

Digital Passport (Combinable Crops) Business Case

NOVEMBER 2023

Cross-Industry Stakeholder Acknowledgment

This business case has been proposed by the Digital Passport Leadership Group. The Leadership Group's work has been supported and facilitated by AHDB. The Digital Passport Development and Data Groups have overseen and approved their respective sections (5 and 6) relating to system design and data governance.



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1 Introduction

This business case, written by the Leadership Group and developed through cross industry collaboration, sets out how a digital combinable crop passport system could operate, its benefits and how much it will cost.

Why are combinable crop passports required and why move to digital now?

Sharing data through supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice.

For many years data sharing has been achieved using paper passports. Livestock sectors are further ahead and are moving to fully electronic ID (EID) systems and electronic movement licences. Some horticulture supply chains also have digital systems, yet the combinable crops passport is some way behind. In 2023:

- Over 94% of the UK's adult population have smartphones.^A
- Over 92% of the UK landmass has 4G coverage from at least one operator.^B

Digital technology is increasingly prevalent across UK agriculture and businesses routinely use digital tools to drive operational efficiencies. Email, smartphone apps and internet usage on the move transform growers' ability to manage their businesses. Technological advances and regular use of satellite guidance technology reduces the human input into field operations.

It is highly likely that more data will need to be shared in future. If there is no straightforward way to achieve this universally, the solution is likely to either be a second sheet of paper, or different supply chain businesses adopting their own digital solutions resulting in unnecessary complexity and cost.

System

The industry-led development group's task was to create the simplest system possible for all parties. This means replicating the paper system in digital form with growers/suppliers starting the process and hauliers adding their information before transferring passports to recipients at intake.

The DP system is not designed to replace existing grain trading software or contractual communication between trading businesses. It is intended that the digital passport will be complementary to existing digital systems and administrative processes, ensuring food and feed safety and security information is shared in the most secure and efficient way.

In addition to the present paper system, two significant items have been added:

- Live assurance checks during grain collection and delivery.
- Ability to digitally pass weight and quality data from recipient to supplier.

Where there is no connectivity, proposals mean data passes from one participant's device to another via Bluetooth both at collection and delivery intake, therefore not holding up logistics. The system will update automatically when devices pick up signal in transit.

In instances with no internet connection at collection or delivery point the system will show the most recent assurance check results including the certificate expiry date. Preventing non-assured grain movement into an assured supply chain is hugely valuable to the sector supporting food and feed safety.

Data

Keeping data secure is an integral part of digitising the passport. Each piece of data will be owned by the business entering it. A clear set of rules overseen by the Data Governance Group will ensure data usage is controlled by the data owner. This group will also ensure users adhere to the system's

^A August 2023 - <https://www.statista.com/statistics/271851/smartphone-owners-in-the-united-kingdom-uk-by-age/>

^B April 2022 - <https://researchbriefings.files.parliament.uk/documents/SN07069/SN07069.pdf>

principles, e.g., that weight and quality data will be returned to growers in real-time (refer to section 6) and that data can be aggregated for food and feed safety and security purposes.

The commercial sensitivity of data being passed through supply chains is acknowledged and will be respected. As such, only those who are contractually required to see counterparty data will be able to do so.

Ownership, funding and operation

The Leadership Group's preference is a consortium agreement between the current Leadership Group parties plus AHDB, i.e.:

- Agricultural Industries Confederation (AIC)
- Agriculture & Horticulture Development Board (AHDB)
- Maltsters' Association of Great Britain (MAGB)
- National Farmers' Union (NFU)
- National Farmers' Union Scotland (NFUS)
- Seed Crushers & Oil Processors Association (SCOPA)
- UK Flour Millers (UKFM)

Under this model, AHDB would be the legal entity owning the DP system and database on behalf of the consortium and industry.

Three industry representative groups would oversee all aspects of the DP, like the group structure used in the preparation of this business case:

- Ownership Group
- System Governance Group
- Data Governance Group

Under the consortium, day-to-day system operation and management oversight would be by individuals employed by AHDB based on key input and decisions taken by the three representative industry groups. The Leadership Group are committed to openness and transparency across DP governance structures and will ensure that the minutes and other outputs from meetings will be made publicly available. Clear system performance management metrics would be established by the Ownership Group who would monitor these regularly ensuring the system operates efficiently as required by industry.

A combination of statutory AHDB cereals and oilseeds levy and pursuing options for grant funding from Defra and others will fund development. For the business-as-usual (BAU) phase, statutory levy and DP usage charges (for non-levy payers and those trading non-levied crops) based on the number of passports used will be paid by businesses who are not statutory levy payers, e.g., oilseeds crushers and businesses trading non-levied crops, e.g., imported crops and combinable peas and beans. It is important to note that there will not be a charge to individual pea and bean growers, refer to section 7.5.

2 Executive summary

Sharing data through supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice. It is inevitable that digital means of tracing grain movements will overtake the current paper system in future.

This business case sets out the industry Leadership Group's proposals for a single universal digital passport (DP) system enhancing supply chain competitiveness by transforming data sharing between trading businesses:

- Buyers fulfilling feed and food safety responsibilities more comprehensively and efficiently.
- Growers receiving crop quality results in 'real time' allowing time to react with increased transparency on delivery. Real time means as soon as the test results are known by the recipient they are shared with growers via the DP.
- Data securely aggregated, guarding individual confidentiality and yet providing valuable insights to the advantage of the whole supply chain.

It also sets out how this could be achieved and the benefits and costs of such a system. The system is expected to cost £500k to build. Annual running costs are estimated at £396k gross. If AHDB levy is chosen to fund the DP, the vast majority of businesses will contribute to running costs through this mechanism. For those not paying levy, or those trading non-levied crops, a DP charge will apply. Defra grant funding will also be sought. If successful, the grant and DP charge income will reduce the amount funded by levy.

The Leadership Group believe there is a strong case for a single, modern, industry led digital passport (DP) system with data control and value retained by those entering data into the system. This model includes mechanisms to arrive at industry consensus if further data is required to be shared in future. A possible alternative is multiple commercially led DP systems, with data and its value held, controlled and exploited by the company whose system it is. Further to this, individual passport system owners would be able to unilaterally extend the data growers would be required to supply with no consensus.

Implementation costs will not be an issue for most businesses already using computers and smartphones. For those businesses without, they would incur a one-off cost of between £250 and £500 to purchase a device. There will also be the possibility to integrate the DP with their own software to automatically send and receive data. The cost to do this will be reflective of how complex they choose this link to be.

We anticipate benefits, across the supply chain will amount to £672k per year from stopping the paper passport system. Over ten years this yields £6m.

In addition, there is significant scope to reduce costs associated with rejected loads where growers can react to real-time quality data. In the malting sector alone, rejected loads downgraded to feed cost the supply chain over £4m per year. Individual loads downgraded are costing over £1,740 at present and similar costs are seen in the milling sector.

Another benefit is automated universal real-time assurance checks for all parties with statuses shared through the DP. This reduces duplication where multiple checks are performed by different businesses on the same grower or haulier. In other instances, with over-reliance on stickers, and no real-time checks, it will enhance food and feed safety.

Industry consultation during winter 2023/24 will ensure everyone has time to familiarise themselves with proposals and provide feedback on whether there is anything missing from the business case.

If widespread support is established, the AHDB Cereals and Oilseeds sector council will consider industry's request for levy funds. Grant funding will also be explored.

Increased saving potential for moving to a digital passport even with slightly higher running costs:

Digital passport gross running costs per tonne (1.84p) are fractionally higher than today's paper passport costs (1.57p). Other cost savings can be added to give overall savings of 3.1p per tonne. In addition, there are a number of non-financial benefits outlined in the table below.

Paper passport and sticker costs		Digital passport costs (gross)	
Per year	£337k	Per year	£396k
Per tonne	1.57p	Per tonne	1.84p

Savings		Set up costs		Annual system running costs		Benefits
Passport & sticker printing	£337k	Build cost	£500k	Amortised build cost	£50k ^C	
Other costs saved:		Industry implementation	£872k	Other costs (per year)	£346k	
Passport archive/storage	£50k			Total gross cost (per yr)	£396k	
Reduced audit costs	£45k			Total gross (per tonne)	1.84p	
Haulier wait time reduction	£240k			DP charge income (per yr)	-£49k	
Total (per year)	£672k			Total net (per year)	£347k	
Total savings (ten years)	£6m^D			Total net cost (ten years)	£3.9m^E	
Total savings (per tonne)	3.1p			Total net (per tonne)	1.61p^F	

^C The £500k build cost will be amortised at £50k per year for ten years.

^D The savings are phased in gradually over the rollout period; therefore, the ten-year saving is less than the annual saving multiplied by ten.

^E Costs are not evenly distributed with higher staff input during build. The ten-year cost is higher than the business-as-usual running cost multiplied by ten.

^F Based on 21.5m tonnes. The per tonne figures will vary depending on the size of the domestic crop and the proportion of crop moved into central stores and requiring two passports for the journeys from grower to central store and central store to first processor. Likely range between 1.3 and 2p per tonne.

3 Glossary

Term/Acronym	Definition
4G	Fourth generation of mobile data networks, giving faster speeds for mobile devices.
Aggregated data	Grouped data, gathered from anonymised individual data.
Agrimetrics	A UK Agri-tech Centre focused on supporting industry to realise the value in its data.
AHDB	Agriculture & Horticulture Development Board.
AIC	Agricultural Industries Confederation.
Android and iOS	Mobile operating systems.
API	Application Programming Interface – a piece of intermediary software allowing two applications to share data, e.g., a company's IT system and the digital passport system.
BAU	Business As Usual.
Bluetooth	A short-range wireless technology used for transmitting data between electronic devices.
C&O	Cereals and Oilseeds.
CISA	US Cybersecurity and Infrastructure Security Agency.
DP	Digital Passport (Combinable Crops)
eAML2	Electronic Animal Movement Licence 2 – pig movement licence system.
FAQs	Frequently Asked Questions.
GM	Genetically Modified.
HTTPS	Hypertext Transfer Protocol Secure – when you access a webpage via an encrypted connection.
ID	A unique series of numbers/letters used to identify data.
Systems integration	The joining of a company's IT system to the digital passport system to enable automated sharing of key passport data, by the means of an API.
LG	Leadership Group.
Macro	Large scale questions or details which form part of the decision on whether the DP goes ahead.
MAGB	Maltsters' Association of GB.
Merchant	Any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), interaction with the DP will be optional.
Micro	Small scale questions or detail of lesser importance which can be worked through at the appropriate stage if the project goes ahead.
Multi-directional data flow	The transit of passport data including weight and quality data, up and down the supply chain, between growers, stores, hauliers, merchants, ports and processors.
NCSC	National Cyber Security Centre.
NFU	National Farmers' Union.
NFUS	National Farmers' Union Scotland.
QR Code	Quick Response Code – a square barcode used for storing information which can be read by a smartphone camera.
Ransomware	Malicious software which typically encrypts data and demands payment for its return.
Recipient	Any business receiving loads with a passport, e.g., processors, TASCC/UFAS stores and ports.

Term/Acronym	Definition
RED	Renewable Energy Directive (RED II came into effect on 1 July 2021).
RESTful architecture	When an API makes use of simple standard web technology to make and deliver requests.
RFI	Request for Information – procurement term used to describe a process through which it is possible to seek information from potential service providers which can be used in a future RFQ process.
RFQ	Request for Quotation – procurement term used to describe a formal tender process where a specification of requirements is published for interested parties to tender against.
RHA	Road Haulage Association.
RT	Red Tractor.
RTFA	Renewable Transport Fuel Association.
SCOPA	Seed Crushers & Oil Processors Association.
Sender	Any business despatching loads requiring a passport, e.g., growers, TASCC/UFAS stores and ports.
SI	Statutory Instrument.
Smartphone	A mobile phone with a touchscreen interface and internet access.
SMS	Short Messaging Service (a standard text message).
SQC	Scottish Quality Crops. The combinable crops quality assurance scheme for Scotland.
String trade	A supply chain where a merchant sources crop from another merchant instead of from a grower. Chains can include more than two merchants.
TASCC	Trade Assurance Scheme for Combinable Crops – assurance scheme for hauliers, off-farm stores and merchants operated by the AIC.
Transition	The period it will take for industry to move from the paper passport to the digital passport. It will start from the point the DP is ready for use (anticipated to be September 2024) and will run to December 2025.
Transporter	Any business transporting loads requiring a passport, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
UAT	User acceptance testing.
UFAS	Universal Feed Assurance Scheme – assurance scheme for the feed sector which also covers some haulage and storage participants in combinable crop supply chains.
UKFM	UK Flour Millers.

4 Rationale

4.1 What is the purpose of digitising the passport?

Originally introduced in the 1980s to comply with the food and feed safety act, passports initially communicated details of post-harvest pesticide applications to onward parties as consignments moved through supply chains.

The passport expanded over time to include vehicle cleanliness and mycotoxin data alongside genetic modification (GM) and renewable energy directive (RED) declarations.

Sharing data through combinable crop supply chains is essential in fulfilling businesses' legal obligations under food and feed safety legislation and associated codes of practice. Moving to a digital passport would help fulfil these responsibilities more effectively and reliably than using paper:

- Driving efficiencies:
 - Automating passport checks rather than relying on manual checks, by importing key passport data into software where businesses choose to integrate systems. Passport data checks will vary from business to business. However, the three previous loads materials, post-harvest treatments and assurance status could be checked automatically against the company's agreed parameters and present the intake staff with a simple 'yes' or 'no.'
 - Access your data securely, online, wherever, whenever, and however it is needed.
 - Growers reacting to quality results and adjusting supplies ensuring consignments meet contractual specs reducing claims and rejections. This is achieved by providing a multi-directional data flow complementing existing digital systems communicating quality data back to growers. The DP will provide a universal platform for this data to be sent and received in those instances where that data is not shared today.
- Improving data accuracy:
 - Tailoring passport data fields for each crop so that users are clear on what data needs to be provided in each case.
 - Providing solutions within the DP system which do not rely on users spelling correctly. For example, providing a tailored drop-down list containing the recognised terms for materials in the three previous loads section.
 - Integrating the DP system with other software systems used in industry, enabling automated data sharing, also reducing incidence of mistyping.
- Allowing data to be shared in as close to real time as possible enabling:
 - Real-time visibility of grower, TASC/UFAS store, haulier and merchant assurance status
 - Growers and stores to react to grain quality results.

All these points enhance industry's ability to meet its obligations and responsibilities under the requirements of assurance scheme standards and food and feed safety legislation.

4.2 Why now?

Industry first started discussing the concept of a digital passport in 2011. In the 12 years since then, many hours have been dedicated by people across the supply chain investigating how it could work, the benefits and challenges of switching from paper to digital and in debating how data should be managed, secured and protected. This is alongside the levy funds invested particularly in developing and building the system piloted in 2014/15. That pilot provided evidence that a digital passport can efficiently and effectively provide a multi-directional data flow up and down supply chains.

In line with other industries over the last few years, digital technology has become prevalent across UK agriculture and more and more businesses in all parts of combinable crop supply chains are using digital tools to drive efficiencies in their operations. Routine use of email, smartphone apps and internet access on the move have transformed the ability of growers to manage their businesses from anywhere. This is in addition to the technological advances in agricultural equipment with regular use of satellite guidance technology on field equipment and automation reducing the human input into field operations.

In 2023:

- Over 94% of the UK's adult population have smartphones.^G
- Over 92% of the UK landmass has 4G coverage from at least one operator.^H

Some in industry are frustrated at the ongoing lengthy discussions on whether to adopt a digital passport and need no further convincing of the digital passport's benefits. However, others are concerned about the costs of such a system, and the ability of the minority to adopt digital technology and about the minority who still do not have reliable Wi-Fi or mobile data coverage.

Were industry to design and introduce a passport for combinable crop supply chains in 2023, it would not be a paper-based solution. Industry engagement in the DP debate is at its highest level than at any stage in the preceding 12 years. There is momentum behind the current discussions. Looking ahead it is highly likely that the data required to be shared through supply chains will increase. If industry is not able to provide a straightforward means of sharing this extra data universally, the solution is likely to either be to extend the passport to a second sheet of paper, which is far from practical, or multiple digital systems will be introduced. Refer to section 4.4 for more detail on this. Overall, this picture indicates that this is the time to resolve the question of a digital passport once and for all and whether to put in place an efficient digital system fit for the 21st century.

