



# Data Capability: A call to action

January 2016

## Foreword

It is often stated that data is an asset -but what does this actually mean? To understand the answer, first institutions must ask what it is they need from the data collected, transformed, brokered and used. This use spans daily operations, external returns, medium to long term planning and analytics based intelligence.

A data asset will support those scenarios transparently, fairly and securely all at a known cost. The key to a well-managed data asset is its flexibility to respond to change – change that is all around and gathering pace.

Well managed, appropriately governed and universally trusted data is a real – if unseen – asset for any institution. The findings of this report discuss how the sector is performing against this metric and offer pragmatic advice for improvement. It will do so by advocating the reasons why this is the right time re-evaluate and redefine our relationship with data.

Data is changing; there is a preoccupation with volume but the real disruption will come from the velocity and variety of data available. Twenty years ago we were masters of our data, controlling it through simple structures aligned to business events. Those days are long gone; now there is a wave of data poised to wash over us. This is both an opportunity and potentially a threat. The response from the sector will have far-reaching implications both for the individual institution and the wider framework it operates in.

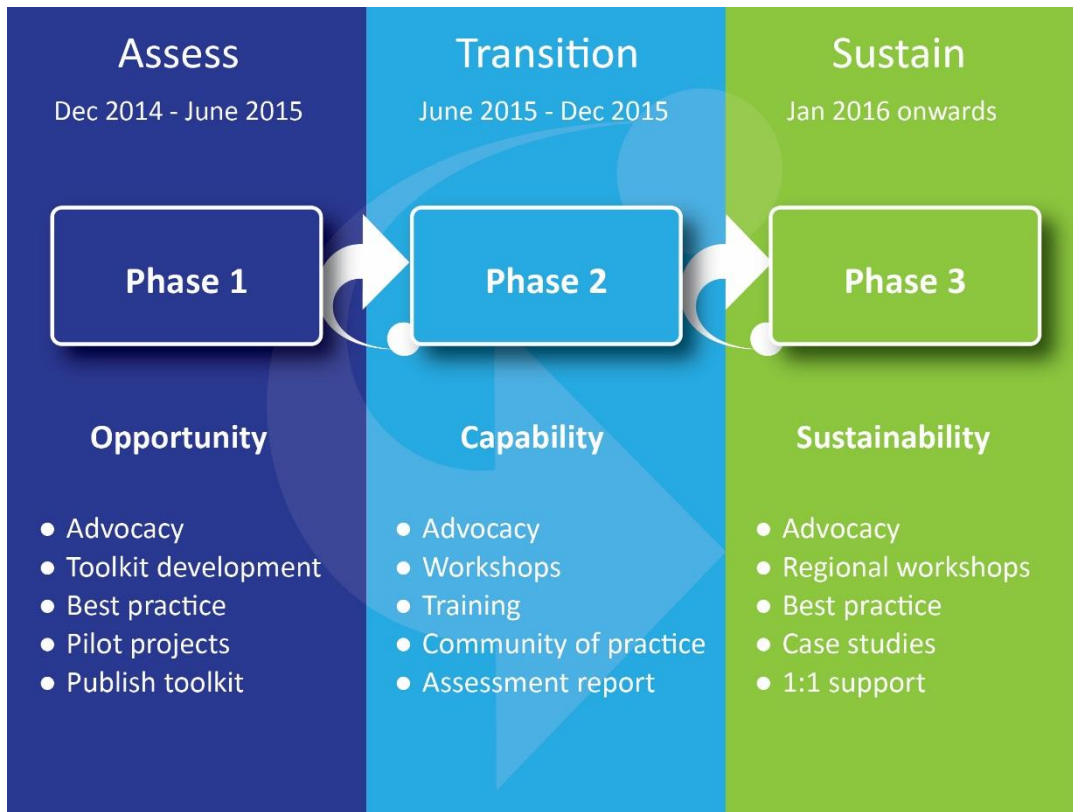
This report does not argue for a programme of significant investment. Data already attracts much hidden cost managed as it is in the sector today. There are many savings to be had and opportunities to be found in targeting this effort and cost in pursuit of a data asset that supports the whole institution. Already success in these areas is being realised by institutions starting early on this change.

This is a perfect storm. There is a nexus of forces – both internal and external – against which a true data asset will be of immense value. Making this the right time to redefine the relationship with data. This is first a people led change not a technology driven one. It is not about a small band of technical professionals managing the data on the institutions behalf, rather the opportunity for everyone to have equal access to a data asset.

This report steps through the goals of the HEDIIP Data Capability project, how the data from the self-assessments was analysed, the detailed findings from this analysis and recommendations for change.

## What did the HEDIIP Data Capability project set out to achieve?

In December 2014, the Data Capability project, under the auspices of the HEDIIP programme, began work on assessing the data capability of the Higher Education sector. This was part of a wider initiative to demonstrate how redefining the relationship with data could align it to organisational objectives.



From the start, an enterprise architecture approach was adopted, lifting data from the mostly transactional to the more strategic. While a part of this was assessing current data capability, more important was the framework to understand the end state and a pragmatic approach to close the gaps.

To support the sector in this endeavour, an eight stage process was designed to produce a data improvement plan, actionable through a series of 30 day iterations. Two successful pilots preceded the publication of the online toolkit and supporting material in June 2015.

The toolkit follows the process with supporting best practice and case studies using the process steps as a template.



A second phase focused on sustainability through twelve regional workshops explaining the goals, rationale and approach to building an enterprise architecture view of data capability. Many of the assessment responses were captured during these workshops.

Each delegate worked through the process shown above to create an improvement plan for their institution. There is no 'one size fits all' solution. The plans can only be realisable if they have context and specifics for the institution they are supporting.

