

**LB Foster.**

# Welcome to LB Foster Digital Solutions

July 2022



# Presentation Contents

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- > Meet the team (DM)
- > Our capabilities (GK)
- > Project Process (GK)
- > Key products
  - Inform (GK)
    - Media
    - Messaging (+BSL)
    - Content
    - Interactive (+Way Finder)
  - Anatomy (DM)
    - Backbone (DM)
- > Re-cap

# Introduction

# 01

# LB Foster software division

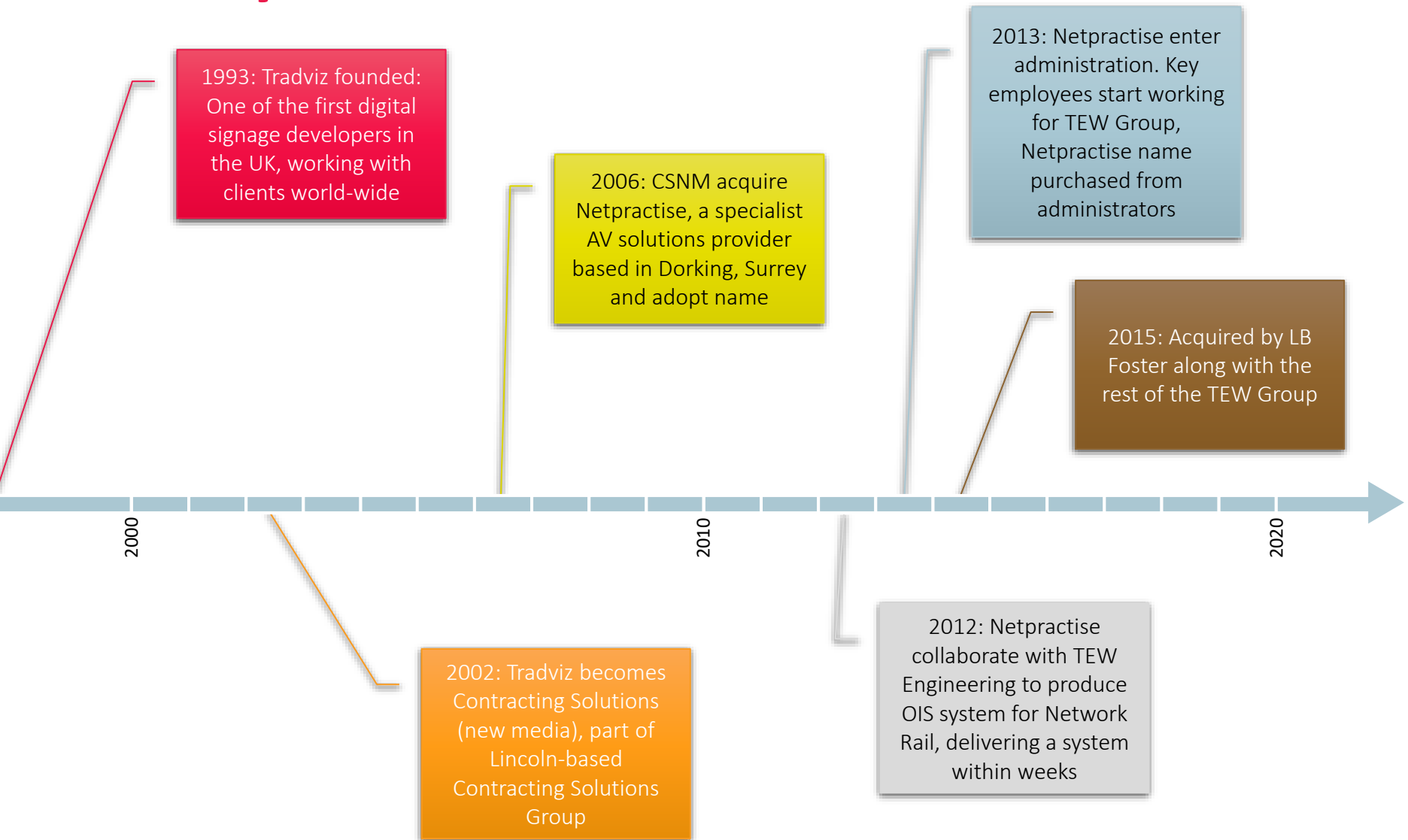


## Lincoln office

Team of 11 people working on:

- Software project management
- Software development
- Software testing / QA
- Support / helpdesk
- Sales support

# History



# Our experience

- > 20+ years experience developing software solutions for a wide-range of industries
  - Selling direct to customers and via re-sellers & technology partners
  - Implementing and supporting software estates in 14 countries on 4 continents
  - Digital Signage, Customer Flow Management, Asset Management, AV & telepresence, Wayfinding, On-board Information, systems integrations



# Past Projects

# BOA – Team GB

- > Fit out of BOA offices with Visual Comms
- > Complete audio visual installation with technical support at Team GB House during the London 2012 Games
- > Infrastructure
- > Screens
- > Signage Software
- > Custom Content
- > IPTV





# JCDecaux - BAA

- > BAA owned airports
- > Advertising content from JCD customers
- > 7 Airports
- > 800 Screens
- > 11m project
- > Frame Perfect Sync between screens
- > Highly stable
- > Centrally controlled
- > Dynamic content showing weather & live sports updates (eg: Wimbledon scores)



# HSBC

- > GMO video wall / interactive apps
- > Canary Wharf office signage
- > Hong Kong, China, India & Saudi Arabia signage
- > Trading floor share tickers
- > CTS call centre stats
- > Desktop IPTV

	Agent	Status	Reason	Time
STAFFED 2	Alex Robertson	ACW		00:01
CALL IN 2	Andrew Higgins	AUX	Manager Approval	15:28
CALL OUT 2	Sam Price	ACW		16:31
ACW 2	John Hume	ACW		16:33
AUX 2	John Hume	ACW		16:33
AUX 2	John Hume	ACW		16:33
AVAIL 2	John Hume	ACW		16:33
OTHER 2	John Hume	ACW		16:33

HSBC  
11:07 Friday 20th April 2009

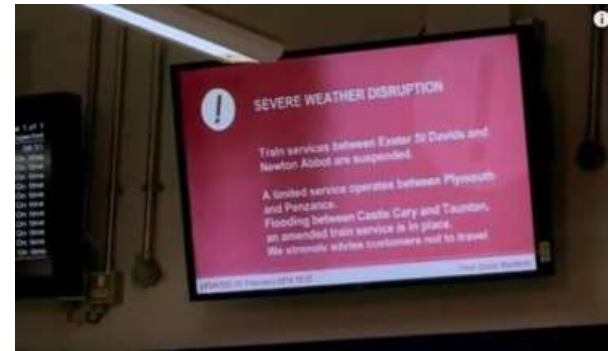
STAFFED 1: 29  
OFFLINE 1: 79  
AUX 1: 73  
ACW 1: 8  
CALL OUT 1: 262

Video inset showing office interior.



# Network Rail - OIS

- > All Network Rail owned stations (77)
- > Wall / Ceiling mounted screens (300+)
- > Display of station / network information
- > Operational Information
- > Used for PED traffic flow around 2012 Olympic locations
  - Custom directional wayfinding linked to live events



# BAE Systems – F35 Production

- > Specialised signage project
- > Operator order book display system, directly linked to in house databases
- > Titanium milling machine dashboards
- > Custom software to comply with Lockheed and BAE data security requirements



Wk 49 | 10:20 BAE SYSTEMS

### SMC AMENITIES

#### WORK TO LIST - JF1

ORDER	PRODUCT	DESCRIPTION	COMMENT	DWELL LOC	START	STATUS	
12877212	250482215-0008	BUSH ASSY 609.75 FITTING VT RH		8.05	ALA	28/11/2012	ON TIME
12874955	2ASH12033-0013	BUSH ASSY PBD AFT BEAM - LH		20.85	AWK	31/10/2012	ON TIME
12877079	250482215-0008	BUSH ASSY 609.75 FITTING VT RH	BUSHING	8.05	AWA	14/11/2012	ON TIME
12877080	2ASH12033-0011	BUSH ASSY FRAME FS609.75 LH	BUSHING	8.05	AWA	21/11/2012	ON TIME
12877081	2ASH12033-0013	BUSH ASSY PBD AFT BEAM - RH	WTU DET 12040295	18.85	AWK	21/11/2012	ON TIME
12876329	2ASH12033-0011	BUSH ASSY FRAME FS609.75 LH	BUSHING	7.05	AWA	03/12/2012	ON TIME
12880014	2ASH12034-0007	BUSH ASSY, RICKED KEEL - LH		0.05	AWK	04/12/2012	ON TIME
12880015	2ASH12034-0007	BUSH ASSY, RICKED KEEL - LH		0.05	AWK	05/12/2012	ON TIME
12880016	2ASH12034-0008	BUSH ASSY, RICKED KEEL - RH		0.05	AWK	05/12/2012	ON TIME
12879183	2ASH12033-0014	BUSH ASSY PBD AFT BEAM - RH	BUSHING	8.05	AWA	05/12/2012	ON TIME

... ? days until AFT IAL ..../.. 2 days until pulse ..../.. EMP IAL Commission in ? Days

# La Caixa Bank – Branch Signage

- > Media / branch profiling for automated distribution of content based on profile
- > Video wall and (next to) ATM displays
- > 2000+ displays
- > Operated and Supported by Fujitsu Spain



# New Delhi Metro - Thales

- > Covering all Metro stations
- > Back office and player software
- > Custom build support
- > Shelling of Thales platform display application within player software
- > Synchronised with audio announcement system





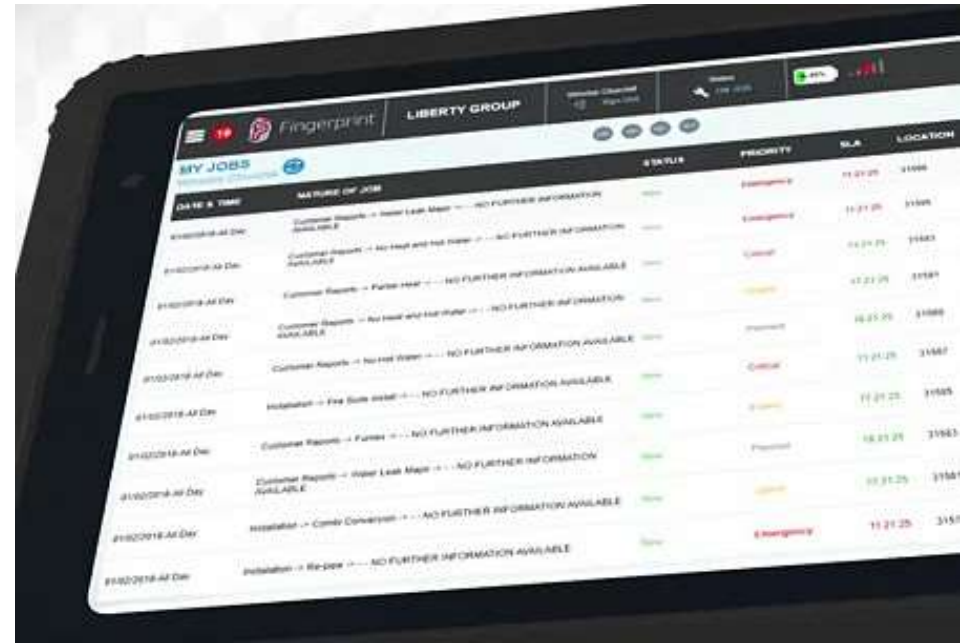
# Royal Mail

- > In Depot Visual Communications
- > Every sorting office in the UK
- > Timed communications from leadership
- > Video on demand Training System for employees



# Liberty Gas Group - Fingerprint

- > Tablet rollout to 500+ field engineers
- > Bespoke software for management of field engineer work
- > Integration into customers existing back office solution
- > End to end management and support





# Opportunities

> Sales should focus on:

- Product sales: functionality provided as-is
- Revenue comes from license fees and ongoing support & maintenance contracts
- Low project / professional services costs



Customer

I need a digital signage /  
messaging / queue  
management / asset  
maintenance system

# Opportunities

> Sales should focus on:

- Project sales: new solutions & functionality developed for a customer
- Revenue comes from development fees and ongoing support & maintenance contracts
- Higher professional services profit, but more costs



Customer



# Opportunities

> Sales should focus on:

- Hybrid sales: new functionality added to existing products
- Revenue comes from development fees and module licensing
- Improves the product for all customers and enables future sales



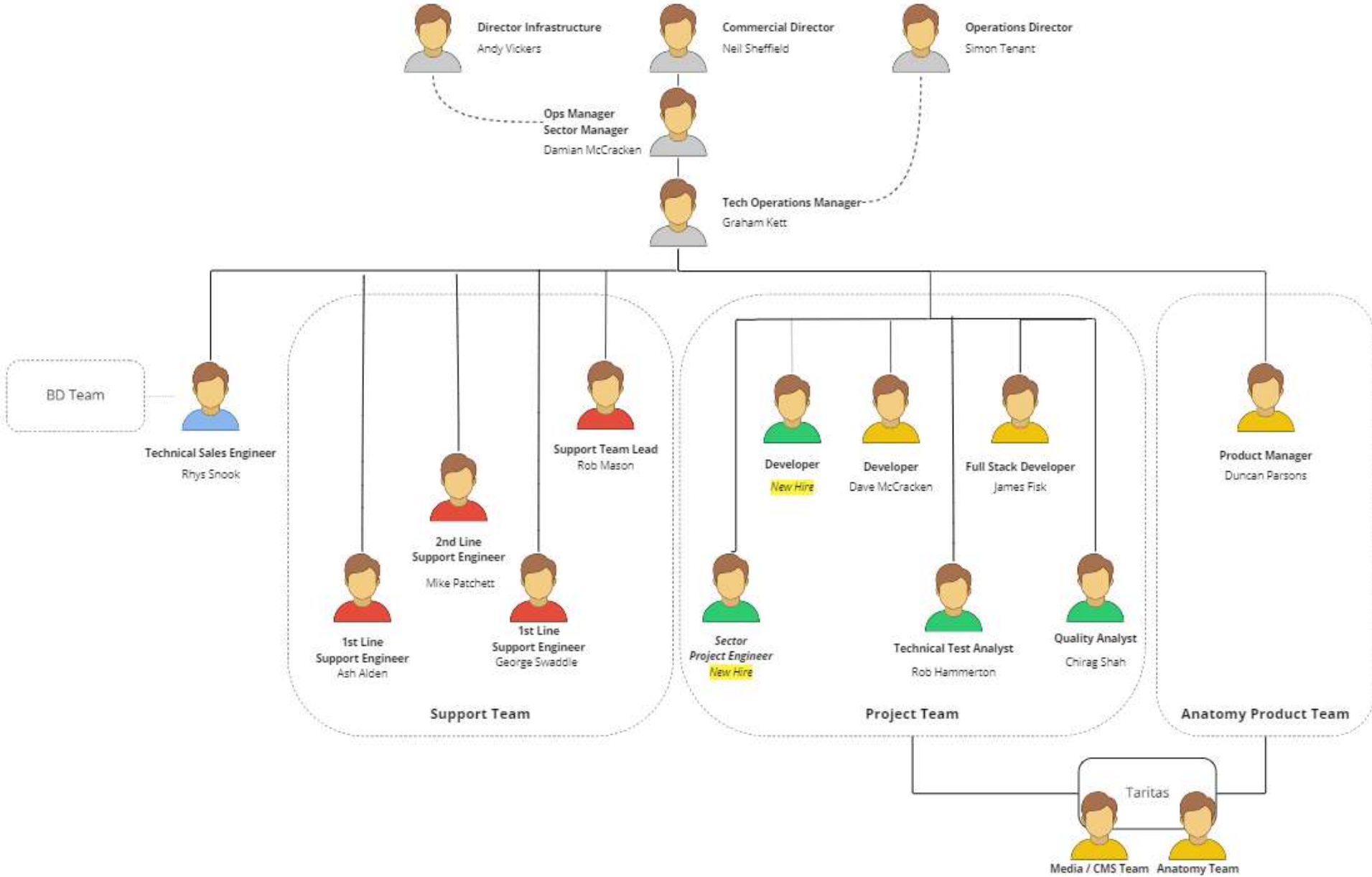
Customer

The product's great,  
but I also need it to  
be able to do this

# Meet the team

# 02

# LB. Foster Digital Solutions Structure



# Damian McCracken

## Operations Manager / Digital Solutions Sector Manager



- > Responsible for the general management of the division and overall output of products to our customers and internal stakeholders. Projects, development, quality and support fall under Damian and his department leads. As a technically minded individual, Damian is often getting into the detail of issues and new ideas, sometimes also writing code to help optimise workflows or assist with the automation of tasks.
- > Before Damian joined LB Foster he worked in the EPOS industry, managing a team of engineers maintaining point of sale and EFT systems for multiple retailers. Prior to this Damian ran his own video production company creating bespoke films to promote the leisure industry.
- > Damian is a keen piano player, aviation and combat flight simulator enthusiast.

# Graham Kett

## Technical Operations Manager



- > Graham looks after the day-to-day running of the Lincoln team, ensuring that the support levels delivered to customers are good, and that projects are delivering everything the customer needs (not necessarily everything the customer wants; that can be a completely different proposition...)
- > Graham works extensively with the LB Foster Sales Managers to progress opportunities into orders. He is the Product Owner for the Inform software and Fingerprint, having oversight of all new functionality and working with the developers to ensure our solutions offer an excellent and consistent user experience
- > Graham has worked in IT for 17 years, starting out as a hardware engineer installing computer systems in vets' surgeries, before later moving into software support. He has worked for Netpractise under its various ownerships since 2007, progressing from Client Support Engineer to Technical Sales Support, to Technical Operations Manager
- > Graham makes exceptional roast potatoes and has 2 children that make coming to work feel like a holiday



# Rob Mason

## Support Team Lead



- > Rob is the Support Team Lead overseeing the helpdesk and customer support engineers, ensuring all customer queries and issues are being responded to and resolved in a timely manner.
- > Rob has worked in the IT industry for 17 years covering desktop support in an office environment and POS & back office system support for a food store chain before joining Netpractise in 2008 as a Customer Support Engineer. He has been the Support Team Lead since 2018.
- > Rob has a partner and 2 children, and in his spare time he likes to walk his dogs, ride his mountain bike, and play video games. His gaming collection covers everything from the Mega Drive to the Xbox One X.