4.3 Benefits to individual businesses and industry as a whole

4.3.1 Non-financial benefits

There are a wide range of benefits of moving to a digital passport. Some are industry wide. Others are specific to individual areas of a supply chain:

Industry-wide:

- Enhanced food and feed safety with accessible digital data and real-time assurance checks and a system fit for industry's future needs.
- Potential to reduce costs across the supply chain associated with rejections with real-time feedback of quality data. This could be of significant benefit particularly to growers but is dependent on their ability to react and take action. Using rolling ten-year average data just from the malting sector indicates that 2,275 loads per year are rejected and downgraded from malting to feed. With premiums currently over £60 per tonne and with added transport costs this amounts to £1,740 per load or approximately £4m in total cost and lost income for growers per year without factoring in waiting time for vehicles or extra testing and admin costs for processors.
- Avoids multiple systems and the associated complications and costs with one standardised universal digital platform providing multi-directional data flow.
- Aggregated industry-wide data will be held and protected centrally in a trusted, secure and robust way with industry-controlled governance, instead of today's fragmented and dispersed paper-based system.
- Improved passport data integrity with the system recording who entered what data and when.
- Gives confidence and credibility to customers, stakeholders and regulators by bringing the passport into the 21st century with its governance established and documented.

Growers using the DP will save time, reduce costs and increase revenues with:

- Efficiencies from bulk passport completion ahead of time and automating load destination records.
- Opportunities to reduce instances of rejections and claims with consistent real-time access to quality data when growers react to trends in quality results across a series of loads and match supplies to contracts specifications for future loads. Examples include:
 - Rejection of malting barley and downgrade to feed, costed a Scottish grower over £60 per tonne or £1,740 per load at harvest 2023.
 - Claim on malting barley of £1 per tonne, per percentage point above 8% for skinned grains.
 - Claim on milling wheat of £1.50 per tonne for a load supplied at 15.5% moisture.

^G August 2023 - <https://www.statista.com/statistics/271851/smartphone-owners-in-the-united-kingdom-uk-by-age/>

^H April 2022 - <https://researchbriefings.files.parliament.uk/documents/SN07069/SN07069.pdf>

- Claim on milling wheat of £5 per tonne for a load supplied at 12.5% protein on a 13% protein contract.

Processors using the DP will benefit from:

- Enhanced food and feed safety and traceability with accessible high quality digital data with improved integrity.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store, haulier and merchant assurance checks.
- Efficiencies by exchanging data seamlessly through one universal data sharing Application Programme Interface (API) rather than multiple, by choosing systems integration.

Merchant benefits:

- Efficiencies from fewer claims and rejections to handle because growers have real-time quality data to help manage their supplies.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store and haulier assurance checks.
- Efficiencies by exchanging data seamlessly through one universal API rather than multiple, by choosing systems integration.

Haulier benefits:

- Reduced hassle and waiting time with visible grower assurance statuses at collection point, no illegibility problems and fewer rejections resulting in redirection.
- More certainty that passports are complete prior to departure and growers being clear on the passport details required for each crop type.
- Streamlined admin processes with automated return of weight data.

4.3.2 Financial benefits

The financial benefit has been conservatively calculated at circa £672k per annum and is based on an assessment of costs removed by discontinuing the paper passport system. Industry data forms the basis of these calculations. These savings fall across all supply chain participants. For more information on how this figure has been calculated, refer to section 8.4.

There is potential for further financial benefits across the supply chain, however these have not been calculated as they are difficult to reliably predict and quantify.

For the full cost benefit analysis, refer to section 9.

4.4 Why one system rather than fragmentation?

The introduction of one universal DP, would bring several benefits, including:

- All businesses in all parts of combinable crop supply chains are familiar with one system which can be used in all instances where contracting parties require a passport. This is particularly important for growers and hauliers working with multiple merchants.
- There is one central universal method of displaying grower, TASCC/UFAS store, haulier and merchant assurance status in real-time to those who need this information.
- If an update to the data needed on a passport is required, this can be rolled out centrally to the whole industry in a practical and coordinated way.
- Data held centrally in a trusted and secure way. Robust governance structures, controlled by the data owners, means data use can be trusted and controlled effectively, including for food and feed safety issues.

To provide an overview of the potential impact on industry of multiple DP systems it is useful to consider how they could come into being. Three scenarios follow, and there could be others:

1. Individual processor businesses develop their own DP unilaterally.
2. Processors work together within one crop sector, e.g., a DP for millers, designed and funded by milling businesses.

3. Processors team up with large merchant businesses.

These are the inefficiencies and consequences and therefore costs of multiple DP systems being introduced:

- Supplying merchants, growers and hauliers would need to be familiar with and be prepared to use multiple different DP systems, including having the hardware and software required for each and training staff to use them.
- For merchants it adds administration to communicate to their growers, stores and hauliers the details of which DP they need to complete for each load.
- Arranging movement of a load at short notice could cause issues for both the grower and driver – ‘which DP app do I need for this load?’
- Rejection and redirection to a different processor causes issues if the new processor uses a different DP. It would likely require a new passport to be created after the load has left the collection point.
- DP systems designed and funded by processors might not provide a platform for data return to growers, although they might if the processor uses that as an incentive for growers to use their DP system.
- Processors could unilaterally add extra data requirements to their DP with no industry discussion or consensus.
- Multiple DPs will mean multiple APIs for some businesses integrating if they need to interact with multiple DP systems.
- Multiple DPs would mean higher costs across industry which are likely to be passed back to growers to maintain margins further up the supply chain.
- Data fragmentation would result with different data standards and security models, an overall lack of control over data including to investigate in the event of a food and feed safety issue.

4.5 How has this business case been developed?

The DP project was reset following the Cereals Liaison Group meeting in November 2022 where industry raised questions and concerns. Following discussion by the AHDB Cereals & Oilseeds sector council, a fundamental restructuring of the project’s governance took place to put cross supply chain industry leadership at the core. Key activity through 2023:

Month	Activity
January	Leadership Group formation. Group met weekly for most of the year.
March	Development Group formed
April	Development Group first meeting. Data Group formed
May	Data Group first meeting.
June	Data & Development Groups continued their work
July	Leadership group focused on ownership and funding
August	Data and Development Group outputs written up into business case
September	Data and Development Groups sign off their business case sections
October	Leadership Group finalises key sections
November	Business case complete and industry consultation starts

4.5.1 Leadership Group

An industry DP Leadership Group was formed in early 2023. Refer to appendix 11.1 for the industry membership list. The group’s purpose was to:

- Provide senior level industry project leadership.
- Ensure cross-industry input and participation from relevant individuals, organisations and companies.
- Establish and oversee the operation of the development and data groups, including approving their membership and terms of reference.
- Discuss options and agree the preferred ownership and funding model.
- Review and build on the earlier costs and benefits work, leading to a revised comprehensive business case, by delegating tasks to the groups.

- Take key decisions including deciding whether industry wishes to move to build and adopt one universal DP system.
- Maintain project momentum.
- Sign off any outputs and recommendations from the groups.
- Provide project updates to the wider industry and the Cereals Liaison Group.

The Leadership Group have met most weeks since January 2023 and have overseen the creation of the Development & Data Groups and have reviewed and signed off their outputs, taking key strategic decisions along the way. The Leadership Group have also led on industry communications and have been careful to ensure that all parts of industry have had an opportunity to join groups and workshops throughout and input into proposals. They have also signed off fortnightly updates which have been shared with wider industry.

With the agreement of the AHDB Cereals & Oilseeds sector council, AHDB staff have facilitated the work undertaken by the Leadership Group and by the Development and Data Groups.

4.5.2 Development Group

The Development Group was formed in February 2023 with chair George Mason (miller – Heygates) and facilitator Angela Gibson (merchant – Viterra). Refer to appendix 11.2 for the industry membership list. The group's purpose was to:

- Agree what data needs to be collected and contained within the system, how data flows through the system for one system to work effectively.
- Consult all parts of the supply chain to map out existing processes and data flows. This includes workshops.
- Establish implementation costs for both industry and the system.
- Establish where extra work will fall in the supply chain.
- Functions of the system.
- Provide the differences in moving from a paper passport to a digital passport for articulation in the business case.
- Identify macro issues to be resolved before the business case can be agreed.
- Identify micro issues to be resolved during any build phase.

The group has taken feedback from across industry on the earlier proposals and this has resulted in a simplified DP process being proposed which can be seen in section 5. Industry also requested more definitive information on the minimum system access requirements across the supply chain which in turn enables an assessment of the implementation costs. This work has been completed and more information can be found in section 5.

The Development Group worked through the detail of how the DP will operate and referred their proposals to the Leadership Group for approval and sign off. Those proposals are included in this business case.

4.5.3 Data Group

The Data Group was formed in April 2023 with chair Matt Culley (grower) and facilitator Rose Riby (AIC). Refer to appendix 11.3 for the industry membership list. The group's purpose was to:

- Develop proposals on all matters relating to data governance and sharing.
- Review the earlier Agrimetrics data governance framework.
- Discuss and propose to the Leadership Group the principles for acceptable levels of transparency considering the risks and benefits across supply chains.
- Discuss and propose to the Leadership Group if and under what terms and conditions it might be acceptable to look at and use aggregated industry-wide data.
- Propose to the Leadership Group how decisions about how any changes to what data is shared will be made.
- For each data type (as provided by the development group) develop proposals for:
 - What data will be shared within a supply chain and in which direction.
 - What data will be publicly available.
 - Clarify ownership and control of data.

- Review how data will be kept secure.

The group have taken feedback from across industry on the earlier proposals and added new layers of detail to provide answers to key questions which were previously unanswered. The Data Group's proposals were referred to the Leadership Group for approval and sign off before being included in this business case. For more information refer to section 6.

5 System

5.1 Scope

The clear requirement agreed with the Development and Leadership Groups is the DP should incorporate the same data as on the paper passport today. Industry have also agreed to include real-time grower, TASCC/UFAS store, haulier and merchant assurance checking and functionality for multi-directional data flow to provide weight and quality data back to the source grower or store. To facilitate this will mean adding these data points:

- Accept or reject status for each passport.
- If rejected, the rejection reason.
- For both accepted and rejected loads, the relevant quality parameters, including facility for a second set of quality results for rejected loads when redirected to a second recipient.
- For accepted loads, the net weight.

Beyond this, optional extra data fields requested by industry will make it easier to manage digital passports alongside existing load administration processes:

- The ability to add load reference or ID numbers at intake, e.g., fixing numbers. This will be particularly useful allowing hauliers and merchants to track weights and quality data.
- The ability for processors to add contract ID numbers to passports at intake.
- The ability for processors to add the merchant company they have purchased from, allowing weight and quality data to be shared with them in addition to the source store or grower.

It is also proposed that where appropriate data will be imported from assurance (Red Tractor, SQC, TASCC and UFAS) databases replacing the need to add this data manually. This will ensure consistency, following the concept of 'one single source of the truth':

- Collection addresses will be imported from assurance databases, rather than adding them in the DP separately. They will then be available via a drop-down list, to populate that passport section. There will be an option for senders to add an unassured collection location where digital passports are required for non-assured grain.
- Senders' RED II declaration will be enhanced by importing the business's status from the relevant assurance database.

Looking ahead, if growers and industry collectively decide to share additional data in either direction through supply chains it will be easy and cost effective to achieve. To provide this foundation, the DP will be extendable without requiring a fundamental system rebuild. Building the DP with this objective in mind will not be any more costly.

The DP specification, outlining industry's requirements which will be used to procure the build partner, has been drafted by AHDB based on the Development Group's discussions and decisions. This specification will be internally signed off by AHDB before being approved by the Leadership Group. The Leadership Group are aware that digital projects such as this can suffer from inadvertent scope creep without appropriate controls. To prevent this, the Leadership Group will review the scope to ensure it covers all known industry requirements. The budget required to build the system is outlined in section 8.1.

5.2 How easy will it be to use, enter data and access data?

The Development Group reviewed the recipient led process piloted in 2014/15 and decided that a simpler sender led model closely matching the paper process would be more appropriate garnering more widespread industry support. Refer to figure 1. In this process, the passport is always initiated by the sender, i.e., a grower, TASCC/UFAS store or port.

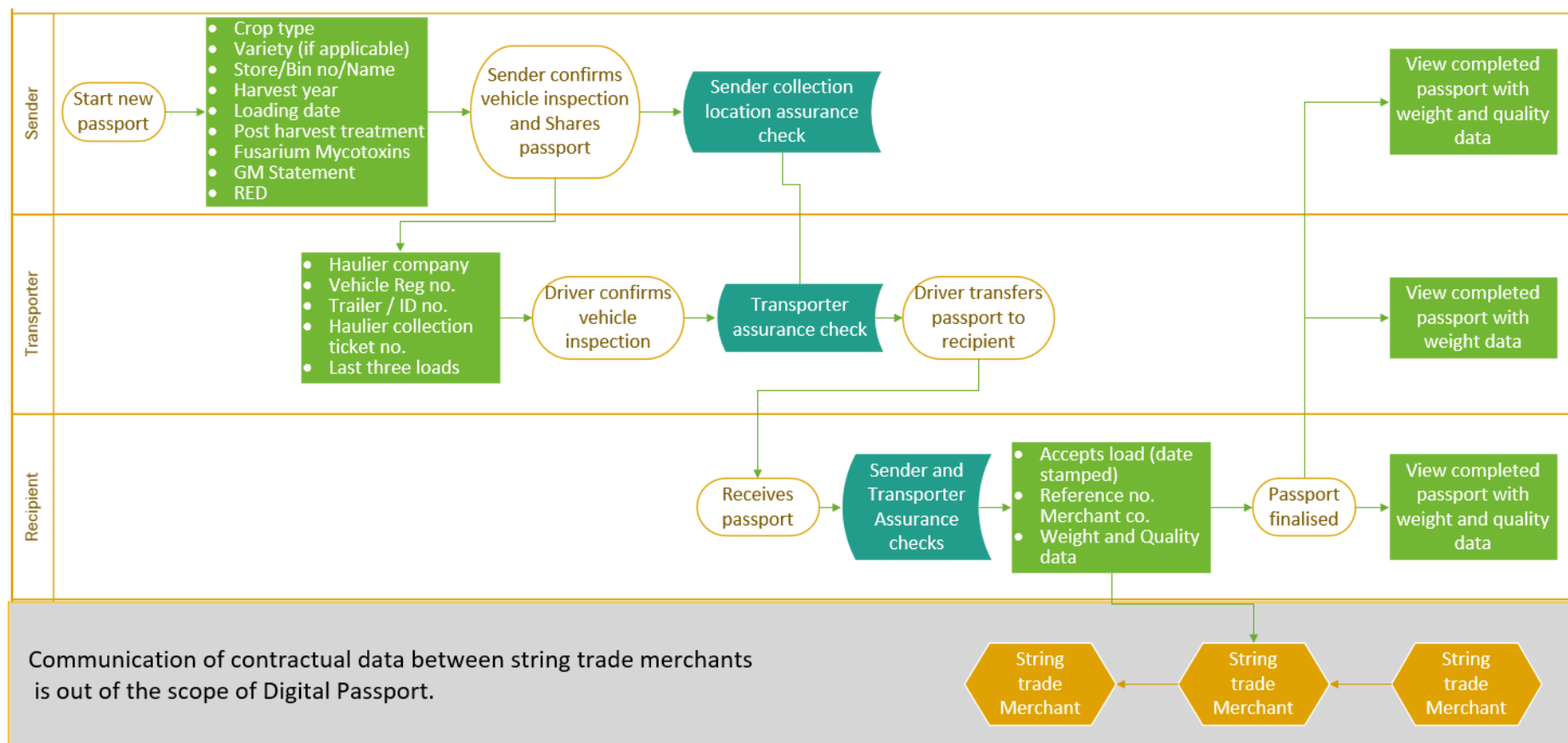
At the system's core is a database and internet-based portal which businesses of all types can access. A mobile application available on Android and iOS will enable access to the DP on the move for senders and drivers. There will also be an option to integrate systems (refer to section 8.2.3 and appendix 11.8) which will be an efficient way for businesses handling large quantities of grain to avoid duplication of processes or double keying.

Figure 2 shows the proposals for how each individual party will interact with the DP system where there is connectivity at both collection point and at intake. Refer to section 5.3 for proposals for how the system will work where there is no connectivity at either collection point, intake or both.