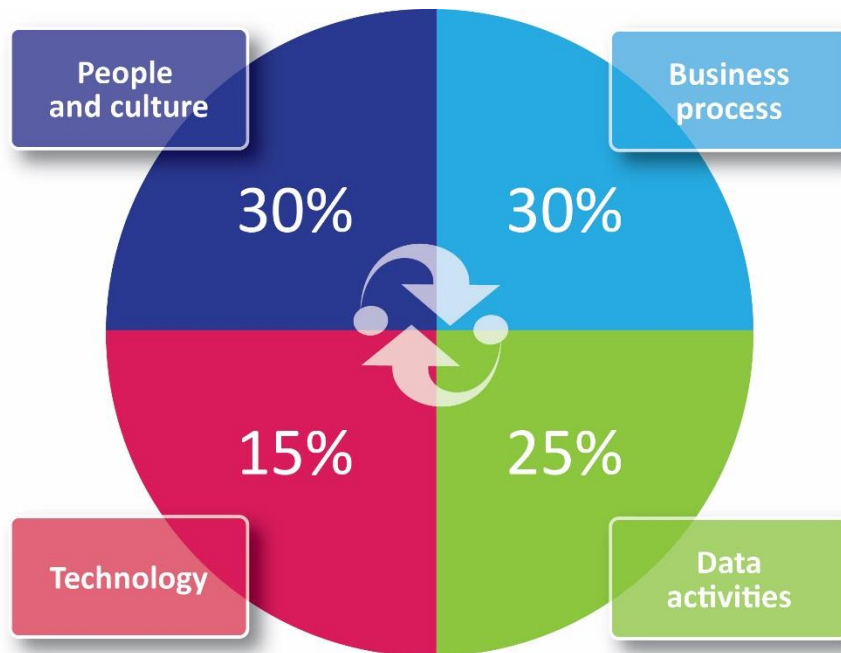
If data is to be considered an institution-wide asset, then the plans should be developed in the same manner: with clear objectives, support from all major data owners and other stakeholders and a set of actions that are more ambitious than fixing tactical issues with that data today.

The project has witnessed a huge amount of interest, desire and will to improve data capability within institutions since the completion of these workshops. A number of these institutions are actively building and implementing plans with support and onsite visits to support these initiatives.

The final phase – starting January 2016 – will build on this work by concentrating on sustainability and advocacy.

## How does the assessment process work?

Data Capability is made up of far more than just the nuts and bolts of data operation or the reports/returns it supplies. An Enterprise Architecture approach has been adopted to assess four separate but linked dimensions.

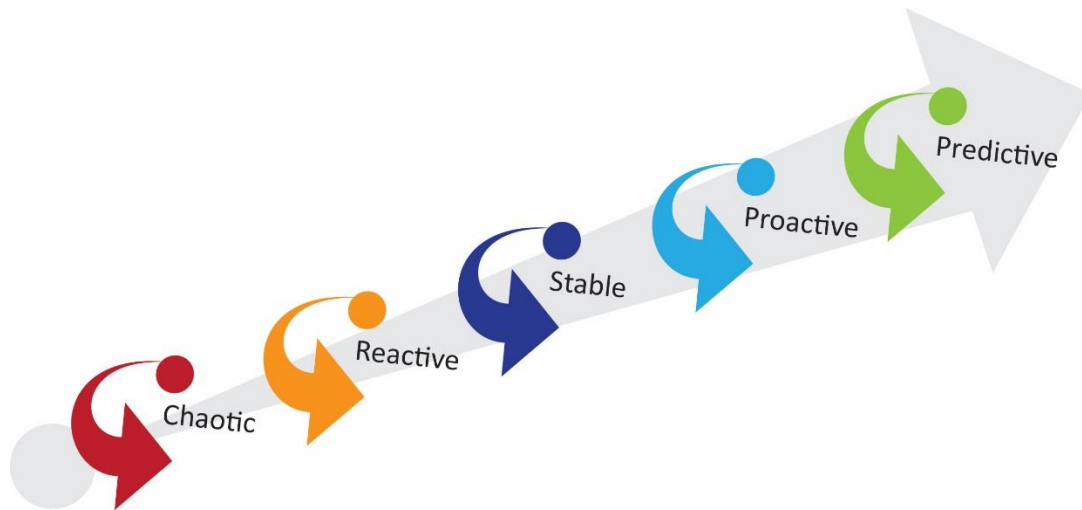


The people and culture dimension of data is often overlooked so missing the vital link between how data is perceived and how it is used. This reflects the fact that improving data capability is at least in part a concerted change management experience.

It is equally important to consider how data is represented in the processes running the business, and the activities by which data is managed during its 'lifecycle' from collection to archive. Finally technology is assessed, but only in terms of support for capability not specific software or database platforms.

This is not to devalue the obvious importance of technology solutions in all aspects of the data lifecycle. However, the assessment deliberately steers away from considering specific database platforms, student record systems, Business Intelligence components etc. The sheer variety of technical solutions make them impossible to analyse, and would have taken focus away from causal issues.

Technology is vital in support of data management and data governance. It should not however play the leading role in defining exactly what that capability looks like.



A weighted assessment of thirty questions (see Appendix A) calculates the level for each dimension, and an overall level representing a blended data maturity.

These levels were defined and validated through a series of technical workshops constituted with both data collectors and providers. Every level is associated with around 100 characteristics rounding out 'how it feels to be working at this level'. These are summarised below:

### Chaotic

No formal data management capability exists. Data is collected, stored and processed in an entirely operational context. Business processes are embryonic at best, while technology is very limited in use. Dealing with operation and change is difficult while the quality of outputs is not trusted. Culturally data is not considered important, or even understood. There are no repeatable processes to increase efficiency or reduce cost, little interest in dealing with potential legal data breaches, and no strategy or direction on how data capability can support organisational goals.

### Reactive

A nascent data management capability is emerging. Known outputs are supported by informal roles and simple business processes. Technology may be providing point solutions. Change is still difficult to deal with, but some trust in quality of key outputs is likely. The value of data is not likely to be well understood or advocated by non-planning or returns staff, although the value of outputs - especially statutory obligations will be. There will be no real support for a data improvement plan or devolution of information accountability. A lack of data governance still puts the organisation at risk, and a lack of root cause analysis will continue to make maintaining quality problematic.

### Stable

Data Management is embedded for key datasets and statutory outputs. Roles have emerged and business processes reduce reliance on individuals. Data Quality measurement will be patchy, focused on where information asset accountability has been devolved. Technology is likely to support some parts of the lifecycle. The value of data is likely to be championed in sections of the organisation, but it will not have senior management interest except during periods of crisis. There is likely to be a push for the 'single version of the truth', but this is very difficult to achieve at a stable level, because of the lack of reconciliation of data sets that have 'gone wild'.



## Predictive

Data Management is a key organisational capability. The majority of outputs are automated and supported by rigorous and integrated business processes. Capacity for business change is available and likely delivered through some form of data architecture function. Services such as analytics are likely to be available or emerging as part of a technology set that is integrated with wider toolsets. Data and the value of it will be championed by at least one senior stakeholder, and improvement plans will be embedded as part of daily operation. Data Governance is likely to be formalised providing far greater control over the quality and mastering of core datasets, and data management roles are likely to be formal.

## Proactive

Data Management has morphed into a strategic capability. It is the foundation for the development of new and innovative services, of which predictive analytics and sophisticated data linking are just two. Automation of all repeatable business processes will be seamlessly integrated with business process and wider organisational operating models. Data Architecture will be fully fledged creating enterprise wide conceptual models as part of creating new and upgrading current services. Technology will support operations and change as part of an integrated package of solutions.

