



cutting through complexity

The Blueprint for a New HE Data Landscape

The Higher Education Data and
Information Improvement
Programme

Executive Summary

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Foreword

Dear Colleagues,

I am pleased to present the Vision and Blueprint for the UK Higher Education Data Landscape. As the marketisation of the sector has developed, the importance and demand for more timely and accurate data has increased, both internally within Higher Education Providers (HEPs), and externally amongst Data Collectors, regulators and oversight bodies. This has strengthened the need for a change in the efficiency in the administration and collection of data.

The Blueprint for the New Data Landscape provides a strong vision. It both rationalises and simplifies data requirements through the use of standard data sets and data definitions. This creates opportunities for gaining greater value from the use of the technology being exploited by the sector.

These recommendations are also well timed as there are concurrent change programmes being undertaken by some other Data Collectors (e.g. HESA and Health Education England). This provides the welcome opportunity for the alignment of the New Landscape to a range of other important projects to provide a greater momentum for change.

For Higher Education Providers the New Landscape will mean:

- Simplification in the range of data requested by Funders and oversight bodies;
- Greater cohesion between the Data Collectors' requirements;
- A reduction in the submission of similar data to multiple Data Collectors; and
- Improved data quality and capability that will provide benefits internally and externally.

For the users of data, the New Landscape will provide:

- Increased understanding of pre-existing data and how it can be used to a greater extent;
- More timely and accessible data such that separate data collections are not required;
- Improved data quality; and
- Reduced burden placed on the HE sector.

The New Landscape is challenging, but I am confident that it is both right and achievable. I and colleagues are conscious of the urgency with which some of these issues need resolution. For this reason the Landscape identifies benefits that can begin to be realised within 12 months, separate from other actions that form part of system and transformational changes.

The drivers for the administration of data in the sector are complex as a result of the number of independent Data Collectors and interested parties that interact with HEPs. However, this project has identified a common understanding of the issues, a willingness and commitment to overcome these difficulties to do what is right and long overdue. Whilst recognising that certain Data Collectors have competing priorities, it will be key that all of the data collectors continue to collaborate and that Higher Education Providers fully engage in the suggested improvements.

The key now is to carry the momentum forward to ensure that timely actions are delivered and the benefits realised. We all have a part to play in implementing the New Landscape and I look forward to working with you on this journey.

Yours sincerely



Professor Neil Gorman
Chair of HEDIIP Programme Board



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1 Executive Summary

The evolution of the sector since 2011 has led to the importance of data increasing, across institutions, students, government, funders and other key stakeholders. However, the evolution of data collections has created a lack of coherence and unnecessary complexity that needs to be addressed. This report provides a roadmap for making a stepped change in rationalising and simplifying data requirements and improving how data is collected and administered. The key now is that stakeholders remain committed to supporting the new Blueprint and do not allow timescales to drift. The task is not insignificant, but sustained and determined pursuit of the Blueprint will deliver benefits for all.

There has been a considerable body of work undertaken to develop the New Data Landscape and this has led to an extensive report. This section provides a summary report that details the key findings, proposals and benefits that the New Data Landscape will deliver. Further detail is provided in the remainder of the overall report.

1.1 The need for a New Landscape

1.1.1 HE White Paper

In June 2011 the Department for Business, Innovation and Skills (BIS) published its Higher Education White Paper, 'Students at the Heart of the System'. This proposed specific improvements to the higher education data and information landscape by asking that: *...work be undertaken to redesign the information landscape for higher education in order to arrive at a new system that:*

- *Meets the needs of a wider group of users;*
- *Reduces the duplication that currently exists; and*
- *Results in timelier and more relevant data.*

The broader changes that the sector is experiencing as a result of the White Paper have led to:

- Increased uncertainty in the income streams for Higher Education Providers (HEPs);
- New business models emerging in the sector;
- Further diversification in the activities undertaken by HEPs; and
- A sharper focus on the efficiency and effectiveness of HEPs' operations.

1.1.2 Increased need for more timely and granular data within HEPs

These issues have created a shift in the importance of data to HEPs. But, the increased need and thirst for data has also heightened the focus on the issues that currently exist in the administration and collection of data across the sector:

- There are **97 different Data Collectors** and **over 520 different data returns** that HEPs may be required to submit;
- There is **no requirement for the Data Collectors to collaborate** and coordinate their data needs from HEPs;
- There is **duplication in the data requested** by the different Data Collectors, creating unnecessary burdens for HEPs;
- The plethora of data requests has led to **multiple data definitions** for the same or similar data field that creates complexity for HEPs without any real gain;
- HEPs have **varying levels of sophistication and capability** in their data processes; and
- The need for certain data collections and **the use of the data is not commonly understood** by HEPs.