# Rhys Snook

## Projects & Support Engineer



- > Rhys' role falls into both categories of supporting existing customers and working on new projects. On the support side, he operates as a 2<sup>nd</sup> line support engineer dealing with escalated issues and assisting 1<sup>st</sup> line where required. For project work, he works as project engineer on various projects and assists with the project management when required
- > Recently Rhys has also started venturing out with the sales team to assist in any pre-sales opportunities where necessary
- > Rhys has worked in the IT industry for 7 years starting out as an apprentice with Netpractise under its previous management in 2013. He's progressed from an Apprentice, to 2<sup>nd</sup> line support, to Client and Project Support
- > Outside of work Rhys is a rugby and motorbike racing enthusiast, 6 a side footballer and keen trackday rider

# Mike Patchett

## 2<sup>nd</sup> Line Support Engineer



- > Mike picks up issues escalated from 1<sup>st</sup> line support and works to prevent recurrences of issues in the future. He is also involved in deploying software and hardware to site and provides training and Go Live Support.
- > Mike worked in IT for 9 years for the fancy dress wholesaler Smiffy's before joining LB Foster. He went from a lowly IT support techy to looking after a new team and the infrastructure. Mike joined the team as a client support technician.
- > Mike enjoys gigs and gaming, which he tries to fit in around looking after his daughter.

# Chirag Shah

## Quality Analyst



- > Chirag is responsible for implementing quality assurance standards and providing accurate and comprehensive feedback to the quality team. His day to day activities include writing and running test scripts to assess functionality, reliability, performance and quality of the software. Through this method he identifies and logs defects & bugs in the software with development.
- > Chirag works on multiple products and has QA oversight of MRM, Fingerprint and Inform. Chirag works closely with the developers to help pick up defects throughout the development cycle.
- > Chirag has worked in the IT industry for 5 + years, starting out working on projects with the NHS, and recently worked on a project with a bookmaker before joining Netpractise.
- > Chirag is interested in sports and plays snooker, bowling and cricket very well. He also likes to cook and loves to eat food from different cuisines.

# David McCracken

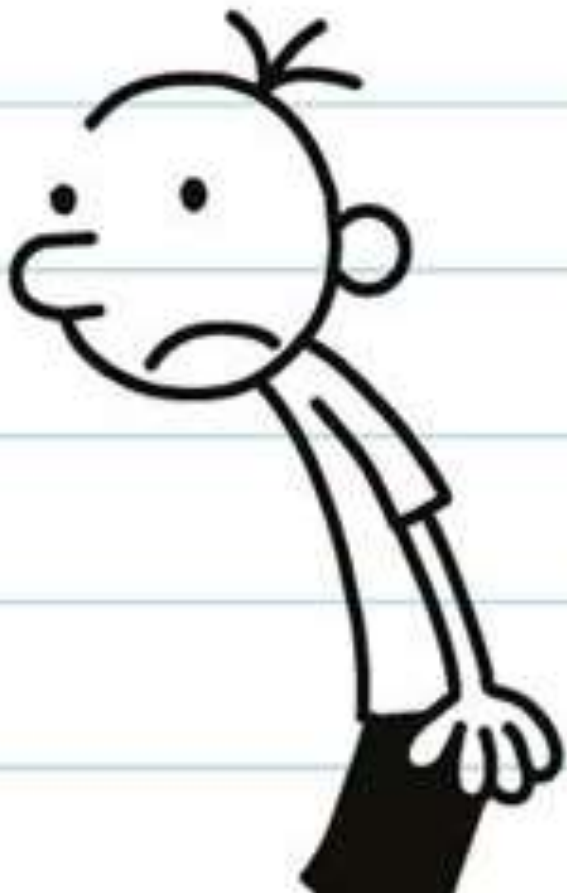
## Developer



- > Dave developed the Netpractise QMS system from scratch and support of this product is his principle activity. Over the years Dave has also developed various interface modules between core products and customer systems.
- > Born in Glasgow, Dave left school at 15 to join the Royal Air Force as an Air Radar apprentice. The job involved servicing radar systems including analogue computers on UK based Lightning and Vulcan aircraft. Having served a total of 14 years as technician and SNCO shift leader and workshop manager, Dave next joined a local electronics firm in Lincoln, initially in microwave systems R&D, migrated into digital computers as Computer System Manager. Dave moved into software development in 1990's using the then new Visual Basic language and Access Jet database. Dave then spent 13 years as a contract developer working at various locations within the UK, before joining Netpractise in 2005.
- > Playing guitar, bass and baritone ukulele, Dave is a member of the Lincoln Ukulele Band and an informal Guitar group, performing with these groups to raise money for charities or at local care homes. An active amateur astronomer and BAA member, Dave gives talks and assists with local outreach visits by Cubs, Scouts etc. at the Lincoln Astronomy Society. He can be heard talking about astronomy in a monthly slot on Lincoln City Radio.

# Duncan Parsons

## Product Manager



- > Duncan is responsible for the delivery of the Anatomy suite of products. He liaises with product managers and oversees the development process. He also provides technical direction for the team and product roadmap.
- > Duncan has over 20 years' experience as a software developer initially as a COBOL developer, then moving into Full Stack Web Development.

# James Fisk

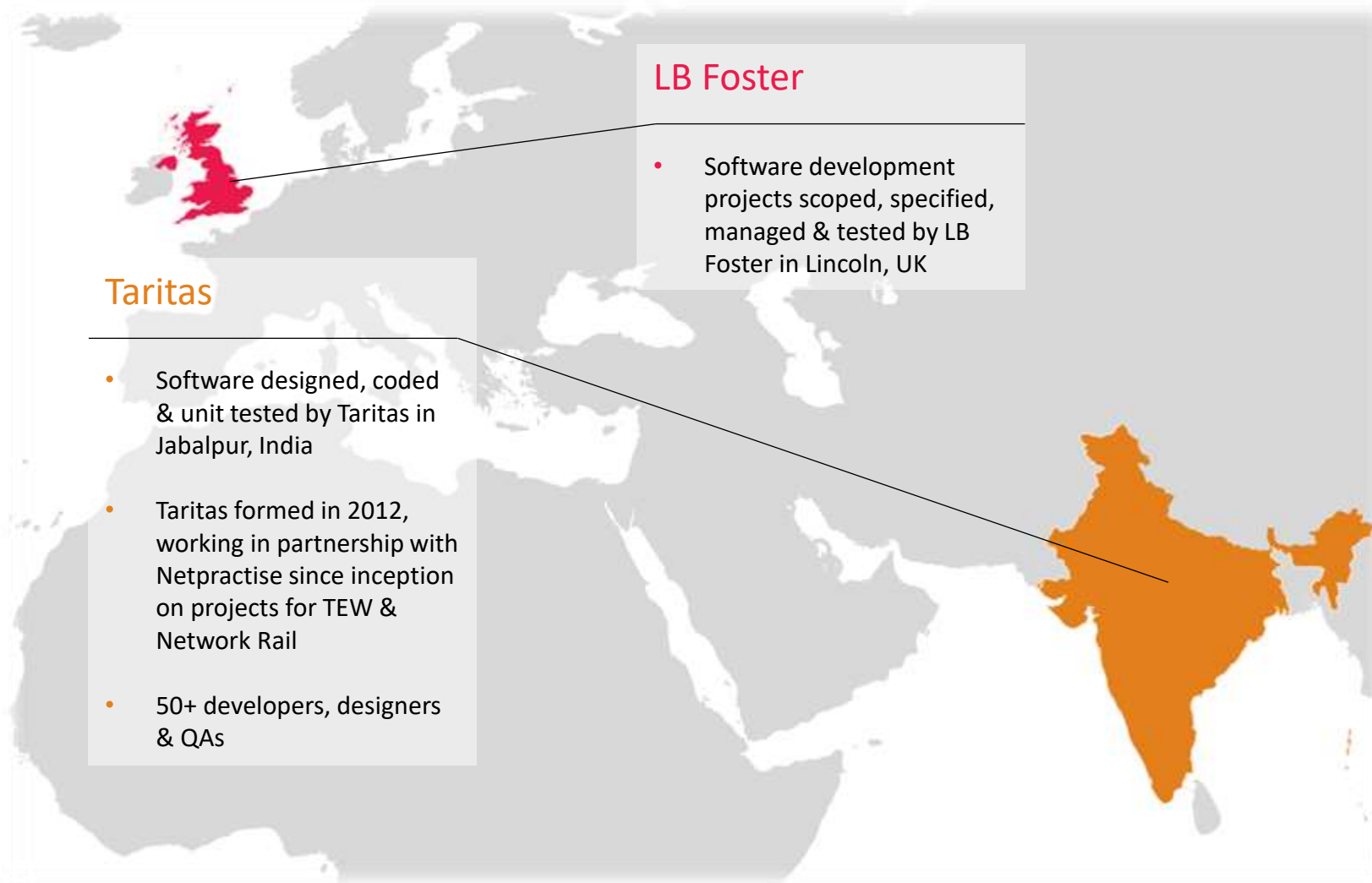
## Developer



- > James' main focus is to work closely with our product manager, development team and customers in order to ensure the software is of the highest quality and meets customer requirements.
- > In his 20+ years career he has been developing in an array of industries including finance, health care and motorsport to name but a few.



# Off-shore developers



## LB Foster

- Software development projects scoped, specified, managed & tested by LB Foster in Lincoln, UK

## Taritas

- Software designed, coded & unit tested by Taritas in Jabalpur, India
- Taritas formed in 2012, working in partnership with Netpractise since inception on projects for TEW & Network Rail
- 50+ developers, designers & QAs

# Our capabilities

# 03



# Our approach

- > Software vendors traditionally tend to offer off-the-shelf solutions, or bespoke development services

## Off-the-shelf

Mature products, but often with rigid functionality:  
Not possible, or expensive to add bespoke change

## Bespoke

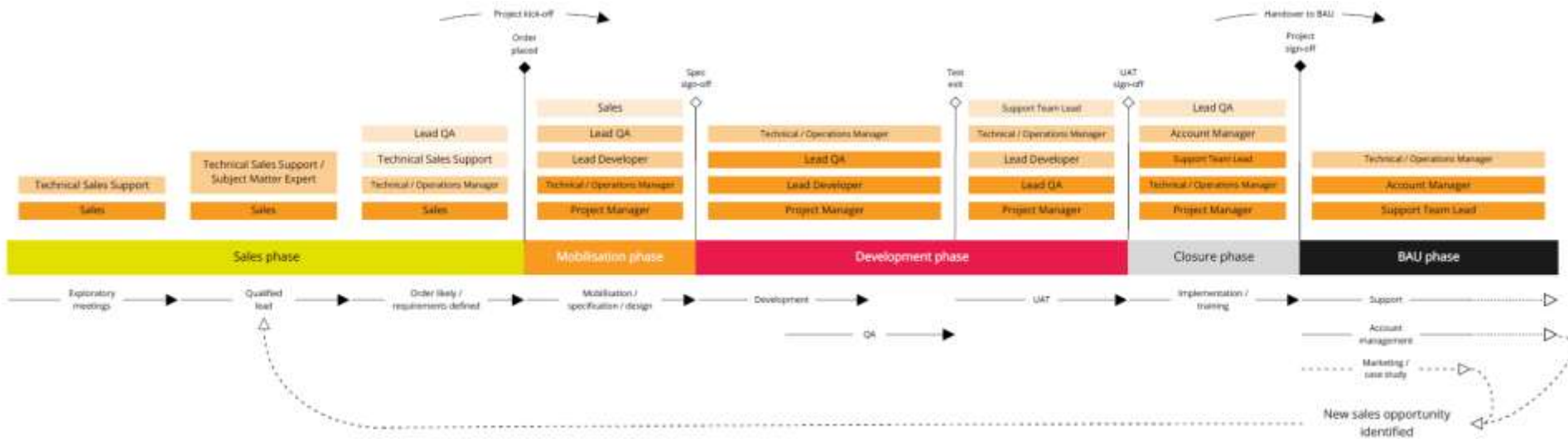
Tailored to a company's precise requirements, but can be very expensive and not always re-usable

## Hybrid approach

Mature products which can be easily customised and changed, with benefits available to all users

- > We position ourselves in the middle of this spectrum, with mature, stable products that we can add functionality to without having to re-write solutions from scratch. All developments are added to the overall product to be made available to all users & regions.

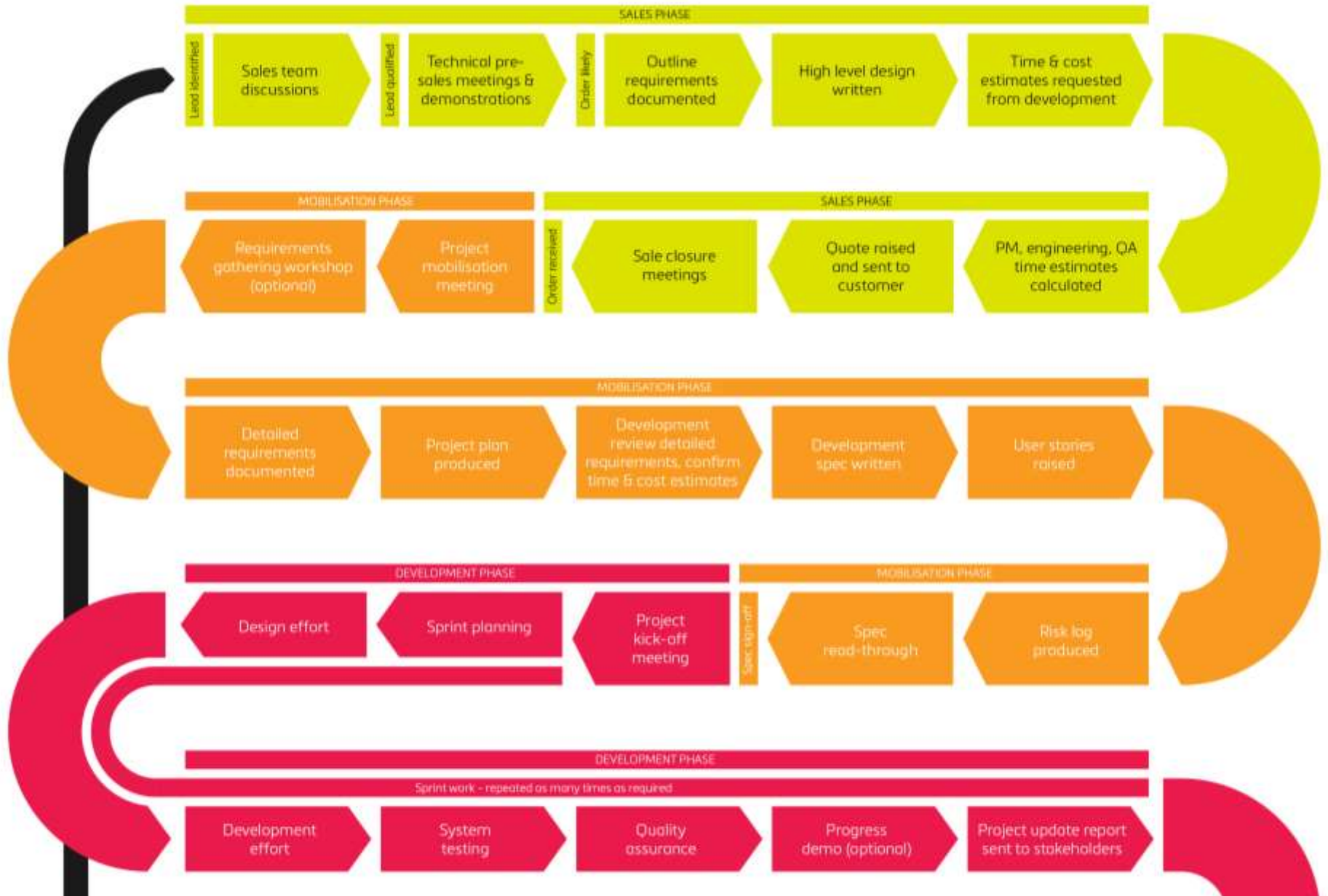
# Software development projects



## > Full lifecycle support & management

- Sales phase – pre-sales meetings, proposals & quotes
- Mobilisation phase – specification writing & sign-off
- Development phase – design, coding, testing & QA
- Closure phase – implementation & training
- BAU phase – support & account management