The original hypothesis – backed up by the assessment data – is no institution could constantly operate at a low CHAOTIC maturity level. However, many are at a REACTIVE level where data is largely transactional, buried in silos and responding extremely poorly to change. At STABLE there is more of an understanding of the value of joined up business process, but it is only at the PROACTIVE and PREDICTIVE levels that data becomes an institutional wide asset.

At REACTIVE and STABLE levels, data management activity is primarily focused at chopping data up to support individual sets of requirements. This is not to suggest the institution cares little about its data, more than it is yet to see the benefits of managing it in a different way.

## How the data was assessed?

Data was collected from 101 institutions. Each was encouraged to complete the assessment with a wide group of data owners and users from both the professional and academic areas. The breakdown of roles and departments who undertook the assessment is shown in Appendix B.

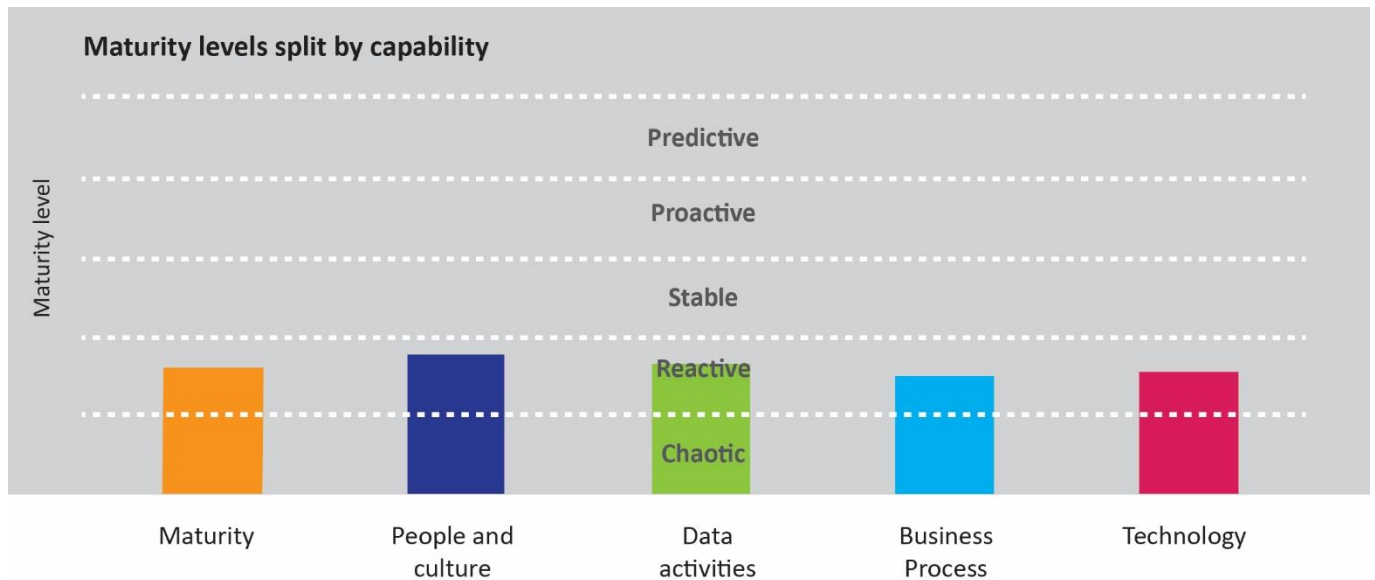
Before analysing the data in detail, a thorough examination of possible patterns for institution size, number of undergraduates, number of post graduates, research focus, geography and institution age was undertaken. There was no correlation or statistical significance to be found. There are sufficient assessments from institutions represented in these groups to ensure the analysis is truly reflective of the whole sector.

It is worth noting that within individual institutions, assessment scores varied significantly. For example a Registrar rated their institution as PREDICTIVE when assessing the value of data and the level of senior management support for improvement activities. The Head of Student Returns and a Data Analyst for the same institution returned a score of REACTIVE and CHAOTIC respectively.

It is not possible to ascertain from the data which response is most accurate. What it does highlight however are differences in perception of how data is used and managed between different roles, groups and levels of seniority. Most of this variance is found in the People and Culture dimension suggesting this lack of consistency places the institution on a difficult path in terms of data being valued and managed as an asset.

This formed the basis of the analysis approach. A 'trigger' question was selected to set a hypothesis and a number of 'contributing' questions chosen to test it. Each of these findings uses the entire dataset.

## What did the data tell us about sector maturity?



The sectors average data capability is firmly in the REACTIVE category. The People and Culture dimension was assessed highest, and while this is welcome, it can mask issues that should be addressed if there is a perception the data capability is higher than it truly is.

Reactive data activity and process scores suggest data is being managed primarily in silo and without effective governance. Technology is providing support, but again is neither well aligned nor pervasive.

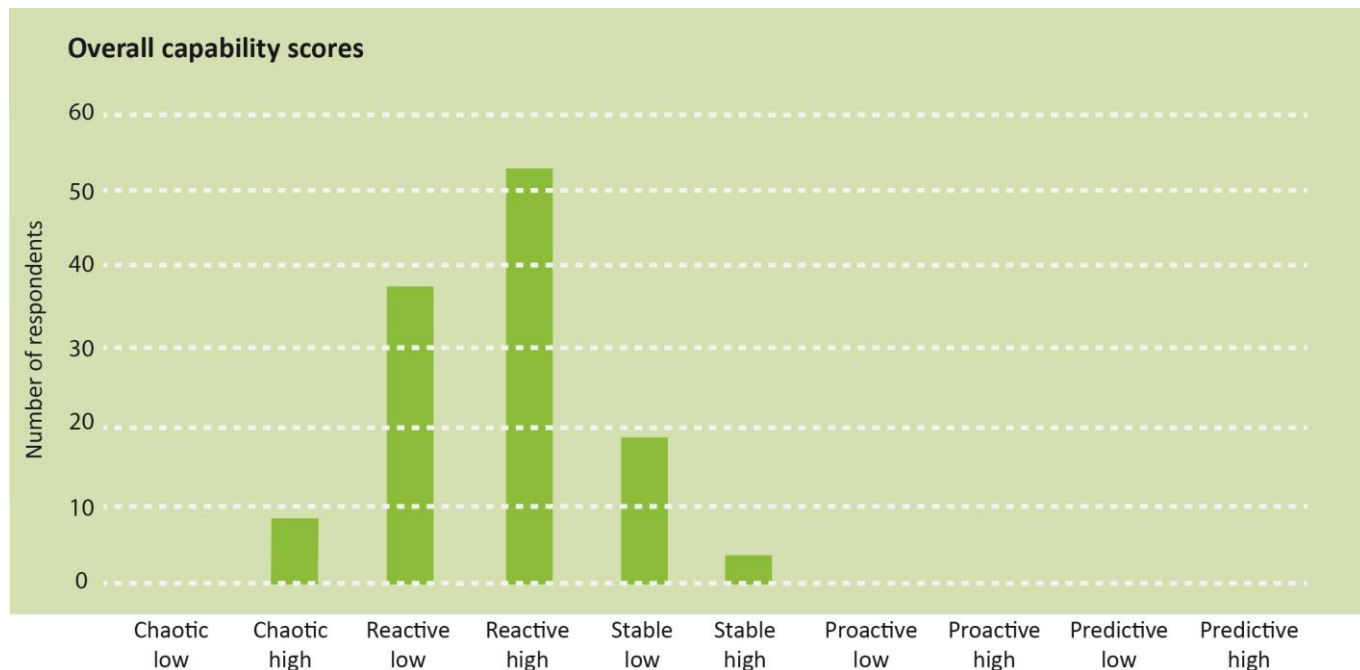
There is a divergence between high level business processes and data operations. Rework is common as are many, unreconciled copies of the key datasets – student records being the stand out case.