These matters contribute to a view that the burden of data collection is greater than it should be. Our work has identified that principally four things influence the perception of burden: 1) the physical volumes of data collected; 2) the complexity and multiplicity of data definitions; 3) the methods and number of organisations collecting data from HEPs; and 4) the extent to which the data collected is used.

1.1.3 Existing change programmes within HEPs and Data Collectors

A number of the Data Collectors and HEPs have either announced or are undertaking change programmes to improve their approach to collecting and processing data. For example:

- HESA has commenced a 'Change in Approach to the Collection of HE Data Programme' (CACHED) project¹ that aims to '*achieve relevant, more timely data, using systems that are technically future-proofed, flexible and that interface with information management systems across the sector*'.
- Health Education England is undertaking a project to harmonise its data requirements across the Local Education and Training Boards.

We also found that a number of HEPs are either implementing new student records systems or are substantially improving their existing system and associated processes.

There is a groundswell of support for rationalising and improving the current data landscape. The willingness for change extends to a number of Data Collectors who are eager to see improvements to the way data is collected and administered. The existing change programmes provide a uniquely timed opportunity to increase the pace of change and deliver benefits incrementally. It is important that this opportunity is seized.

1.2 Project scope

This project has investigated and developed a Blueprint for how data should be collected by key stakeholders across the sector. A series of data principles have been developed and a governance structure that can be implemented to enhance the collective oversight of a Standard Dataset has been proposed. An overarching implementation plan has been developed along with outline costings for implementing the New Landscape. The full description of our work is provided in section two, but in summary it has encompassed:

- Close working with the HEDIIP Programme Management Office;
- **Over 50 interactions** with Higher Education Providers (HEPs), key stakeholders and professional bodies in the sector;
- **Three stakeholder workshops;**
- **Survey with the sector;**
- Desk based **review of previous and other current HEDIIP projects;** and
- **Research of data landscapes in other sectors,** both in the UK and internationally.

The project has focused on the collection of student data, but it is the case that the Blueprint outlined can be applied to the other forms of data collection. In scoping the data landscape project a number of assumptions were made and these are detailed in Chapter two. This project has not included the development of the standard data set, nor has it developed the financial and business case for the proposed changes. These will be necessary 'next steps' and as such, they are incorporated in the implementation plan provided.

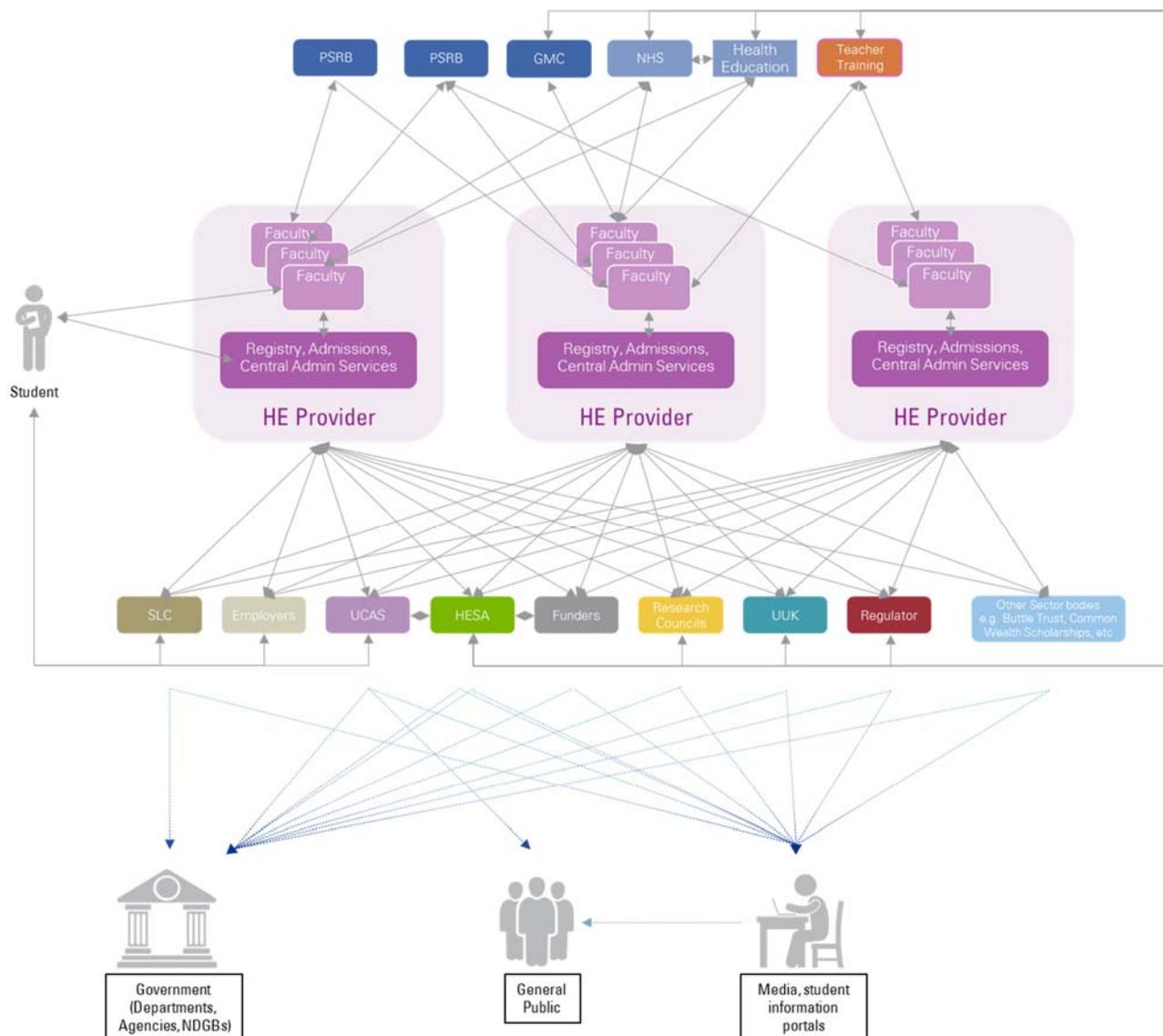
A further parameter for this project has been that the Blueprint should be achievable. As such, this review was given a remit to identify a New Data Landscape within the confines of the current regulatory and organisation structures that exist.