# Software development projects



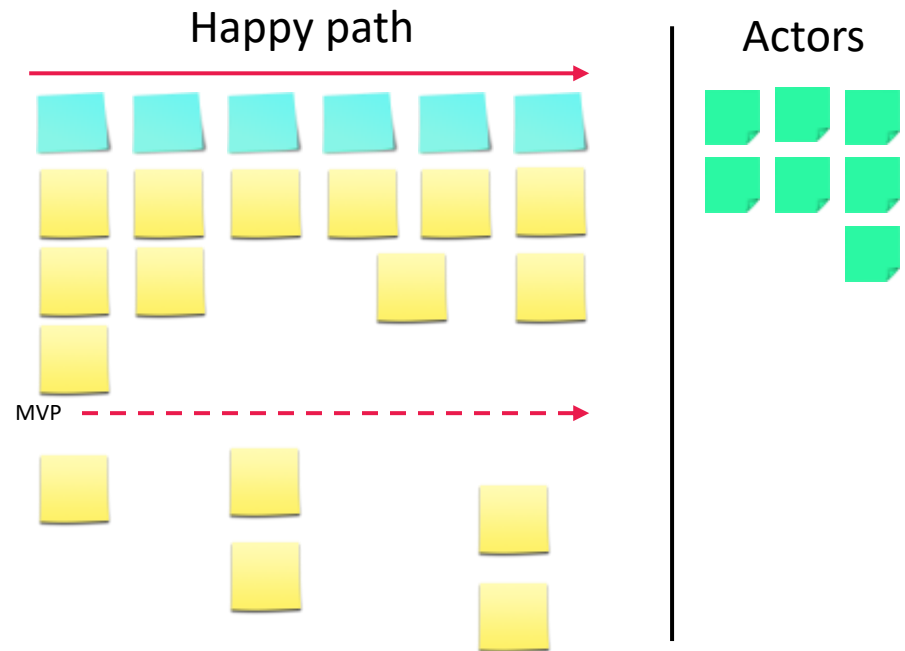
# Technical pre-sales support

- > Providing support to the LB Foster sales team:
  - Sales team training & consultation
  - Responding to technical elements of tenders
  - Attending customer meetings to provide demonstrations & discuss capabilities
  - Business analysis – gathering and documenting customer requirements

# Business analysis

## > MVP model – Minimum Viable Product

- Actors are also captured as a textual representation of product
- Acquirements be users or system services; anything that will interact with the product
- Separate product columns by key functionality area, presented horizontally
- Following the “happy path” requirements are captured
- Each requirement is incorporated into Post-It design board development spec
- Dotted line is drawn labelled “MVP” – anything above the line is an essential requirement for the product to be built
- Any requirements not essential for product launch are added below the MVP line to ensure they are captured



# Business analysis

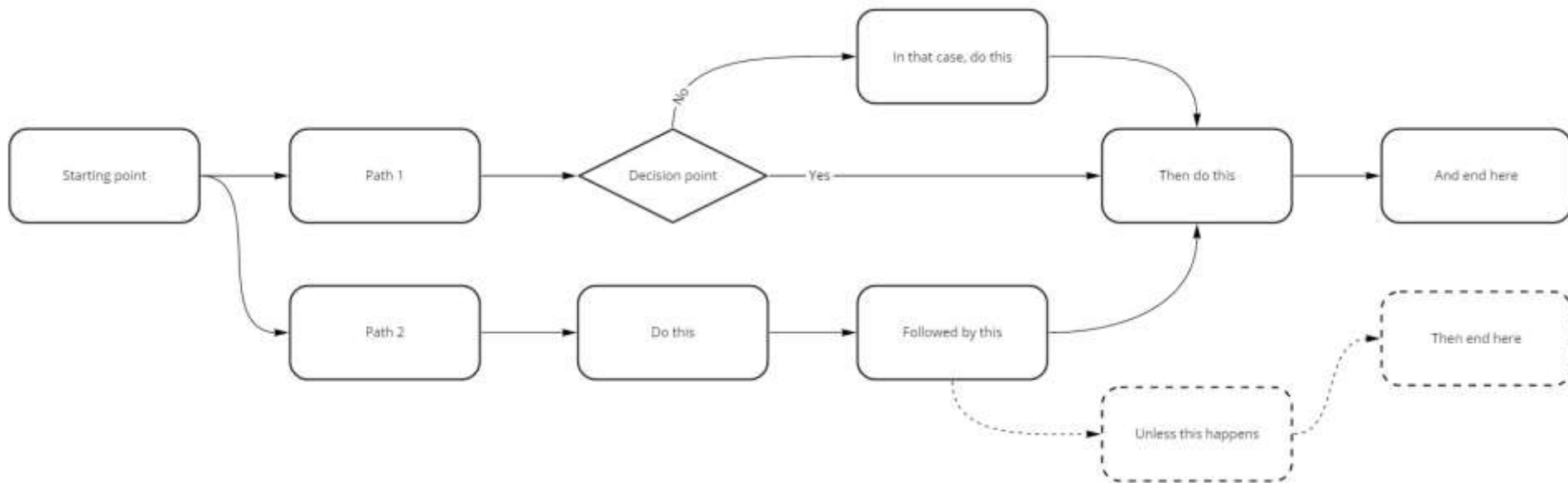
## > MOSCOW model

- Requirements all documented and assigned a rating:
- **M**ust have – essential functionality, has to be present for product to launch
- **S**hould have – highly desirable functionality, product could launch without, but user experience would be detrimentally affected
- **C**ould have – desirable but not essential, functionality that would improve the product but may be added later as a roadmap development item
- **W**on't have – functionality that is explicitly excluded, may include restrictions on user experience
- More traditional than the MVP model but can be limiting – edge cases are rarely considered and may discourage stakeholders from innovating
- Better for smaller developments where the customer already has a very clear idea of how they need the product to work

# Business analysis

## > Workflows

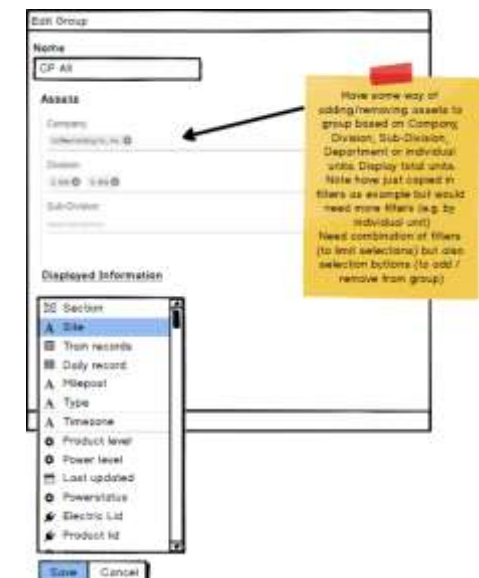
- Built using whiteboards or Miro during BA sessions
- Allows customer journey to be visually mapped out, including edge cases
- Familiar; people are used to flowcharts and know how they work
- Understood by development, clear and easy to pick out details



# Business analysis

## > Wireframes

- Built using whiteboards or Balsamiq during and after BA sessions
- Allows user interface elements and data points to be visually sketched out
- Helps stakeholders see how the product is likely to look without needing graphic design
- Helps developers understand how the system has been visualised





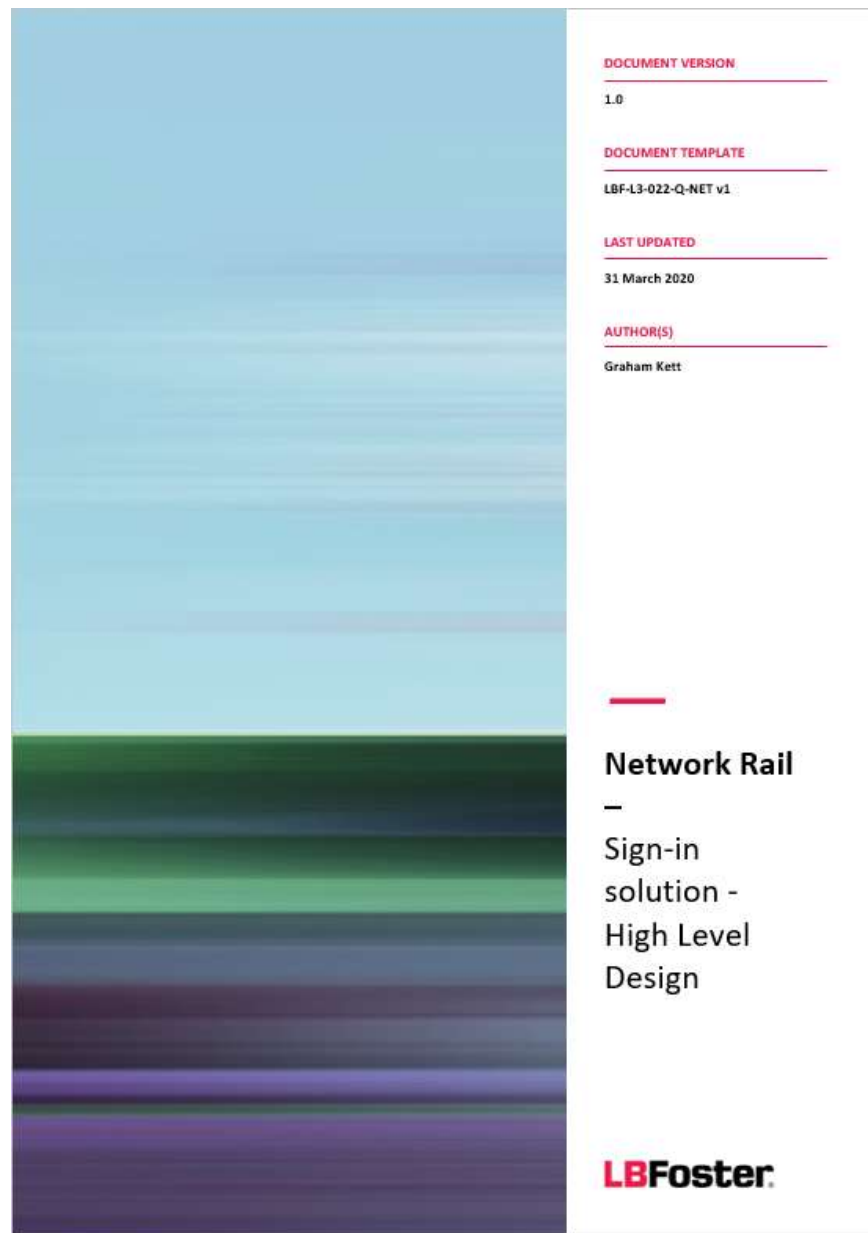
# Technical pre-sales support

- > Providing support to the LB Foster sales team:
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  - Responding to technical elements of tenders
  - Attending customer meetings to provide demonstrations & discuss capabilities
  - Business analysis – gathering and documenting customer requirements
  - Producing High Level Design & proposal documents

# Documentation

## > High Level Design

- Document produced based on business analysis output / customer's documented requirements
- Contains a high level description of how the solution is proposed to function
- Does not go into unnecessary technical detail, but covers all requirements in enough depth that development will be able to digest and provide time & cost estimates
- Includes workflows and wireframes built during and after BA sessions
- Can be sent to the customer for confirmation that all the requirements they have specified are covered



# Technical pre-sales support

- > Providing support to the LB Foster sales team:
  - Sales team training & consultation
  - Responding to technical elements of tenders
  - Attending customer meetings to provide demonstrations & discuss capabilities
  - Business analysis – gathering and documenting customer requirements
  - Producing High Level Design & proposal documents
  - Liaising with development to obtain time & cost estimates
  - Producing time & cost estimates for project management & engineering and QA tasks
  - Raising quotes
  - Attending sales closure meetings to assist with obtaining a purchase order

# Project mobilisation

- > Ramping up the project team to prepare for development to commence
  - Hosting a project mobilisation meeting
  - Holding further requirements gathering workshops (where needed)
  - Writing a project plan
  - Producing development specification document

# Documentation

> Development specification

- Document produced based on High Level Design doc
- Contains full detail on how the software will function, with edge cases and specific exclusions considered
- Technical detail is explored, with external feeds documented, but leaves developers with room to innovate and select the most efficient methods
- Requirements are broken out into tables with all details bullet pointed to build acceptance criteria
- Wireframes are replaced with clear designs of how the final product should look



# Project mobilisation

- > Ramping up the project team to prepare for development to commence
  - Hosting a project mobilisation meeting
  - Holding further requirements gathering workshops (where needed)
  - Writing a project plan & project scope
  - Producing development specification document
  - Writing user stories

# Work items

## > User stories

- Simple, clear way of recording the desired outcome and purpose for a feature or change
- “As a”, “I want”, “so that...”
- “As a rail passenger, I **want** the status of all routes running through this station to be shown on screen **so that** I can be kept informed of any disruption to my journey.”
- Defines who the feature affects
- Defines what the feature needs to do
- Defines the reasoning behind the feature, explains any additional business logic or context

## > Acceptance criteria

- Detailed, bullet-pointed list of everything the feature must and must not do to be accepted by the customer and released



# Project mobilisation

- > Ramping up the project team to prepare for development to commence
  - Hosting a project mobilisation meeting
  - Holding further requirements gathering workshops (where needed)
  - Writing a project plan & project scope
  - Producing development specification document
  - Writing user stories
  - Producing a RAID log
  - Specification read-throughs – internal and with customer
  - Obtaining specification sign-off



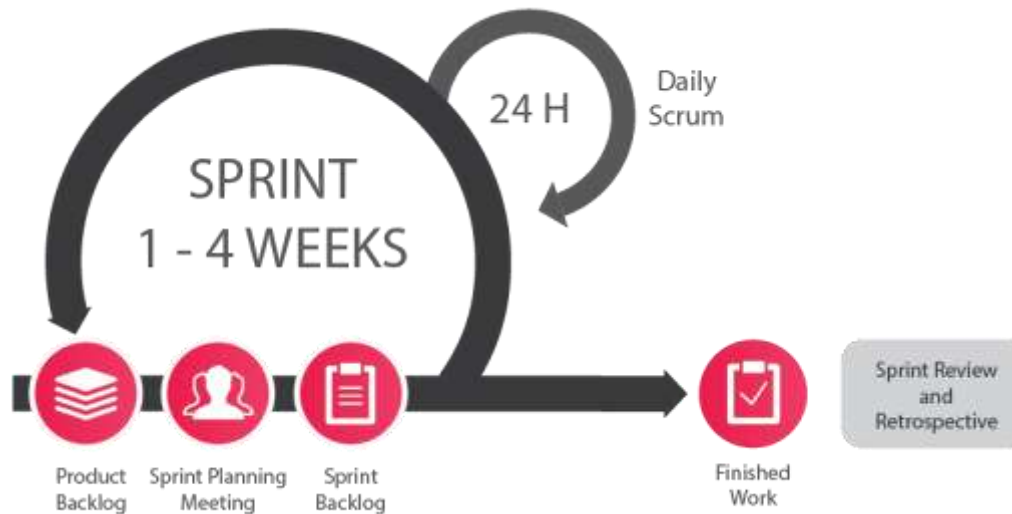
# Development

- > Coding, testing & quality assurance (QA)
  - Project kick-off meeting with customer
  - Sprint planning & management with developers

# Agile methodology

## > Sprint structure

- User stories and bugs are written up and added to the product backlog
- Sprints are typically 2 weeks long but can be longer
- A sprint planning meeting is held at the start to estimate effort to complete each work item
- A daily scrum meeting is held to plan each day's tasks throughout the sprint and seek clarifications or discuss blockers



# Agile methodology

## > Sprint process

- User stories and bugs are written up and added to the product backlog
- Sprints are typically 2 weeks long
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# Development

- > Coding, testing & quality assurance (QA)
  - Project kick-off meeting with customer
  - Sprint planning & management with developers
  - Software development & unit testing

# Software development

## > Technologies

- C, C#, C++
- WPF
- WCF
- VB.Net
- ASP.Net
- AJAX
- MVC
- CSS
- Angular
- Electron js
- View js
- HTML5
- JAVA
- PHP
- Javascript
- JQuery
- Xamarin.iOS
- Xamarin.Android

# Development

- > Coding, testing & quality assurance (QA)
  - Project kick-off meeting with customer
  - Sprint planning & management with developers
  - Software development & unit testing
  - Software testing & quality assurance
  - Distributing regular project status reports to stakeholders
  - Producing user documentation
  - User acceptance testing (UAT) support

# Testing & QA

## > User acceptance testing

- Release deployed to controlled environment
- User tests functionality and logs bugs, change requests and clarifications:
- **Bug:** A bug is an undesired or missing feature that deviates from the requirements outlined in the specification, causes detriment to the system users, integrity of data or security of the system that has been discovered after the development iteration that introduced the flaw has been signed off. Bugs aren't rectified without at least a high-level impact assessment being carried out to quantify the severity/priority of the issue compared to the other work the development team are committed to complete within the current iteration. Bugs are resolved, without cost to customer.
- **Change request:** A change request is where functionality has been delivered in-line with the specification but a change is needed that will require more than minor re-work of architected / coded / tested functionality that has already been delivered. Functionality already signed off in the specification, but yet to be delivered for which the change has an impact on predicted time or cost to complete the work items. A change request may incur additional cost.