The role for merchants is much reduced compared to earlier proposals. Merchants will use the system when acting as senders and recipients of grain into and out of TASCC/UFAS stores. The requirement to integrate into the system for this purpose will be a decision for individual merchants. Merchants will be required to sign up to the system to allow them to be allocated the feedback of information from end-receivers. Merchants will be connected to passports at the end of the process, once a passport has been accepted by a recipient and this means they will be able to receive weight and quality data at the same time as senders.

For string trades, the only merchant connected to a passport will be the merchant contracted by the recipient. That 'supplying' merchant will have access to the weight and quality data. Communication of this data to any other merchants involved in a string will take place outside of DP as it does today.

There are a few other grain movement scenarios which the DP system will need extra functionality away from the core process to accommodate. Refer to appendix 11.4 for more information.



Key:

- Senders (create passports) – any business despatching loads, e.g., growers, TASCC/UFAS stores and ports.
- Transporters – any business transporting loads, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
- Recipients (receive passports) – any business receiving loads, e.g., processors, TASCC/UFAS stores and ports.
- Merchants – any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), there will be no pre-determined level of interaction with DP and each merchant can choose how to operate the system in their business.

Figure 1. Proposed sender led process providing multi-directional data flow.

For this model to work sender and driver devices must have connectivity at collection point and driver and recipient devices must have connectivity at intake.

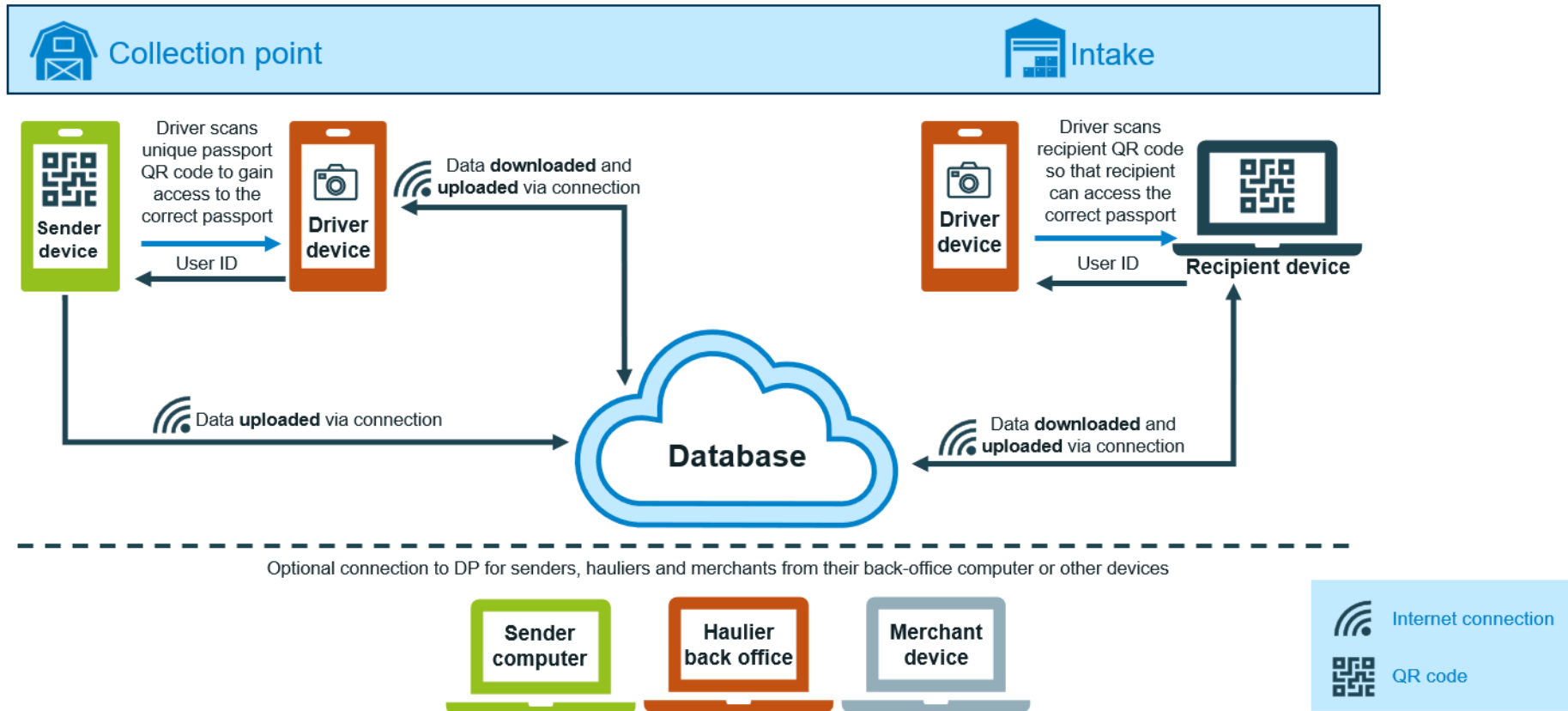


Figure 2. Diagram showing the DP process in terms of devices for each party and how data will flow when there is full connectivity at both collection point and intake.

System design will ensure a highly intuitive solution based on conventional functionality rather than customisation, e.g., navigation menu on the left and user profile menu top right. Constant industry feedback will be required throughout the web and mobile app design phases to ensure ease of use. An intuitive system will reduce training requirements and support costs.

Other key features:

- Tool tips (i icons) throughout will give user guidance.
- One easily navigable workflow for the most common passport 'path'.
- Automated input for repeatable information.
- Ability to create multiple identical passports for the same crop.
- Ability for companies to tailor and restrict drop down list options to those applicable to their business, e.g., hauliers tailoring the materials drop down list just to those materials applicable to their business.
- Passport data fields tailored to the crop being moved.
- Alerts by email/SMS can be subscribed to.

5.3 How will areas with poor reception or no Wi-Fi be accommodated?

Nationally, over 92% of the UK landmass has 4G coverage by at least one operator. The remaining 8% is largely more rural areas including those where grain is grown and stored. An AHDB survey of grain receiving sites, e.g., merchant stores, processor intakes and ports indicates that 8% of respondents currently have no connectivity either by Wi-Fi or mobile data at intake.

For this reason, it is important that the DP works effectively with no internet access at either collection point or at intake. In these situations, it is possible to design a solution by matching the current paper passport process in passing the passport from one party to another. Figure 3 shows the proposals in diagram form.

1. Senders create a passport on their device and populate all their information (either online or offline).
2. When the driver arrives, they scan the sender's passport QR code which transfers it to the driver's device using Bluetooth. No internet access is required for this to work.
3. The driver adds their information, and the system provides the driver with confirmation that the passport is complete.
4. It is expected that the driver will pick up signal en-route to the intake which will allow the data to be synchronised back to the database, but this is not essential.
5. At intake, the driver will scan the intake QR code which will allow the passport to be transferred again by Bluetooth to the recipient's device. No internet access is required for this to work.
6. Once the recipient is ready to accept the load, they do so in the DP system, add the weight and quality data and once the recipient's device picks up signal, it will synchronise with the main database and this information will be visible to the sender. For this reason, if no internet access is available at intake recipients will need to use a portable device (rather than a desktop device) to receive passports. That way at the end of the day the device can be moved into a location with internet access to synchronise with the DP database.

It is important to note that where intakes do not have internet connectivity it will not be possible to perform real-time assurance checks. Instead, the DP will display the most recently checked assurance status along with the date and time it was taken for both the sender and haulier.

Refer to appendix 11.7 for diagrams outlining how the DP will work where there is:

- Internet access at intake, but not at collection point.
- Internet access at collection point, but not at intake.

For this model to work sender and driver devices will not need to have connectivity at collection point however driver device will ideally pass through connectivity on route to intake. Similarly, driver and recipient devices do not need to have connectivity at intake. The recipient would need to upload once connection has been gained.

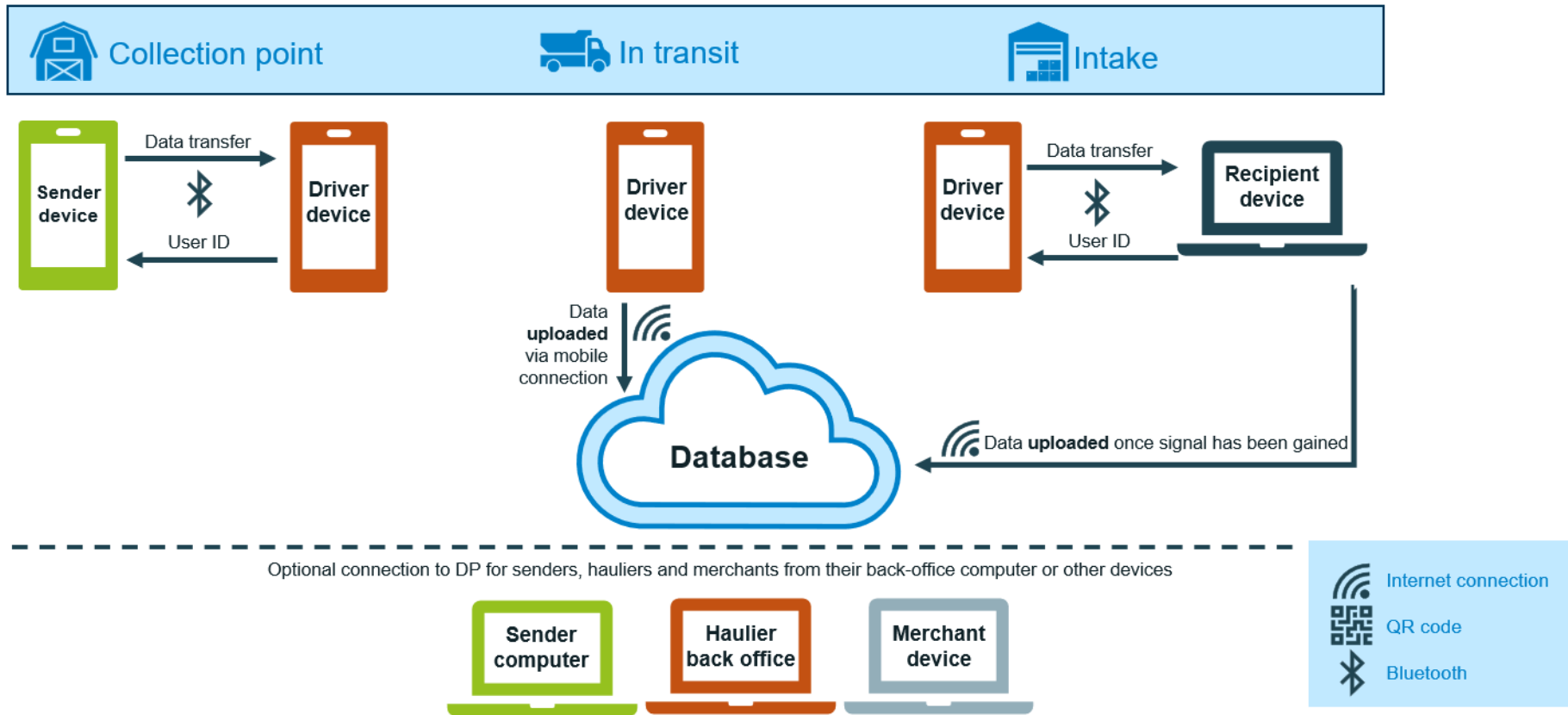


Figure 3. Diagram showing the DP process in terms of devices for each party and how data will flow when there is no connectivity at either collection point or intake.

5.4 How accessible will the system be for non tech savvy users etc?

The DP system will be built in line with web content accessibility guidelines which means considering a range of disabilities when designing the system including:

- Visual
- Auditory
- Physical
- Speech
- Cognitive
- Language
- Learning
- Neurological

5.5 How will small merchants and processors access the system efficiently?

The simplified sender led process described in section 5.2, will result in a much-reduced role for merchants, compared to the recipient led process piloted in 2014/15. Where merchants organise loads moving from growers to processors, their day-to-day role in the DP becomes entirely a decision for that business. The principal role for merchants in the DP is when they are the sender or receiver of grain into or out of their stores.

For merchants and processors, integrating systems with the DP will allow data to be shared seamlessly and automatically between the DP and business software. The majority of DP functionality will be available as industry standard using Restful Web Services, a high-performance and robust industry standard for APIs. Communication between systems and the DP APIs will be encrypted. Users and systems will be secured using industry standard authentication OAuth 2.0. All API documentation will be available online, and technical support will be in place to assist technology teams to integrate your systems with the DP.

Fifty-five percent of respondents to AHDB's recipients' survey of processor, TASC/UFAS stores and ports indicated they would like a one-to-one discussion to better understand systems integration options when the time is right. For businesses operating at scale, integration is the most efficient way of interacting with the DP and will reduce duplication. Without systems integration, recipients will be required to accept passports, add weight, and crop quality results into the DP as well as within their own systems.

Of those survey respondents using software 34% have bespoke systems. This makes it very difficult to provide within this business case, all the information required for those considering systems integration and highlights the importance of one-to-one discussions. Refer to appendix 11.8 for more information.

For the 20% of businesses not using bespoke or proprietary software, a range of systems are used including spreadsheets, ledgers or other manual systems. For these businesses DP will be designed to be as simple to use as possible and one of the industry requirements in the build specification is the ability to upload spreadsheets of weights and crop quality results into DP for loads received over the course of a day, rather than requiring this data to be inputted manually.

Refer to section 8.4 for more information on the costs and inefficiencies removed by moving from paper to digital.

5.6 Build and rollout timeframe

Prior to undertaking the 2021 procurement process, AHDB conducted a Request for Information (RFI) in the marketplace, asking interested businesses a range of questions including one about how long it might take to build. Responses indicated an initial development period of between six and eight months from almost all respondents. This was backed up by the tenders received in the subsequent Request for Quotation (RFQ) exercise.

The ongoing discussions and industry consultation on whether to adopt a digital passport are anchored by this business case. Key decisions are scheduled for February and March 2024. The Development Group have discussed the rollout and transition and agreed that an overnight switch is

not practical. Similarly, a lengthy period of dual running with paper alongside digital would be complex, time consuming and costly. The group agreed that the success of the beta testing stage is likely to dictate the pace of the rollout and therefore the potential length of the dual running phase.

Useful references were made to the rollout of other digital systems across the grain sector and examples were given of growers and hauliers adapting to merchant digital systems quicker than was originally anticipated.

The proposed timeline is based on the year from harvest 2025 being the main rollout and transition period with beta testing for early adopters happening from January 2025 and the system opening to wider industry usage during spring 2025. It is envisaged that the bulk of industry will transition to digital during the six months following harvest 2025, with an ambition that paper passports usage will have ceased completely before harvest 2026. It is not envisaged that any crop sector or type of grain movement would require any special consideration in terms of timelines and that the proposed transition is feasible for all companies.

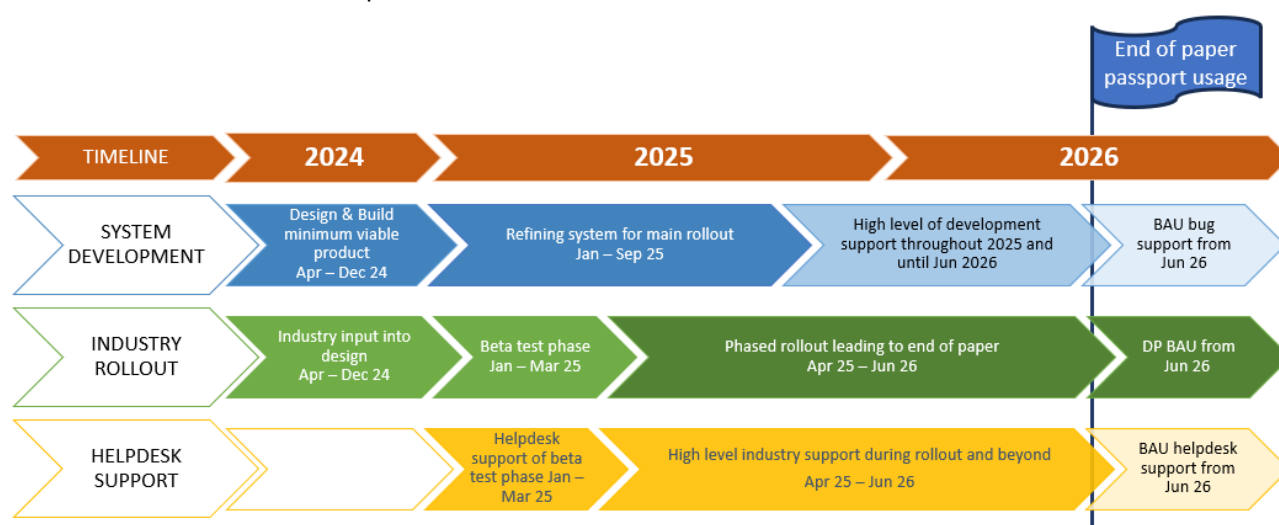


Figure 4. Timeline showing system build, industry rollout and helpdesk support key phases.

