-slot can be given to a customer if required.

BPD Zenith leveraged the latest functionality from IBM Maximo, Anywhere, and tools such as Scheduler Plus to offer an effective work allocation solution…

EXAMPLE (1 DAY):

- 3 ENGINEERS (Same skill level for example) =3 x 8hr shifts
- 24 WORK ORDERS (allow 45mins per WO) =18 Hours of work

- *Significant workload management challenges*

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1 SSC Scheduling - *Based on Availability Only*

CONSIDERED:

✓ *Resource Availability*

NOT CONSIDERED:

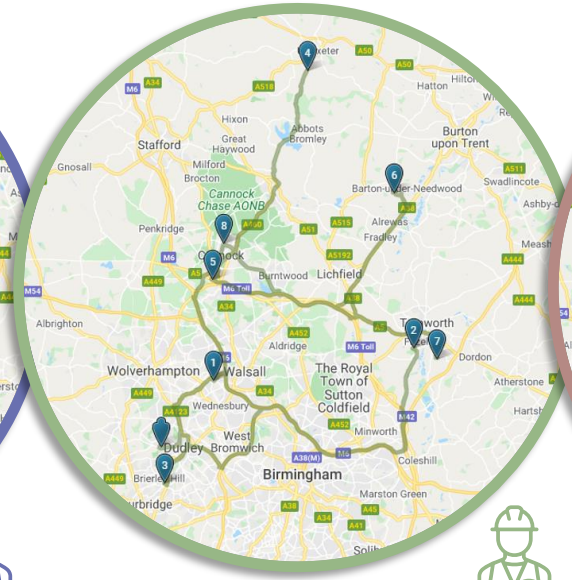
✗ *Job Location*

✗ *Job Priority*

ENGINEER 1

Distance Covered: **162.5 miles**

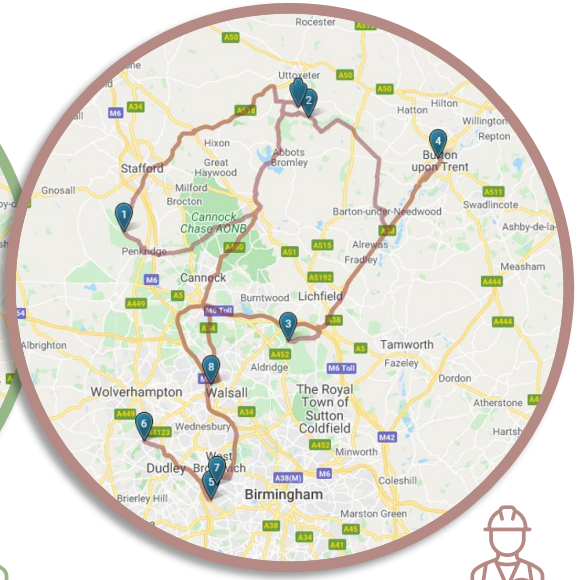
Travel Time: **4.4 Hours**



ENGINEER 2

Distance Covered: **196.2 miles**

Travel Time: **4.5 Hours**



ENGINEER 3

Distance Covered: **172.6 miles**

Travel Time: **5.2 Hours**

3 ENGINEERS
24 WORK ORDERS (WO's) – 45mins
=18 HOURS OF WORK

✓ Total Distance Covered: **531.3 miles**

✓ Total Travel Time: **14 Hours**

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2 SSC Scheduling - *Based on Availability & Location*

CONSIDERED:

✓ *Resource Availability*

✓ *Job Location*

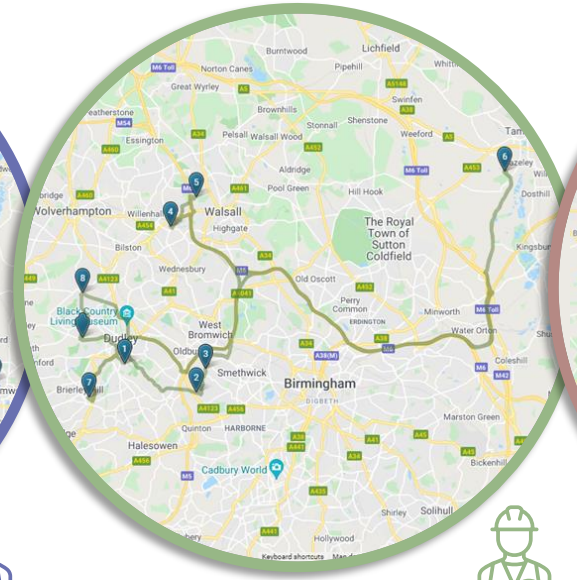
NOT CONSIDERED:

✗ *Job Priority*

ENGINEER 1

Distance Covered: **68 miles**

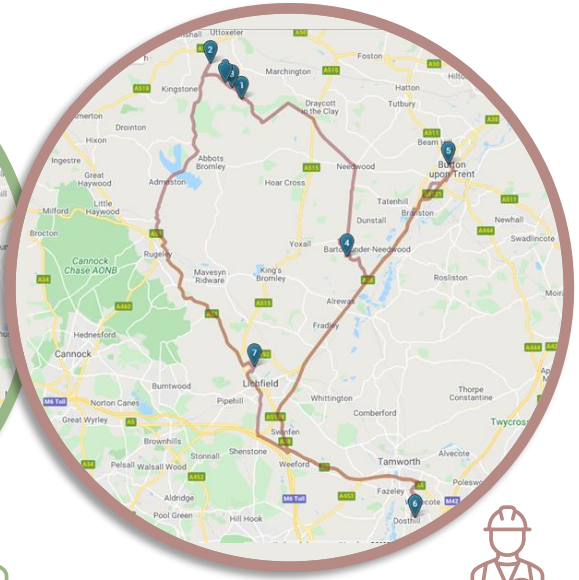
Travel Time: **2.2 Hours**



ENGINEER 2

Distance Covered: **84.7 miles**

Travel Time: **2.7 Hours**



ENGINEER 3

Distance Covered: **79.7 miles**

Travel Time: **2.3 Hours**

3 ENGINEERS
24 WORK ORDERS (WO's) – 45mins
=18 HOURS OF WORK

✓ Total Distance Covered: **232.4 miles**

✓ Total Travel Time: **7.2 Hours**

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3 SSC Scheduling - *Based on Availability, Location & 1 Fixed Appointment*

CONSIDERED:

- ✓ *Resource availability*
- ✓ *Job Location*
- ✓ ***1 Fixed Appointment***

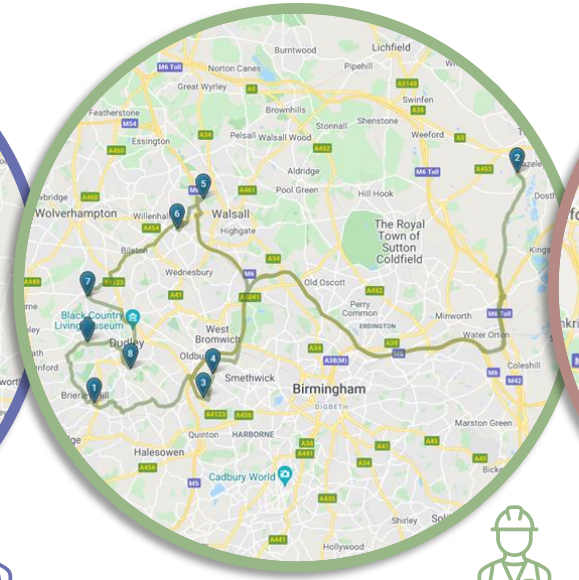
NOT CONSIDERED:

- ✗ *Job Priority*

ENGINEER 1

Distance Covered: **67.6 miles**

Travel Time: **2.1 Hours**



ENGINEER 2

Distance Covered: **87.1 miles**

Travel Time: **2.8 Hours**

ENGINEER 3

Distance Covered: **85.2 miles**

Travel Time: **2.6 Hours**

3 ENGINEERS
24 WORK ORDERS (WO's) – 45mins
=18 HOURS OF WORK

- ✓ Total Distance Covered: **239.9 miles**
- ✓ Total Travel Time: **7.5 Hours**

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4 SSC Scheduling - *Based on Availability, Location & Priority*

FULLY OPTIMISED!