Within the daily data management activity, there are many outbreaks of good practice but these are not sustained across the whole institution or sometimes within the same group or department. Data is being shunted down narrow pathways to support major reporting obligations making it inflexible for other potential uses.

Beyond the scope of this report is the detail of how this data is supporting Business Intelligence. Again some excellent, well rounded best practice was evident both with and without the implementation of a data warehouse. However there were far more technology led initiatives showing poor return on investment.



These findings are examined in detail in the following pages. Before doing so, it is worth understanding the distribution of the results in terms of a simple count.



Of the 122 responses (note: if institutions submitted multiple assessments, all were included), 74% were within the reactive level boundaries. 7% were just below this boundary and 19% were within the stable range. No institutions assessed themselves proactive or predictive as an overall maturity level, although a number did mark themselves in the proactive category for one or more dimensions.

14 institutions indicated that they did not wish to have their data analysed and their results are not included in this report.

## What were the findings?

There are many findings due to the richness of the assessment data, some very obvious, some more nuanced. The headlines are summarised below.

### 1. The way data is perceived is not the way it is managed

It is encouraging that the value of data, its stewardship and governance are seen as both important and embedded. However, this perception does not appear to be borne out in reality. This potentially softens the desire to drive the changes required to embrace opportunities created by a true data asset.

### 2. Data is held, managed and used in silos

This builds on the first finding. Data is collected, transformed and used for very specific purposes so reducing its wider value. This approach brings with it duplication, confusion and additional cost leading to multiple copies of the same data none of which everyone trusts.

### 3. Data is not aligned to wider business processes

Because data is being funnelled in silos, its operation and management do not conform to documented business processes even when considering big ticket items such as HESA returns. This leads to 'starting again every time' with knock on effects to staff turnover and development.

### 4. Business Intelligence is not supplied with trusted data

While there are encouraging signs of investments in business intelligence solutions, the data underpinning this activity often does not have sufficient quality to be trusted by the wider population of those who have their own copies of that data. This is leading to duplicate activity, confusion over 'whose data is right' and poor return on investment for these solutions.

### 5. Data Governance is weak

The appropriate oversight and assurance of our data asset must be treated as comparably important as for finance and estate assets. To derive organisation-wide value from data, institutions must manage, extend and respect all purposes of that data. This is the purpose of governance, and there are weaknesses in this area especially in the area of data ownership.

While these findings may paint a picture of doom and gloom, there is much to be encouraged about.. There is evidence that institutions have an understanding of how data can support objectives, and a willingness to create better data outcomes through insight and collaboration.

Capturing this value does not require a huge multi-year project. Clichéd as it sounds, data capability is a journey not a destination. Better data is better for everyone so everyone benefits from a positive change. It is worth reviewing the benefits of generating momentum in this direction of travel. At the same time, risks of the current state should also be explained.

## Benefits of improved data capability

### Improved decision making

With better data comes better decision making. These are collaborative decisions because there is a single set of trusted data everyone is working with. It will also provide a higher return on investment for existing or planned business intelligence activities.

### Foster collaboration

Even creating a shared understanding of 'data problems' can be a catalyst for collaboration. Often, tactical solutions backed by expensive technology implementations are seen as the 'quick fix' for poorly understood business issues. A data culture starts with this business problem and brings together data, process, people and technology to resolve it in support of institutional goals.

### Reduce cost of operations.

Once data is managed as an asset, much duplication, rework and confusion will disappear. The cost of known internal and external returns will fall, as will the ever increasing efforts to complete them on time and to a high level of accuracy.

## Support for change.

Many institutions are undergoing transformational change programmes. This is before considering external change around data collection and government mandated frameworks such as the TEF and the HESA Data Futures programme. Data will be at the heart of supporting these changes and unlocking new opportunities.

## Student Experience

Both in terms of compliance and individual experience; from search to apply to enrolment to assessment and qualification. Improvements in the management and coordination of data assets will underpin more joined-up and higher quality student-facing services.

## Driving more value from data

Time can be wasted reformatting data for routine tasks. Once this data can be served in a way that matches the needs of the user, not only does productivity improve, new data insights and opportunities are more likely to be realised.

## Risks of the status quo

### Unsustainable data commitments

The rate of change is now so high that the data in support of it is falling further behind. Not intervening with an improvement plan must eventually result in the current management approach becoming unsustainable. The only mitigation at that point is likely to be expensive extra resource.

### Data Security and misuse

If data is not subject to governance within a risk management framework, the potential for some of this data to breach ethical, statutory or civil regulations is an unknown risk. While it is not appropriate to be alarmist, the impact of any breach is likely to be both reputational and financial.

### Poor decision making

No one wants to have the conversation 'my data is better than your data' or 'what do you mean when you say student?' Producing the right data is very time intensive and often not fully trusted. This can lead to discussions around where the data came from, not what it means.

### Increased Cost of operations

Having data 'go wild' will lead to many 'cottage industries' within both the professional and academic areas. These all attract a cost, and generally make the role of creating large and time consuming outputs harder as data is changed but not reconciled. There can be inefficiencies driven by duplication of processes, and additional subsequent costs driven by the need to reconcile these different processes.

### Missed opportunities

When data is moribund and has very little flexibility to support change, opportunities for cost savings, new services and improving the experience of students are either lost or extremely devalued. Data becomes a 'cost'

to the institution and is viewed as a problem that needs fixing. These fixes tend to be both tactical and expensive. Crucially they do not actually add any lasting value to the asset.