5.7 How will the system be maintained after launch?

Once industry has fully transitioned from paper to digital passports (anticipated to be by harvest 2026) there will be a period where industry will potentially require a high level of support. This is because it is likely that those businesses and individuals who are less open to change and those who will require more support to change will leave their transition as late as possible. For this reason, it is not expected that the developer or support teams will be scaled back to the level required for 'business as usual' phase for at least six months after full transition. In real terms, the proposed DP Ownership Group will be responsible for reviewing progress and ensuring that the correct level of support is in place.

Anticipating that the business as usual (BAU) phase will start in June 2026, this is the stage at which the developer team will move into maintenance mode. This will include:

1. Resolving bugs reported by users through the support function.
2. Working through and implementing any recommendations from the annual security and penetration tests.
3. Implementing any new or improved functionality as agreed by the industry Development and Ownership Groups.

Funds to cover the costs of points one and two above have been included in the BAU budget which can be found in section 7. Funds to cover the costs associated with any new development (point three) are not included in the BAU budget and will need to be quantified and agreed on a case-by-case basis. Refer to section 5.8 for more information.

One of the key responsibilities for the system operator and the system governance board will be to ensure the DP remains available for industry usage 24/7 and that it functions reliably. The digital

passport system and the ability to share passport data will be heavily relied on by industry. The system will be built to ensure that no information is lost due to system breakdown. If the website is unavailable for any reason the digital passport system will have contingencies in place to ensure industry logistics are not interrupted. System unavailability even for a few minutes would prove extremely disruptive for industry.

Any system updates or bug fix releases will be scheduled on discussion with the system governance group to ensure there's no disruption to day-to-day usage.

5.8 How will new developments be agreed and introduced after launch?

Building on the previous section, industry's requirements for a digital passport system have been agreed and factored into a comprehensive specification which will be put to tender in autumn 2023. This will form the basis of what is built during the build phase from April 2024 if industry choose to adopt.

As with all software development, over time as users get used to the system, ideas will be generated for ways in which the system could work more efficiently or be more intuitive for users. In addition, there may be changing requirements for the data required to be communicated through the system. In any of these cases, once in BAU phase, a case will need to be put together by the System Governance Group explaining what is required and the cost of implementing the development. However, there is a clear expectation from industry that the DP's scope should remain focused, and no further development will take place unless decided by the Ownership and System Governance Groups (refer to section 7.2 for more information). The Ownership Group will also need to secure funding for the development.

5.9 How will users access ongoing help and support?

From the point industry starts to use the DP, a user support function will be required. This will include support available by email and telephone to any user requiring assistance. The support function will need to be flexible over the course of the rollout and scale up as usage of the DP increases. Over time in response to reducing interactions it will scale back to a BAU service.

AHDB have successfully operated a user support function on behalf of Defra for the electronic pig movement licence system for over ten years. Combining this with supporting other industry tools and services means that AHDB is experienced in putting in place and maintaining a flexible service which can react to industry's requirements. This will include working with industry and the DP System Governance and Ownership Groups to establish the hours and days on which the service will be available to users. It is anticipated for example that the available hours will be extended during harvest and immediately afterwards when the tonnage of crop moved is at its highest.

6 Data

It has been clear throughout all Data Group discussions that a clear and robust data governance structure is required. The Data Group's remit has been to create this governance structure to ensure that data is managed safely and securely.

6.1 Who owns and sees what data?

Figure 5 below outlines which data is entered and owned by which party, and who can see what data at which point through the passport lifecycle.

The DP system will be developed in a way to ensure integrity of commercial and personal data through the supply chain. This framework will remain a central pillar of the DP ensuring that data access and ownership does not deviate from that agreed by industry.

Data point	Who enters the data	Who sees data live	Who sees the data on a completed passport					Who owns the data
			Sender	Transporter	Recipient	Merchant	2 nd Recipient	
Sender company	Sender	Sender, Transporter, Recipient	Y	Y	Y		Y	Sender
Collection address	Sender	Sender, Transporter, Recipient	Y	Y	Y		Y	Sender
Assurance number	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Assurance scheme	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Certification body	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Crop type	Sender	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Sender
Variety (if applicable)	Sender	Sender, Transporter, Recipient	Y		Y	Y	Y	Sender
Store or bin ID	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Harvest year	Sender	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Sender
Loading date	Sender	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Sender
Post harvest treatment	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Fusarium mycotoxins	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
GM statement	Sender	Sender, Transporter, Recipient	Y		Y		Y	Sender
Sender declaration	Sender	Sender, Transporter, Recipient	Y	Y	Y		Y	Sender
Transporter company	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Assurance number	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Assurance scheme	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Certification body	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Vehicle reg no.	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Trailer ID	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Collection ticket no.	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Last three loads	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter
Transporter declaration	Transporter	Sender, Transporter, Recipient	Y	Y	Y		Y	Transporter

Data point	Who enters the data	Who sees data live	Who sees the data on a completed passport					Who owns the data
			Sender	Transporter	Recipient	Merchant	2 nd Recipient	
Sender RED II status	Automated	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Assurance body
Sender assurance status	Automated	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Assurance body
Sender certification expiry date	Automated	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Assurance body
Transporter assurance status	Automated	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Assurance body
Transporter certification expiry date	Automated	Sender, Transporter, Recipient	Y	Y	Y	Y	Y	Assurance body
Merchant assurance status	Automated	Recipient			Y	Y	Y	Assurance body
Merchant certification expiry date	Automated	Recipient			Y	Y	Y	Assurance body
Recipient company	Recipient	Sender, Transporter, Recipient	Y	Y	Y	Y	Y*	Recipient
Recipient delivery location	Recipient	Sender, Transporter, Recipient	Y	Y	Y	Y	Y*	Recipient
Store, bin or vessel ID (optional)	Recipient	Sender, Transporter, Recipient	Y	Y	Y	Y	Y*	Recipient
Merchant company (supplying)	Recipient	Sender, Transporter, Recipient			Y	Y	Y*	Recipient
Load ID (fixing no.)	Recipient	Sender, Transporter, Recipient	Y	Y	Y	Y	Y*	Recipient
Contract ID (merchant)	Recipient	Recipient			Y	Y		Recipient
Accept or reject status	Recipient	Sender, Transporter, Recipient	Y	Y	Y	Y	Y* Y**	Recipient
Reject reason (spec or food and feed safety)	Recipient		Y	Y	Y	Y	Y* Y**	Recipient
Net weight	Recipient		Y	Y	Y	Y	Y*	Recipient
Weighbridge ticket no.	Recipient		Y	Y	Y	Y	Y*	Recipient
Crop type	Recipient		Y		Y	Y	Y*	Recipient
Variety (if applicable)	Recipient		Y		Y	Y	Y*	Recipient
Quality	Recipient		Y		Y	Y	Y*	Recipient
Merchant company	Merchant				Y	Y	Y	Merchant
Assurance number	Merchant				Y	Y	Y	Merchant
Assurance scheme	Merchant				Y	Y	Y	Merchant
Certification body	Merchant				Y	Y	Y	Merchant

Figure 5. Who enters, sees, and owns each passport data point.

Notes:

- 2nd Recipient – where a load is rejected and redirected to a second recipient.
- Y* - where 1st Recipient rejects for contractual spec, 2nd Recipient will add their own data and will not see any data from 1st Recipient.

- Y** - where 1st Recipient rejects for food & feed safety reasons, 2nd Recipient will see the status and the reason.

6.2 Data Governance Group

Data management will be overseen by a Data Governance Group. This group will be made up of all those who input and own data within the DP. Each group member will have ownership and responsibility for the data which they own in the system (as outlined in figure 6).

Role/Expertise	Representing
Chair	Independent
Farmer	NFU (National Farmers Union)
Farmer	NFUS (National Farmers Union Scotland)
Farmer	Independent
Haulier	RHA (Road Haulage Association)
Miller	UKFM (UK Flour Millers)
Data expert	Independent
Data Protection Officer	Independent
AHDB	Independent
Assurance Bodies	RT (Red Tractor) SQC (Scottish Quality Crops) TASCC (Trade Assurance Scheme for Combinable Crops) UFAS (Universal Feed Assurance Scheme)
Defra (if grant funding received)	Independent
Haulier	TASCC (Trade Assurance Scheme for Combinable Crops)
Maltster	MAGB (Maltsters Association of Great Britain)
Merchant	Independent
Crusher	SCOPA (Seed Crushers and Oil Processors Association)
Industrial Processor	RTFA (Renewable Transport Fuel Association)
Feed Compounder	AIC/UFAS (Agriculture Industries Confederation/Universal Feed Assurance Scheme)
Merchant	AIC (Agriculture Industries Confederation)

Figure 6. Data Governance Group membership structure.

At DP registration each user will be asked to agree to the key principles and data handling and sharing requirements of the DP. The user designated as company administrator will be expected to do this on behalf of the company they work for.

These principles are that:

- Data will be shared up and down the supply chain with the aspiration of real-time transfer of data (depending on existing digital feedback mechanisms, intake structure, speed of testing, technological capacity, contractual, commercial and legal restrictions).
- Data can be aggregated and anonymised for use in food and feed safety related data requests.
- Data handling practices, and retention periods are adhered to.

This affirmation process would then occur on an annual basis ensuring all users continue to agree and adhere to the principles of the DP. An extra interim affirmation process would be applicable in instances where significant change is required to the system (e.g., removal or addition of new data usage permissions) or where a complaint regarding a user needs rectifying.

The Ownership Group and Data Governance Group will formally review the principles annually.

Any reaffirmation that is not completed, or where a user does not agree to the terms will be raised to the Data Governance Group chair to initiate an investigation. Once the investigation is complete, the Data Governance Group will give a recommendation to the Ownership Group on how to proceed. If a party does not sign, then their usage of DP will be paused; if the party wishes to leave the DP, then the data governance principles laid out in section 6.2.5 will be enforced.

6.2.1 Real-time data

There is a cross-industry commitment to feedback weight and quality data to growers in real-time. Real-time means that as soon as weight and quality data are known by the recipient they are immediately uploaded to the DP and are available to growers and stores. Where internet access is available, software is used and integrated with the DP, data will flow from recipient to grower immediately and automatically. However, several factors will affect this, particularly at the start of the industry transition from paper to digital. These include:

- Paper-based records used at intake, rather than software.
- Manual entry of test results into the recipient's software rather than automatic entry where testing equipment and recipient software are integrated.
- Manual entry of test results into the DP rather than automatic entry where recipient software and the DP are integrated.
- Lack of internet access at intake.
- A contracted third-party operating an intake on behalf of the recipient, e.g., a port superintendent or a contracted store operating on behalf of a merchant.

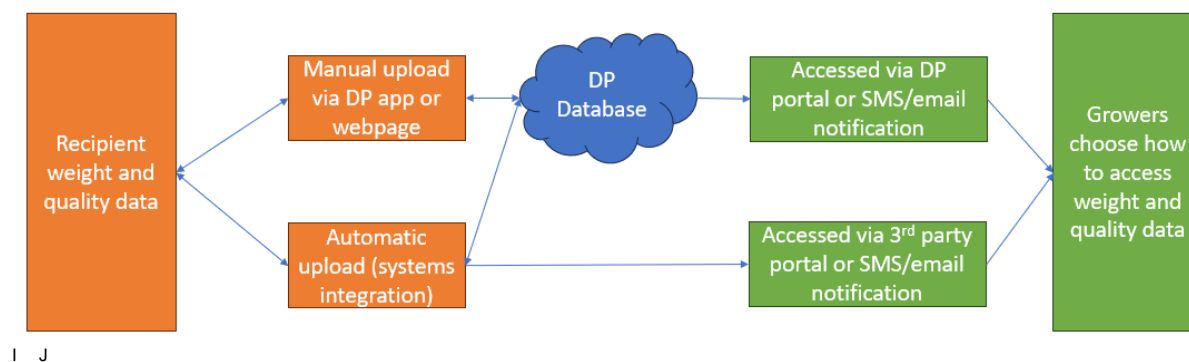
The ambition and expectation are during the transition period, where paper-based or manual data transfer systems are used, instead companies will fully adopt software and move to systems integration. The benefits will be two-fold:

- It will mean data can be shared quicker, particularly weight and quality data being fed back to growers.
- It will drive efficiencies and reduce instances of mistakes where data is transferred manually from one system to another.

As a minimum where technology at intake currently prevents real-time data sharing, data will be required to be uploaded to the DP at least daily.

It is expected during the transition period, that trading contracts and terms and conditions will be aligned to ensure they permit weight and quality data to be shared directly between recipients and growers via the DP. This will ensure there are no barriers to sharing this information in this way.

It is acknowledged that some supply chains already have digital systems in place to share weight and quality data with growers. Where this is the case, in addition to uploading this information to their existing platform, recipients will be required to upload it to the DP in-line with industry's ambition for aggregated DP data to be available for food and feed safety investigations. Refer to section 6.2.2 for more information. In these situations, growers can choose whether to access this data from the DP or from the third-party platform.



I J

Figure 7. Diagram outlining the two methods to feedback weight and quality data to growers where digital third-party systems already exist to do this.

Appendix 11.9 lists the quality tests for each crop. It is expected that the results of all tests performed at intake will be shared with growers. It is not expected that all tests will be performed on all loads on all occasions. Where a test is not performed, no result will be uploaded.

Real-time data is also a consideration for data flowing *into* the system. For assurance data in particular, the definition of real-time will depend on the frequency with which assurance database updates are made public. This is usually done once every 24 hours (overnight). Therefore, any change made to a company's assurance status on one day, would not be reflected in the publicly available data until the next day.

6.2.2 Data permissions

Four separate permissions for data usage are proposed for the DP system.

6.2.2.1 Permission 1

General use of the passport on a one-by-one basis for the purpose of food and feed safety, including sharing quality data via DP.

Data is not aggregated or anonymised, this is the standard daily use of the passport and data feedback within individual contractual supply chain agreements.

6.2.2.2 Permission 2

Aggregated and anonymised datasets created for food and feed safety purposes (e.g., food scares, contamination).

Examples include use of cereals quality data to monitor food safety rejections, or a request from the Food Standards Agency for data relating to post harvest treatment applications.

6.2.2.3 Permission 3

Aggregated and anonymised datasets for analysis to benefit the industry.

Examples include using DP data to replace the existing AHDB Cereals Quality Survey and the monthly usage data statistics AHDB produce on behalf of Defra. This data could also be used to offer more insight into export and import volumes by reporting on the deliveries and collections at ports. The data usage could also support the Recommended Lists.

^I All weight and quality data must be uploaded to the DP database regardless of how it is accessed by the grower.

^J Double headed arrows represent data flows for inbound passport data from the database into recipient systems and outbound weight and quality data from recipient systems into the DP database.

6.2.2.4 Permission 4

Aggregated and anonymised datasets used for bespoke data requests from third parties.

Examples such as a seed breeder asking for quality data relating to a specific variety. Or a request from a research institute for the tonnage of crop traded at a particular quality etc.

The Data Group recommends that Permission 1 and 2 are prioritised as the first key aspects of the DP. Permission 3 is on hold until the transition process is under way to understand the data collection requirements. Permission 4 will be completely off the table until full industry adoption and business as usual implementation. At this point, the Ownership Group will review the terms of the Permission to decide if Permission 4 should be progressed.