¹ <https://www.hesa.ac.uk/component/content/article?id=3441>

1.3 Key issues identified

From the stakeholder interactions, document review and the sector survey the key issues with the current landscape have been identified. The key issues, a number of which were already known, have been categorised into a small number of discrete areas, which are summarised below. A number of issues and complexities arise from the number of different organisations and government administrations that impact on HE in the UK. The diagram below illustrates this complexity. Full details of the issues identified are provided in Chapter four.

Simplified diagram of the current data landscape



The specific issues identified are summarised as follows:

- **There is no overarching governance of the Data Collectors** – Notwithstanding the various professional groups that exist in the sector, there is no overarching body or group that enables collective working across all of the Data Collectors. This means there is no group or body to whom institutions can outline issues or opportunities for improvement. It also exacerbates the problem of each collector operating to serve their own needs and interests, rather than taking a sector approach to the issue. A recent example cited was the decision to create a course directory without considering if/how the data could be obtained from a Data Collector who probably had some similar data.



- **Greater alignment of Data Collector needs with HEP internal data needs** – Contact with a number of HEPs identified a frustration over an apparent gap in awareness among Data Collectors concerning the difficulties that certain requests can create for HEPs, especially at a time when the level of internal data demands is increasing. There is also a commonly held view that data collections can be rationalised. Greater awareness of the operational implications for HEPs of certain data requests could enable increased alignment between the internal and external data requirements. Data demands should also be rationalised where possible.
- **Absence of common agreed data standards** – Each Data Collector has developed its own data standards to meet their operational needs. Whilst there is some co-operation between individual collectors, the absence of common data standards contributes to the burden on data providers and reduces the options for data sharing between collectors.

Certain issues that have been identified concern the exchange and flow of data between HEPs and Data Collectors. These are summarised as follows:

- **There is not routine sharing of data between Data Collectors** – Currently Data Collectors use different mechanisms to collect the data from HEPs. This creates complexity for HEPs in terms of having to service a range of different collection methods. It is also the case that with the exception of certain HESA and UCAS data, the data collected by the Data Collectors does not get shared between collectors to either reduce the collection requirements placed on HEPs or to pre-populate existing data requests.
- **There are multiple Data Collectors to whom HEPs have to provide data** – The Data Collectors are not obligated to collaborate, although we found a degree of collaboration does take place. This leads to each collector, understandably, specifying data requirements that fulfil their own needs in isolation to the data that is being collected elsewhere. This has led to a variety of different, but similar, data definitions being used and the collection of data that has already been submitted to another collector. This creates complexity and inefficiency for HEPs in addition to increasing the cost of data collection for the Data Collectors.

In addition to the above representations have been made that there is an inconsistent approach to student views being obtained in respect of the data management strategies of both Data Collectors and HEPs.