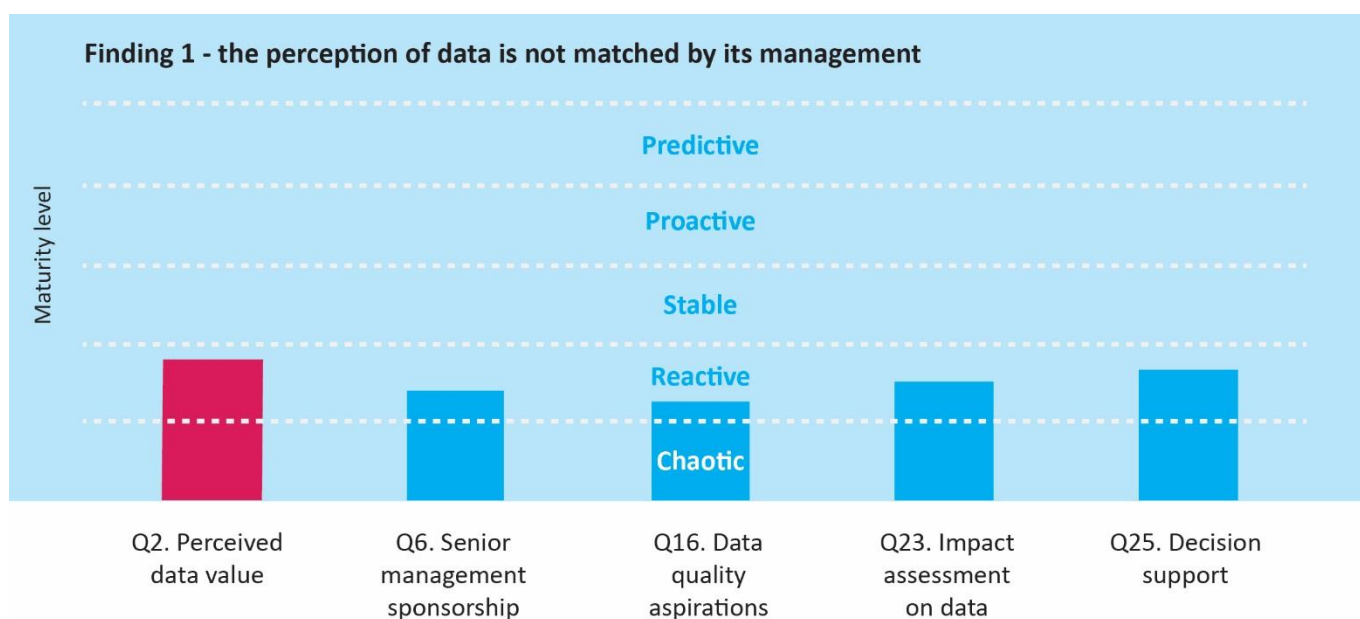
It should be clear that institutions will be investing in data in both the benefit and risk scenarios. It is surely better to target that investment – and recoup cost savings – by redefining the relationship with data, not by doing more of the very things that have very questionable medium or long term value.

The work carried out so far with institutions is very encouraging. There is a real sense that data is something the whole institution should be interested in. While making changes is always difficult – especially at first – the groundswell of support for improving data capability will certainly ease this path.

## Detailed Findings

### Finding 1 – the perception of data is not matched by its management

In the people and culture section of the assessment we ask [Q2] “How is data / the outputs of data valued in the organisation?”



The response shown in red – averaged across every assessment is very close to [STABLE] specifically Data is valued as the source of our key institutional, statutory and internal outputs and the costs are understood.

This would suggest there is agreement on the key outputs and the data in support is understood and trusted. Moreover, the costs of creating these outputs is both known and approved. This would place an institution in an excellent place to ‘launch’ any data capability improvements. Yet when reviewing the answers from the assessment which ‘test’ those statements, the evidence is not entirely compelling:

#### [Q6] Are data management issues and/or risks recorded in auditable logs and/or risk registers?

[REACTIVE] We have some ideas that tend to be specific to big problems we're trying to fix. These initiatives can get priority if they are deemed important

**[Q16] Do you have an approach/plan to improving data quality, and if so how is that manifested?**

[REACTIVE] People have to go to extreme lengths/work long hours just to 'keep the lights on' so there is not time/energy to improve anything

**[Q23] How is the impact of organisation change assessed against current or future data management capabilities?**

This answer is between REACTIVE and STABLE so we have provided both:

[REACTIVE] We have some good ideas, but nothing formal enough to call a plan. We tend to be 'fix and forget'

[STABLE] We are generally represented on the larger projects and change initiatives, but we still find out many changes too late to analyse them properly

**[Q25] How does data empirically support decision making?**

[REACTIVE] Data is used to support decisions but the quality is poor or unknown

These responses suggest that data is managed more through best efforts than best practice. Furthermore, business intelligence initiatives may be present but do not inspire trust across the whole institution.

Certainly it is hard to correlate how the cost of producing outputs is understood or tracked when considering these responses. If data is being perceived as offering a stable platform for the institution, but in reality managed piecemeal, without proper process and not the focus of continuous improvement, it is hard to see how it can really be at that level of maturity.

This is both a problem and an opportunity. Understanding the value of data is a big part of the story. This must be backed up by managing the data in a way in which it can deliver that value. For known institutional outputs, there are simple places to start; evaluating current business process, assuring minimum levels of data quality and assigning ownership to key datasets.

The danger is that the institution continues in its perception of the data it holds so does not intervene to create better outcomes. This perception versus reality gap is largely replicated in the other four findings.

**Risks of doing nothing**

By continuing with a perception that data is providing an adequate service to the institution, there is a real danger that it will not. Without a plan for data – linked to objectives – internal and external change will be poorly implemented and make future change even harder. At some point this will become unsustainable and in the meantime, it will be expensive and frustrating.

**Opportunity of change**

Taking the perceived value, building on it and then delivering real change that benefits a wide group of both staff and students. There is no need for an unwieldy project requiring extensive funding. This about change management first and directed activities following close behind.