Development phase	Phase 1 - Business Case Creation / Discussion / Decision June 2023 - Dec 2023	Phase 2 - DP build Jan 2024 - June 2024	Phase 3 - proposed transition June 2024 - July 2025	Phase 4 - Industry adoption and business as usual July 2025 onwards
Permission 1 – data used to communicate passport data up and weight/quality down supply chain	Agreed as core component of DP process. Data Governance Group as per Agrimetrix recommendations agreed – terms tbc.	Data Governance Group oversees data usage.		
Permission 2 – aggregated and anonymised for food and feed safety and security e.g., Defra request on food safety matters	Receive confirmation from Data Governance Group that this is a desired outcome. Agree what constitutes a request on this matter – who can request the data and under what circumstance. Agree basic principles of who decides which data is used in these requests – is it by supply chain or business.	Data Governance Group agrees detailed structure to handling data requests.	Data Governance Group oversees data usage.	
Permission 3 – industry data analysis such as usage data	Off the table during business case decision process – ensure build keeps in potential to create data anonymisation optionality from start of data collection period once operational.		Ownership Group to review as part of transition process to see if data requirements have changed. Ownership Group to ask for proposals from Data Governance Group.	Adopt data usage if proposals agreed by Ownership Group agreed.

Development phase	Phase 1 - Business Case Creation / Discussion / Decision June 2023 - Dec 2023	Phase 2 - DP build Jan 2024 - June 2024	Phase 3 - proposed transition June 2024 - July 2025	Phase 4 - Industry adoption and business as usual July 2025 onwards
Permission 4 – ad-hoc data requests from third parties	Off the table			For Ownership Group to discuss and set Data Governance Group task to create decision structure if wanted.

Figure 8. Phasing of permissions through build, transition and BAU phases.

6.2.3 Data Governance Group remit

The Data Governance Group's remit will cover the areas first suggested in a 2021 [Agrimetrics report](#) into data governance.

For data usage Permission 1, the group's remit includes:

- Data **security** standards.
- **Legal** framework for collection, storage, processing and deletion of data and GDPR.
- **Technical** aspects of data transfer.
- Data and system security standards **oversight** – breach reporting, annual security and penetration testing standard, aspiration for accreditation.
- **Oversight** of the development and implementation of **real-time feedback** within DP – including acting as the point of feedback through development and transition periods by individual companies to ensure system is developed to best facilitate real-time feedback.
- **Complaints over data transfer** e.g., if a company is not complying with the terms of data transfer timelines. **Complaints over data quality** - that data is being inputted correctly and fully. The group will need to ensure a clear and common naming protocol is used within DP.
- **Transparency** and scrutiny.
- Data **permissions** covering adaption/addition.
- Potential **development** of data capture areas (field change request process).
- Remit to ensure **data sharing** agreements are in place and correct.

For data usage Permission 2, the remit for Permission 1 will be extended to oversee and implement the data request process for food and feed safety, which will include:

- Oversight of a **triage process** for incoming requests to ensure all requests are valid and meet the validation criteria for amalgamating and anonymising data.
- Agreeing **charging structure** for requests to ensure any data-requests are cost neutral.
- Implementation of data-sharing protocols for amalgamated and anonymised datasets; to include **time-limits** for usage of datasets, **encrypted** data transfer, **sharing** restrictions, data **destruction** schedule and confirmation requirements.
- Agree terms for data **validation** to ensure appropriate aggregation and anonymisation of datasets.

Depending on the instigator, nature, scale, and timeliness of data requests, access to the data may be presented in multiple ways. For those data requests that are simple, non-sensitive and not timely, the data request may be facilitated directly by the AHDB data team with no requirement to share data outside of the system.

Other data requests may require further sharing of direct data. For instance, where APHA requires data for managing a contaminant issue. Under these circumstances, the data will be shared with a clear data-sharing protocol in place.

It will be the responsibility of the Data Governance Group to ensure that all data-sharing protocols are agreed and in place in time for industry adoption.

6.2.4 Permission 2 data request process and validation

For Permission 2 data requests a triage check will ensure all requests are valid. This will form part of a formal process to manage and validate the data that is being asked for.



Figure 9. Permission 2 data request process.

Each data request will be accompanied by a detailed assessment of why the data is needed outlining the following key questions.

1. Does the requester have a remit to manage, respond to or analyse the impact of food and feed safety and security issues. E.g., known bodies that operate in this area, APHA, Defra, FSA asking for data on grain movement after finding a contaminant issue.
2. Is there a food contamination risk e.g., ergot?
3. Is there a risk of supply being reduced?
4. What is the scale of risk, county level/regional/national?
5. Is the scope of the data request reflective of food security/safety issue?
6. How sensitive is the data requested?
7. How long will the data be held for?
8. How do they intend to use/publish the data?
9. Does the data request meet the validation criteria for anonymity (see figure 10 below)?
10. Is the data request already being covered by existing industry/AHDB work?
11. Is the data for research purposes rather than dealing with on-going risk?
12. Are there any other material concerns not covered in the list above?

The Data Governance Group will act as the impartial review board for data requests and decide if the data request is approved. Further questions may be required depending on the purpose of the data request. Examples are:

- i. Does the data requested offer any form of commercial advantage?
- ii. Does the data create any privacy issues to other stakeholders?
- iii. Does the data cause any degree of compromise from a commercial perspective beyond standard price commerciality e.g., sustainability claims etc.

With regards to question *ix* in the triage process a set of validation criteria is suggested for amalgamating datasets. This validation is required for two reasons. Firstly, to ensure the data is robust and secondly to ensure that the data is sufficiently anonymised to protect individual businesses commercial data.

The validation threshold will be a standing point of annual Data Governance Group meetings.

Data Validation Thresholds
At least five company datasets are required in any supply chain dataset

No single company will be predominant in this dataset e.g., can take up no more than 50% of the sample
For farm level data, at least 1000 farm datasets are required

Figure 10. Validation criteria.

For supply chains with fewer than five companies, e.g., oilseeds crushers, specific agreement on data aggregation will be needed with all parties agreeing to the dataset being created. Provision will be made in the system for emergency requests to be sent to all users in the case of sudden or fast-moving requirements regarding food safety issues.

For farm level data, 1000 farms represent approximately 5% of the assured growers in GB. This 5% level allows for sufficient data robustness to allow extrapolation to national levels. Data regionalism will also need to be assessed to ensure no bias is built in. For national datasets, at least 5% of DP users from each Defra region will be required to allow for data to be amalgamated on a national scale. If this 5% level is not reached, it will be at the discretion of the Data Governance Group to allow the data to be shared.

The AHDB Economics & Analysis Data Operations Team will be responsible for data processing. The team will employ the same rules and working procedures as for commercially sensitive supply chain usage data. These include individuals having restricted data access confidentiality contracts signed annually and secure data storage on AHDB archives.

The AHDB team have a confirmed track record in handling industry sensitive data from six years of managing cereal and oilseed supply chain data such as the UK Cereals Balance Sheet and monthly usage data. In this time there has been zero data breaches due to stringent procedures and management.

6.2.5 GDPR

The Data Governance Group will have responsibility to ensure the DP adheres to GDPR (which covers specifically personal and sensitive data). The DP will collate personal data in respect of name and address which will be visible on passports. The importance of protecting both commercial and personal data is of huge significance to the project and has been thoroughly considered in the preparation of this business case.

Therefore, a defined data sharing agreement for all parties will need to be agreed to at registration. This data sharing agreement will confirm that participants are allowing their personal data to be shared over specified retention periods.

This is not optional within the DP as the personal data in the form of address and name (signature for confirming load status) must be shared along the supply chain to complete the food and feed traceability process.

These principles of operation for GDPR have been overseen and approved by AHDB's Data Protection Officer. The requirement of a DPO to sit on the Data Governance Board was a key requirement from industry and AHDB will continue to offer DPO support to the project to ensure that all personal data is protected and secured.

Retention periods for personal data suggested are:

- Receivers hold personal data for seven years to comply with audit purposes.
- After seven years, personal data in the main database will be deleted (name and address) and the record anonymised. This anonymisation process will retain a reduced postcode which will act as a geographical identifier in the absence of the full address, i.e., LE17 6AS changes to LE17). In those instances, where this anonymisation will not be sufficient, for instance, only 2 farms under one postcode area, multiple postcodes will be merged.

The system will automatically manage retention periods and delete data as appropriate. If a company must withdraw from DP, their individual data can be extracted from the system.

For datasets that contain data from a company that is withdrawing, then the personal data will be deleted and anonymised to a sufficient level to replicate the second point made above on retention periods.

6.3 How will data be protected?

This system will create a new platform for data sharing up and down supply chains. Strong governance structures will be required to ensure safe systems are put in place to protect data. There is an unwavering commitment to always protect commercially sensitive data.

This system, once rolled out, will be integral to the day-to-day operation of combinable crop deliveries for food and feed markets. As such the security requirement is two-fold, firstly to ensure the data is held securely, and secondly to ensure the system operation is protected from outside interference.

The Leadership Group and participants in the Development and Data Groups have all been unanimous in how important this is to the supply chain. Data and system security will be at the heart of all aspects of the system's build and test phase.

To protect all users' commercial and personal data, AHDB's Security Architect has established a robust and well-defined security specification and approach to be implemented by the contracted developer. This includes annual independent penetration testing, with any recommendations being implemented as soon as practicable. The security specification is available to any business to review and AHDB welcomes feedback from industry on this. Contact the DP project team to obtain a copy.

In developing this business case, the Data Group and AHDB representatives have been in contact with the National Cyber Security Centre (NCSC). As the DP could be considered critical national infrastructure in the food supply chain, it is imperative that the security of the system from outside actors is as strong as it can be.

The NCSC have shared information on ransomware and protecting bulk data as well as guidance from the US Cybersecurity and Infrastructure Security Agency (CISA) on digital signatures and digital certificates. The DP will be signed up to the NCSC Early Warning Tool, which collates several live threat intelligence feeds to provide specific targeted warnings when threats develop against our network. All NCSC recommendations have been factored into the DP's baseline security specification.

7 Governance and funding

7.1 Who will own the DP system?

The current DP Leadership Group explored different options for system ownership, each with pros and cons. Refer to appendix 11.5 for the discounted options. Their preferred model is a consortium agreement between the key parties represented on the current Leadership Group plus AHDB, i.e.:

- Agricultural Industries Confederation (AIC)
- Agriculture & Horticulture Development Board (AHDB)
- Maltsters' Association of Great Britain (MAGB)
- National Farmers' Union (NFU)
- National Farmers' Union Scotland (NFUS)
- Seed Crushers & Oil Processors Association (SCOPA)
- UK Flour Millers (UKFM)

The consortium model (with different parties) has worked effectively for the AHDB Recommended Lists for many years.

Under this model, AHDB would be the legal entity owning the DP system and database on behalf of the consortium and industry. The roles and responsibilities for each consortium partner, along with the governance structure would be clearly defined and outlined in the consortium agreement. These same parties would form the Ownership Group taking responsibility for legal oversight and overall DP governance and decision making, being the successor to the current Leadership Group.

7.1.1 Pros and cons

7.1.1.1 Pros

- Industry has a clear and legally defined role in DP through the consortium agreement which outlines each party's role, rights and responsibilities.
- Lower cost system than others, e.g., a limited company.
- Existing AHDB structures could be used for employing staff to provide day-to-day operation and oversight.
- Clear structures outlined in the consortium agreement would guarantee industry's ability to steer the DP's future direction.

7.1.1.2 Cons

- Slightly more complex (and therefore more costly) than it being owned and operated by AHDB alone. These costs include the legal input into drafting the consortium agreement up front, and factoring in regular reviews to ensure the agreement remains fit for purpose over time.

7.2 Who will govern the DP system?

A similar structure of industry representative groups would be set up mirroring the structure used in working to build this business case.

7.2.1 Ownership Group

This group would provide the senior level industry leadership the DP requires. Key responsibilities include:

- Acting as the consortium management group.
- Ensuring there is cross-industry input and participation from all parts of the combinable crop supply chains.
- Owning the concept of the 'combinable crop passport', ensuring the passport communicates the food and feed safety information required by all combinable crop supply chain businesses and ensuring that the required weight and quality data is returned to growers and stores within agreed timeframes.
- Ensuring that the DP remains focused and that its scope is not extended unless agreed by all stakeholders.
- Taking key strategic decisions.
- Setting up System Governance and Data Governance Groups and signing off those groups' recommendations.
- Ensuring industry communications are effective and all stakeholders are consulted and informed.

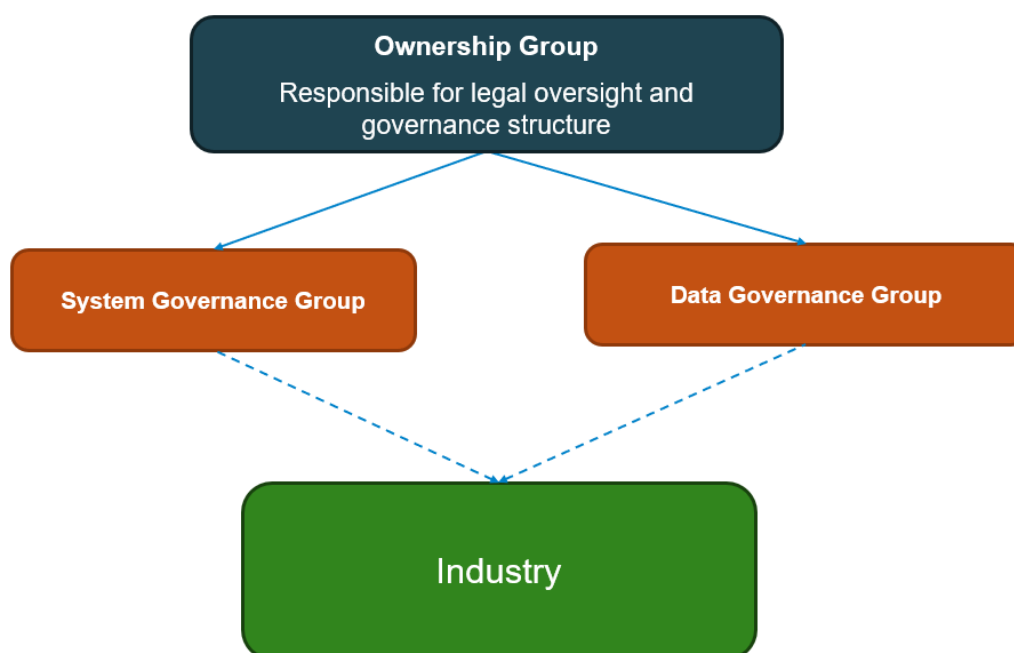


Figure 11. Diagram outlining the proposed structure of industry groups overseeing all aspects of DP.

7.2.2 System Governance Group

The Ownership Group would oversee the creation and set up of a System Governance Group which would be the successor to the current DP Development Group. Key responsibilities include:

- Determining how the DP operates, who uses it and how it impacts others in industry.
- Working with the Data Governance Group to ensure that the right data is available to the right businesses at the right time, and to no one else.
- Working with AHDB and system build contractor to oversee system build, reviewing options, taking decisions and ensuring that the system works effectively and efficiently for all businesses.
- Prioritising development tasks, being involved in user acceptance testing (UAT) and signing off development as fit for purpose.
- Overseeing the industry transition from paper to digital.
- Once in the business as usual (BAU) phase, identifying and planning further system enhancements ensuring the system remains fit for industry's requirements long-term.
- Ensuring that the DP remains focused and that its scope is not extended unless agreed by all stakeholders.
- Ensuring the system's security is maintained.
- Ensuring appropriate levels of industry and user support are in place, including training materials and the customer support function available by telephone and email.

7.2.3 Data Governance Group

The Data Governance Group will work alongside the System Development Group. Refer to section 6.2 for more information on this group's remit.

7.3 Who will operate the DP system?

Under the consortium ownership model, the day-to-day system operation and management oversight would be by individuals employed by AHDB. This includes working with the appointed system build contractor and the System Governance Group through the build phase, and beyond that into the 'business as usual' (BAU) phase. AHDB would also provide the customer support helpdesk function, supporting industry through the transition and beyond.

AHDB would operate and manage the system day-to-day based on key input and decisions taken by the three representative industry groups.

Clear system performance management metrics would be established by the Ownership Group who would monitor these regularly ensuring the system operates efficiently as required by industry.

7.4 How is the development phase funded?

The Leadership Group's preference is for a combination of statutory AHDB cereals and oilseeds levy and pursuing options for grant funding from Defra or other potential grant providers to fund the development phase. They also agreed that income from DP usage charges (for non-levy payers and those trading non levied crops) should form part of the overall funding picture. These would be paid by businesses who are not statutory levy payers, and businesses trading crops not liable for levy, e.g., imported crops and combinable peas and beans. These charges would be based on the number of passports a business uses. Therefore, this method will not work for the development phase, refer to section 7.5 for more information.

