



It's a People thing!

How Heathrow has encouraged teams to embrace digital asset delivery

13 June 2024

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Speakers



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Cohesive

The Challenge

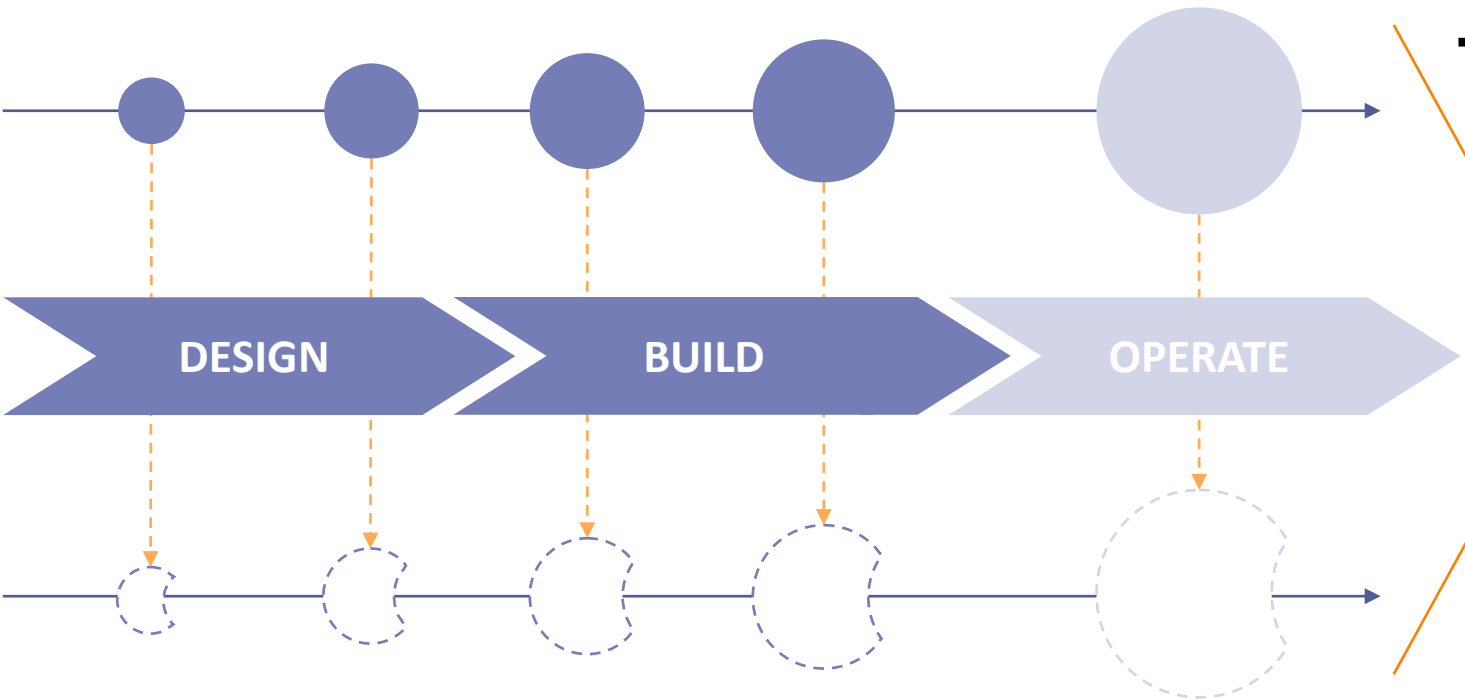
Chapter 1

It's a People Thing



Digital Asset Delivery: Original state

£4.2bn CAPEX over 5 years



Challenges on CAPEX activities:

- Poor control and visibility of surveys
 - Inaccessible data
 - Lack of trust
 - Project delays due to outdated information
 - No early governance of controls
- Wasted time validating data
 - Non-conformance
- Unused value in supply chain data
- Loss of quality / assurance