*'At our institution, we only focus on the data when there's a big problem with one of the returns.*

*After that, everyone seems to forget about it' –*

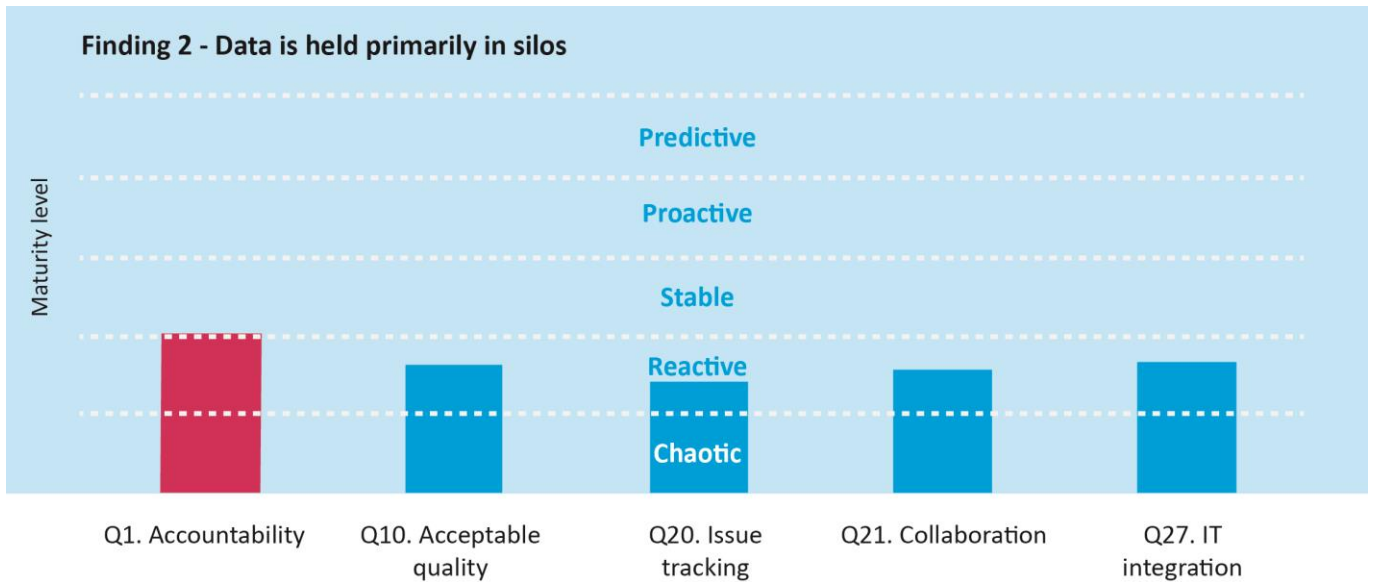
*Student Returns Officer*

*'There had been talk for nearly a year about changing form faculties to schools. We found out about it officially 2 weeks before! We had to make so many changes in such a short time, our data ended up in a shocking state' – Head of Student Systems.*

## Recommended response

This fits squarely in the recommendation advocating ‘embed a data culture’ in the institution. This looks at the issue from both ends; ‘what questions are we trying to answer’ and ‘who is responsible for that data and how can we ensure that data is understood and trusted’.

## Finding 2 - Data is held primarily in silos



Testing how data is shared across the institution is ascertained by asking [Q1] “How do you manage data accountability and ownership across the whole organisation?” The answer is [STABLE] ‘Core Datasets are a jointly owned asset between those managing the data and those accountable for it. Non core data has unclear accountability’. This suggests the data which powers the institution is governed and managed in a way that benefits the wider institution.

This is not backed up by the associated questions pertaining to how data quality targets are established, how issues are tracked and resolved, what collaboration takes place within teams and how daily operations are integrated. These score mostly in the mid ‘Reactive Level’ characterised by:

### [Q10] -Is the quality of data regularly problematic in terms of frequent /repeatable operations?

[REACTIVE] We clean data far too late so we spend a huge amount of time manually modifying it to get it to a minimum quality state

### [Q20] - How are issues tracked, resolved and audited?

[REACTIVE] We track issues as they occur, but we do not have time for root cause analysis unless it's a very serious issue

### [Q21] - How cross functional is collaboration to mitigate risks / fix problems with data?

[REACTIVE] There is some ad-hoc collaboration between IT, operations and other business units to fix serious problems

These build on the findings in the previous section. Data is being used – and often not re-used – specifically for purposes tied entirely to single department outputs and/or external returns. A lack of ownership and accountability drives data deep into silo. This is in spite of some tireless and excellent work to shape the data for

the needs of the institution. It must be made absolutely clear, these are not failings of individuals or departments. It is merely symptomatic of managing data in a way that has worked very well for a long time.

However this management approach now increases the cost of using the data for multiple purposes, introduces issues around the quality required for that data and – most importantly – ties the data into support a few known outputs, therefore negating its value in a wider purpose as an institutional asset

### Risks of doing nothing

While returns and outputs are being generated to deadlines, it may seem that there is no reason to change the steady state. What this hides are significant inefficiencies, expensive and time consuming data cleansing to support multiple outputs and much frustration for both staff working with the data and customers consuming it.

### Opportunities for change

Breaking out of silo has many benefits – the foremost of which is far greater collaboration between disparate teams and departments. Once all of the uses for any dataset is understood, the collection, quality targets, methods of use become far more efficient. In addition this collaboration will create improvements to current outputs and provide a forum for delivering new ones.

### Recommended response

This is primarily a data governance issue as explained in the second of our recommendations for change. To lift data out of silo and treat it as an institutional wide asset, it must be managed with the same focus and rigour of financial and estate assets. While this is a non-trivial undertaking, the benefits are significant, wide ranging and sustainable.