The statutory cereals and oilseeds levy is paid at differing rates by growers, merchants and processors across the UK. As such, most businesses it is envisaged using the DP pay levy and no extra administration costs would be incurred in setting this up. This makes this the most appropriate and efficient model for funding the development phase.

This business case will also be used to pursue grant funding from Defra and others. If successful, this reduces the amount of statutory levy required to fund the development phase.

The Leadership Group considered and discounted other funding models. Refer to appendix 11.6 for more information on these.

7.5 How are long-term running costs funded?

Once the rollout is complete and industry has transitioned completely from paper to digital passports, the project will enter the business as usual (BAU) phase. During this phase, the system will be supported and maintained, but no further enhanced or additional functionality will be built unless specifically agreed. For more information on how new developments or enhancements will be discussed prioritised and actioned, refer to section 5.8.

The costs to support and maintain the DP in the BAU phase will be funded by a combination of statutory levy and DP usage charges (for non-levy payers and those trading non-levied crops).

There is no firm data on how many passports per year are used across GB however the working industry estimation is 800,000. Taking this figure and the gross annual running cost of £396k equates to approximately 53p per passport or 1.84p per tonne based on a 29-tonne load. This cost would be reduced by income from the DP charge and if Defra grant funding is secured.

Statutory levy paid by growers, merchants and processors will be used to fund most of the running costs. However, for those businesses using passports who do not pay statutory levy, and where passports are required for non-levied crops, DP usage charges could apply based on the number of passports created and received by businesses.

In the case of non-levied crops such as combinable peas and beans, a pragmatic approach would need to be taken recognising that most businesses creating and receiving passports for these crops are statutory levy payers for other crops they trade. The rolling five-year average pea and bean production figure is 721,000 tonnes which would equate to £6,215 paid by those creating passports and the same figure by receivers. The Leadership Group are clear however that individual pea and bean growers will not be charged directly to use the DP system for pea and bean passports.

The Leadership Group have agreed in principle, those using the DP to move grain and oilseed not liable for AHDB levy paid should pay to use the DP. This will ensure equality of usage across the supply chain and mitigate a free-rider problem for the system. Those sectors of industry and commodities that have been identified so far for potential charging are:

- GB animal feed compounders:
 - Imported wheat and barley, domestic field beans and peas.
- Integrated poultry units:
 - Imported wheat and barley.
- Flour milling:

- Imported wheat.
- Brewing, malting and distilling:
 - Imported barley, maize and wheat.
- Oat milling:
 - Imported oats.
- Industrial usage (bioethanol, glucose, starch etc):
 - Imported wheat and maize.
- Cereal breakfast foods:
 - Imported maize.
- Pet food manufacturers
 - Imported wheat and maize.
- Oilseed processors:
 - Domestic and imported oilseed rape.

This list is not exhaustive and will be developed through the consultation period. A further point of clarification needed is the proportion of this material not requiring a passport due to logistics and proximity to docks, e.g., dockside flour mills where grain is elevated into the mill from the vessel or shunted from vessel/store to main intake point. The same can be said of the main oilseed rape crushing plants.

Using actual figures taken from the 2022/23 season, the above listed sources of grain intake have received 2.234m tonnes of chargeable grain, oilseed and pulses. This would equate to a possible chargeable income of £38k.

However, given we know that there is a large proportion of imported products received at dockside facilities that would not require a passport, the actual figure could be much lower. Industry input into the business case has put this figure at potentially 50% of the material using a passport, which if true would halve the charging income to £19k.

Further to this charge for imported grain would be charges for domestically produced pulses and for processing of domestically produced oilseed rape, as these are not liable for AHDB levy. This would total circa £30k per annum.

The detail of the charging model and specifics on the total tonnage that will be chargeable as well as the proportion of imported crops not using a passport will be determined through the consultation period. We hope that in the coming weeks the engagement with industry will provide more depth of data in this area to be able to create a final position on charging.

If the digital passport goes ahead, the chargeable tonnages and DP running costs will be closely monitored to ensure there is neither a surplus or deficit. Adjustments can be made annually to ensure the appropriate DP charge is set.

8 Value

8.1 What will it cost to develop the DP system?

The winning tender from 2021 included a cost of £500k to build the more complex system which industry previously required. This includes the cost to develop the core database and web portal, the mobile app and the systems integration platform.

Discussions have continued with the winning bidder from 2021 to flesh out the simplified industry requirements (outlined in section 5) and to identify potential solutions for how those requirements can be delivered. The conclusion is that despite the DP process simplification, the development cost is still likely to be around £500k. This is because:

- Cost inflation has been above 10% for much of the last 18-month period since the original tender process.
- The main components of the original solution are still required, and industry's desire to match the paper passport process and to ensure data can be transferred between devices at collection point and delivery point offline, will in fact require more work to implement.

A fresh procurement process is being undertaken through winter 2023/24 based on industry's revised requirements. When the winning bidder is known, the development cost will be shared with industry.

8.2 Individual business implementation costs

There are four categories of potential costs to be borne by industry in implementing the DP system which are outlined in the sections below. **The total on one-off implementation costs for industry are calculated to be in the region of £872k.** Refer to sections 8.2.2. and 8.2.3. for more detail on how this figure has been calculated.

8.2.1 System access cost

There will be no cost at point of access for any business to use the DP, however once in the BAU phase, the Ownership Group will implement a charging structure for non-levy paying businesses and those trading non-levied crops, as outlined in section 7.5 which will result in businesses being invoiced in arrears for passports used. The Leadership Group are clear however that individual pea and bean growers will not be charged directly to use the DP system for pea and bean passports.

8.2.2 Hardware

The system will be as accessible as possible to businesses, with no specialist hardware or devices required. The minimum requirements for use are outlined in figure 12. Where a business does not meet the minimum requirement, implementation costs will be incurred. Also outlined are optional ways in which businesses can interact with the DP system. It is likely that if businesses take advantage of these, additional efficiencies can be gained.

- Senders (create passports) – any business despatching loads requiring a passport, e.g., growers, TASCC/UFAS stores and ports.
- Transporters – any business transporting loads requiring a passport, e.g., contract hauliers, growers or merchants and processors with their own haulage fleet.
- Recipients (receive passports) – any business receiving loads with a passport, e.g., processors, TASCC/UFAS stores and ports.
- Merchants – any business buying grain from one party and selling to another. For these businesses not operating their own stores (where they act as senders and recipients), interaction with the DP will be optional.

	Desktop or laptop computer with Bluetooth and internet connectivity	Handheld device with camera, Bluetooth and internet connectivity	Systems integration
Senders	A computer OR handheld device required as a minimum (to create passports and view weight and quality data)		Optional (to exchange data efficiently and automatically)
Transporters	Optional (to view weights)	Required as a minimum (to receive senders' passports and add haulier data)	No
Recipients	A computer OR handheld device required as a minimum (to view passports and add weight and quality data) *		Optional (to exchange data efficiently and automatically)
Merchants	Optional (to view passports, weights and quality data)	Optional (to view passports, weights and quality data)	Optional (to exchange data efficiently and automatically)

Figure 12. Minimum requirements for business hardware and devices.

*If recipients use a desk-top computer then it will need internet access. If recipients use a laptop computer, Wi-Fi will be beneficial but not essential, but the device will need to synchronise with the DP with internet access daily. NB if recipients' devices do not have internet connectivity at intake, it will not be possible to perform real-time assurance checks at that stage and the senders' and hauliers' last available assurance check status will be displayed.

8.2.2.1 Senders

Senders not meeting the minimum requirement – based on NFU survey data, it is estimated that between 5 and 8% of growers do not have a computer or smartphone (broadly in-line with the general population). Growers will need access to either a computer OR smartphone by the end of the transition period. The most flexible way for growers to access the system will be by smartphone. Working on 20,000 assured growers across GB, this equates to 1,600 growers requiring investment. Typical cost to buy a smartphone and data for a year is £250. **Therefore, £400,000 cost.**

8.2.2.2 Transporters

Transporters not meeting the minimum requirement – estimated at 7% of 10,400 drivers working on grain who do not have a smartphone (in-line with the general population). Typical cost to buy a smartphone and data for a year is £250 and this will need to be in place by the end of the transition period. **Therefore, £182,000 total cost.**

8.2.2.3 Recipients

Recipients not meeting the minimum requirement – 8% of respondents to AHDB's recipients survey (processors, stores and ports) are using paper-based recording systems. To access the DP, these companies will need to invest in a computer or handheld device for each intake point by the end of the transition period. Working on 1,135 processor, store and port intakes across GB, this equates to 90 sites requiring investment. Typical cost to purchase a tablet or laptop computer is £500. **Therefore, £45,000 total cost.**

8.2.3 Systems integration

There are two ways systems integration will be achieved. The first is to work one-to-one with companies supplying proprietary software to industry and to develop an integration solution which the provider can roll out to any business using it. Exploratory discussions have been held with a small number of software providers who indicated their willingness to be involved in this way. If industry decides to go ahead with the DP, contact will be established with all software providers. This is an efficient and achievable solution which would provide 34% of recipient businesses with a no or low-cost integration solution.

The second way relevant to those businesses with bespoke software solutions, is for each business to develop their own integration solution using the DP API. Businesses could use their in-house IT teams to achieve this or could contract out the work. Experience during the 2015 pilot showed that integration could be achieved successfully with relatively low input from IT teams. The three companies who integrated in this way incurred between 40 and 70 hours of time from their IT teams to successfully integrate. Costing this time at £50 per hour amounts to between £2,000 and £3,500 per company. Any company with bespoke software maintained by external contractors can apply their contractor's cost to the hours indicated above. Fourteen percent of survey respondents had both bespoke software and had an interest in systems integration. Working on £3,500 per business, if 14% of 500 processor and merchant businesses integrate in this way, that would incur a **total cost of £245,000 across industry.**

For information on the data that would be exchanged via systems integration refer to figure 5. Refer to appendix 11.8 for more technical information on systems integration.

8.2.4 Training

System design will be based on normal app conventions rather than customisation. This means the system will be intuitive to use without users requiring a lot of training or having to refer to instructions or support functions. It is envisaged there will be one easily navigable workflow through the system for the most common passport 'path'.

However, it is likely that DP system users throughout the supply chain could require training and support when they first come to use it if they are not routine computer or smartphone users. A range of training materials will be developed and made available to all. This will include tool tips (i icons) throughout the system, short videos on how to perform certain tasks and downloadable worksheets. A targeted full training programme will be assembled and made available to all businesses and users ready for the start of the transition.

It would be prudent for businesses to factor in one hour of staff time for training and onboarding for each staff member required to use the DP system.

8.3 Ongoing central system and individual business running costs

After the initial period of development and transition, it is envisaged the DP will enter the business as usual (BAU) phase from January 2026. At this point, DP functionality will be complete, and the system will enter a maintained and support phase with staff costs reduced significantly from the development phase peak.

8.3.1 Central system running costs

The development cost will be capitalised and amortised over ten years with £50k included each year for ten years.

Cost	Business as usual phase - cost per year
Staff (system operation and management, ownership, system and data governance group support)	£165k
Staff (industry helpdesk support)	£72k
Amortised development (over ten years)	£50k
Developer support (security updates, bug fixing etc)	£34k
AHDB platform hosting	£33k
Assurance schemes API maintenance (RT, SQC, TASCC, UFAS)	£18k
Sundry costs (e.g., legal advice, governance board meetings)	£20k
Total annual running cost (gross)	£396k
Income from DP usage charges (refer to example in section 7.5)	-£49k
Total funded by statutory levy (net)	£347k

Figure 13. Central system running costs.

8.3.2 Individual business running costs

Once the system is in business as usual (BAU) phase, the running costs for individual businesses are expected to be minimal:

- Creating passports – it is likely that with the option to bulk complete multiple identical passports, time could be saved, but this will only be significant for larger businesses, so the working assumption is that it will take a similar time to complete digital passports compared to paper passports.
- Driver passport input – once the system is up and running, it is envisaged that the same time will be required to complete a digital passport compared to a paper one, so no extra costs are expected in terms of time input.
- Receiving passports – for businesses receiving passports and not choosing to integrate systems so that data is exchanged automatically between their software and the DP, there will be some process duplication. This is because the passport will need to be accepted and weight and quality data added to the DP system in addition to recording it in the business's existing system. Using data from AHDB's recipient survey, the proportion of businesses not prepared to consider systems integration and saying the requirement to feedback weight and quality through DP would duplicate existing processes amounts to 18%. Many of these businesses are small scale, taking in on average less than ten loads per week, just 2% are larger scale receiving over 200 loads per week.
- If industry requires new or enhanced functionality after the initial build phase:
 - Training may be required to ensure staff are familiar with how to use the updated functionality.
 - For integrated businesses there may be opportunities to exchange more or different data through the API and that would require time from in-house or contracted development teams to implement.

8.4 What costs and inefficiencies are removed?

Introducing a universal DP will remove costs across supply chains particularly in relation to printing and distributing paper passports and stickers. The key ones are outlined briefly here. Refer to appendix 11.10 for more detail on how these figures have been calculated. Please note, all figures have been rounded down to the nearest thousand.

- a) The cost of passport and sticker printing and distribution across GB is calculated to be **£337k** per year with that cost being borne by growers, merchants and assurance bodies.
- b) Processor paper passport storage costs. Surveys indicated that some processor businesses pay for paper passport archiving and storage off-site. Across industry this is calculated to be **£50k** per year.
- c) Processor food safety audit costs. An analysis of audit processes across processor businesses has indicated potential to save time. This is based on it being easier and quicker to find a specific passport with a digital system compared to searching through paper passport archives. This is calculated to be **£45k** per year.
- d) Haulier time saving at intake with fewer delays caused by illegibility and sticker problems and by arriving with an incomplete passport. By definition, a well-designed digital system will remove these issues, e.g., by not allowing a passport to be transferred between grower and haulier before the grower section is complete. An analysis of intake processes suggests that 0.5% of loads have a paper passport problem causing a delay. These problems would be prevented by a digital system and the reduction in waiting time cost is calculated to be **£240k** per year.

In total, these potential cost savings amount to £672k per year

If industry decides to go ahead with the DP, it would be prudent to evaluate its impact after an agreed period. Depending on timing, this data could be quite powerful in driving DP's roll out to businesses that had not yet switched. It could also be of value in securing future funding for system enhancements as required by the Ownership Group.

8.5 What additional value is created and for whom?

Greater data transparency and availability by moving to digital provides opportunities for value creation throughout the supply chain. The passport's primary purpose is to share data to protect food and feed safety, by communicating to the next party how grain has been stored, handled and treated. Moving to digital systems improves the data's accessibility and integrity and combined with real-time assurance status checking, providing industry with enhanced confidence that high feed and food safety standards are being maintained throughout the supply chain.

One of the ways in which this is achieved is through the opportunity to automate passport data checking processes instead of relying on manual checks. Specifically, systems integration offers processors and other businesses receiving grain the chance to import passport data into their own software for each load and for bespoke passport data checks to be performed automatically by each business, depending on which data is important to them. At peak times, removing the element of manual data checking provides a greater layer of protection ensuring food and feed safety.

In the medium to long-term, if growers and industry collectively decide to look at using aggregated and anonymised data from the DP system under industry-agreed governance processes (refer to section 6.2 for more information), it has the potential to provide data driven insights not available elsewhere and drive further efficiencies across industry.

There are several ways the data could be used by a trusted, independent organisation such as AHDB for the benefit of levy payers of all types. Examples would be in providing data to enhance or replace surveys currently undertaken such as the Cereal Quality Survey. Sourcing data from industry through a survey is time consuming for AHDB and for levy payer respondents. The amount of data available has reduced over time. By using DP data, more data would be available, and it would be more representative being sourced from a wider range of businesses and it would be timelier. Overall, the

primary objective is the provision of information and insights to levy payers from data not available elsewhere and which can help decision making processes.

9 Industry-wide cost benefit analysis

The upfront £500k development and build cost will be capitalised and amortised over ten years and therefore it makes sense to calculate the overall cost benefit analysis over this same timeframe.

The total costs over a ten-year period are anticipated to be £3.9m

This figure brings together:

- | | | |
|---|--------|------------|
| • System development and build costs (from section 8.1) | £500k | (one-off) |
| • Business implementation costs (from section 8.2) | £872k | (one off) |
| • Ongoing gross running costs (from section 8.3) | £396k* | (per year) |
| • Income from DP charge (from section 7.5) | £49k | (per year) |

*Note this figure includes the £50k per year amortised share of the initial £500k development cost.