# Testing & QA

> User acceptance testing

- **Clarification:** Functionality has been described or delivered in-line with the specification, but a change is needed that will require negligible re-work of architected / coded / tested functionality that has already been delivered. Change Requests can be minimised by raising clarifications to the specification early within the project. Clarifications will be resolved without cost to customer.
- All issues are logged in Trello and updated by LBF as they are progressed with development





# Development

- > Coding, testing & quality assurance (QA)
  - Project kick-off meeting with customer
  - Sprint planning & management with developers
  - Software development & unit testing
  - Software testing & quality assurance
  - Distributing regular project status reports to stakeholders
  - Producing user documentation
  - User acceptance testing (UAT) support
  - Rolling software out to estate
  - Site acceptance testing (SAT) & sign-off support

# Project closure

- > Winding up the project and closing it down
  - Attending site to provide user training (should always be included on quotes)
  - Completion of rollout to estate
  - Distributing project closure report
  - Internal training and handover from project team to support team
  - Carrying out project retrospective

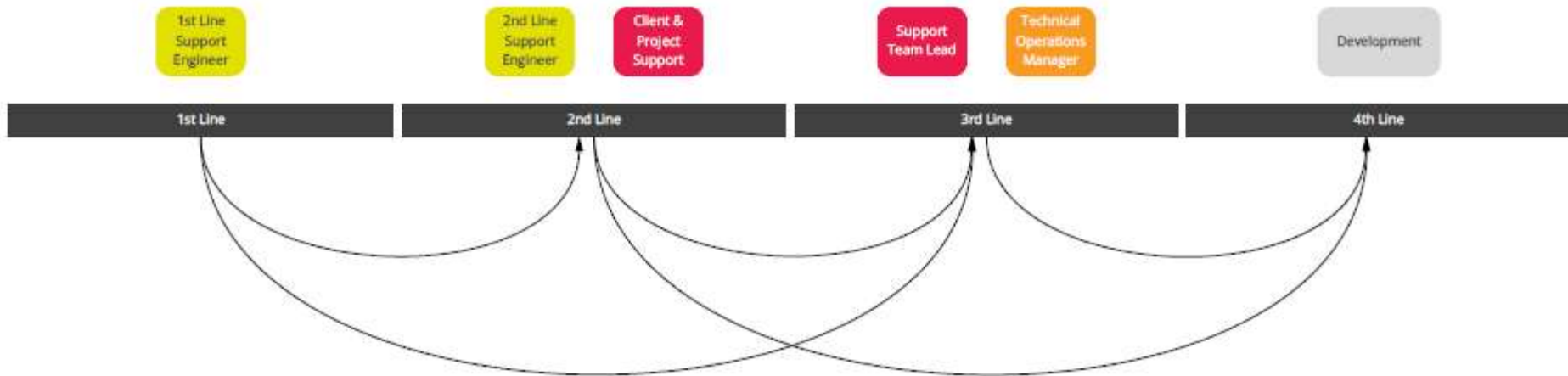
# Business as usual (BAU)

- > Ongoing support, development & account management
  - Helpdesk log & resolve issues

# Helpdesk support

> Support levels

- 1<sup>st</sup> Line – answer calls, troubleshoot issues & provide user guidance
- 2<sup>nd</sup> Line – resolve issues escalated by 1<sup>st</sup> Line – may need additional investigation or deeper technical knowledge
- 3<sup>rd</sup> Line – calls escalated to management due to urgency / risk to reputation
- 4<sup>th</sup> Line – calls escalated to development for bug fixes



# Business as usual (BAU)

- > Ongoing support, development & account management
  - Helpdesk log & resolve issues
  - Support Team Lead & Account Manager (BDM) hold regular client meetings to discuss service
  - Any software changes or new opportunities identified are fed back into the sales process



# Azure

# What is Azure & why do we care?

- > Azure is a Microsoft service – backed by Microsoft technology and engineers

## Cloud Computing

- > Simply an approach to computing that enables applications to be delivered at scale for many different types of workloads
  - Highly configurable
  - Reliable (backed by SLA)
  - Instantly scalable
  - Redundancy built in
  - Aligns with our technology stack
- > We are slowly migrating all services to Azure

# Key components



Web Tech  
Workers  
VMs

Small  
To  
Extra Large

Auto scaling

100tb  
Auto scaling

Interconnected

Many storage types

Traditional database  
engines

'Serverless' on  
demand

Scalable

Highly Secure

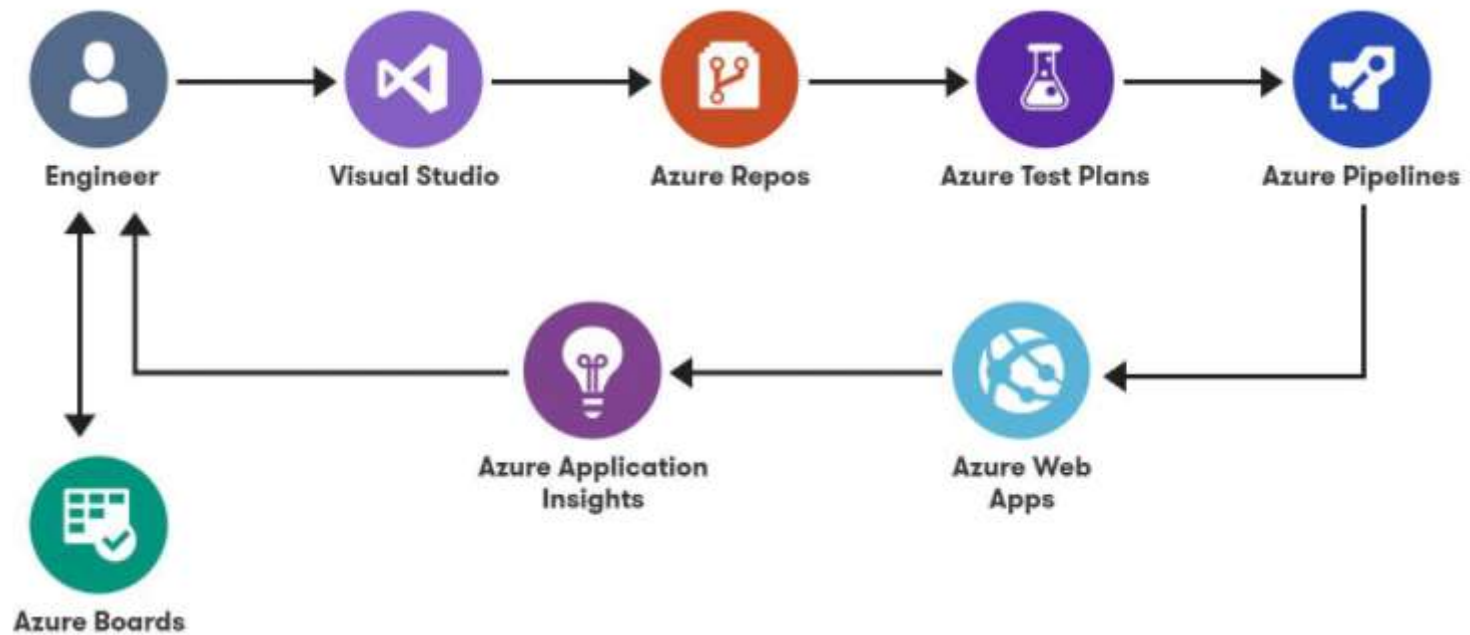


# Key components.. more



AI + Machine Learning	Analytics	Compute	Databases	Development	Identity + Security	IoT + MR	Integration	Management + Governance	Media + Comms	Migration	Networking	Storage
Bot Service	Analysis Services	App Service	Blockchain Service	App Configuration	Azure Active Directory	Azure Maps	API Management	Automation	Azure CDN	DB Migration Service	Application Gateway	Avere vFXT
Cognitive Search	Data Explorer	Azure Batch	Cosmos DB	Azure DevOps	Azure AD B2C	Azure Sphere	Azure API for FHIR	Azure Arc	Media Services	Site Recovery	Azure Bastion	Azure NetApp Files
Cognitive Services	Data Factory	Azure Functions	Database for MySQL	Azure Spring Cloud	Azure AD DS	Digital Twins	Event Grid	Azure Backup			Azure DNS	Azure Storage
Machine Learning	Data Lake Analytics	Container Instances	Database for PostgreSQL	DevTest Labs	Azure Key Vault	IoT Central	Logic Apps	Azure Blueprints			Azure Firewall	Data Lake Storage
Microsoft Genomics	Databricks	Container Registry	Redis Cache	Lab Services	Azure Sentinel	IoT Edge	Notification Hubs	Azure Monitor			Azure Front Door	Data Share
Open Datasets	Event Hubs	CycleCloud	SQL Database	SignalR Service	Security Center	IoT Hub	Service Bus	Azure Policy			ExpressRoute	Managed Disks
	HDInsight	Dedicated Host				Spatial Anchors		Azure Portal			Load Balancer	StorSimple
	Power BI Embedded	Kubernetes Service				Time Series Insights		Managed Apps			Private Link	
	Stream Analytics	Service Fabric									Traffic Manager	
	Synapse Analytics	Virtual Desktop									Virtual Network	
		Virtual Machines									Virtual WAN	
		VM Scale Sets									VPN Gateway	

# Azure Development Pipeline Support



# Azure Global Infrastructure



# Our Azure Usage

- Source code repository 100% Azure
- Release pipeline for back office 100% Azure
- Inform 100% Azure
- Data Aggregation & Distribution 90% Azure
- RPMv2 Data Ingestion 100% Azure
- Anatomy Azure works underway

# Sales Key Facts - Azure

- LBF are hosting its services in a known quantity
- Azure / Microsoft is built on rigorous data standards  
*ISO 27001, ISO 27018, SOC 1, SOC 2, SOC3, FedRAMP, HITRUST, MTCS, IRAP and ENS.*
- 1B+ USD investment in security R&D and 3,500 cyber security experts
- High Availability – Average Uptime of 99.93%, guarantee of 99.9\*% across most services
- On demand scaling (up and out)
- Consolidated management tools and single development pipeline  
*Efficiency and speed*
- Geo-redundancy, global connectivity
- Backups and Disaster Recovery built in

# Monitoring

- Investment in to our real time system monitoring



# Monitoring

- Public facing status pages for our products

**All components are Operational**

### Component Summary

Component Name

- Background services
- Inform Media API  
Response Time : 804 ms
- Inform Media website  
Response Time : 792 ms

### Component Status History

Search Components

Component Name	Uptime	Aug 13	Aug 12	Aug 11	Aug 10	Aug 9
Background services	100 %	✓	✓	✓	✓	✓

# Our products

# 04





# Inform Media

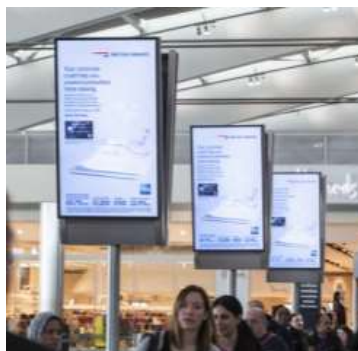
# Inform Media

> What is it?

- Digital signage & AV platform
- Formerly known as “Digital Pro Media” (DPM)
- May also be referred to as a “content management system” (CMS)

> What does it do?

- Allows content to be uploaded, scheduled and sent to screens
- Users can assign content globally, to groups of screens, or target screens individually



# Inform Media

> Content upload

The screenshot displays the 'Manage Media' interface in the Inform Media application. The interface includes a sidebar with navigation options like 'Manage Media', 'Manage Playlists', 'Assign Content', 'Template Output', and 'Inform Messaging'. The main area shows a grid of media assets with details such as height, width, and file size. A 'File Upload' dialog box is open in the foreground, showing a dashed box for dropping files and a list of three files being uploaded: 'Amelia\_5S\_Vaccine-Coh...', 'Carol\_5S\_Vaccine-Cohort...', and 'Herman\_5S\_Vaccine-Coh...'. Each file has a minus sign icon to its right.

# Inform Media

> Playlist manager

The screenshot displays the 'Manage Playlists' interface in the Inform Media application. The top navigation bar includes the 'inform' logo, 'LBFoster', and the title 'Manage Playlists'. The left sidebar contains a menu with options: 'Manage Media', 'Manage Playlists', 'Assign Content', 'Scheduler', 'Template Group', and 'Inform Messaging'. The main content area is divided into several sections. On the left, there is a 'Basic Filter' section with 'System Filters' (All Media, OS Media, Expired Media, Deleted, OS Media) and 'User Folders' (Summer 2021). The central area shows a 'Media Items | All Media' grid with thumbnails for various media items, including 'HENRIK\_EI\_Va...', 'Cora\_EI\_Va...', 'ARMAI\_EI\_Va...', and several 'OS - Arrivals' items. Below the grid, a 'Total: 22' indicator is visible. At the bottom, there is a 'Timeline - Unfilled' section with a grid of media items and a control bar with buttons: 'New', 'Save', 'Save As', 'Clear', 'Load', 'Remove', 'Manage Playlist', and 'Publish'. A 'Support' button is located in the bottom left corner.

# Inform Media

> Player assignment

The screenshot displays the 'Groups' management page in the Inform Media interface. The left sidebar contains navigation options: Administration, Manage Media, Manage Playlists, Screen Designer, Assign Content, Scheduler, Player Manager, Template Group, RTI Interpreter, and Inform Messaging. The main content area shows a table of groups with columns for Actions, Group Name, and Description. The groups listed are Platform, Concourse, and Default Group. A modal window titled 'Assign Players: Concourse' is open, showing a table for assigning individual players to the 'Concourse' group. The modal table has columns for Player Name, Targets Group, Machine IP or Host Name, and Server IP or Host Name. Several rows are visible, with some players already assigned to the Concourse group.

Actions	Group Name	Description
<a href="#">Add Item</a>	Platform	
<a href="#">Add Item</a>	Concourse	
	Default Group	Default Group is one...

Assign Players: Concourse				
	Player Name	Targets Group	Machine IP or Host Name	Server IP or Host Name
<input type="checkbox"/>	Player 1	Default Group	10.1.1.1	
<input type="checkbox"/>	Player 2	Platform	10.1.1.2	
<input type="checkbox"/>	Player 3	Platform	10.1.1.3	
<input type="checkbox"/>	Player 4	Platform	10.1.1.4	
<input checked="" type="checkbox"/>	Player 5	Platform	10.1.1.5	
<input checked="" type="checkbox"/>	Player 6	Platform	10.1.1.6	
<input type="checkbox"/>	Player 7	Platform	10.1.1.7	
<input type="checkbox"/>	Player 8	Platform	10.1.1.8	
<input type="checkbox"/>	Player 9	Platform	10.1.1.9	
<input checked="" type="checkbox"/>	Player 10	Concourse	10.1.1.10	
<input checked="" type="checkbox"/>	Player 11	Concourse	10.1.1.11	
<input checked="" type="checkbox"/>	Player 12	Concourse	10.1.1.12	
<input checked="" type="checkbox"/>	Player 13	Concourse	10.1.1.13	
<input checked="" type="checkbox"/>	Player 14	Concourse	10.1.1.14	

# Inform Media

> Who uses it?



# Inform Messaging (including BSL)

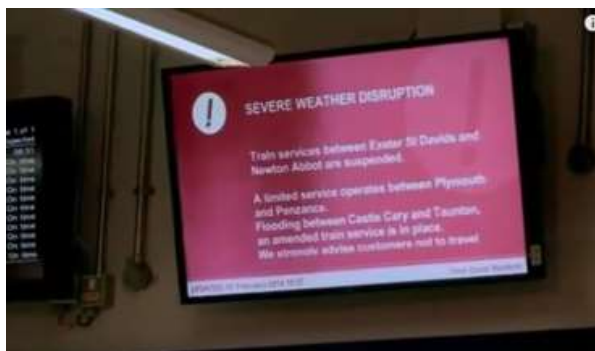
# Inform Messaging

## > What is it?

- Operational messaging platform
- Formerly known as “Operational Information System” (OIS)
- Works as a plug-in / module for Inform Media

## > What does it do?

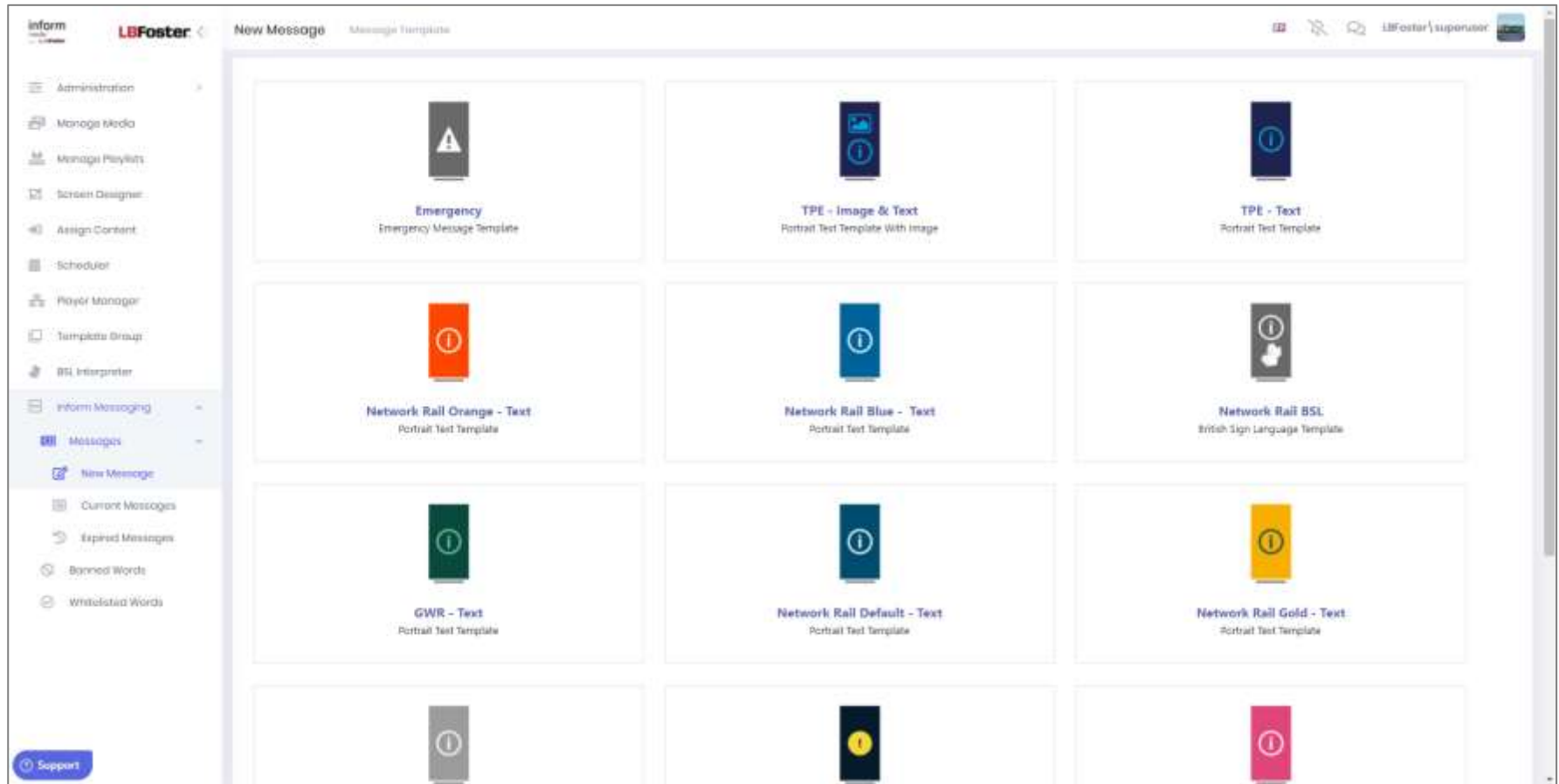
- Allows messages to be created to keep staff and customers informed
- Messages slot into media playlists according to priority