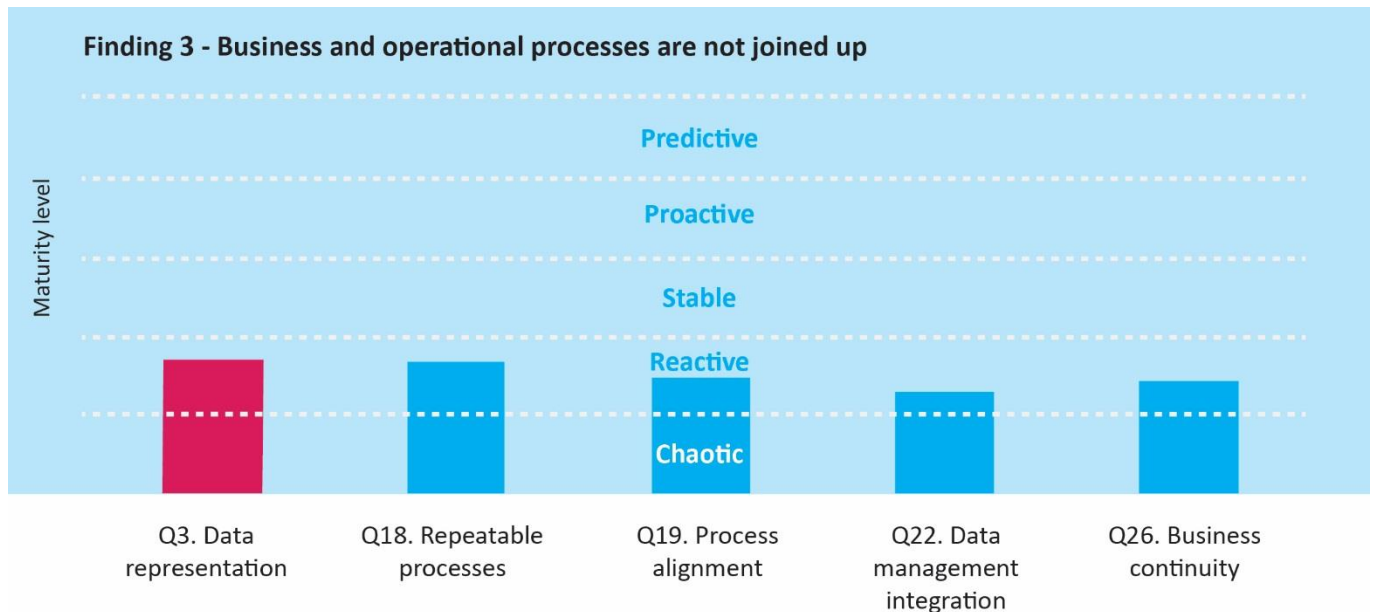
*‘We don’t know what other departments do with the data. By the time we receive it we have to clean/repurpose it for our use’ – Head of Planning.*

*‘We know there are lots of copies of the student records system, but we don’t know where they are. Nobody can agree on the numbers, it’s very tiring’ – Student Systems manager.*



## Finding 3 - Business and operational processes are not joined up

To understand how the business processes and operational management of data are 'joined up', the question used is [Q3] "How is data represented in your organisation?"



The response is a close to [STABLE]: "Data is represented through a variety of models and schematics but not well integrated with wider business operating and change models."

This would be a solid state for an institution to be in. It suggests there is a common view at some levels of what is done, and – as importantly, how. When considering the answers to the supporting questions, a different pattern emerges

### [Q18] - Do you have repeatable/documented processes to undertake the most frequent internal data operations?

The response is high reactive to low stable so we've included both responses.

[REACTIVE] Do and forget mentality - so no defined business process for many repeatable activities

[STABLE] Our business processes are at well enough defined to produce timely and accurate organisational outputs and external returns

### [Q19] - How are business processes aligned to external returns and reporting obligations?

[REACTIVE] There is a process for returns/reports but it needs to be augmented by 'workarounds' that are in individuals heads

### [Q22] - How are the data management processes integrated with wider business processes?

[REACTIVE] We have some defined data processes but they are not well aligned with wider business process

### [Q26] - Is there a business continuity process/strategy for data assets?

[REACTIVE] There is a lack of and/or untested business continuity around the information assets

While the organisations with higher maturity levels clearly have better/well defined processes especially for known/important internal and external reporting obligations, the average of all responses is more of a concern.

It suggests that there is almost a culture of ‘starting again every time’ as the processes tend to be in people’s heads who are obviously not always available.

Clearly this leads to a high cost to produce these outputs, stress for those involved, duplication and the risk these outputs will not be delivered at the required quality.

### Risks of doing nothing

Doing just enough to get through was a common theme coming through the assessments. It is hard to see that approach prevailing with the volume and rate of change coming to the sector. It is telling that most institutions have a plan for what they want to do, but in this assessment not on how they do it. This approach would appear to lack sustainability.

### Opportunities for change

A best practice approach would be picking one or two key processes and understanding how they are done today, and, more importantly, how they might be done more efficiently in the future. Most processes have grown by evolution and the variances live within individuals’ heads. This opportunity to get a wide understanding of what, how and why has potentially huge benefits in terms of cost, timing and ability to deal with change. It is always easier to deal with unknowns when there is an understanding of both current and desired states.

### Recommended response

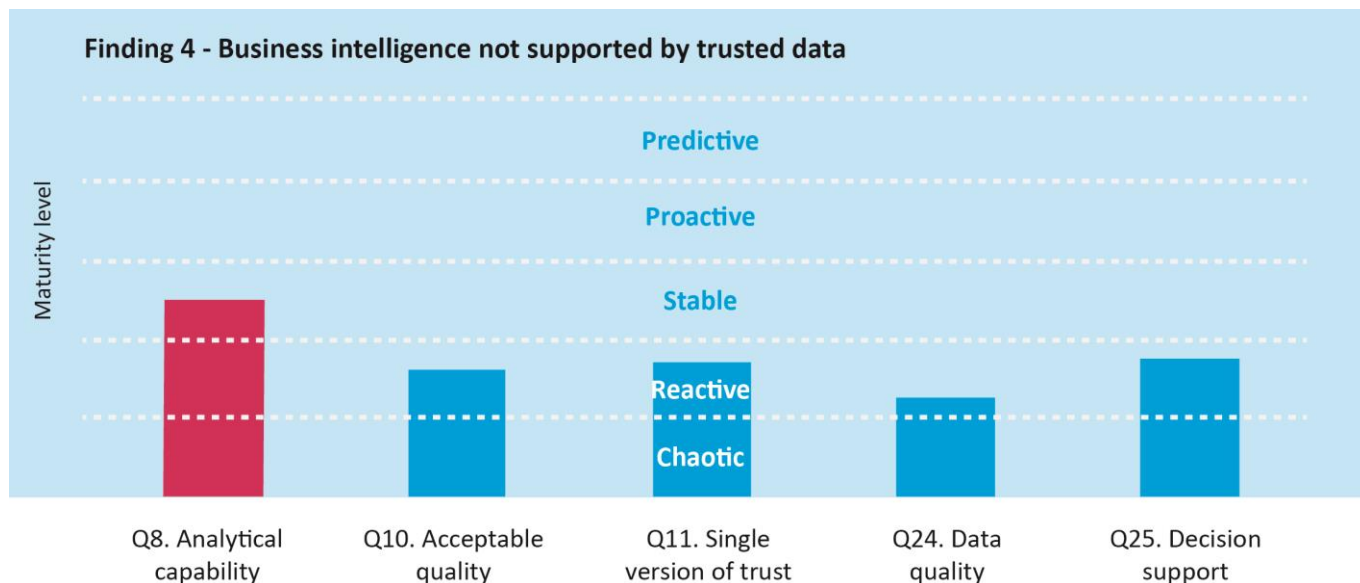
This is a combination of increasing data literacy to aid understanding of how the data is used and the application of data governance principles to define and monitor quality aspirations. Finally a roadmap must be built to demonstrate how the data asset can be flexible enough to support the ever increasing frequency of business change.