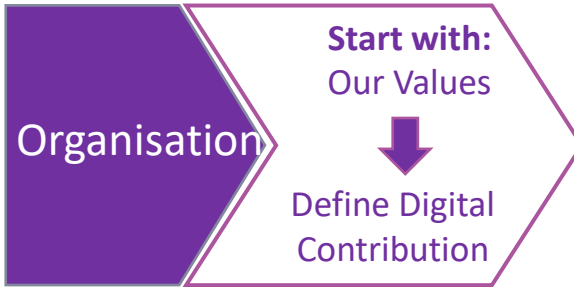
The People and the Principles

Chapter 2

It's a People Thing



Aligning Values, Behaviours and Digital



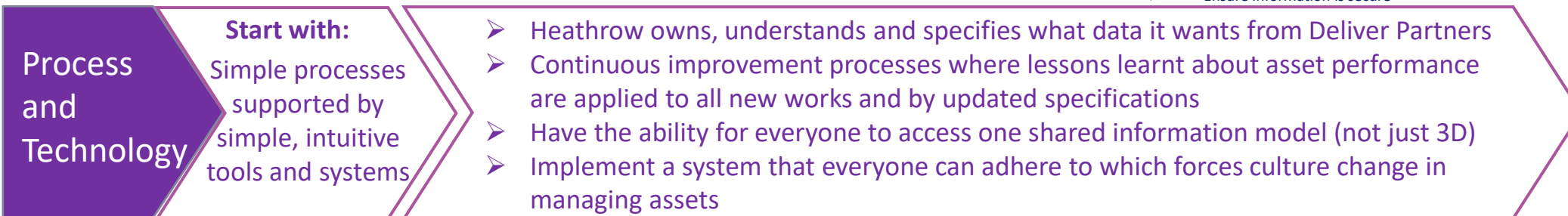
Our Behaviours:

- Take Ownership
- Work as a team
- Focus on results
- Look after customers
- Build Relationships
- Look for improvements
- Drive change
- Think strategically



Principles – Over the life of an asset Heathrow will:

- Value information about the asset as much as the physical asset
- Create, share and use trusted information about the asset
- Ensure decisions are supported by reliable information
- Improve efficiency and quality through better use of information
- Have a clear purpose when capturing and using asset information
- Have clear ownership of asset information
- Learn lessons about the safety and performance of all assets
- Use simple tools which make finding asset information easy
- Use common ways to record and find asset information
- Ensure Information is secure



Defining the Information Management Principles

Information Management Principles

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9. Use common ways to record and find asset information
10. Ensure Information is secure

Digital Strategy Supporting Heathrow Values

Our values

Digital Contribution



Risks are identified, understood, mitigated & shared more easily



Respect others by giving them the information they need, when they need it



Using reliable, up to date information to in the service of others

Digital Contribution



Breaking down of silo's, through collaborative sharing of information



Making better decisions with the right information to the benefit of all



Continuous improvement through shared knowledge

Aligning Heathrow Behaviours and Information Management Principles and Behaviours

Our behaviours

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- Work as a team
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Aligning Heathrow Behaviours and Information Management Principles and Behaviours