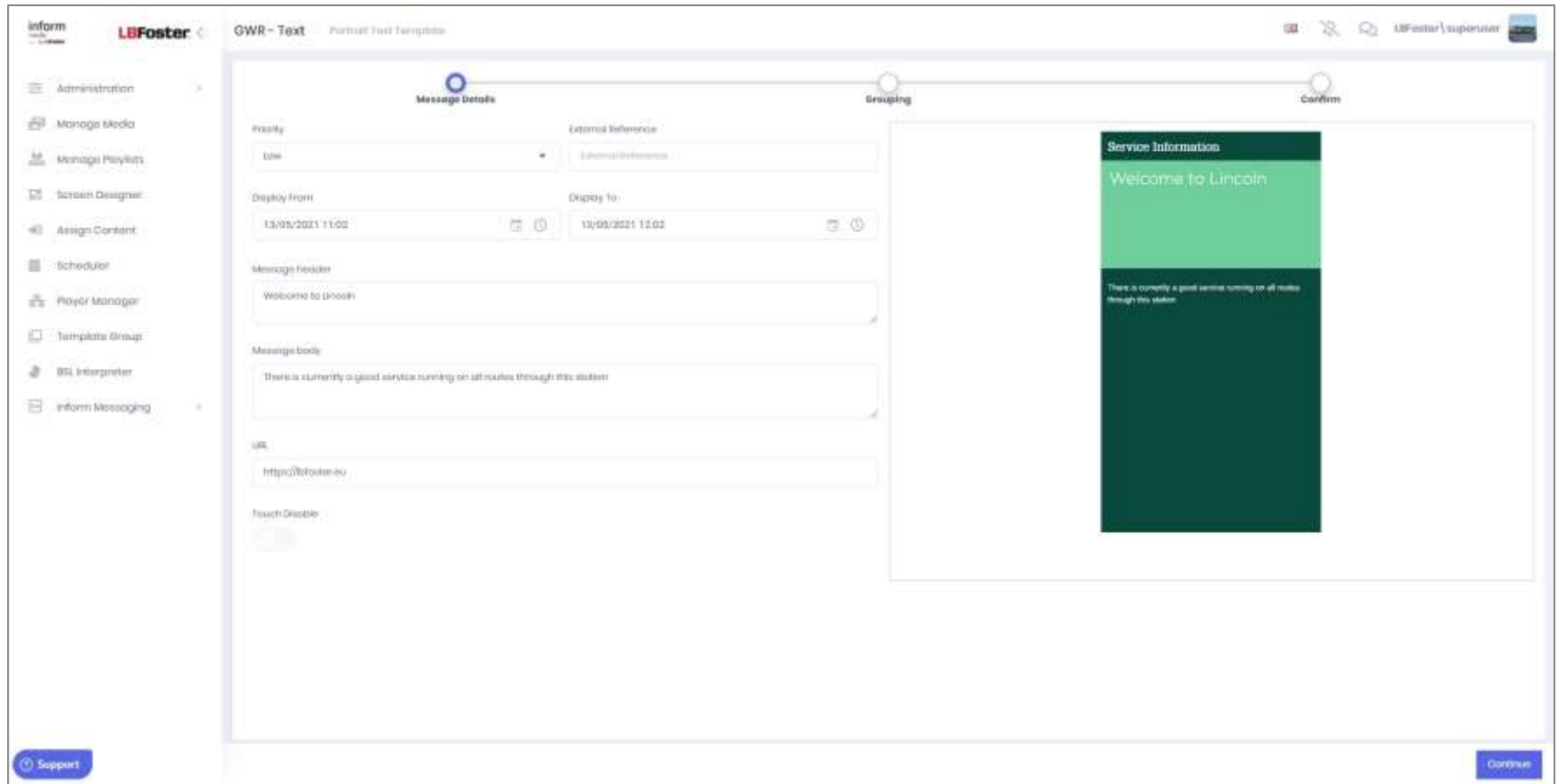
# Inform Messaging

> Multiple message templates available



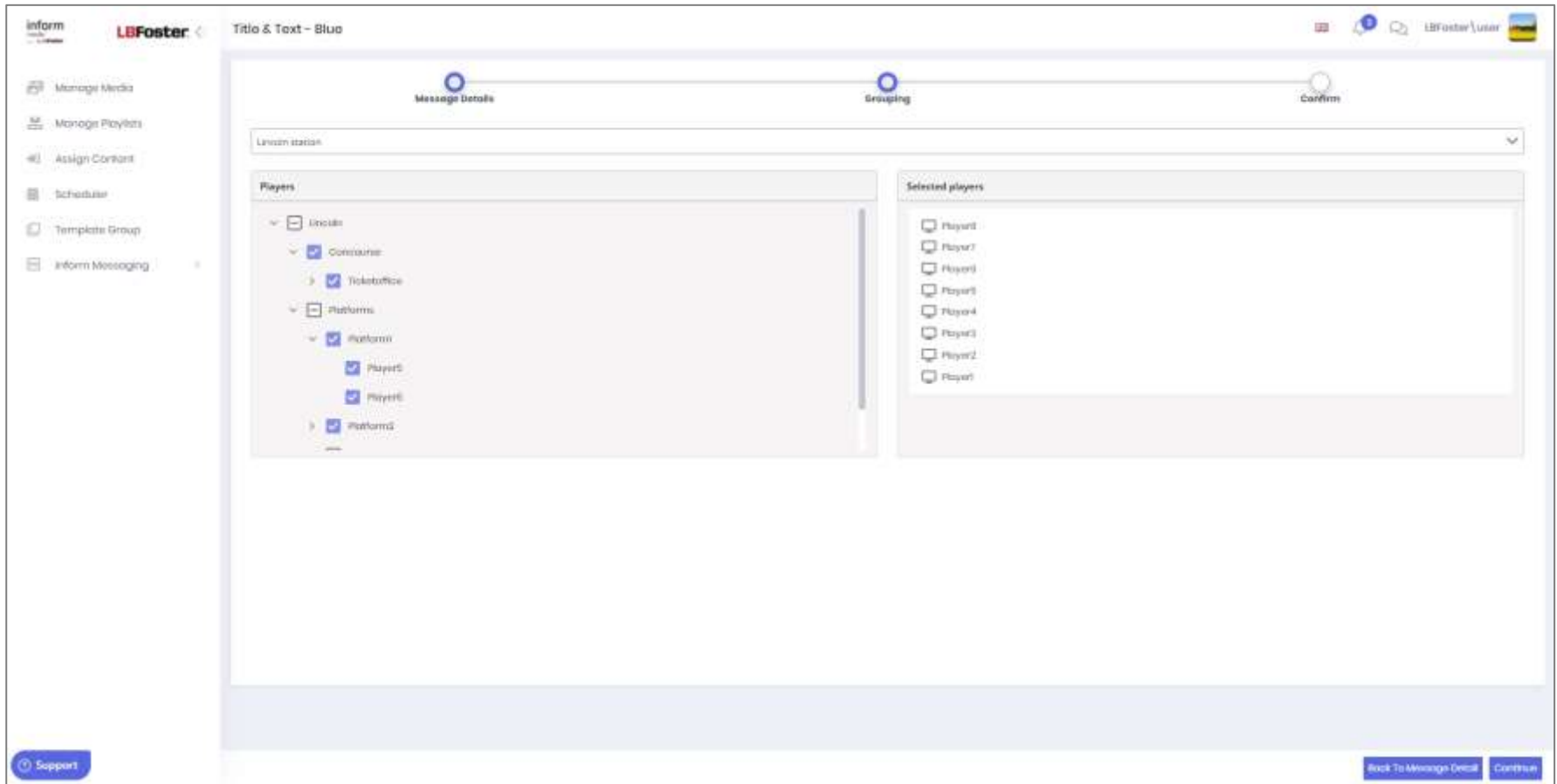
# Inform Messaging

- > Enter priority, message header & body text and a URL to be sent to NFC devices (optional)



# Inform Messaging

> Select groups or individual screens to send message to



# Inform Messaging

- > View all current & recent messages on the estate to update, refresh or expire them

The screenshot displays the 'Current Live Messages' interface. On the left is a navigation sidebar with options: Manage Media, Manage Playlists, Assign Content, Scheduler, Template Group, Inform Messaging (expanded), Messages (selected), New Message, Current Messages, and Expired Messages. The main area shows a table of messages with columns: Actions, Expire, Reference, Revision, Priority, Heading, Body, Players, and Updated. A single message is visible with a '47 years' expiry, reference ID 'SCH2520080002NEP', priority 'Info-low', heading 'Welcome to Breck station', and body text 'There is currently a good service running on all routes through the station'. The 'Players' column lists 'Player6, Player7, Player8, Player9, Player1, Player2, Player3, Player4'. A 'Support' button is at the bottom left, and a pagination control at the bottom right shows 'Total 1' and '1' of 10 items.

Actions	Expire	Reference	Revision	Priority	Heading	Body	Players	Updated
<a href="#">Actions</a>	47 years	SCH2520080002NEP	1	Info-low	Welcome to Breck station	There is currently a good service running on all routes through the station	Player6, Player7, Player8, Player9, Player1, Player2, Player3, Player4	1 min ago

# Inform Messaging

- > Save common messages as favourites or shared favourites for ease of access

The screenshot displays the Inform Messaging application interface. On the left is a navigation sidebar with options like Dashboard, Administration, Message Media, Message Playlists, Screen Designer, Assign Content, Scheduler, Player Manager, Template Group, BSL Interpreter, Inform Messaging, Messages, New Message, Current Messages, Expired Messages, Favourite Messages, CC Favourite Messages, OS Types, Banned Words, and Whitelisted Words. The main area is titled 'Favourite Messages' and contains a table with the following columns: Actions, Priority, Tag/Title, Heading, Body, and Players. Three messages are listed, each with an 'Actions' button. The messages are for Sheffield station, Nottingham station, and LCN station, all with 'Ultra-Low' priority. At the bottom left of the table area, it says 'Total: 3'. At the bottom right, there is a pagination control showing '1' of 3 items.

Actions	Priority	Tag/Title	Heading	Body	Players
<a href="#">Actions</a>	Ultra-Low	SFF welcome	Welcome to Sheffield station	There is currently a good service running on all routes through this station.	
<a href="#">Actions</a>	Ultra-Low	NOT welcome	Welcome to Nottingham station	There is currently a good service running on all routes through this station.	
<a href="#">Actions</a>	Ultra-Low	LCN welcome	Welcome to LCN station	There is currently a good service running on all routes through this station.	WVH00568, bdcwnc0008, irfm0008

# Inform Messaging

- > Messages are shown on screens in approved branding (colours, fonts etc.)

**Network Rail**

## Engineering works Saturday 22 & Sunday 23 September

Please note that there are scheduled engineering works this weekend at this station. This may cause delays and disruption to your journey.

Please check our website  
[networkrail.co.uk/engineeringworks](http://networkrail.co.uk/engineeringworks) before you travel to minimise any inconvenience during these vital works.

*Working For You*

Last updated 18/08/19 15:35

### Customer information

## A new line for London

The Elizabeth line will stretch more than 60 miles from Reading and Heathrow in the west through central tunnels across to Shenfield and Abbey Wood in the east.

The new railway - currently being built by Crossrail Ltd - will stop at 41 accessible stations, 10 newly built and 30 newly upgraded, and is expected to serve around 200 million people each year.

For further information, tap your phone on the side of the screen  
(iPhone users will need an NFC app)

Information provided by Transport for London

# Inform Messaging + BSL

- > British Sign Language is the preferred language of over 87 thousand deaf people in the UK
- > **Many of our deaf community are unable to read English**, especially those who have been deaf since birth, so signing may be their only means of communication.
- > Station announcements and disruption notices are sent out in text and audio. Network Rail, LB Foster and Clarion UK have teamed up to provide BSL translations for operational messages on our existing mobile & fixed screens



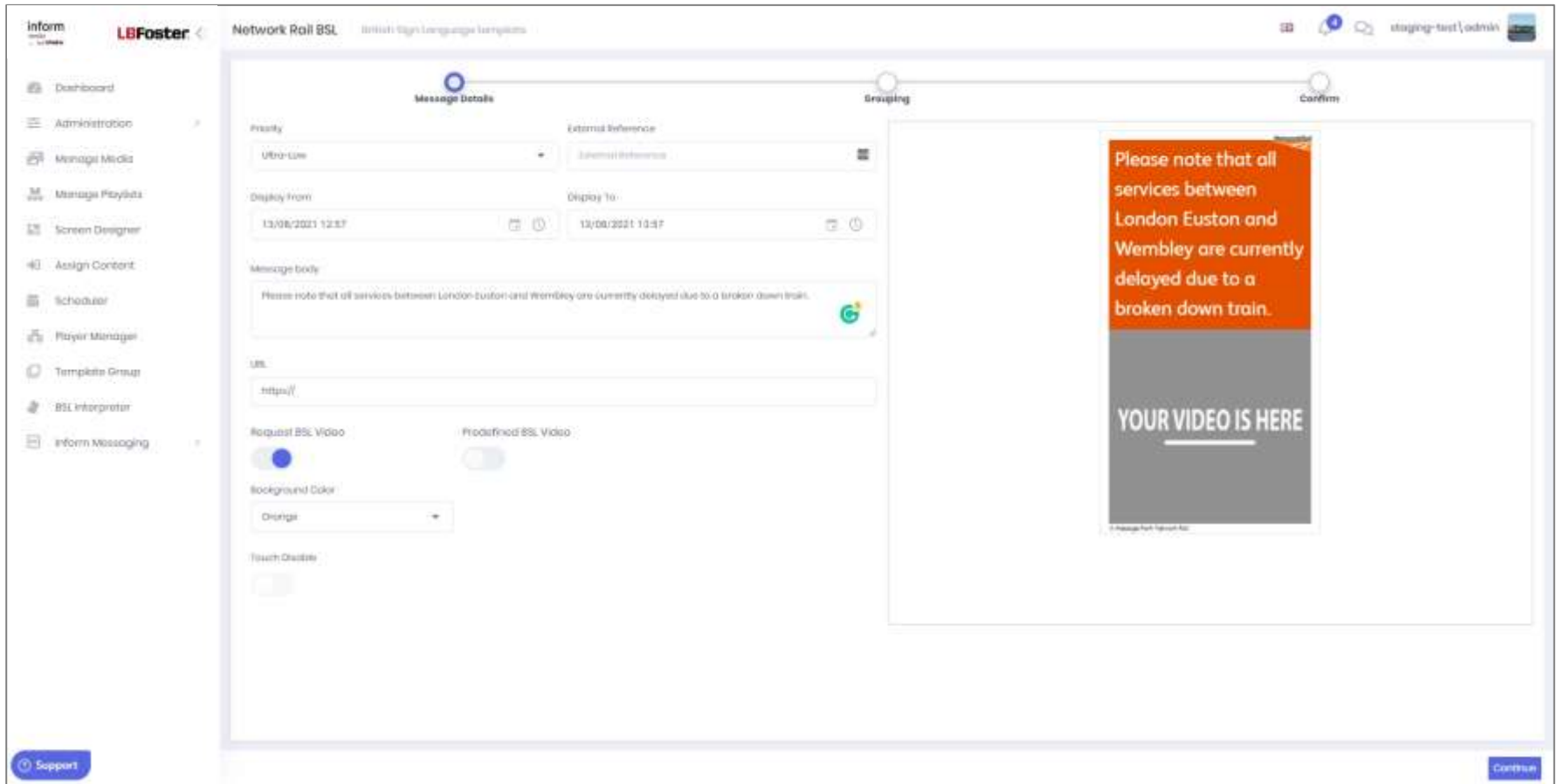
# Inform Messaging + BSL

- > We were approached by Network Rail / Euston early in 2020 to look into how we could help make Inform Messaging more accessible for passengers with BSL as a first language
- > We proposed and built a solution to build on Inform Messaging to add in:
  - > A library of pre-recorded BSL messages that users can select to add to OIS messages
  - > Library of messages specified by Euston and provided by Clarion to cover a range of common scenarios, such as disruption, station facility notices, evacuation
  - > The ability to request on-the-fly translations from our partners at Clarion UK, turned around in under an hour