The total quantifiable direct benefits over a ten-year period are anticipated to be £6m.

- | | | |
|--|-------|------------|
| • Financial benefits or costs saved (from section 8.4) | £672k | (per year) |
|--|-------|------------|

This gives a net present value of £1.1m and a £1.20 return for every £1.00 invested.

9.1 Financial and non-financial benefits versus costs across the supply chain

This section outlines the financial and non-financial benefits and costs across each role in the supply chain. Figure 13 below describes how the financial benefits or cost savings are distributed across industry alongside the one-off implementation costs.

	Total	Growers	Hauliers	Processors	Merchants	Assurance bodies
Passport and sticker printing & distribution	£337,007	£166,341	-	-	£64,666	£106,000
Passport storage costs	£50,000	-	-	£50,000	-	-
Food safety audit costs	£45,000	-	-	£45,000	-	-
Haulier time saving at intake	£240,900	-	£240,900	-	-	-
Total saving (per year)	£672,907	£166,341	£240,900	£95,000	£64,666	£106,000
Saving (per tonne)	3.1p					

Implementation costs (one-off)	£872,000	£400,000	£182,000	£167,500	£122,500	-
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Figure 14. Comparison of the financial benefits (cost savings) and costs incurred to implement the DP, by party.

9.1.1 Growers

Collectively, growers:

- Will collectively **save approximately £166k per year** because of lower costs by not printing passports.
- Who do not currently have a computer or smartphone will incur a **one-off** cost to purchase one. **Total cost £400k across the sector.**

- Will contribute to the DP running costs via the statutory levy.

Growers will save time, reduce costs and increase revenues with:

- Reduced chance of claims with consistent real-time access to quality data providing opportunity to better match supplies to contracts.
- Efficiencies from bulk passport completion ahead of time and automating load destination records.

9.1.2 Hauliers

Collectively, hauliers:

- Will collectively **save approximately £240k per year** because of fewer intake delays and therefore lower costs.
- Who do not currently have a smartphone will incur a one-off cost purchase them. **Total cost £182,000 across the sector.**
- Do not pay statutory levy and will not incur any charges to use the DP.

Hauliers using the DP will benefit from:

- Reduced hassle and waiting time with visible grower assurance statuses at collection point, no illegibility problems and fewer rejections resulting in redirection.
- More certainty that passports are complete prior to departure and growers being clear on the passport details required for each crop type.
- Streamlined admin processes with automated return of weight data.

9.1.3 Processors

Collectively, processors:

- Will collectively **save approximately £95k per year** because of lower costs.
- Who do not currently have a laptop computer at intake will incur a one-off cost of to purchase one. **Total cost £45k across the sector.**
- Will incur a one-off **cost of £122k to integrate systems** with the DP for those businesses with bespoke software interested in this option.
- Will contribute to the DP running costs via the statutory levy.
- Requiring passports for imported crops or for oilseeds crops will pay the DP usage charge as decided by the Ownership Group.

Processors using the DP will benefit from:

- Enhanced food and feed safety and traceability with accessible high quality digital data with improved integrity.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store, haulier and merchant assurance checks.
- Efficiencies by exchanging data seamlessly through one universal data sharing Application Programme Interface (API) rather than multiple, by choosing systems integration.

9.1.4 Merchants

Collectively merchants:

- Will collectively **save approximately £64k per year** because of lower costs.
- Will incur a one-off **cost of £122k to integrate systems** with the DP for those businesses with bespoke software interested in this option.
- Will contribute to the DP running costs via the statutory levy.
- Required to supply a passport for imported crops will pay the DP usage charge as decided by the Ownership Group.

Merchants using the DP will benefit from:

- Efficiencies from fewer claims and rejections to handle because growers have real-time quality data to help manage their supplies.
- Reduced duplication and time saved with industry standard automated grower, TASCC/UFAS store and haulier assurance checks.
- Efficiencies by exchanging data seamlessly through one universal API rather than multiple, by choosing systems integration.

9.2 What future costs or inefficiencies would DP prevent from being introduced?

Section 4.4 outlines in detail the inefficiencies and consequences of multiple DP systems being introduced. Most of these involve the introduction of complexity and uncertainty into combinable crop supply chains. The result is more time taken to achieve the basic objective which is to move grain efficiently from A to B whilst sharing information to maintain food and feed safety.

One of the key DP tenets is providing a platform for multi-directional data flow, including the return of weight and quality data through supply chains. A proliferation of different DP systems is unlikely to prioritise and therefore provide the quality data growers require and the predicted reduction in rejections and resultant cost savings of £672k per year will not happen.

Multiple DP systems introduced by processors and/or merchants could also increase costs for growers and hauliers, by requiring different hardware or software and provision of training for their employees in how to use multiple systems.

Costs would also increase for those processors, merchants and stores wishing to trade with those businesses introducing their own DP systems. For larger businesses looking for efficiency this could mean developing and maintaining multiple APIs instead of one.

In addition to the costs and inefficiencies of multiple systems, there are potential inefficiencies of not moving away from paper and the lack of ability to react at short notice, if industry required the passport to be extended to accommodate extra data required to protect food and feed safety. This would be very difficult to achieve with the existing A4 sheet, and a second sheet would likely be needed. Alternatively, a separate means of communicating this extra data would be required.

10 Conclusion

This business case's purpose is to outline proposals for a digital passport system, weigh up the costs and benefits alongside operating requirements, ownership and funding models.

We appreciate that this is a very detailed and thorough set of proposals for a digital system and are grateful to all from industry who have contributed.

This business case outlines significant benefits and potential efficiencies across the supply chain, alongside the costs removed by ceasing the paper passport system. Moving to a digital passport will mean:

- Allowing data to be shared in as close to real time as possible enabling:
 - Growers and stores to react to grain quality results, the sooner the quality of a load delivered is known, the sooner decisions can be made about loading or marketing the next load.
 - Real-time visibility of grower, TASCC/UFAS store, haulier and merchant assurance status.
- Driving efficiencies:
 - Allowing you to access your data securely, wherever, whenever and however needed.
 - Providing multi-directional data flow including a universal way for growers to access quality data.
 - Automating passport checks.
- Improving data accuracy:

- Tailoring passport data fields for each crop making the system more user friendly.
- Providing solutions for accuracy of data-entry so that spelling mistakes are a thing of the past.
- Integrating the DP with other software systems enabling automated data sharing.
- £1.1m worth of net benefits and cost savings over ten years amounting to a return of £1.20 for every £1 invested (for more detail please see section 8 and 9).

A digital passport will provide more than just financial savings. It would improve the accuracy and integrity of data provided by growers to processors and enhance traceability. Digitally accessible passport data will ensure industry is able to react swiftly and investigate if a food or feed safety or security issue arises. This will help give further confidence to industry's onward customers and will be in-line with other developments like this in the supply chain, e.g., electronic phytosanitary certificates for export consignments.

Importantly, a single universal digital passport system with robust data governance mechanisms and a cross-industry representative Data Governance Board, ensures that data management and control remain with the businesses entering the data into the system.

Industry has collaborated to propose a simple system mirroring the existing paper passport process. The addition of live assurance checks will give greater transparency in the supply chain. The real-time flow of data back to growers allows for more informed business decisions. Digitising the passport will create an agile way of data sharing for combinable crop supply chains, enhancing food and feed safety and giving consumers more confidence in the products they purchase.

10.1 What next steps are proposed?

This business case was published to support a consultation process running from 20 November 2023 to 2 February 2024.

The aim is to ensure all stakeholders have had opportunity to ask questions and provide input through their trade associations. At the end of the consultation, the Leadership Group will report back their respective trade association members' views of the business case and their preference to proceed or not proceed with the DP.

This feedback will be given to the AHDB Cereals and Oilseeds Sector Council to discuss funding if the decision is to proceed.

To engage with the consultation process, please contact your representative at the respective trade association or contact AHDB via Derek.Carless@ahdb.org.uk or David.Eudall@ahdb.org.uk to receive an update.

11 Appendices

11.1 Leadership Group membership

Member	Representing
Robert Sheasby	Agricultural Industries Confederation
Jonathan Lane	Agricultural Industries Confederation
Stephen Briggs	Agriculture & Horticulture Development Board (and Leadership Group chair)
Julian South	Maltsters' Association of Great Britain
Anthony Hopkins	National Farmers' Union
Matt Culley	National Farmers' Union (and Data Group chair)
David Michie	National Farmers' Union Scotland (January-September 8 th)
Willie Thomson	National Farmers' Union Scotland
Philip Kimber	Seed Crushers & Oil Processors Association
Alex Waugh	UK Flour Millers
Alistair Gale	UK Flour Millers (joined 22 nd Sept)
George Mason	UK Flour Millers (and Development Group chair)

11.2 Development Group membership

Member	Representing	Business type
Andrew Connon	NFUS	Scottish grower
Andrew Miller	Road Haulage Assoc.	Haulage
Andrew Moir	NFUS & SQC	Scottish grower & assurance scheme
Angela Gibson	Viterra UK	Merchant and storage
Claire Eckley	NFU	English grower
David Padgett	Argrain	Merchant and storage
George Mason	Heygates	Miller
Howard Leland	Allied Mills	Miller
Hugh Burton	AB Agri	Animal feed processor
Ian Barclay	Roger Warnes Transport	Haulage
James Mills	NFU	English grower
Jonny Roberts	Boortmalt	Maltster
Lee Butler	Freshlinc	Haulage
Mark Ryland	Independent Merchants	Observer
Martyn Bailey	Bairds Malt	Maltster
Matt Culley	NFU (& Data Group chair)	English grower
Neil White	NFUS	Scottish grower
Owen Southwood	Scotgrain	Merchant & storage
Philip Kimber	Cargill	Oilseed crusher
Rose Riby	AIC (& Data Group facilitator)	Trade Association
Simon Briscoe	Openfield	Merchant, storage & haulage
Stewart Easdon	Ensus	Biofuels processor
Stewart Hymas	Alfred Hymas	Haulage
Stuart Rowley	James Mortimer	Merchant, storage, seed & haulage

11.3 Data Group membership

Member	Representing	Business type
Adam Short	N/A	English grower
Andrew Moir	NFUS & SQC	Scottish grower & assurance scheme
Angela Gibson	Viterra UK (& Development Group facilitator)	Merchant and storage
George Mason	Heygates (& Development Group chair)	Miller
Ian Barclay	Roger Warnes Transport	Haulage
Jack Stevenson	NFUS	Scottish grower
Jenny Buchanan	Carr's Flour Mills	Miller
John McKinney	Whitworth Bros	Miller
Jonathan Lane	ADM Agriculture	Merchant and storage
Mark Worrell	Openfield	Merchant, storage & haulage
Matt Culley	NFU (& Data Group chair)	English grower
Mike Dagg	Simpsons Malt	Maltster
Mike Walsh	Vivergo Fuels	Biofuels processor
Rebecca Gee	Crisp Malt	Maltster
Richard Howe	Cargill	Oilseeds crusher
Rose Riby	AIC	Trade Association
Sarah Bell	N/A	English grower
Steve Owbridge	Thompsons Feeds	Animal feed processor
Steven Atherton	Whitworth Bros	Miller
Stewart Easdon	Ensus	Biofuels processor
Tom Rivett	H Banham Ltd	Merchant and storage

11.4 Grain movement scenarios

These grain movement scenarios will require additional functionality adjustments beyond the core DP process to accommodate them.

Scenario	Detail
Rejected and redirected	The recipient would need to return the passport to the driver who would transfer it to a second recipient. This could be a second processor or store, or it could be returned to the original sender.
Reject – Retest – Accept	A load may be retested following a rejection. The recipient agrees to undertake a second quality test which leads to the load being accepted. Two sets of quality data will need to be accommodated.
Part of load accepted; part rejected	Where part way through tipping a load, something is found which means that the rest of the load is not tipped and therefore rejected.
Change of vehicle or driver after collection	This could occur when one driver collects a load, and a second driver delivers it (in this instance the passport will need to be transferred from one driver to a second driver). It could also occur if the tractor has suffered a breakdown and needs to be changed (resulting in the registration number needing to be updated on the passport).
Multiple Sender load	Where the first sender is emptying their store and they do not have enough grain to fill the lorry. The lorry then travels to a second sender who tops up the load with the same quality grain. It results in two passports for one load delivered. The passports need to be linked in the system. In this case there would be no feedback of weight and quality data
Imported grain moved from a port	A passport may be required by the recipient to confirm crop details, haulier assurance status and vehicle hygiene data. There would be no sender assurance status and instead the passport would need to display 'IMPORTED'.
Export by lorry	Grain exported by lorry travelling to recipients on the continent. If a passport is required by the recipient, a means of transferring it to them without them being registered on the DP system would be required.
Non-assured grain movements	Where a recipient buys unassured grain and requires a passport. In this scenario the haulier's assurance status would be checked and displayed. There would be no sender assurance status and instead the passport would need to display 'NON-ASSURED'.
Grain moving to store – One passport many loads.	Some TASC stores permit multiple deliveries per day of the same crop using the same vehicle and the same driver under one passport.

11.5 Ownership options discounted

11.5.1 AHDB ownership

AHDB is an established independent organisation representing businesses in all parts of cereals and oilseeds supply chains across the UK. It has a track record of sensitively and responsibly handling commercially sensitive data on behalf of industry and developing new tools and services for levy payers for over fifty years.

Industry turned to AHDB when it wanted to look at the question of developing a digital passport to replace the paper-based system. AHDB's independence means it is well-placed to develop new schemes, tools and services on behalf of industry. This includes working with industry to drive a digital passport system forward and through the development phase if, and when, industry formally decide to adopt it. However, there is also precedence for AHDB to handover a product, tool, or service to a different industry ownership model once it is established and in a 'business as usual' phase.

Discussions with Defra have confirmed that the existing Statutory Instrument (SI) governing what AHDB can and cannot do permits AHDB to develop and operate the DP on behalf of industry with no modification.

11.5.1.1 Pros

- AHDB's independence as a body representing all parts of supply chains across the UK.
- AHDB's track record of handling and storing commercially sensitive data over a period of fifty years plus.
- AHDB's experience of managing and supporting the electronic pig movement system (eAML2) albeit within a different sector.
- Funding model clear.

11.5.1.2 Cons

- If AHDB ownership were preferred for the development phase, and a different ownership model for the BAU phase, costs of set-up and transfer to a different ownership model would be incurred.
- Lack of industry ownership.
- Risk of insufficient link to companies and individuals using the system.

11.5.2 Not for profit company limited by guarantee

This model would operate on a 'not for profit' basis. Industry trade associations could become members and act as guarantors. AHDB could also be a member if required. The company would appoint its own team to manage and operate the system on a day-to-day basis.

11.5.2.1 Pros

- Separate structure with flexibility to appoint its own team or contracted body to manage and run the system on a day-to-day basis.
- Clear linkages between industry and the service through the trade associations in their role of members of the company.

11.5.2.2 Cons

- Costs of setting up the company and running it on an ongoing basis
- Potentially involves setting up a team from scratch to manage and run the system with no experience.
- Unless the ownership structures and group were robust with very clear leadership, it's possible the system could lose its way.
- Funding model not clear.

11.6 Funding options discounted

11.6.1 Voluntary contractual levy

In order not to add unnecessary cost and complexity to this option, it could be administered by AHDB, using the same merchant led collection process and be based on the same tonnage base as that used for the statutory levy. However, the DP levy would not be statutory unlike the existing levy.

Growers, merchants and processors would pay the DP levy. The most efficient way to achieve this would be to include it in the relevant AIC contracts. Grower DP levy would be collected by merchants and paid to AHDB alongside the merchant DP levy. The processor DP levy would be paid directly to AHDB.

The Leadership Group would decide what the relevant DP levy rates are and determine how it is spent, with authority to revise rates depending on DP budgetary requirements.

11.6.1.1 Pros

- Separate from the statutory AHDB levy and therefore more flexibility in how it is spent and managed.
- Same processes and structures used for collection and administration as the statutory levy.

11.6.1.2 Cons

- Processes and structures would need to be put in place to administer and collect the DP levy incurring additional costs for AHDB and for merchants.
- Difficult to collect a levy from all as it would not be statutory and therefore some may choose not to pay.
- Some users of the DP are outside of the statutory levy, and others will be using DP for consignments of non-statutory levy crops, e.g.:
 - Oilseeds crushers
 - Those creating and receiving passports for imported grain.
 - Those creating and receiving passports for combinable peas and beans.