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Cohesive

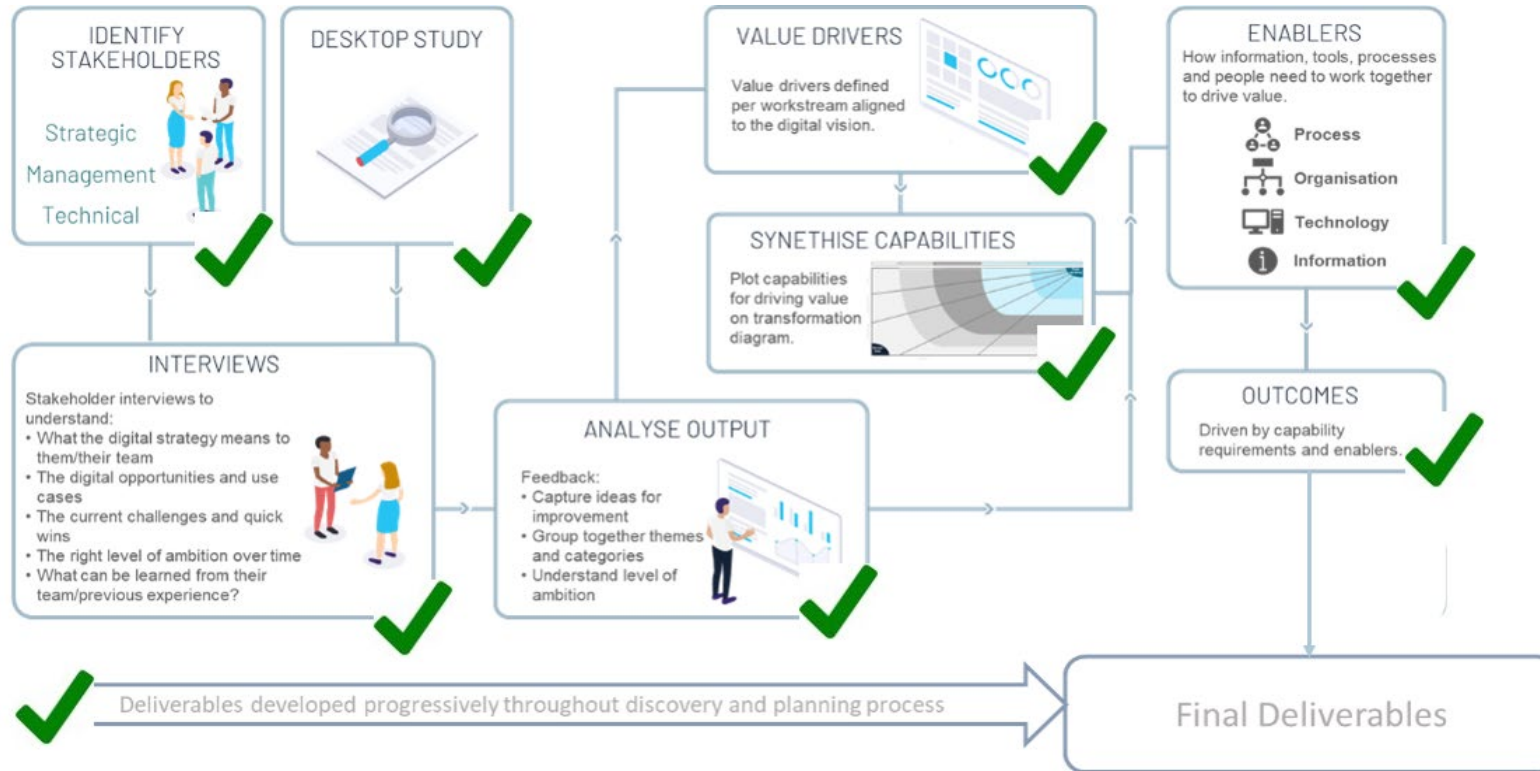
The Approach and Outcomes

Chapter 3

It's a People Thing



Our Approach



- Discovery Review: To review the outputs from previous work and establish the current Heathrow capabilities and working practices.
- Discovery Approach: Any comments from stakeholders were incorporated in a final view and clearly documented, from the stakeholder category through the use cases, to observation and root cause analysis.

User Stories

Work to date
Synthesis Themes to User Stories

| 1 | CULTURAL CHANGE |
|-----|---|
| Ref | User Story Name |
| 1.1 | Data is part of my day to day work |
| 1.2 | What I do with data helps other people |
| 2 | COMMERCIAL VALUE |
| Ref | User Story Name |
| 2.1 | I want to get the best value from the use of data |
| 3 | ACCESSIBLE DATA |
| Ref | User Story Name |
| 3.1 | Information is stored in a consistent way |
| 3.2 | Information is easy to access |
| 3.3 | There are simple and standard ways of working with data |
| 4 | SIMPLE ACCESSIBLE SYSTEMS |
| Ref | User Story Name |
| 4.1 | Everyone is working with the same information |
| 4.2 | Systems allow easy use of information |
| 5 | CLEAR INFORMATION REQUIREMENTS |
| Ref | User Story Name |
| 5.1 | Information has a clear purpose |
| 5.2 | We know who needs what information and when |
| 5.3 | We know what systems to use |

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- By reviewing the detailed commentary from the sessions, it was possible to create a set of themes.
- These were then mapped to user stories and consolidated from the detailed view to a high level view.
- This was to ensure that nothing was “lost in translation
- The detailed user stories become part of the acceptance criteria

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- Some User Stories are relevant to everyone working at Heathrow.
 - e.g., “I want to trust the data and the technology.”
- Others apply to a specific group of people
 - e.g., “I want to make sure there is good management of accurate survey data.”