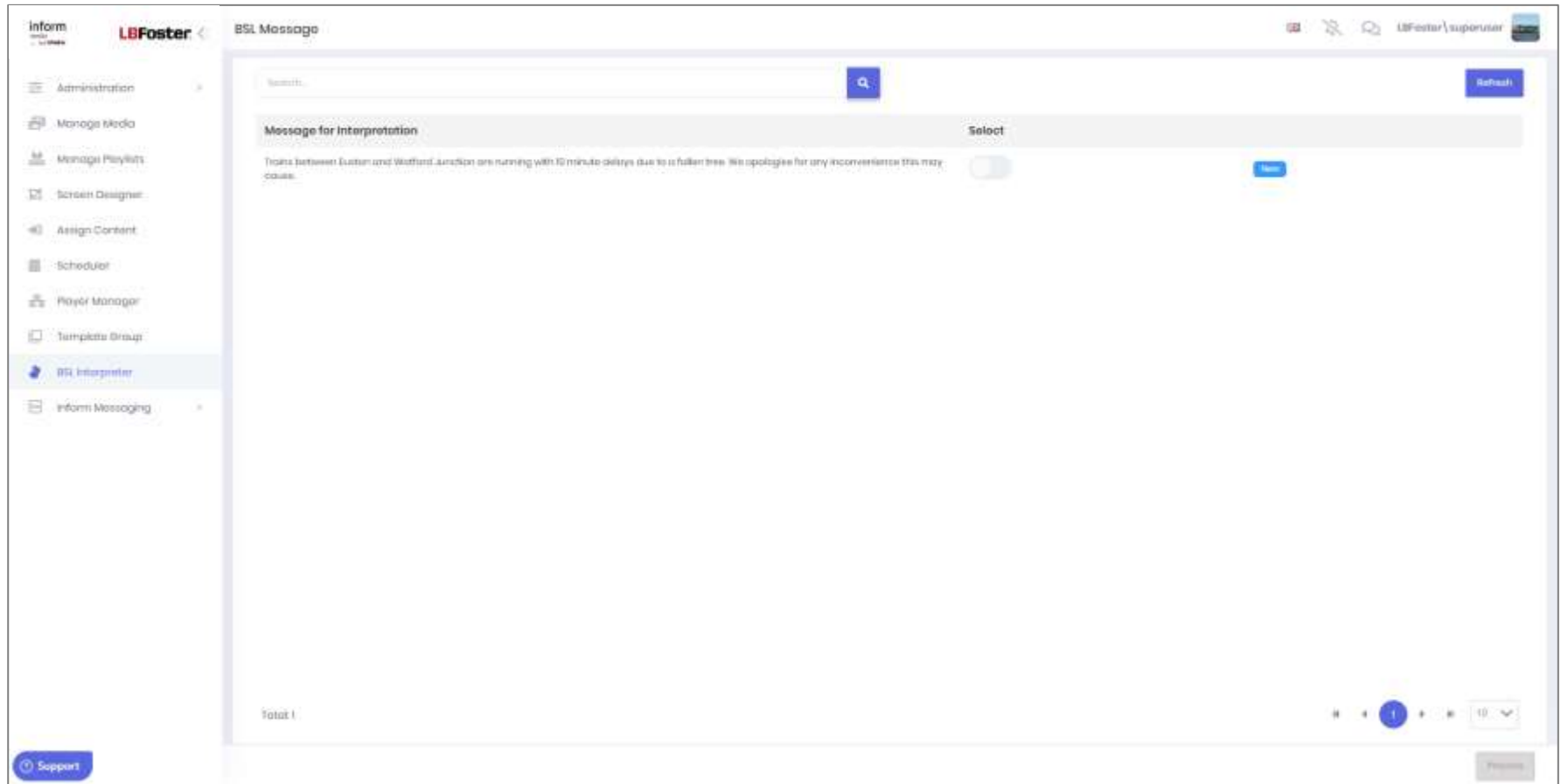
# Inform Messaging + BSL

> Messages sent via Inform Media portal. Enter text and select pre-defined or request BSL video.



# Inform Messaging + BSL

- > Translators at Clarion UK receive request via e-mail and upload video straight into Inform Media



# Inform Messaging

> Who uses it?



# Inform Content

# Inform Content

> What is it?

- Standardised media package for Inform Media
- Targeted at rail industry

> What does it do?

- Gives new customers a starting point for pushing live content out to screens
- Can be re-branded and configured for any customer



# Inform Content: CIS

- > Live passenger information powered by TIGER with failover to Darwin
  - Departures, Arrivals, Next Direct Trains, Platform Display
  - Hides imminent services within  $n$  minutes of departure

Departures				Time Now
Time	Destination	Platform	Expected	14:50
14:54	Hashtings	6	On time	
Calling at : Orpington, Sevenoaks, Tunbridge, High Brooms, Tunbridge Wells, Wadhurst, Bottle, St Leonards Wester Sq				
southcoastern				
14:54	Orpington	2	On time	
Calling at : New Cross, St Johns, Lewisham, Hither Green, Grove Park, Elmstead Woods, Chadwell, Petts Wood				
southcoastern				
14:55	London Charing Cross	9	On time	
Calling at : London Waterloo (East)				
southcoastern				
14:55	Epsom	12	On time	
Calling at : Newwood Junction, West Croydon, Waddon, Wallington, Croydon, Beches, Sutton (Surrey), Cheam, Ewell East				
southcoastern				
14:57	Grovesend	7	On time	
Calling at : Hither Green, Lee, Mottingham, New Eltham, Sidcup, Albany Park, Berley, Croydon, Dartford, Stone Crossing, Greenhithe For Bluewater, Swanscombe, Northfleet				
southcoastern				

Page 1 of 2

Next fastest trains			Time Now
Destination	Time	Platform	11:40
Brighton (East Sussex)	11 mins	A	
Calling at : ars (11:58), London Bridge (12:04), East Croydon (12:18), Gatwick Airport			
ThamesLink /			
East Croydon	9 mins	A	
Expected at: 11:48			
This train has been delayed by a speed restriction			
Calling at : ars (11:53), London Bridge (11:59), East Croydon (12:14), Coulsdon South (12:28)			
ThamesLink /			
Ebbsfleet International	16 mins	-	
Calling at : (12:17), Strood (12:28), Rochester (12:32), Chatham (12:35), Gillingham (12:41)			
southeastern			
Gatwick Airport	11 mins	A	
Calling at : ars (11:58), London Bridge (12:04), East Croydon (12:18), Gatwick Airport			
ThamesLink /			
London Bridge	9 mins	A	
Expected at: 11:49			
This train has been delayed by a speed restriction			
Calling at : ars (11:53), London Bridge (11:59), East Croydon (12:14), Coulsdon South (12:28)			
ThamesLink /			
Luton Airport Parkway	12 mins	B	
Calling at : Luton Airport Parkway (12:22), Luton (12:26), Leagrave (12:31), Harlington			

Page 1 of 2

St Pancras

Departures		Time Now
Destination	Platform	09:36
Manchester Victoria	08:52	
Manchester Airport	09:08	1
Manchester Airport	09:39	
Manchester Airport	10:08	←
Castleford	10:03	
Castleford	11:03	5
		→

# Inform Content: Rainbow Boards

- > Visual line status indicators (coming soon)
  - Show service status for relevant routes / stations from multiple relevant TOCs

Information Time Now 09:47

Service status update

South Western Railway


Kingston/Shepperton	Minor Disruption
Chessington/Epsom	Good Service
Suburban Lines	Major Disruption
Surbiton/Cobham	Major Disruption
Hounslow Loop	Good Service
Reading/Windsor Lines	Good Service
South Western Mainline	Major Disruption
West of England	Major Disruption
Portsmouth Direct	Major Disruption
South Hampshire Locals	Major Disruption
Ramsay/Salisbury	Major Disruption
Ascot/Guildford	Special Timetable
Island Line	Good Service

Page 1 of 3 Updated 09:46 South Western Railway

Information Time Now 09:47

Underground status

Euston Square CLOSED



Circle	Service closed
Hammersmith & City	Service closed
Metropolitan	Service closed

Hammercsmith & City 2/3

Service closed:  
No service due to operational restrictions.

Page 1 of 1 Updated 09:46

Information Time Now 09:47

Service status update

GWR

Cardiff/Gloucester - South Coast via Bristol TM	Good Service Operating
Cardiff-Portsmouth/Brighton	Good Service Operating
Cardiff/Bristol Area services	Moderate Disruption
Cardiff/Bristol Parkway-Taunton via Weston SM	Good Service Operating

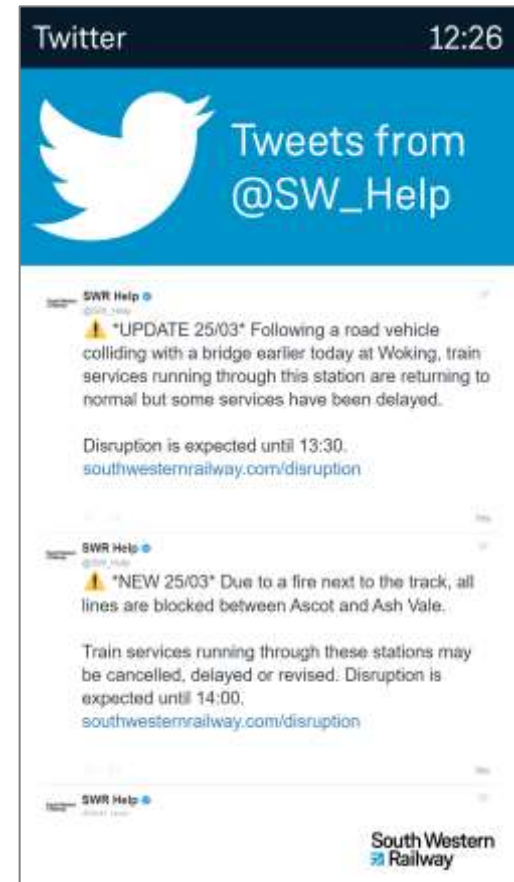
TRAFNIDIAETH CYMRU TRANSPORT FOR WALES

Cardiff - Cheltenham	Severe Delays
Cardiff - Shrewsbury	Severe Delays
Cardiff - Swansea	Severe Delays

Page 3 of 3 Updated 09:46 South Western Railway

# Inform Content: Twitter

- > Shows Tweets from the official company account
  - Automatically scrolls, shows images and filters out replies





# Inform Content: Facebook

- > Shows content from the official company page
  - Automatically scrolls, shows images and filters out replies



# Inform Content: Live route status maps

- > Live route maps, visually showing line disruptions
  - Shows information from Tyrell feed for multiple TOCs



# Inform Content: multi-modal CIS

- > Departure information for other modes of transport (coming soon)
  - Bus, tram, plane, ferry etc.

Bus departures			Time Now 13:28
Time	Direction	Service No.	
Fairfield St/Piccadilly Station (C)			
13:34	Ancoats, Travis Street	147	
Request			
13:36	Ashton-Under-Lyne, Ashton-Under-Lyne Interchange	219	
Request			
13:36	Sheffield Centre, Sheffield Interchange	X57	
Hollies of Easter			
13:44	Ancoats, Travis Street	147	
Request			
13:45	Ashton-Under-Lyne, Ashton-Under-Lyne Interchange	219	
Request			
13:54	Ashton-Under-Lyne, Ashton-Under-Lyne Interchange	219	
Request			

Page 1 of 1

Tram Departures			15:32
Destination	Single/Double	Due	
Altrincham	Double	2 mins	
Piccadilly	Double	5 mins	
Ashton-under-Lyne	Double	8 mins	
Bury	Double	8 mins	
Eccles via MediaCityUK	Double	8 mins	
Piccadilly	Double	10 mins	
Altrincham	Double	14 mins	
Piccadilly	Double	16 mins	
Ashton-under-Lyne	Double	20 mins	
Eccles via MediaCityUK	Double	20 mins	

Page 1 of 1

Departures					09:40
Scheduled	Flight No.	Destination	Airline	Status	
09:50	AA6140	New York City	American	Gate Closed	
09:50	AA6338	Geneva	American	Flight Closing	
09:50	AA6493	Hamburg	American	Gate Open	
09:50	AY5475	New York City	JetBlue	Gate Closed	
09:55	AA6590	Nice	American	Flight Closing	
10:00	AA6594	Berlin	American	Boarding	
10:00	BA408	Valencia	British Airways	Gate Open	
10:15	AA6477	Copenhagen	American	Gate Closed	
10:15	BA235	Moscow	British Airways	Boarding	
10:20	AA6263	Milan	American	Gate Open	
10:25	IB7643	San Francisco	Iberia	Gate Open	
10:40	BA283	Los Angeles	British Airways	On Time	
10:45	AA6758	Dublin	American	Cancelled	

Page 1 of 3

# Inform Content: Engineering feed

- > Show passengers information about upcoming engineering works (coming soon)
  - Shows information from Nexus Alpha feed

Improvement work

## Engineering Work: Between Slough and Taplow

Planned engineering work will take place between Slough and Taplow on Monday and Tuesday, from 23:50, Monday 01 February 2021 to 02:00, Wednesday 03 February 2021.

Additional Information: From 2350 on Monday and Tuesday until 0200 the next day - Trains will not call at Burnham or Taplow. Replacement buses will run between Slough, Burnham and Taplow.

For further information, tap your phone on the side of the screen  
(Phone users will need an NFC app)

Information published 08/01/21  
Page 6 of 6

South Western  
Railway

Improvement work

## Engineering Work: Between Castle Cary and Taunton

Planned engineering work will take place between Castle Cary and Taunton on Monday, Tuesday, Wednesday and Thursday, from 22:00, Monday 01 February 2021 to 02:00, Friday 05 February 2021.

Additional Information: Monday to Thursday - 2104 London Paddington to Plymouth will be diverted between Westbury and Taunton extending journey times. The train will not call at Castle Cary. Buses will run between Westbury and Castle Cary and between Castle Cary and

For further information, tap your phone on the side of the screen  
(Phone users will need an NFC app)

Information published 08/01/21  
Page 1 of 6

South Western  
Railway

# Inform Content: BSL announcements

- > Show passengers information about departures from platforms (coming soon)
  - First step towards translating all station messaging into BSL





# Inform Content

> Who uses it?



# Inform Interactive



# Inform Interactive

- > What is it?
  - The interactive information app deployed to totems
  - Formerly known as “Wayfinder” / “Journey Planner”
  - Contains much rail-focused functionality, but can be configured for any industry
- > What does it do?
  - Allows customers to access key information quickly
  - Includes rail functionality such as CIS & journey planner





# Inform Interactive: Home screen

> Clear, simple interface

- Fully customisable colours, fonts and logos, allowing customer branding to be used
- Ability to create sub-menus to organise content and simplify screen layouts



# Inform Interactive: CIS

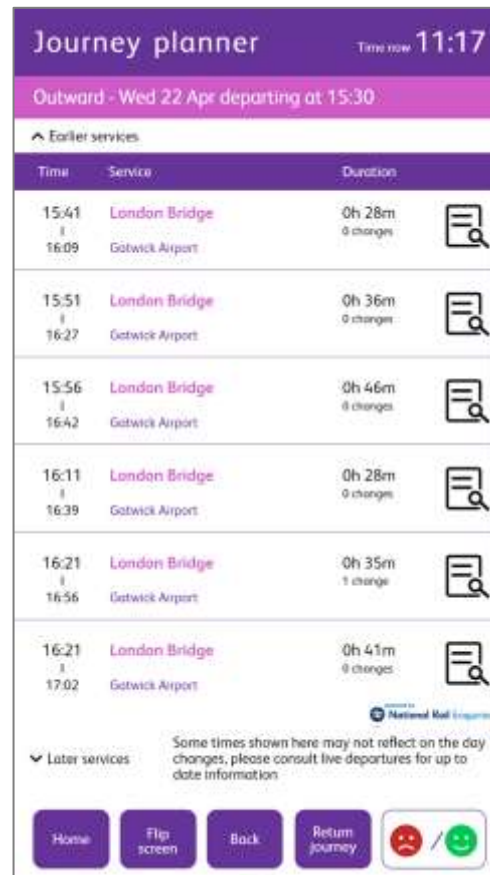
- > Live departures, arrivals and next direct trains
  - Scrollable lists and text search function to find specific stations



# Inform Interactive: Journey Planner

> NRE-powered journey planner

- Select origin, destination, time & date and whether a return journey is required



# Inform Interactive: Ticketing links

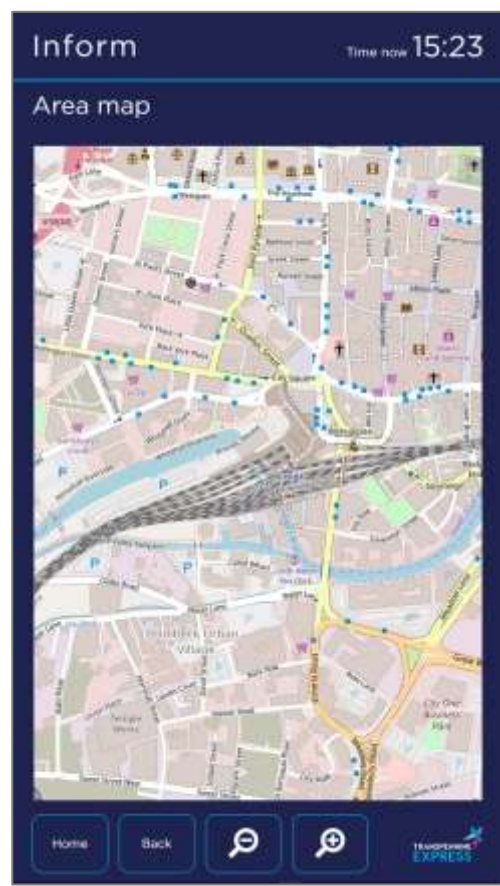
- > QR code links users to TOCs' websites to purchase tickets from journey planner (coming soon)
  - Link can be pre-populated with journey details if supported by the ticketing website