Therefore, the statutory levy tonnage base will not accurately represent some business' DP usage.

11.6.2 DP usage charge for all businesses

It would be paid by all businesses creating passports (senders) and receiving passports (recipients), i.e.

- Growers (senders)
- Operators of off-farm TASC/UFAS stores (senders and recipients)
- Importers and exporters (senders and recipients)
- Processors (recipients)

It is not envisaged that hauliers would pay to use the DP under a commercial charging model.

The charges could be based around membership fees and/or charges in relation to the grain handling tonnage of each business i.e., how many passports the business creates or receives.

The charging mechanism would be built into the DP web portal and businesses would need to pay per passport created and received. Whether payment is required up front in the form of passport credits or in arrears depending on passport usage each month would need to be discussed and decided by the Leadership Group.

11.6.2.1 Pros

- All businesses creating and receiving passports pay according to scale and would include a contribution from some businesses who are not levy payers, e.g., oilseeds crushers.
- It would include charges for businesses creating and receiving passports for imported tonnages and for non-statutory levy crops, e.g., peas and beans.

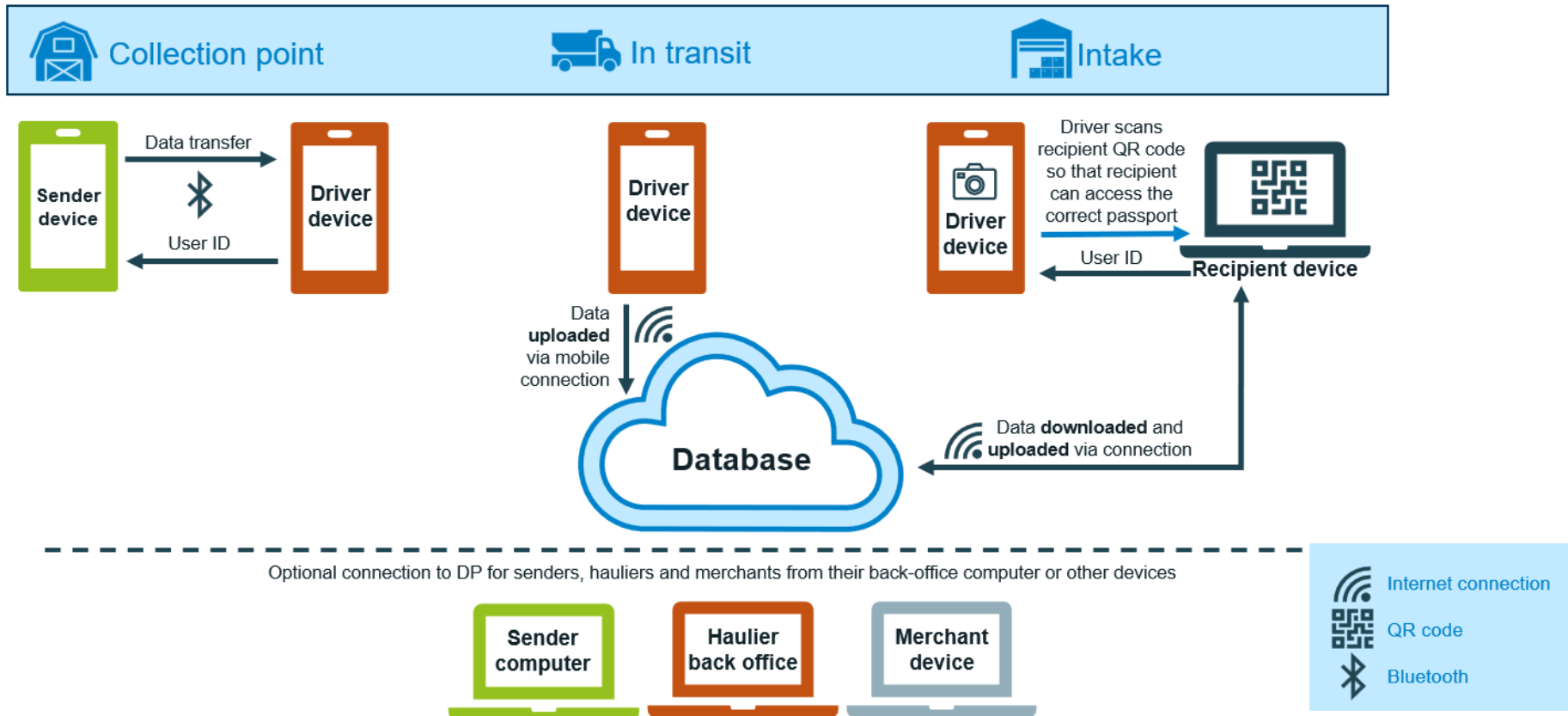
11.6.2.2 Cons

- A linkage from DP into a third-party payment site would be required which would need to include reference back to the DP for the number of passports 'purchased'.
- New processes would be required to administer the charging system adding further cost.
- There is potential for grain movements to be held up if payment has not been made and the ability to create or receive passports is withdrawn until resolved.
- Increased incentive for companies to not use the industry passport and put in alternative system?

11.7 Technology and connectivity diagrams

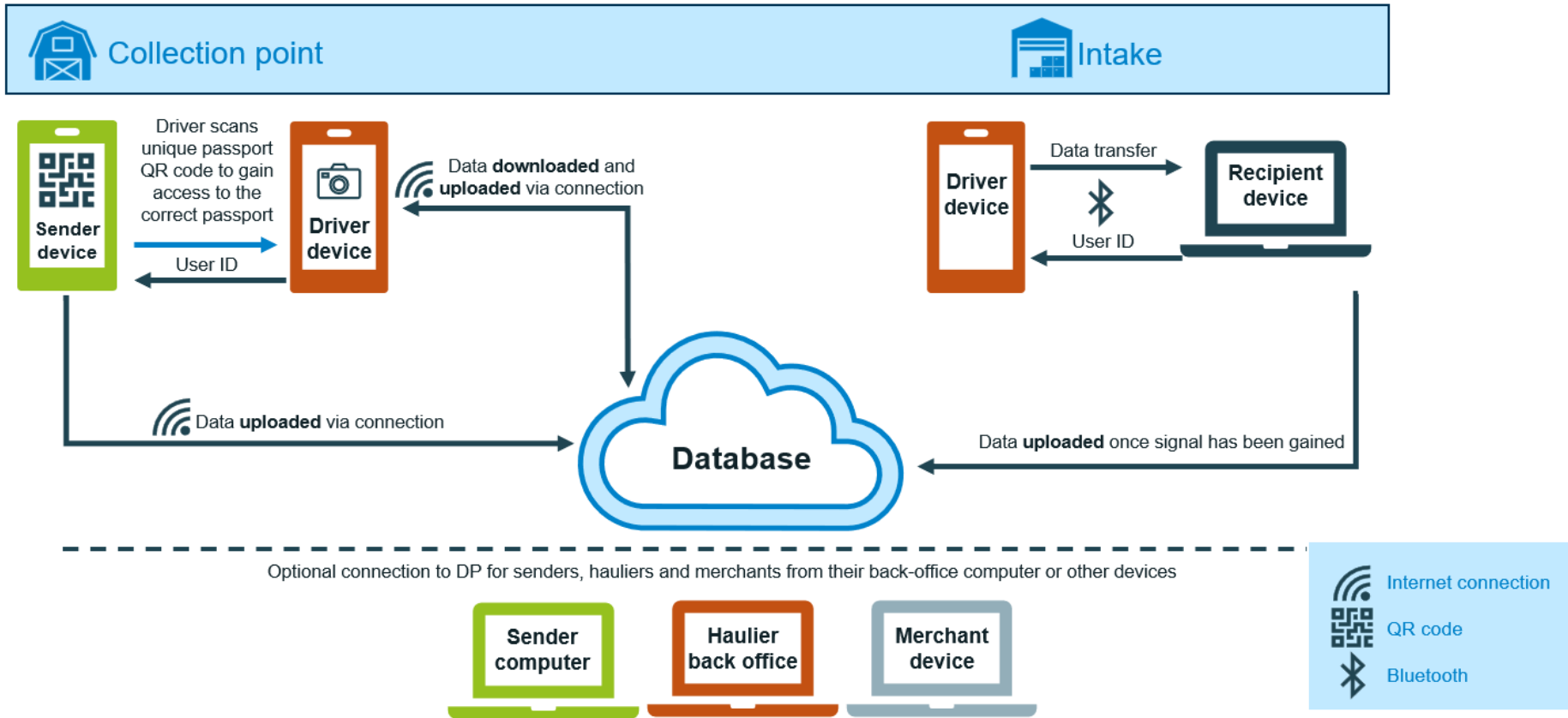
Internet access at intake, but not at collection point.

For this model to work sender and driver devices will not need to have connectivity at collection point however driver device will have to pass through connectivity on route to intake and driver and recipient devices must have connectivity at intake.



Internet access at collection point but not at intake.

For this model to work sender and driver devices must have connectivity at collection point however driver and recipient devices do not need to have connectivity at intake. The recipient will need to upload once connection has been gained.



11.8 Technical information for systems integration

For any processor or merchant business considering systems integration, this is the proposed approach:

11.8.1 Rollout approach

One of the developed applications will be a public-facing web API. This will allow third party systems with the appropriate permissions to integrate to read/write passport information.

All requests will be served over HTTPS and only to authenticated users.

11.8.2 Documentation

Full documentation for the API will be provided to third parties wanting to integrate with DP. We will endeavour to generate documentation directly from the source code to avoid documentation becoming stagnant or out of date. There will be worked examples provided for the more common requests, along with a list of endpoints.

11.8.3 API versioning

API documentation will be version specific. Where breaking changes cannot be avoided, deprecated flags will be put on necessary endpoints, and users will be required to use new endpoints that are provided. https://en.wikipedia.org/wiki/OpenAPI_Specification

11.8.4 Authentication

The client is assigned an API key – a unique string of characters that only they and the API service know. The key is attached to each API request. The API server checks for the key when it receives an API request to make sure it is from an authenticated client.

We will encrypt requests and responses to and from an API using an encryption protocol like [Transport Layer Security \(TLS\)](#).

11.8.5 API design

The API design will adhere to industry-standard practises to ensure a comfortable experience for systems integration. It will have a RESTful architecture, and HTTP response codes will be documented and utilised to ensure responses are as descriptive as possible.

11.9 Quality test results by crop type

This section is an illustrative list outlining the range of tests performed for each crop.

11.9.1 Milling wheat

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Hagberg falling number
- Hardness
- Appearance/taint
- Variety
- Gluten (weight and quality)
- Other (physical contaminants etc)

11.9.2 Malting barley

- Moisture
- Admix
- Screenings
- Specific weight

- Ergot
- Germination (tetrazolium staining)
- Nitrogen
- Retention
- Fusarium (pink grains)
- Skinned grains
- Appearance
- Taint
- Variety
- Other (physical contaminants etc)

11.9.3 Oats (human consumption)

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Black tips
- Black seeds
- Appearance
- Taint
- Variety
- Other (physical contaminants etc)

11.9.4 Rye (human consumption)

- Moisture
- Admix
- Screenings
- Specific weight
- Ergot
- Protein
- Hagberg falling number
- Appearance
- Taint
- Variety
- Other (physical contaminants etc)

11.9.5 All cereals (feed consumption)

- Moisture
- Admix
- Specific weight
- Ergot
- Fusarium (pink grains)
- Other (physical contaminants etc)

11.9.6 Oilseed rape, linseed, beans (feed) and peas (feed)

- Moisture
- Admix
- Other (physical contaminants etc)

11.9.7 Beans (human consumption)

- Moisture
- Admix
- Bruchid beetle damage

- Split
- Other (physical contaminants etc)

11.10 Cost saving calculations

Data has been provided by industry and where a range was given, an average has been used. Where industry data was unavailable, assumptions have been made using feedback from industry. All assumptions and estimates are conservative.

11.10.1 Printing and distributing paper passports and stickers

It is estimated that 803,000 loads are moved per year across GB.

- There are a range of different ways in which passports are sent and printed across England and Wales, the cost for this is calculated in numbers 1) to 4) below.
- Red Tractor provide English and Welsh growers with stickers to use on passports. A cost for this is included in 5) below.
- TASC/UFAS provide members across GB with stickers to use on passports. A cost for this is included in 5) below.
- SQC provide Scottish growers with pre-printed passports specific to each harvest year (approximately 180,000 are used). A cost for this is included in 5) below.

Industry feedback suggests that far more passports are printed than are used in England and Wales where passports are not generated and distributed by the assurance bodies. The total for England and Wales has been increased by 50%, resulting in a figure of 934,500 passports being printed.

Four distinct methods of passport printing and distribution have come to light and have been costed. There may be other methods. The costs include paper, printing, envelopes, postage and admin time for merchants or farms.

Print & Distribution method	Proportion of 934,500 passports	Cost / passport	Total cost
1. Merchant print and post to farm (E&W)	10%	38.8p	£36,258
2. Merchant email to farm and farm print (E&W)	10%	18.9p	£17,662
3. Merchant duplicate books and post (E&W)	10%	25p	£23,362
4. Merchant provides web link and farm print (E&W)	70%	23.5p	£153,725
5. Printing and distributing:			
• SQC passports (Scotland) (180,000)	N/A	N/A	£106,000
• Red Tractor stickers (E&W)			
• TASC/UFAS stickers (GB)			
Total / average	100%	28.4p	£337,007

Detail:

1.

Item	Pence/passport	Notes – calculation based on batch size - 20
Paper	1p	500 sheet ream £5.00
Print cost	10p	Printer ink cartridges or photocopy
Merchant admin time	11p	Employment cost £13.00/hr based on 10 min to print out 20 and post to farm
Envelope	0.3p	C4 - £15.00 for 250
Postal cost	16.5p	1 st class large letter up to 750g = £3.30
TOTAL	38.8p	

2.

Item	Pence/passport	Notes – calculation based on batch size - 20
Merchant admin time	5.4p	Employment cost £13.00/hr based on 5 min to attach to email and send
Paper	1p	500 sheet reams £5.00
Print cost	10p	Printer ink cartridges or photocopy
Farm admin time	2.5p	Farm secretary* cost £15.00/hr based on 2 min to arrange printing (20)
<u>TOTAL</u>	<u>18.9p</u>	

3.

Item	Pence/passport	Notes – calculation based on book size - 50
Book production	14p	A4 x 4 sheet book x 50 passports. Ordering 100 = £7.00 per book
Merchant admin time	4.3p	Employment cost £13.00/hr based on 10 min to post to farm
Envelope	0.1p	C4 - £15.00 for 250
Postal cost	6.6p	1 st class large letter up to 750g = £3.30
<u>TOTAL</u>	<u>25p</u>	

4.

Item	Pence/passport	Notes – calculation based on batch size - 20
Paper	1p	500 sheet reams £5.00
Print cost	10p	Printer ink cartridges or photocopy
Farm admin time	12.5p	Farm secretary* cost £15.00/hr based on 10 min to arrange printing (20)
<u>TOTAL</u>	<u>23.5p</u>	

*Figures from the Institute of Agricultural Secretaries and Administrators who give guide bands of £15 to £30 per hour for self-employed secretaries and full-time salaries of between £15,000 and £30,000. Salaries are increased by 13.8% employers NI and average hourly rates factor in holiday pay and are based on 40 hours per week.

11.10.2 Processor paper passport storage costs

£50,000 is based on the figure provided by those processor businesses known to store paper passports off-site.

11.10.3 Processor food safety audit costs

Save 4 mins per audit.

1 audit per 20,000 tonnes (milling)

1 audit per 100,000 tonnes (malting)

Figures assume that processors are audited ten times per year and eight passports are required at each audit.

Data provided suggests that for passports stored on-site, it takes 15 minutes to find each one.

15 audits x 8 passports x 15 minutes = 30 hours per year per processor

Assume 100 processors are audited in this way.

100 x 30 hours @ £20.00/hr = £60,000

Assume that three-quarters of this cost could be saved.

= £45,000

11.10.4 Haulier timesaving at intake

Fewer delays caused by problems at intake with illegibility and sticker problems etc.

Industry feedback indicates that 0.5% of loads have passports with problems causing a delay.

Save an hour's wait for each of these loads @ £60/hr.

803,000 x 0.5% = 4,015 loads x 1hr @ £60/hr

= £240,900