Capabilities and Requirements

Work to date
User Stories mapped to HAL Organisational Requirements

| Category | User Story | HAL Organisational Requirement |
|--------------------------------|--|---|
| CULTURAL CHANGE | HAL needs to know how and why their assets and spaces are used | CD01 HAL needs to know how and why their assets and spaces are used |
| | HAL needs to control data | CD02 HAL needs to control data |
| | HAL needs to specify what data it wants from delivery partners | CD03 HAL needs to specify what data it wants from delivery partners |
| | HAL needs to have sufficient ownership rights on data about their assets | CD04 HAL needs to have sufficient ownership rights on data about their assets |
| COMMERCIAL VALUE | HAL needs to make sure to get the right information from contractors at the right time | CD05 HAL needs to make sure to get the right information from contractors at the right time |
| | HAL needs to ensure that external contractors have access to information | CD06 HAL needs to ensure that external contractors have access to information |
| | HAL needs to break down internal "silos" | CD07 HAL needs to break down internal "silos" |
| ACCESSIBLE DATA | HAL needs to consolidate its standards into a one user-friendly interface | CD08 HAL needs to consolidate its standards into a one user-friendly interface |
| | HAL needs to implement one shared information model for everyone to use | CD09 HAL needs to implement one shared information model for everyone to use |
| | HAL needs to have one common database / platform that all relevant stakeholders can easily interface with | CD10 HAL needs to have one common database / platform that all relevant stakeholders can easily interface with |
| SIMPLE ACCESSIBLE SYSTEMS | HAL needs to ensure communication and effective coordination with relevant stakeholders | CD11 HAL needs to ensure communication and effective coordination with relevant stakeholders |
| | HAL needs to have good coordination between works undertaken by different delivery partners (e.g., contractors) | CD12 HAL needs to have good coordination between works undertaken by different delivery partners (e.g., contractors) |
| CLEAR INFORMATION REQUIREMENTS | HAL needs to track how and why change is being managed | CD13 HAL needs to track how and why change is being managed |
| | HAL needs to ensure that there's evidence of timely quality assurance control processes and that they are being followed correctly | CD14 HAL needs to ensure that there's evidence of timely quality assurance control processes and that they are being followed correctly |
| | HAL needs to have more controls over timing and management of information handover | CD15 HAL needs to have more controls over timing and management of information handover |
| | HAL needs simple systems that incentivise people to access and use all the information relevant to their work | CD16 HAL needs simple systems that incentivise people to access and use all the information relevant to their work |

Cross referenced back to synthesis / interviews (i.e., what we heard people say)

- We have also derived a separate set of Organisational Capabilities
- These map to the user stories thereby ensuring there is an organisational NEED which will be achieved in whole or part by delivering the requirement identified by the Use Case

Work to date
HAL Organisational Requirements to Interventions

| Req | Name, the What | Workstream (PMT) | How will this be done? |
|------|--|------------------|--|
| CD01 | HAL needs to know how and why their assets and spaces are used | Process | Review the effectiveness of the use of digital processes and systems, use lessons learnt to update and improve the process and system requirements |
| CD02 | HAL needs to control data | Process | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD03 | HAL needs to specify what data it wants from delivery partners | Process | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD04 | HAL needs to have sufficient ownership rights on data about their assets | Process | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD05 | HAL needs to make sure to get the right information from contractors at the right time | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD06 | HAL needs to ensure that external contractors have access to information | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD07 | HAL needs to break down internal "silos" | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD08 | HAL needs to consolidate its standards into a one user-friendly interface | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD09 | HAL needs to implement one shared information model for everyone to use | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD10 | HAL needs to have one common database / platform that all relevant stakeholders can easily interface with | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
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| CD15 | HAL needs to have more controls over timing and management of information handover | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |
| CD16 | HAL needs simple systems that incentivise people to access and use all the information relevant to their work | Information | Develop the core processes and systems for the production, use and management of digital user information and system requirements |

Interventions:

- Process** - The process and changes to existing process and ways of working, required to implement the Digital Platform
- Organisational and People** - Changes needed to existing capabilities required to enable the Digital Platform
- Technology** - Requirements for supporting systems, tools, and infrastructure
- Information** - The information and data requirements enable the Digital Platform to deliver benefits

- Whilst some of these capabilities already exist the roadmap is created from this work is a programme of interventions to enhance these and plug any gaps

Stakeholder Engagement

Summary of Key Findings

| Information Delivery | |
|--|---|
| Barriers | Opportunities/Objectives |
| Existing data processes are too transactional | Progressive assurance of information at all stages of the project, not just at completion |
| Asset/as-built data is not normally produced at the time of the works | Consistent processes for whole life management of all asset information |
| Data is poorly controlled and shared | Improved controls over where data is accessed/stored |
| There are multiple versions of the same information across different systems | Simple, intuitive tools and interfaces available to all users |
| A lack of clarity on what tools (software) should be used for different activities | Improve standards and processes for capturing functional requirements to support long term asset management |
| Ongoing challenges with managing data quality when systems are upgraded | Ongoing challenges with managing data quality when systems are upgraded |

| Capability | |
|--|--|
| Barriers | Opportunities/Objectives |
| A lack of understanding in the importance and value of data | Value data as much as physical assets |
| The right processes need the right systems – the two cannot be developed independently | Implement a system that project teams can adhere to which forces a culture change in executing a project |
| Information review stages are not always at the right point | Have the right, simple processes supported by the right systems |
| Lessons learnt over in-use asset performance are rarely applied to new works | Continuous improvement processes where lessons learnt about asset performance are learnt and applied to all new works and by updated specifications. |
| Inconsistent standards and processes for managing H&S and Carbon | Have the ability for everyone to access one shared information model (not just 3D) |