1.4 What can be learnt from other sectors and the HE systems in other countries

The collection of complex data sets is not an issue that is unique to the UK HE Sector. Therefore to inform the identification of options for the New Landscape we considered what parallels and learning can be taken from other sectors in the UK and HE sectors around the world. Further detail on the research undertaken is provided in Chapter three.

1.4.1 Other UK sectors

Examples were taken from the Health, Retail and Food sectors and reviewed. A common theme in each of the sectors reviewed is the use of a central collection body, the existence of standardised data definitions and the ability for data to be shared through the appropriate use of data sharing agreements.

1.4.2 HE Data systems in other countries

We have undertaken a high level assessment of the approach to the management of student data in China, Australia, Canada and Hong Kong. This identified that each country has its own approach to Higher Education data management, but the consistent theme for the majority of the countries reviewed is that they have centralised data collections through regional or central government bodies.

The United Kingdom appears to have a unique set of circumstances due to history and evolution whereby there is a mix of central data collection agencies that are sector owned and those that form part of Government Departments. The proliferation of Data Collectors is also a factor that appears to be unique to the UK data landscape.

1.5 The building blocks for the New Landscape

Our work has found that there are four areas that will be pivotal to achieving greater cohesion in the data collections and a reduction in the burden, whether they be perceived or otherwise:

Establishment of a collective governance function and common data principles

The establishment of a governance body that can provide collective governance and stewardship of the Standard Dataset, the Data Standards together with ownership of the Data Principles. It can act as a filter for any additional data demand that collectors wish to introduce and an opportunity for student participation. This should enable creep in data collection requirements to be reduced and enable both cross collector collaboration and a forum where HEPs and Data Collectors can come together to share understanding and resolve issues. The data principles should provide a basis for all collectors consciously working to a common cause.

Benefits:

- Enable a joined up approach to data requirements across the sector
- Minimise the scope for duplicate data requests to emerge
- Provide a forum for the sector to raise data collection issues
- Stewardship of common data principles will provide greater cohesion in data administration

Development of a Standard Dataset with agreed definitions that are used by all key Data Collectors

This will require movement by some collectors on certain field definitions and will need HEPs to understand and agree on rationalising definitions. This will reduce complexity and enable a quick win for HEPs, i.e. benefits that can start to be realised within 12 months.

Benefits:

- Reduced complexity in the data systems and processes within HEPs
- Increased data quality

Change in the data collection model whereby certain collectors will take the 'standard data' from a single body

This will avoid HEPs providing the same or very similar data multiple times and often from different parts of the institution. Over time it could also enable enhanced data analytics and intelligence

Benefits:

- Alignment of reporting dates and a reduction in the number of data collection requests
- Enables HEPs to have greater control over its data submissions
- Increased scope for data analytics and business intelligence

Enhancement of HEPs data maturity and capability

A number of institutions inputting to this review have outlined that they are on a journey with further developing their data capability and information processes. It is suggested that the shift in the nature of the HE sector is necessitating better intelligence and different and timelier information. Therefore together with the actions that Data Collectors can take to improve the data and information landscape, it is equally important that where necessary, HEPs enhance their own internal structures and processes.

Benefits:

- Increased understanding of how data is used and why
- Improved data processes to support HEPs information requirements
- Improved data quality
- Improved management information

We have made recommendations for how this can be enabled and the remaining sub sections describe these building blocks in more detail.

1.6 Vision and data principles

The vision for the New Data Landscape is '**A data and information landscape for Higher Education in the UK that has effective governance and leadership, promotes data standards, rationalises data flows and maximises the value of technology and enables improved data capability**'.

To underpin the vision and provide a common basis for all Data Collectors and HEPs to operate the following data principles have been developed:

- **Effective Governance:** Data collection requirements in the stakeholders and Higher Education Providers need collective governance that is free from bias to allow for effective implementation and delivery of a New Data Landscape. This governance should be delivered by representatives from HEPs and Data Collectors from across the sector, and represent sector views, with student views represented by the NUS;
- **Adherence to Principles:** These principles of information management apply to all bodies exchanging data with HE sector organisations;
- **Maximum Benefit to HE Sector as a Whole:** Information management decisions are made to provide maximum benefit to the HE sector as a whole including students;
- **Information Management is Everybody's Business:** All key stakeholders within the HE Sector participate in information management decisions needed to accomplish business objectives;
- **Compliance with the Law:** HE information management processes comply with all relevant laws, policies, and regulations, including competition law;
- **Data is an Asset:** Data is an asset that has value to the HE Stakeholders and is managed accordingly;
- **Data is Shared:** Users have access to the data necessary to perform their duties or answer their query; therefore, data is shared across Stakeholders, where permissible and appropriate;
- **Data Trustee:** Each data element has an owner and a trustee accountable for data quality;
- **Common vocabulary and Data Definitions:** Data is defined consistently throughout the HE sector, and the definitions are understandable and available to all users;
- **Data Security:** Data is protected from unauthorised use and disclosure. In addition to the traditional aspects of national security classification, this includes, but is not limited to, protection of sensitive and proprietary information;
- **Technology Independence:** Applications are independent of specific technology choices and therefore can operate on a variety of technology platforms;
- **Responsive Change Management:** Changes to the HE information landscape are implemented in a timely manner;
- **Interoperability:** Software and hardware should conform to defined standards that promote interoperability for data, applications, and technology; and
- **Protection of Competitive Position:** Data that is viewed as compromising the competitive position of HEPs will still be collected in year, but will not be available publically, nor to other collectors (save for that data required for them to fulfil their requirements) until it is no longer viewed as commercially sensitive.