CONSIDERED:

- ✓ *Resource availability*
- ✓ *Job Location*
- ✓ *Job Priority & Fixed Appointments*

ENGINEER 1

Distance Covered: **91.5 miles**

Travel Time: **2.7 Hours**

ENGINEER 2

Distance Covered: **73.1 miles**

Travel Time: **2.9 Hours**

ENGINEER 3

Distance Covered: **77.3 miles**

Travel Time: **2.4 Hours**

3 ENGINEERS
24 WORK ORDERS (WO's) – 45mins
=18 HOURS OF WORK

- ✓ Total Distance Covered: **241.9 miles**
- ✓ Total Travel Time: **7.9 Hours**

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SSC Scheduling – *Optimisation summary…*

EXAMPLE (1 DAY):

- 3 ENGINEERS (Same skill level for example) =3 x 8hr shifts
- 24 WORK ORDERS (allow 45mins per WO) =18 Hours of work

Significant workload management challenges

	1 Resource Availability ONLY		2 Inc. Job Location		3 Inc. 1 Fixed Appointment		FULLY OPTIMISED! 4 Inc. Job Priority	
	Miles	Time	Miles	Time	Miles	Time	Miles	Time
1	**162.5**	4.4	**68.0**	2.2	**67.6**	2.1	**91.5**	2.7
2	**196.2**	4.5	**84.7**	2.7	**87.1**	2.8	**73.1**	2.9
3	**172.6**	5.2	**79.7**	2.3	**85.2**	2.6	**77.3**	2.4
TOTAL	**531.3**	14.0	**232.4**	7.2	**239.9**	7.5	**241.9**	7.9

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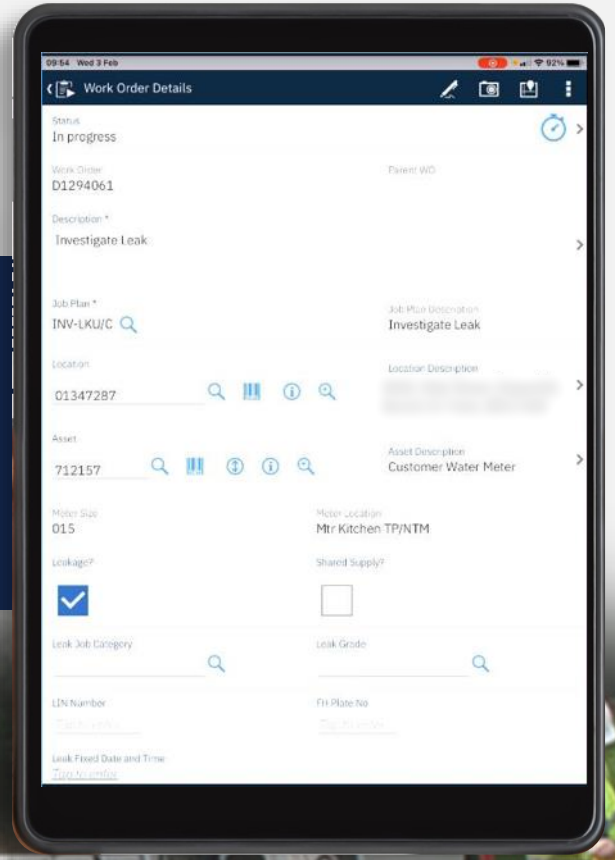
How does BPD deploy Anywhere for SSC?

With optimisation in place, BPD can then look at how the interaction with Maximo translates to a smaller mobile screen…

Simply ‘mirroring’ a desktop will not cut it – we need to configure the user applications to suit user needs by:

- ✓ **Aligning processes**, terminology, etc. with desktop for a familiar look & feel
- ✓ **Getting rid of unused options** that take up valuable screen space
- ✓ Making the essential fields/functions appear at **the right time**
- ✓ **Solid/Reliable** - easy to access and use, **on *and* offline**



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Results & Benefits

Jobs dispatched to Field Service Engineers **up circa 20%**

- from 4.5 WOs to 5.5 WOs per day

…Significantly when we removed *'in system geographical boundaries'*
- team productivity **DOUBLED!**
- hints at capability.

*(*5 engineers = 25 extra jobs per week*
=100 extra customer issues dealt with each month!)

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Results & Benefits

Optimisation is increasing the accuracy of the work dispatched…
– 26% reduction in cancelled WOs

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Results & Benefits

Optimisation & SLA adherence have reduced response times to attend investigative jobs by **20%**

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QUESTIONS

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