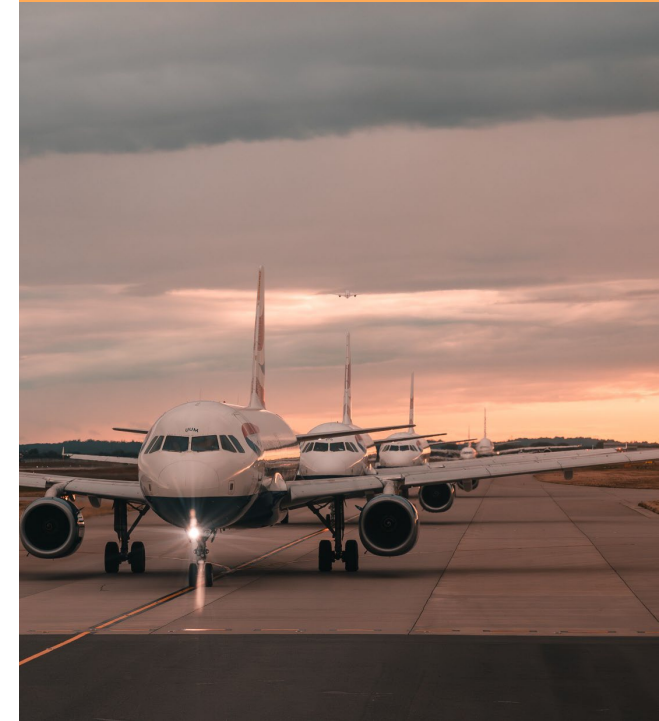
- The availability of Information and the capabilities of the organisation is now clearly understood
- These are played back to the stakeholders one more time.
- Have we got this right? If we begin a series of interventions / improvements as defined, will these make a difference?
- How will we know?

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The Solution

Chapter 4

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Value Add Activities





| Ref | Challenge | Activity | Stakeholder | Supporting Workstream | Workstream Brief |
|-----|---|--|-----------------------------------|------------------------------|--|
| V1 | How to keep track of airfield project status / Project interfaces / progress and look forward | To have an interactive map type view of all our airfield projects, represented by polygons linked to a live schedule | Helen Preston / Simon Batter | Working Group | Encourage consistent approach for monitoring all airfield projects using an interactive map view |
| | | | | Processes & Governance | Develop processes for consistent approach for monitoring all airfield projects using an interactive map view |
| | | | | Information REQ & Commercial | Define information inputs required to enable monitoring of all airfield projects using an interactive map view |
| | | | | Data | Define standards for information inputs relating to all airfield projects used in an interactive map view |
| | | | | Technology | Enable ESRI ArcGIS / ACC to have an interactive map view of all airfield projects |
| V2 | How to keep track of all our infrastructure projects including buildings | To have an interactive 3D view of project volumes showing interfaces linked to a live schedule | Karen Yorath / Ben Jones | Working Group | Encourage consistent approach to monitor all infrastructure projects using an interactive 3D view |
| | | | | Processes & Governance | Develop processes for consistent approach to monitor all infrastructure projects using an interactive 3D view |
| | | | | Information REQ & Commercial | Define information inputs required to enable the monitoring of all infrastructure projects using an interactive 3D view |
| | | | | Data | Define standards for information inputs relating to all infrastructure projects used in an 3D view |
| | | | | Technology | Enable Vislean / Autodesk Construction Cloud for all infrastructure projects to have an interactive 3D view |
| V3 | Better visibility of Point cloud / 360 imagery from preliminary surveys. Reduce waste by safeguarding information | Produce a delivery mechanism for Point cloud survey . Ensure that stakeholder can make decision and use the data. Have a view of Point cloud data across Heathrow portfolio, confidence in accuracy and time captured. Ensure it can be used by other projects | Programme and Project PM's / FM's | Working Group | Encourage consistent approach by using a view of Point cloud data for better visibility of Point cloud / 360 imagery across Heathrow portfolio |
| | | | | Processes & Governance | Develop processes for consistent approach by using a view of Point cloud data for better visibility of Point cloud / 360 imagery across Heathrow portfolio |
| | | | | Information REQ & Commercial | Define information inputs required by using a view of Point cloud data to enable better visibility of Point cloud / 360 imagery across Heathrow portfolio |
| | | | | Data | Define standards for information inputs relating to better visibility of Point Cloud / 360 Imagery by using a view of Point cloud data across Heathrow portfolio |
| | | | | Technology | Enable Autodesk Construction Cloud / Infracore across Heathrow portfolio to have a view of Point cloud data |
| V4 | We do not have control of our geotechnical data - Bore Hole etc. not knowing what we have causes projects to resurvey the same data | Geotechnical data, Bore hole data delivered (AGS4) from projects into a database (Azure) linked to our mapping environment. | | Working Group | Encourage consistent approach to have control of geotechnical data using Bore hole data delivered (AGS4) from projects into a database (Azure) |
| | | | | Processes & Governance | Develop processes for consistent approach by using Bore hole data delivered (AGS4) from projects into a database (Azure) to have control of geotechnical data. |
| | | | | Information REQ & Commercial | Define information inputs required to have control of geotechnical data by using Bore hole data delivered (AGS4) from projects into a database (Azure) |
| | | | | Data | Define standards for information inputs relating to control of geotechnical data using Bore hole data delivered (AGS4) from projects into a database (Azure) |
| | | | | Technology | Enable Azure / ESRI to have a Geotechnical data, Bore hole data delivered (AGS4) from projects into a database (Azure) linked to environmental mapping |