The data principles will be owned and governed by the new HE Data Governance Body.

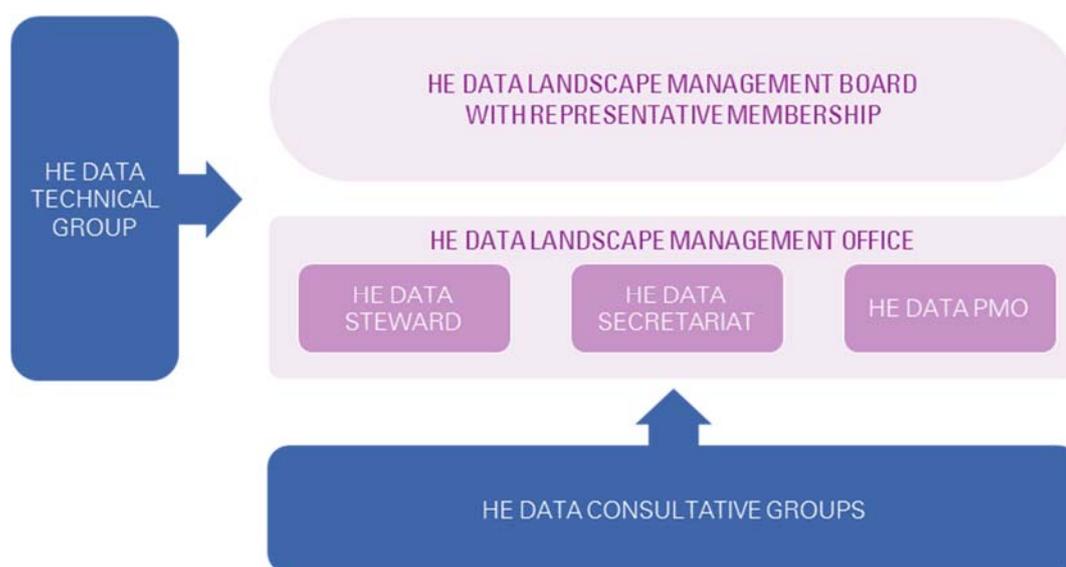
1.7 Governance for the New Landscape

A range of governance models were openly considered during the project. These included the creation of a HE Data Regulator through government legislation, the creation of a Governance Group within a Funding Council or Government Department, through to the creation of a collective governance group. A key barrier that had to be overcome in identifying an acceptable and workable governance model was the variety of

different organisations and legal entities that have a role in collecting or providing data in the sector and the view that there will not be legislation for the HE sector in the near future.

A further complication is that a number of these bodies have statutory powers, so unless there is a governance body that has complementary statutory powers (which has been dismissed as an option), a collector with statutory powers cannot be overruled. During the project however, these bodies have committed to participate and engage with the collective governance model in pursuit of the agreed vision for the New Landscape.

This led to the selection of an **'independent collective and consensual governance body'** that has equal representation from key Data Collectors and HEPs (including UUK and GuildHE) in addition to having representation from the National Union of Students, in order to represent the students' interests. It is proposed that the Governance Body, termed the HE Data Governance Body, will not report to any other body or group in the sector in order to be independent, but will be physically based at HESA. This was a unanimously agreed proposal. A suggested structure for the group is as follows:



The model will rely on commitment from all key stakeholders to work collectively in accordance with the data principles and to this end, any Data Collector that is not willing to operate in this manner should not be permitted membership of the Governance Body. It is suggested that BIS are asked to support the model to encourage adherence to the data principles. The power of the sector via its representation is a critical part also. This will enable the implications of proposals and/or disagreement from certain Data Collectors to be challenged from a HEP and Student's perspective. The group will provide a route through which HEPs can make representations, which will be important in terms of maintaining an appropriate landscape in the long term.