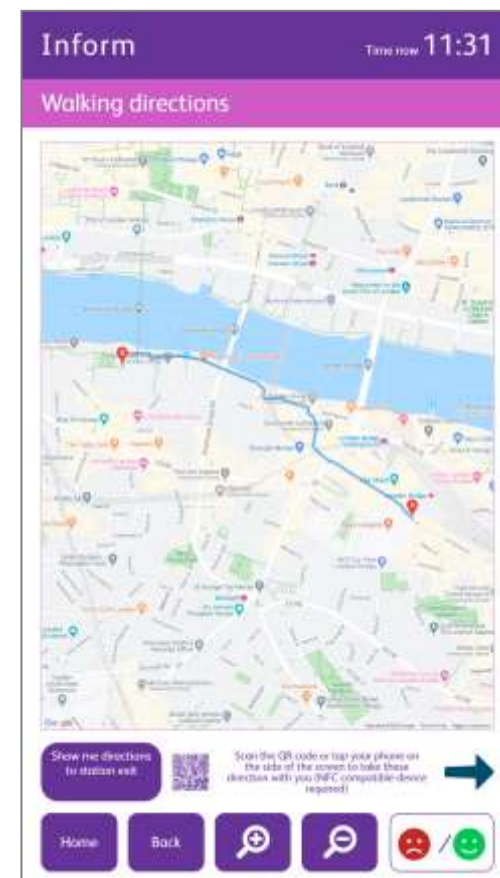
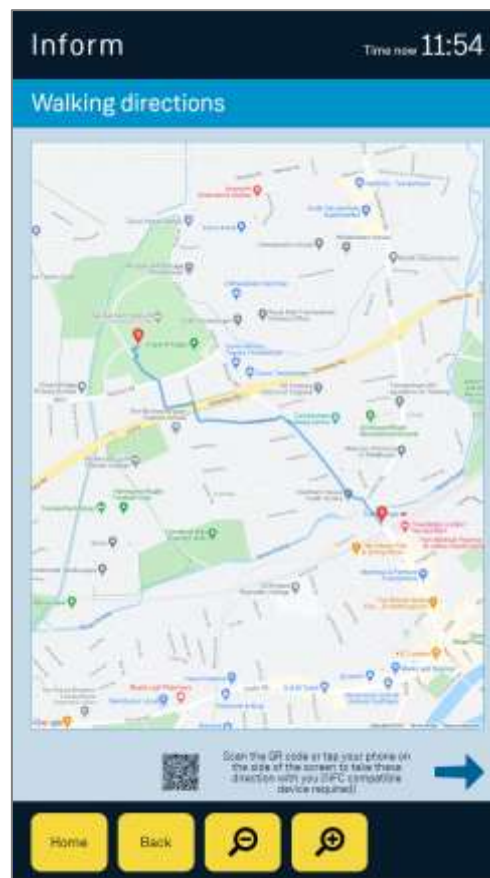
# Inform Interactive: Local Maps

- > Display static maps of station, local area and/or local transit routes
  - Import existing PDF maps or display scalable image from OpenStreetMap



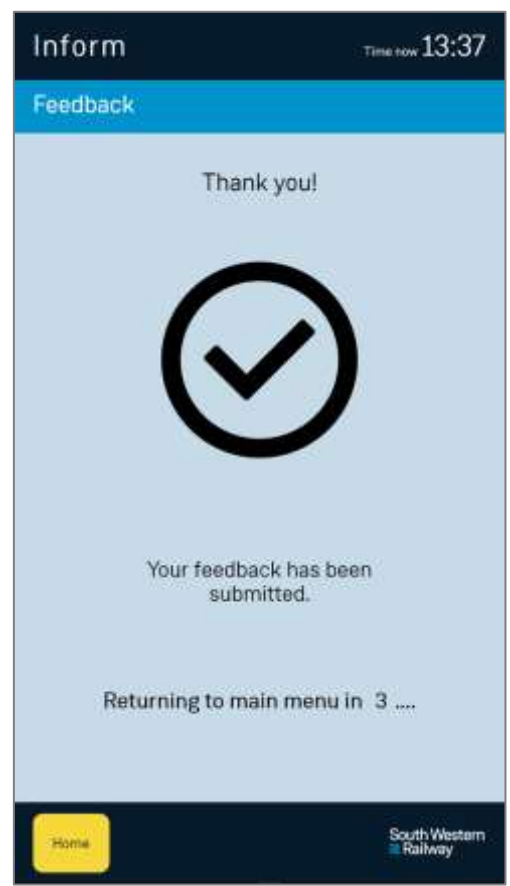
# Inform Interactive: Walking directions

- > Walking directions to local landmarks and points of interest
  - Scan QR code or tap NFC device for a link to Google Maps on your phone



# Inform Interactive: Feedback

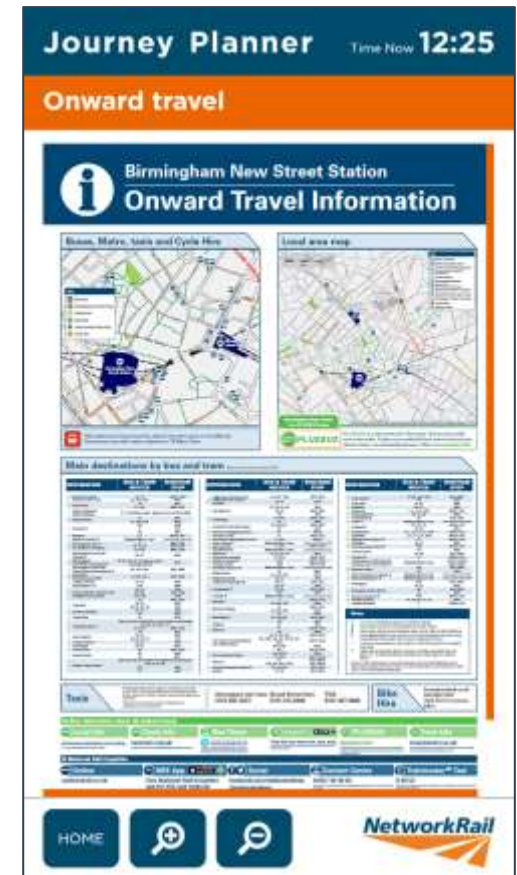
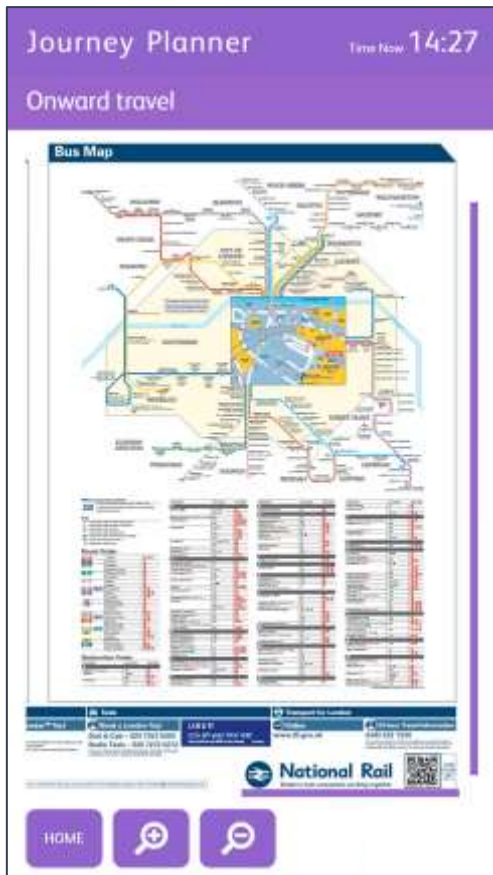
- > Gather and report on customer feedback directly from screens
  - Use built-in rating and comments, or link to 3<sup>rd</sup> party sites (Microsoft Forms)





# Inform Interactive: Onward travel

- > Display local bus, taxi and tram information
  - Import existing PDFs, user can pan around and zoom in





# Inform Interactive: London travel options

- > TfL powered bus journey planner and licensed Tube maps (day, night & rail)
- Potential to integrate journey planners and transit maps in other cities

**Bus journey planner** Time now 11:28

Outward - Tue 21 Apr departing at 16:30

Fast bus

Time	Service	Duration	
16:26   17:08	Tooley Street / City Hall Islington (London), Highbury Corner	0h 42m 2 changes	
16:30   17:26	Tooley Street / City Hall Islington (London), Highbury Corner	0h 56m 1 change	
16:30   17:54	Tooley Street / City Hall Islington (London), Highbury Corner	1h 24m 0 changes	
16:46   17:28	Tooley Street / City Hall Islington (London), Highbury Corner	0h 42m 2 changes	

Later services Some times shown here may not reflect on the day changes, please check with TfL for up to date information

Home Flip screen Back

**Bus journey planner** Time now 11:56

Journey summary

12:30 Twickenham, Twickenham Station 3h 55m  
5 changes

16:25 Newham, West Ham Park

Journey details

12:30 Twickenham Station (Stop B) 1h 1m  
Bus  
Stop Points: Wilton Road, Hill View Road, Islington, Crane Avenue, Woodstock Avenue, Linton Close, Haverly Lakes Centre and Library, Warton Road, Staworth Walk Memorial, Mendeville Road, Twickenham Rd / West Abbotsley House, Park Road, Bush Corner, Clyn Lane, Beach Avenue, Broad Oak, Market Place, Brentford County Court, Weymouth Clarke, The Musical Museum, London Museum of Science and Industry, New Bridge Station, Brentford Fountain Lakes Centre, Thornley Lodge Road, Sunnyside Station, Chiswick Road, Turnham Green Church, Clifton Gardens, Chiswick Police Station, Chiswick Lane, Stamford Brook Bus Garage, Goldhawk Road, Young's Corner, Ravenscourt Park, Ravenscourt Park Station, Dalling Road, Larnington Street, Play Road, Hammersmith Dr / NSC and Circle Lines, Hammersmith Bus Station

13:31 Hammersmith Bus Station (Stop E)

**We are committed to helping London's schools remain open**

13:33 Hammersmith Bus Station (Stop F) 0h 45m  
Bus  
Stop Points: Lathmer Court, Brook Green, North End Road, Holland Road, Merwick Gardens, The Design Museum, Phoenix Gardens, High Street, Paddington Station, Hammersmith, Church Street, Vandon St, Chiswick Terrace, Haring Hill Gate Station, Haring Hill Gate Dr / Pennington Rd, Chiswick Crossings, Pennington Village, Chiswick Road / Westbourne Grove, Quakerly, Portwheel Terrace North, Egham Bridge Road / Westbourne Terrace, Paddington Station

14:18 Paddington Station (Stop H)

Some times shown here may not reflect on the day changes, please check with TfL for up to date information

Home Back South Western Railway

**Inform** Time now 16:14

Tube maps

Day map Night map Rail map

Home Back

© 2014 Transport for London

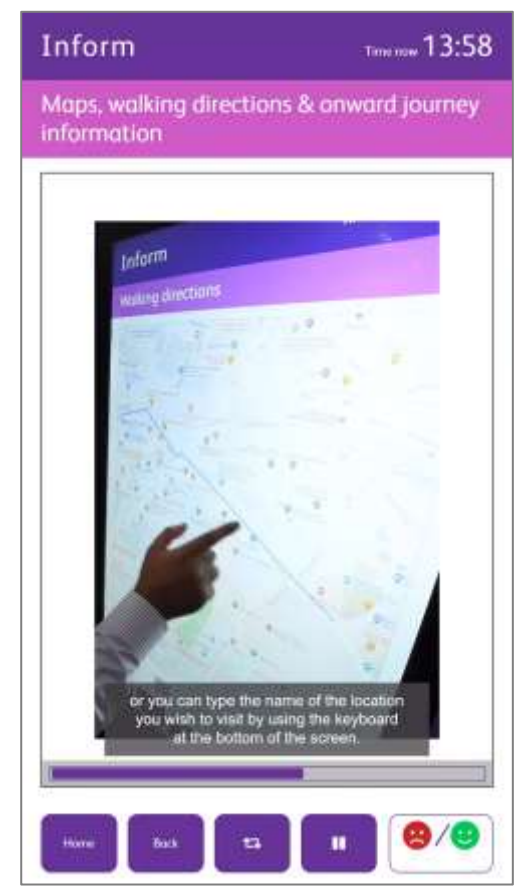
# Inform Interactive: internal wayfinding

- > Show walking directions within the current location
  - Option to show step-free directions, all on one floor or split over multiple



# Inform Interactive: information library

- > Display a menu of PDFs, images and videos the user can browse through
  - Import existing content, easy to build up an information library





# Inform Interactive: accessibility options

- > high contrast mode for visually impaired users, flip screen for users with physical disabilities
  - Content library allows accessibility information menu to be added



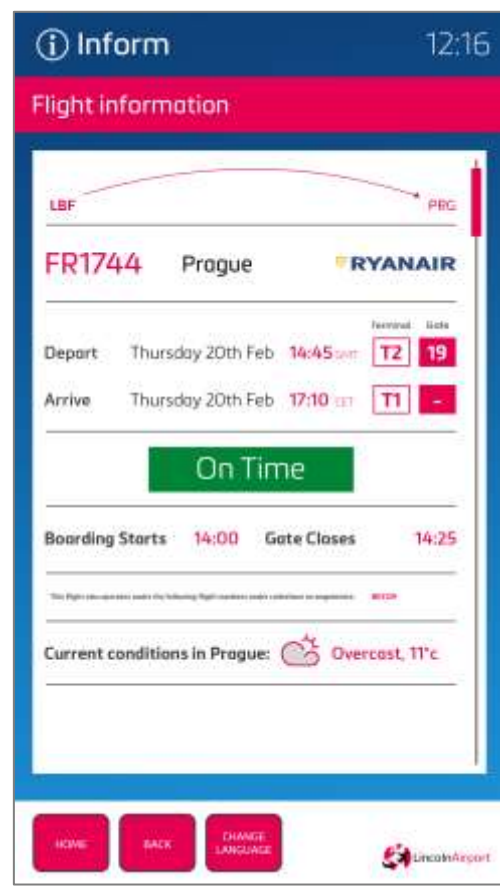
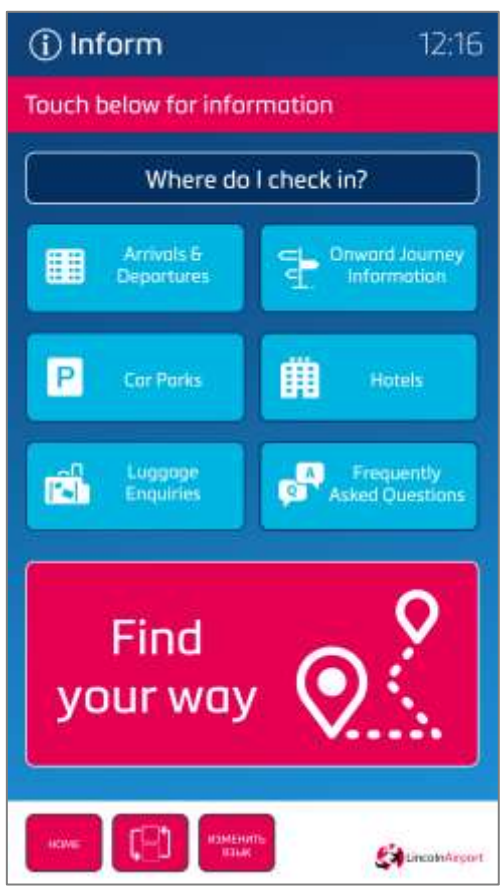
# Inform Interactive: multi language support

- > Switch app to other languages; French, German, Spanish, Chinese & Hindi available now
  - Hungarian, Turkish & Arabic coming soon; others available on request



# Inform Interactive: industry-agnostic

- > No longer all rail-centric functionality (CIS, journey planner)
  - Ability to show any PDF, image or webpage within the app, FIDS coming soon



# Inform Interactive

> Who uses it?