V1

To keep track of airfield project status / Project interfaces / progress and look forward

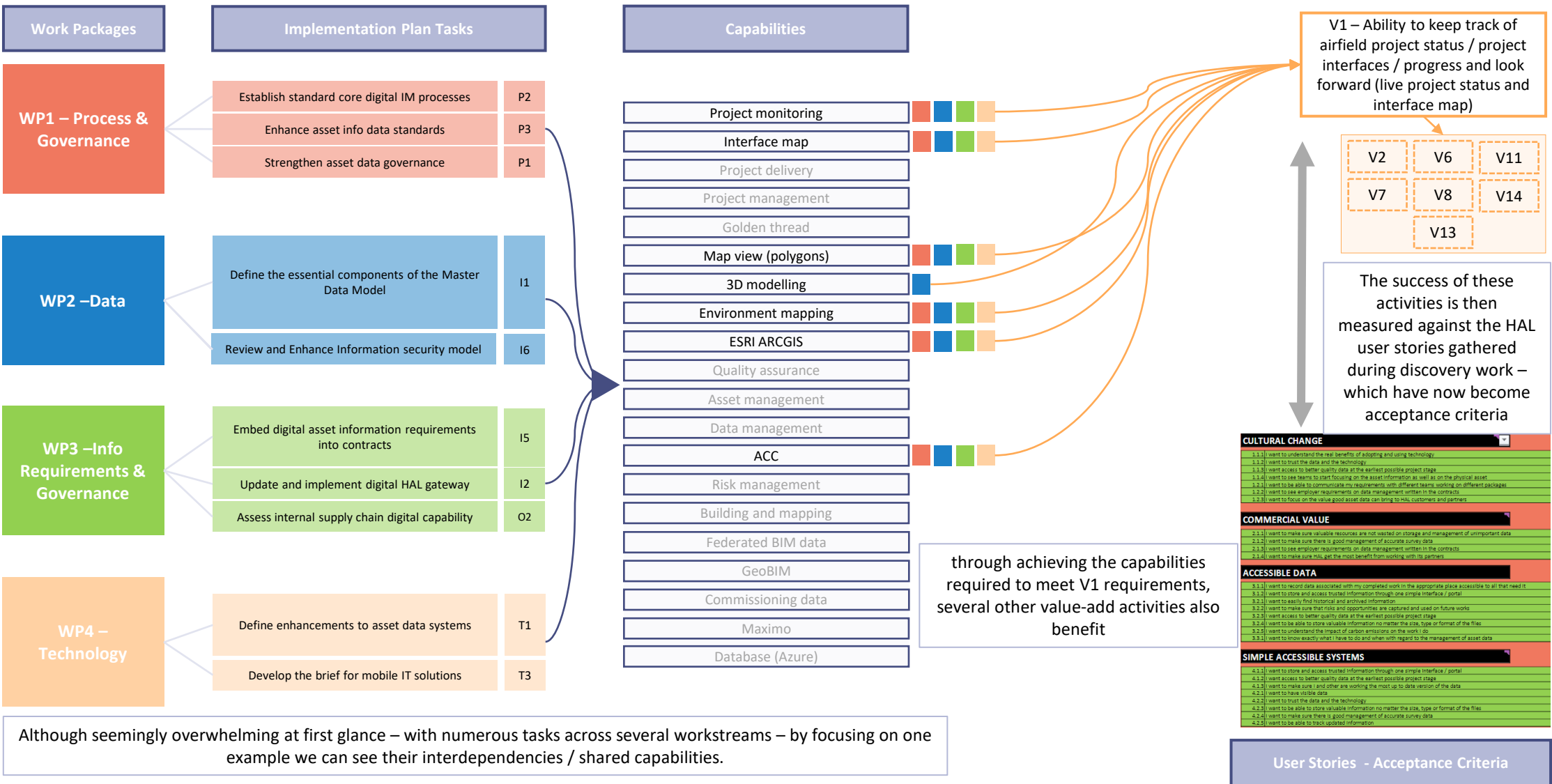
In addition to the “generic” User Stories there were some very specific opportunities and requirements that had previously been captured and defined as “Value Add” Activities