The Professional Statutory Reporting Bodies (PSRBs) are many in number and as such it is not feasible that all can be equally represented on the Management Board. The structure does, however, enable a PSRB group to be established as one of the 'Consultative Groups' which will for the first time provide an opportunity for PSRBs to discuss common data requirements. This group will initially be small, but will grow as the number of PSRBs joining the New Landscape grows.

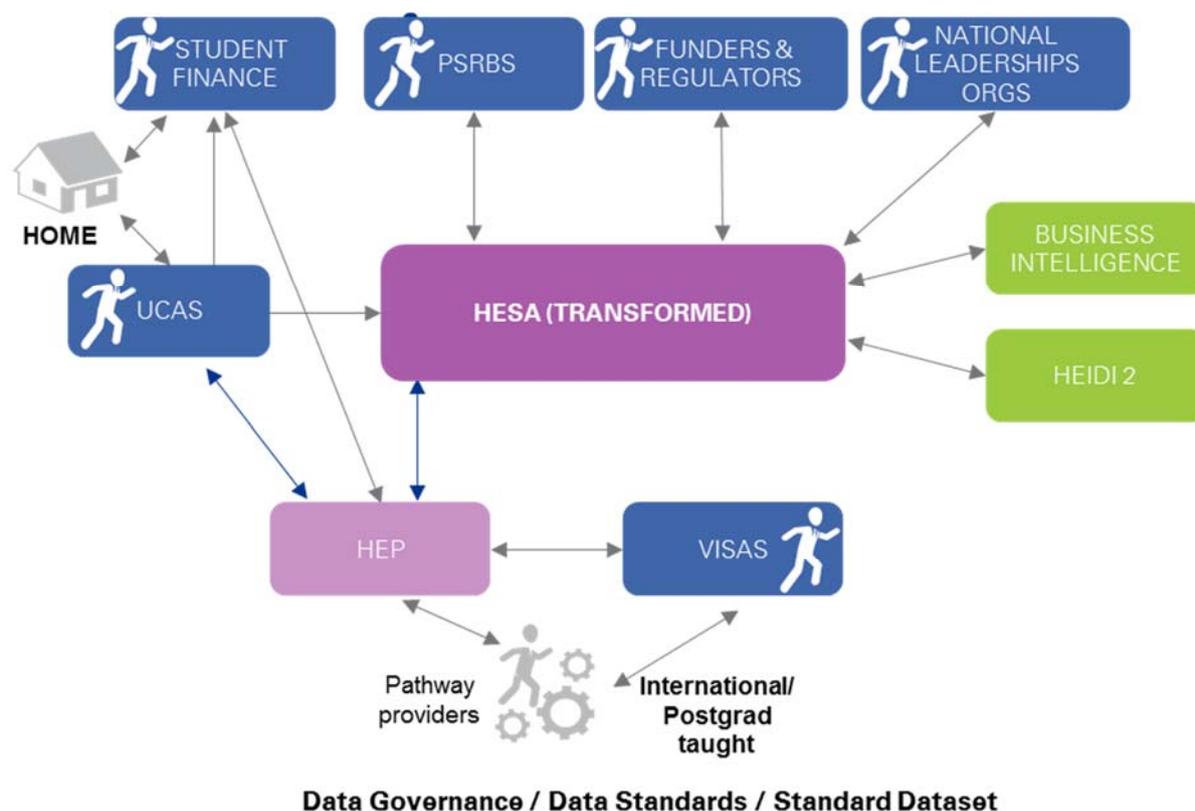
The Governance structure will govern the Data Principles and the Standard Dataset and associated definitions in addition to the rationalisation and future development of data requirements across the sector. It could also provide good practice advice to support the development and understanding of data administration.

Further detail of the governance proposals and assessment is provided in Chapter six.

1.8 Preferred option for the New Landscape

To identify options for evaluation a modern 'ideal' model for the administration of data collection was identified (figure12). This was used to identify three alternative options for the data flows in the landscape in addition to a 'do nothing' option.