# Anatomy

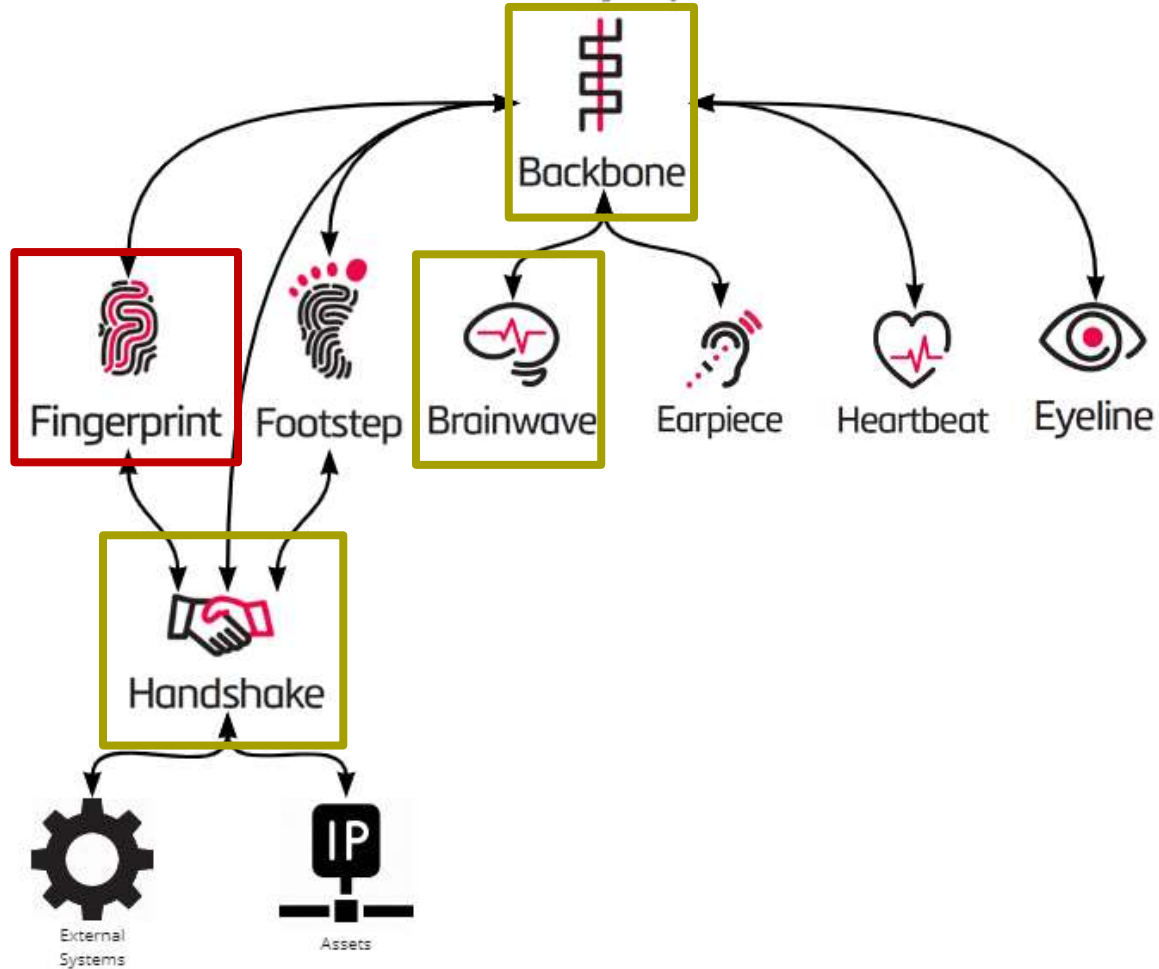


# Products

**LB Foster**<sup>®</sup>

Anatomy

Asset Intelligence System



# Backbone

## > What is it?

- Asset management platform, developed as Remote Performance Monitoring (RPM) 2.0
- Forms the start of the Anatomy suite along with Brainwave (reporting engine)

## > What does it do?

- Database of assets deployed in the estate
- Imports data returned from assets out in the field
- Alerts and notifications sent to users based on pre-defined alarm levels & triggers

The screenshot shows the 'Trackside FM Search' interface. It features a sidebar with navigation options: Administration, Backbone, Brainwave, and Home. The main content area displays a table with 3990 items. The table has columns for Internal Identifier, Common Name, LF, External Identifier, Company, and Division. The data is as follows:

Internal Identifier	Common Name	LF	External Identifier	Company	Division
T000654	Depot - 1.0	L00887		Yokohama Metro	Green Line
T003065	St. Kitts Rd - Inbound Tr...	L21142		Yarra Trams	St. Kitts Rd
T003064	St. Kitts Rd - Outbound ...	L20088		Yarra Trams	St. Kitts Rd
T002577	PUL-PIZ - 72.500	L20064		VLI	FCA-CN
T002567	EPH-ETY - 747.69	L20056		VLI	FCA-CL
T002559	PPF-PAN - 211.500	L20038		VLI	FCA-CN
T002924	EST-EBH - 640.2	L20350		VLI	FCA-CL
T002914	ECL-ESM - 634.41	L20340		VLI	FCA-CL



Backbone

# Backbone

- > 3,892 assets managed for remote condition monitoring and alerting (globally)
- > 27m+ data records collected per year
- > 1.7m+ condition records captured
- > Reporting
  - Power Status
  - Power in volts
  - Temperatures
  - Container volume levels
  - Switch Positions (door open / closed)
  - Pump Cycles
  - GPS
  - Configuration
  - Alarms

# Fingerprint

> What is it?

- Asset maintenance platform
- Not currently standalone; requires integration with an existing back-end

> What does it do?

- Sends maintenance jobs to engineers
- Engineers can view complete history of the asset to improve efficiency and first time fix
- Engineers log actions, complete surveys and return jobs



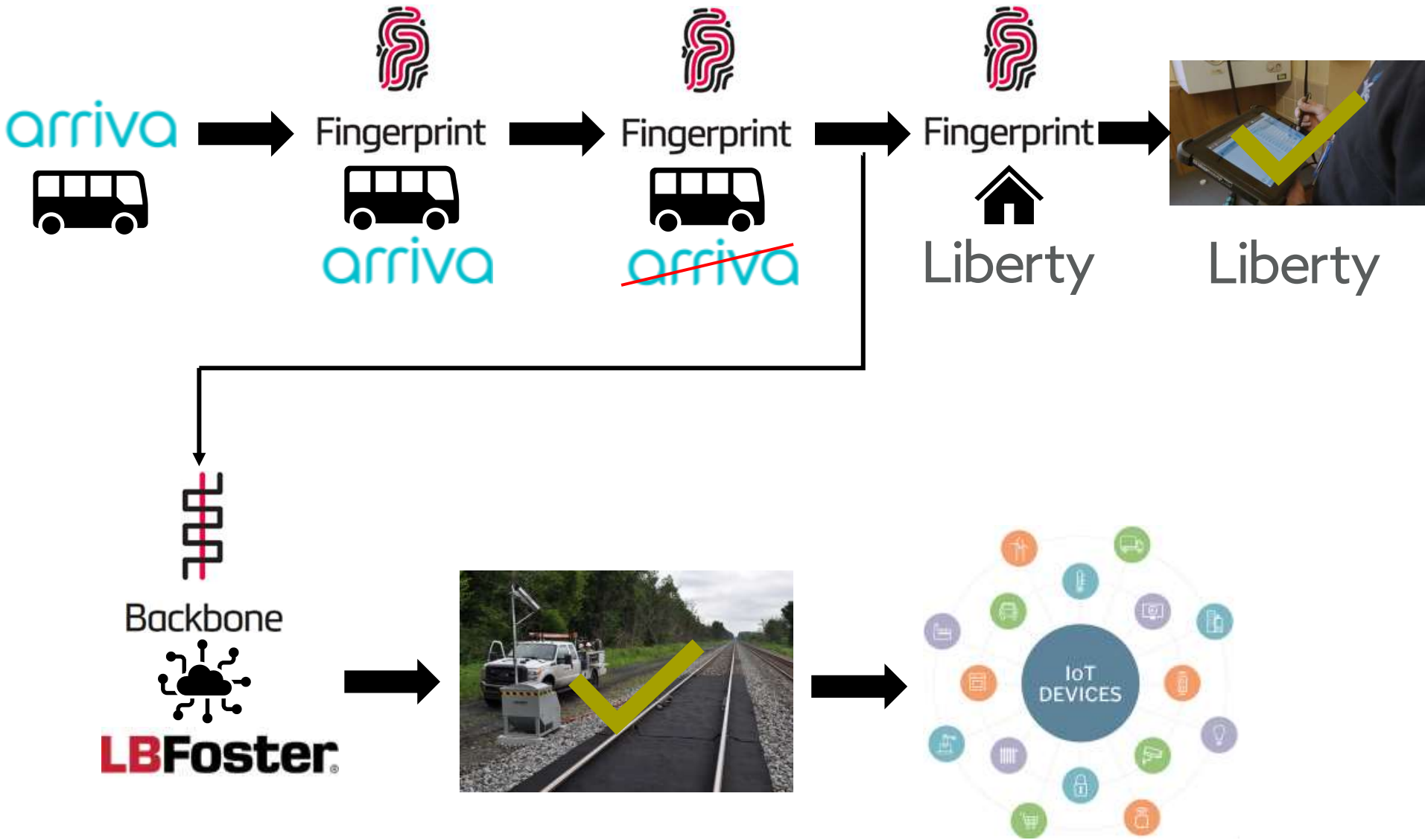
Fingerprint



## Fingerprint - Liberty

- > **244,874** primary assets maintained for breakdowns and service jobs
- > **476+** engineers using L.B. Foster managed tablet devices operating Fingerprint
- > **1.7m** job records created on Fingerprint since deployment (historic preload + new jobs)
- > **2,125+** new jobs created each day for action by engineers around the country
- > **2,000+** touches recorded each day
- > **30,797+** parts ordered
- > **58,197+** parts available from the catalogue
- > **4m+** engineer time records

# Product History



# Backbone

# Backbone

> Asset listing / search

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superadmin@taritas.com

Trackside FM Search

Home / Trackside FM List

Map View Show Details Add Edit Delete

3890 items Columns ... Search

Internal Identifier	Common Name	L#	External Identifier	Company	Division
T000654	Depot - 1.0	L00887		Yokohama Metro	Green Line
T003065	St. Kilda Rd - Inbound Tr...	L21142		Yarra Trams	St. Kilda Rd
T003064	St. Kilda Rd - Outbound ...	L20088		Yarra Trams	St. Kilda Rd
T002577	PJL-PIZ - 72.560	L20064		VLI	FCA-CN
T002567	EPH-ETY - 747.69	L20056		VLI	FCA-CL
T002539	PPF-PAN - 211.500	L20038		VLI	FCA-CN
T002924	EST-EBH - 640.2	L20350		VLI	FCA-CL
T002914	ECL-EGM - 634.41	L20340		VLI	FCA-CL

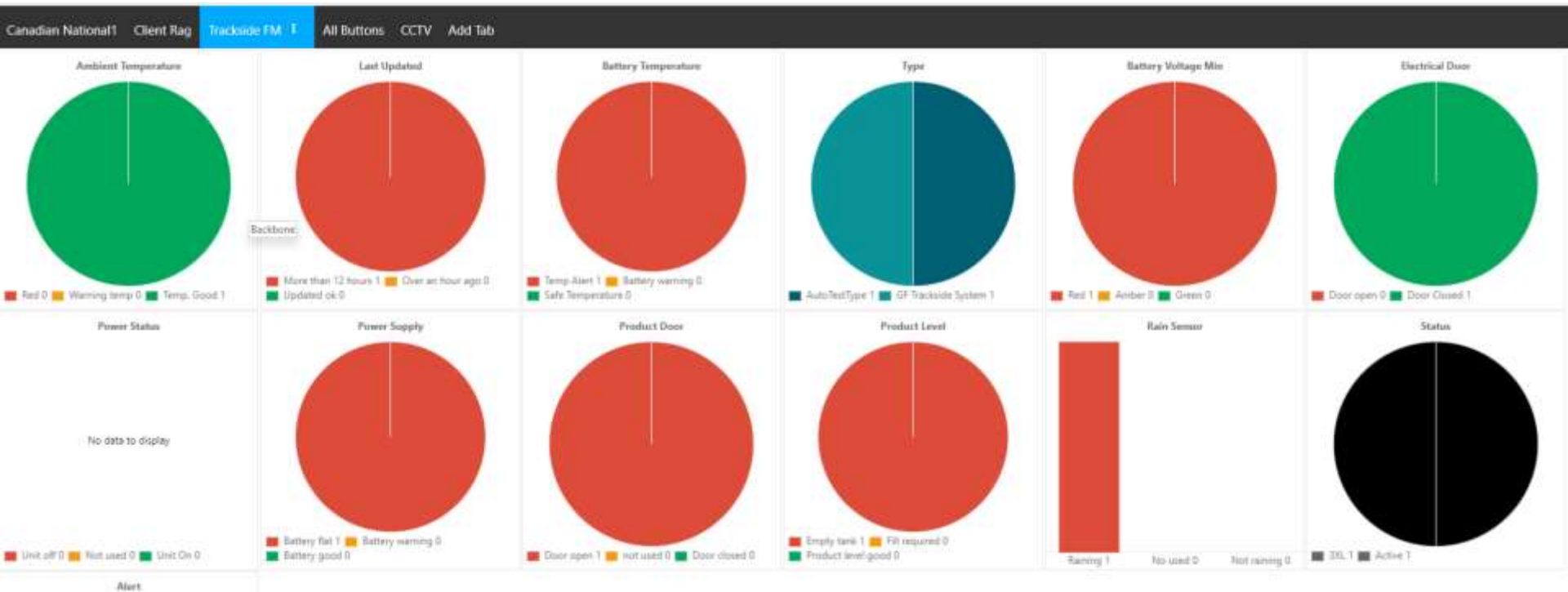
1 of 78 pages (3890 items)

Software Support



# Backbone

> Dashboard



# Backbone

> Asset details - dashboard

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superadmin@taritas.com

### View Asset Details

Home / Asset List / View Asset Details

Next Edit Back to Asset list

Allanwater - 105.80

- Dashboard
- Train Reports
- Daily Reports
- Contacts
- Components
- Remote Power
- Unit status
- Audit Log
- Active Alarm

#### Unit Status

<b>Last Updated</b> 9 days ago	<b>Product Level</b> 77.5 %	<b>Power Supply</b> 12.8 V
<b>Power Status</b> ON by local	<b>Battery Temp</b> 10 F	<b>Ambient Temp</b> 10 F
<b>Rain Sensor</b> N/A	<b>Electrical Door</b> Closed	<b>Product Door</b> Closed

#### Last Train

<b>Last Train Direction</b> A-> B	<b>Duration</b> 115 Seconds	<b>Wheels</b> 344
<b>Battery Voltage Min</b> 12.5 V	<b>Battery Voltage Average</b> 12.9 V	
<b>Detected Pump Cycles</b> 29		

Software Support

# Backbone

> Asset details – daily reports

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superadmin@taritas.com

**View Asset Details**

Home / Asset List / View Asset Details

Next Edit Back to Asset list

Allanwater - 105.80

Day: Last 30 days | Min Date: 16/03/2020 | Max Date: 15/04/2020 | Export Excel

**Daily Reports**

Report Date	Product %	Battery Voltage	Electrical Door	Product Door	Ambient Temperature
05/04/2020 06:00 AM	77.5	12.83	Closed	Closed	10
05/04/2020 02:00 AM	77.79	12.88	Closed	Closed	14.4
04/04/2020 10:00 PM	77.88	13.01	Closed	Closed	22
04/04/2020 02:00 PM	77.88	13.54	Closed	Closed	41.8
04/04/2020 10:00 AM	77.88	13.77	Closed	Closed	58.2
04/04/2020 06:00 AM	77.88	12.8	Closed	Closed	16.6
04/04/2020 02:00 AM	78.37	12.83	Closed	Closed	21.8
03/04/2020 10:00 PM	78.37	12.88	Closed	Closed	26.1

Software Support

# Backbone

> Active alarms

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Trackside FM Search

**Active Alarm List**

Home / Active Alarm List

Acknowledge All

Timestamp	So...	Subject	Type	D...	C...	Further Detail	Pr...	Ackn...
15/04/2020 06...	Asset	Newmarket - 5		ALARM_...	135	AER: DCB Connection DCB...		
15/04/2020 08...	Asset	GLA - North Cc		ALARM_...	135	AER: DCB Connection DCB...		
15/04/2020 08...	Asset	Main West - 83		ALARM_...	140	AER: Remote Power Remo...		
15/04/2020 06...	Asset	Uxbridge - 60.3		ALARM_...	135	AER: DCB Connection DCB...		
15/04/2020 06...	Asset	Barr - 7.5 Main		ALARM_...	128	AER: Battery Battery alarm...		
15/04/2020 06...	Asset	Garrett - 178.1		ALARM_...	135	AER: DCB Connection DCB...		
15/04/2020 08...	Asset	Main North - 5		ALARM_...	140	AER: Remote Power Remo...		
15/04/2020 06...	Asset	Garrett - 178.1		ALARM_...	136	AER: Missing end of train ...		

Software Support

# Backbone

> Brainwave: reports

REMOTE PERFORMANCE MONITORING

superadmin@taritas.com

Trackside FM Search

Administration <

Backbone <

Brainwave >

Queries

Reports

Scheduled Reports

Home

**Report list**

Home / Reports List

Edit Close

## Daily Report

### Low Product and Power Systems

Critical Assets	Subdivision	Asset Type	Internal Identifier	Product Level	Power Level
Allanwater - 127.20	Allanwater	GF Trackside System	T002037	11.2	13.77
Alliance - PC 46.0 Main 2	Alliance	TOR Trackside System	T001429	0.0	12.89
Alliance - PC 64.9 Main 1	Alliance	TOR Trackside System	T001422	100.0	6.01
Ashcroft - 0.6	Ashcroft	TOR Trackside System	T002602	0.0	10.74
Ashcroft - 15.7	Ashcroft	TOR Trackside System	T002723	26.0	13.56
Ashcroft - 38.8	Ashcroft	TOR Trackside System	T002623	26.4	13.64
Ashcroft - 46.6	Ashcroft	TOR Trackside System	T002721	4.5	13.08
Ashcroft - 55.5	Ashcroft	TOR Trackside System	T002718	0.6	13.17
Ashcroft - 63.7	Ashcroft	TOR Trackside System	T002720	1.3	13.15
Ashcroft - 71.3	Ashcroft	TOR Trackside System	T002722	19.2	13.17
Ashcroft - 111.2	Ashcroft	TOR Trackside System	T002687	11.2	13.17
AusRail Plus 2019 - 1.0	Not In Service	GF Trackside System	T003321	11.4	12.88
Bala - 200.60	Bala	GF Trackside System	T002502	25.6	13.78
Bandel 111 - 1519.900	Bandel 111	GF Trackside System	T000774	21.3	13.95
Barr - 13.0 Main 2	Barr	GF Trackside System	T001815	30.3	13.98

### Off Units

Asset	Subdivision	Asset Type	Internal Identifier	SystemPowerStatus	
				OFF by local	OFF by remote
Alliance - PC 64.9 Main 1	Alliance	TOR Trackside System	T001422		■
Ashcroft - 0.6	Ashcroft	TOR Trackside System	T002602		■
Ashcroft - 95.5	Ashcroft	TOR Trackside System	T002604	■	

Company: (All)

Product Level: 0.0 to 100.0

Power Level: 6.00 to 15.00

SystemPowerStatus:  
■ OFF by local  
■ OFF by remote

Software Support

# Re-cap

# Re-cap

- > Who are Digital Solutions?
  - Software division of LB Foster
  
- > What do we do?
  - Off-the-shelf software solutions & bespoke development projects
  
- > What products do we sell?
  - **Inform Media**                      Digital signage platform
  - **Inform Messaging**              Operational messaging plug-in for Inform Media
  - **Inform Content**                 Library of information content offered with Inform Media
  - **Inform Interactive**             Touchscreen information app
  - **Backbone (Anatomy)**            Asset management system

# Next steps

> ...



Thank *you*