Action Plan and Roadmap

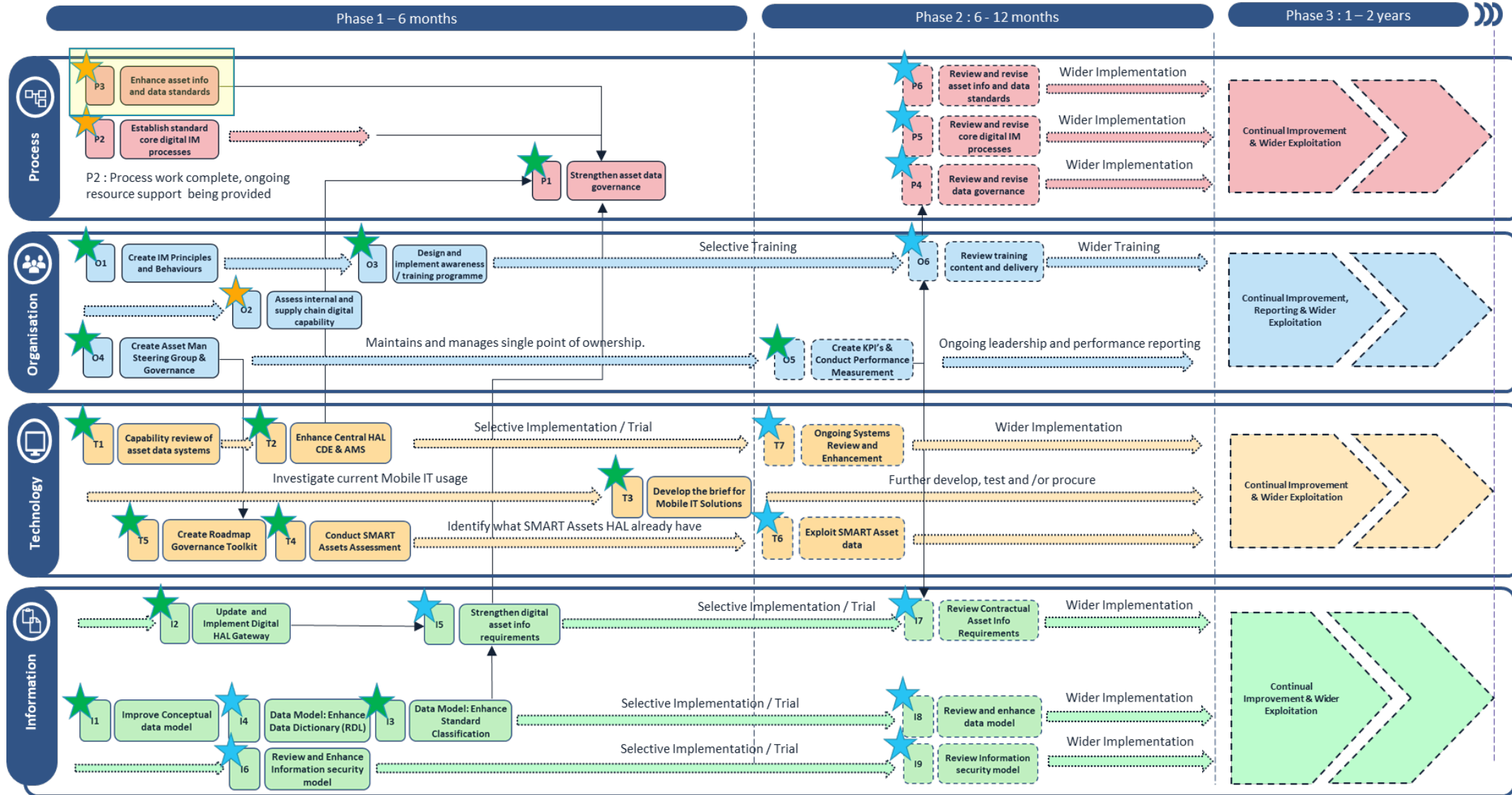
| Element | Description |
|--|--|
|  | The new Processes and changes to existing processes and ways of working, required to implement the Digital Approach |
|  | Organisational and People changes related to building the capabilities required to enable the Digital Approach |
|  | Technology requirements including systems, tools, and infrastructure |
|  | The Information and data required to enable the Digital Approach to deliver benefit |

- POTI workstreams are to be set up to deliver the organisational capabilities needed by Heathrow.
- These POTI workstreams need to be considered as **interdependent** and not in isolation.
- The dependencies will dictate what needs to happen in what order and this in turn forms the foundations of the roadmap.