The 'do nothing' option was quickly dismissed due to the shortcomings already outlined and of the three options proposed, the model below was identified as the preferred, ambitious, but deliverable option:



The key features of this model are as follows:

- To the greatest extent possible, data collections are centralised in the 'transformed HESA' and other Data Collectors obtain their data from HESA, via appropriate agreements. HESA will collect the Standard Dataset in the first instance, but there is scope for non-standard data to be collected on behalf of the Data Collectors. Process changes will focus on HESA becoming the single collector of the Standard HE dataset once the UCAS admissions process is complete, and other Data Collectors collecting the standard HE data from HESA.
- The operation of SLC and UCAS processes and the data flows required by these processes remains unchanged.
- The introduction of the Unique Learner Number is assumed in the model above such that data forms can be pre-populated and a student's history understood.
- The volume of different and duplicative data returns that have to be submitted by HEPs is reduced.
- Data returns will become in-year, i.e. data will be submitted at different points in the year to create incremental data returns, rather than a single submission of data after the year end.
- The timing of data returns will be harmonised and lead to a common reporting date to HESA, such that the timing with which different Data Collectors need the data can be overcome.
- Represented in the diagram by the figures, the relationships will still exist between HEPs and the other Data Collectors and if ad-hoc or one-off survey collections are required, these could still be led by individual Data Collectors.
- The relationship between the student and the HEP is not affected by this model.

- Over time the model could provide scope for two-way data exchanges between collectors (subject to adherence to relevant data sharing agreements and competition restrictions), which would enhance business intelligence that could be provided to the sector.

Further details on the operation of the new data model is provided in Chapter seven.

1.9 Impacts and benefits of the New Landscape on key stakeholders

The New Landscape will provide benefits for a range of stakeholders. These benefits and the impacts are summarised below:

1.9.1 Students

The New Landscape will provide direct benefits to students in terms of their experience of interacting with the data landscape. It will also provide indirect benefits as a result of HEPs having improved data that can contribute to the enhanced services to students in addition to freeing up resource for HEPs to repurpose in pursuit of its strategic aims. A further benefit is that a simplified data landscape makes it easier for students to understand, if they so wish, how their data moves around the system. Representations were made during the project that there is an increasing desire for students to be reassured about how their data is protected, used and by whom.

The implementation of the New Landscape and the adoption of the Principles will provide opportunities across all Data Collectors and HEPs for more consistent student participation within the data management discussions.

1.9.2 HEPs

The key changes for HEPs will be that their systems will need some amendment to enable the capture of different and/or reduced data fields, but report these centrally 'in-year'. Some technological change will also be needed to deliver the updated 'in-year' student returns to HESA that will fulfil the needs of multiple Data Collectors. Interactions with a number of software suppliers of student systems has identified that the changes proposed are feasible.

HEPs will benefit through there being some rationalisation in the volume of data that is collected. They will also see a reduction in the complexity of the data collections as a result of there being common data definitions. The proposed changes should enable improved control over data as a result of more data returns being submitted from a central function 'in year'. Data quality should also be improved where a single version of data is used by multiple collectors for multiple purposes. Finally there will be a formal body (the HE Data Landscape Management Board) to whom representations and suggestions can be made regarding the data landscape and issues impacting either positively or negatively on it.

1.9.3 Data Collectors

Data Collectors will need to amend their systems to varying degrees. Some collectors will need to amend their systems to enable a data exchange with HESA in order to reduce the data collected directly from HEPs. HESA will require the greatest level of change to enable in-year collections, enable data exchange with the other Data Collectors and administer a redesign of the student data return. UCAS and SLC processes will remain unchanged in this model.

The benefits for a number of Data Collectors will be increased data quality, increased automation in the collection of data and the ability to reduce running costs or repurpose resources to greater effect. Depending on the nature of the data sharing agreements put in place and subject to the availability of data in line with competition restrictions, the ability for greater business intelligence is increased.

1.10 Outline costs of the New Landscape

Implementation of the New Landscape will require investment by Data Collectors, HEPs and HESA. It is, however, important to note that a number of organisations are already investing in their data processes and therefore, to some degree, certain costs are already being incurred. There are costs that will be incurred in

the implementation phase and subsequently in running costs. Alongside the costs necessary to implement the New Landscape, there are also some substantial savings that can be realised. It will however be each organisation's choice as to whether savings are 'cashed' or whether they are redeployed or repurposed to support other activities.

The scope of this document has not been to develop the financial case for the implementation and operation of the landscape. We have however identified some indicative, high-level estimates of the costs and savings and have found that it should deliver recurrent savings.

The survey data suggested that institutions could generate savings of around £0.5m p/a, but in our cost and saving estimates we have taken a prudent approach and reduced this to £80k p/a. On this basis savings in excess of £12.8m could be realised p/a, were all changes fully operational. We have also estimated that savings across the data collections could be in the region of £1m p/a.

Further detail on the costings is provided in Chapter nine.