Work Packages Enable Key Capabilities and Value Add Activities



Roadmap



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The Expected Benefits

Chapter 5

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Expected Benefits

Example CAPEX Benefits

Process

Organisation

Information

Technology



Established information governance



Improved data quality



Short-term tangible benefits

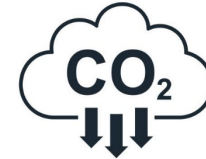


Informed decision making



Improved Staff Productivity

Sustainability (Carbon)



Improved Health and Safety



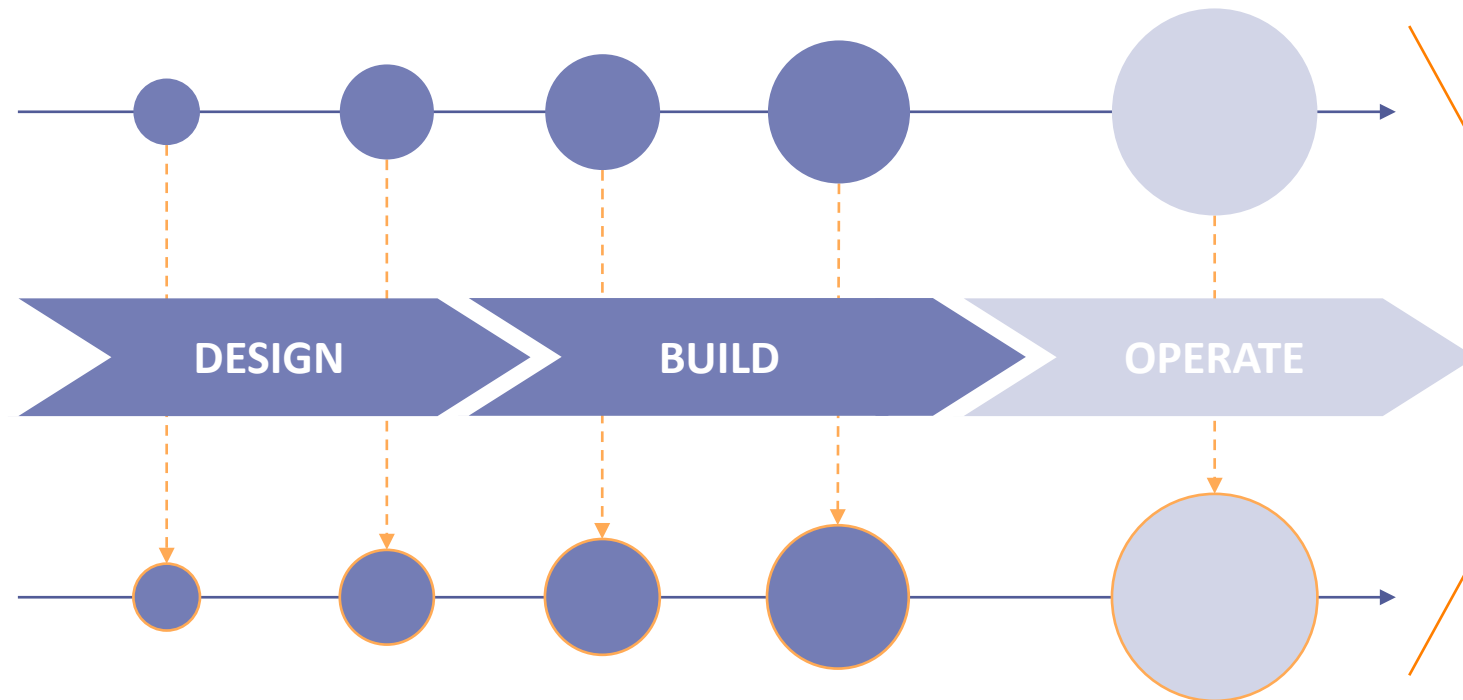
Improved Project Efficiency



Expected Benefits

Digital Asset Delivery: Future state

£4.2bn CAPEX over 5 years



Impact on CAPEX activities:

- Full control and visibility of surveys
 - Easily accessible data
 - Improved trust
 - Additional types of data made available
 - Early governance of controls
- No requirement for repeat data validation
- Fully utilised value in supply chain data
- Timely project delivery
- Improved quality / assurance

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Thank you!