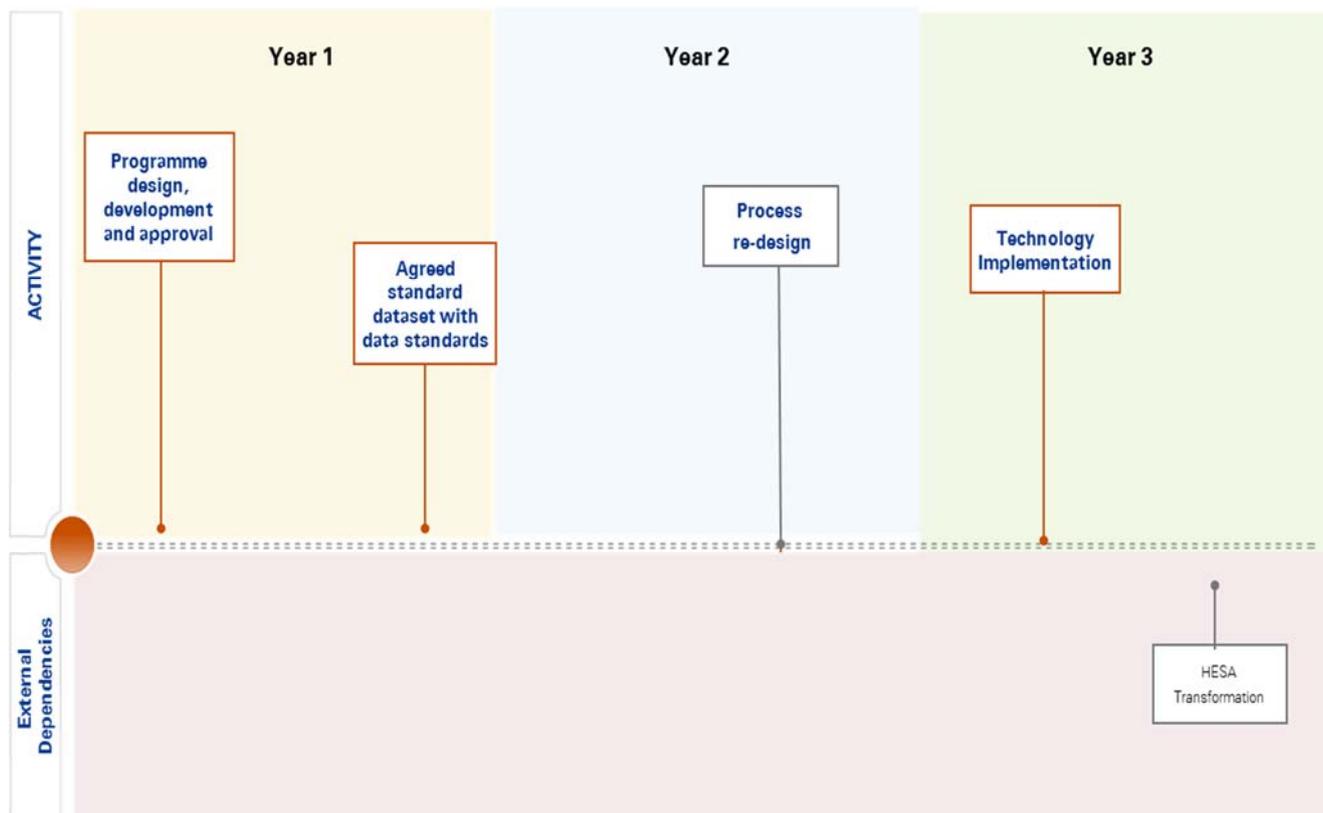
1.11 High level timeline for implementing the New Data Landscape

We have provided a detailed implementation plan in Chapter eight. It is anticipated that there will be three phases to the implementation:

- The first phase will realise the new governance structure and the Standard Dataset with common definitions, which constitutes a quick win for the sector as the technology changes are not necessary to enable convergence of data definitions.
- The second phase will see the introduction of the New Landscape in full for the early adopters.
- This will then be followed by a full roll out to all remaining adopters.

Implementation is forecast to commence on 1 April 2015 and has been planned over a three-year period, to address concerns over the pace of implementation. Given the pre-existing change programmes that a number of the Data Collectors have it will be important that the implementation plan is flexed, where necessary, to align with these projects. We are also aware of some significant developments in SLC systems, which may affect the extent and timing of their engagement with the proposed new data landscape.

The diagram below provides a summary of the implementation milestones:



1.12 Next steps

The HEDIIP Programme Board should liaise with relevant stakeholders to secure agreement to the implementation plan detailed in this report. We recommend that the establishment of the governance group, should be the first task that should be implemented. Thereafter the Standard Dataset and data standards should be expedited as these can enable some quick wins for HEPs.

We are aware that various Data Collectors have their own transformation programmes ongoing. It will be important that the implementation of the landscape is aligned with these various transformations to avoid duplication.

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