*‘The process of creating the return is all in one persons head. When they left we had to start all over again’ – External Returns Manager*

*‘Every year we bring in contractors, but it takes as long to train them as we have nothing properly documented and we never have time to do it once the return has been completed’ – Deputy Manager, Planning group.*

## Finding 4 – Business Intelligence is not supported by trusted data

Many institutions have a defined BI capability when answering [Q8] ‘What is your organisations approach/capability around data analytics?’



The response is [STABLE] ‘We have a basic, people driven analytical capability for one or two datasets’

The findings, specifically in the responses to questions on data quality and a single version of trust do not fully support that assertion. In finding 5, there is an explanation of this might be, but for BI specifically there are two pertinent statistics.

36% of assessors report that their Faculty and Registry data does not reconcile, yet of these 48% say they have a BI function supplying data for decision support.

60% of assessors say they have a BI function supplying data for decision support but only 14% say they have metrics and quality assessment in place for data deemed important by senior management.

It is encouraging that so many institutions see the value of using Business Intelligence technology to support their decision making. However it is illustrative of the gap discussed earlier between how that capability is perceived versus how it is manifested.

### Risks of doing nothing

Decision support should be available for the entire institution. If the data or the way that data is presented within this shared context is not trusted, then silo activity will prevail. There will be duplication, confusion and endless debates over ‘whose data is correct?’

‘We spend much our time writing new reports reacting to new requirements. Now we seem to have more reports than readers!’ - Head of Business Intelligence.

‘We visualise our data in various formats, but then spend half the time reformatting them in rows and columns because there’s no interest in learning new ways to interpret data’ – Internal Reporting Manager.

## Opportunities for change

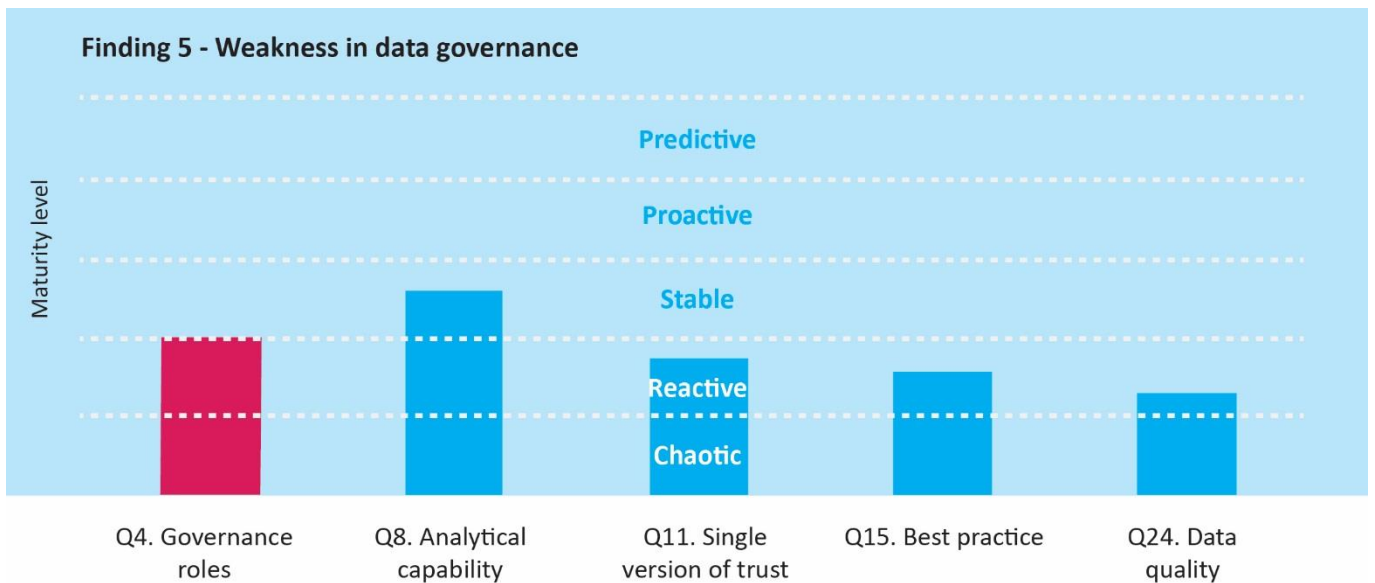
Having the right data, at the right time and at the right level of quality to support evidence based decision making truly represents the asset value of data to an institution. While the data visualisation solutions are important, the initial focus must be on which questions are most important and what is it in the data supply that provides the answer. This is firstly a people led change supported by best practice data management.

## Recommended response

This is primarily a data governance issue. Only when data is trusted can BI solutions become pervasive. Good data governance has three key deliverables; appropriate data quality, single version of trust and increased BI adoption.

## Finding 5 – Weakness in data governance

Data governance is an essential capability if data is ever to attain an asset value. To assess where institutions were in their governance journey the question set is [Q4] ‘Do specific roles exist for data management activities e.g. Data Steward, Data Architect, Data Analyst, Report Developer?’



The response is a [STABLE] ‘We have some formal data management roles, primarily in operations but the stewardship roles are not filled’ suggests nascent data governance is in place if not embedded.

Data governance has three primary outcomes; a single version of trust for all data under governance, a transparent, pragmatic and published data quality framework and – if business intelligence tools are in use – a data and visualisation portal used and trusted by large parts of the institution.

The last of these outcomes would appear to be supported by the answer to [Q8] ‘What is your organisations approach/capability around data analytics?’ which was [PROACTIVE] A Business Intelligence function is in place and providing decision support to more than one department/school/faculty’. This is the only proactive assessment score contained in this report.

Delving deeper, the evidence is patchy.

**[Q11] - Are there multiple copies of the datasets with little or no reconciliation?**

The response is high reactive to low stable so both responses are show here.

[REACTIVE] Faculty and registry data doesn't reconcile and changes are not supported by robust business process and/or data governance

[STABLE] We have basic mastering/single version of the truth for our core datasets, even if this means we just know where the copies are.

**[Q15] - Is there an understanding of best practice in data management and/or formal Data Governance?**

[REACTIVE] There is little best practice or data governance activity outside of maintaining regulatory compliance/statutory reporting

**[Q24] - Do you measure data quality, if so, how do you set your metrics and who monitors them?**

[REACTIVE] We don't provide quality measurements regularly, but we can deliver it on a per project/per issue basis if needed

This does not support the initial finding or the majority of the anecdotal evidence. It is instructive to share that most of the project's follow up efforts with individual institutions was in the area of alleviating poor data governance. This governance is vital to assure the data asset it supporting all uses of data fairly and at an understood and appropriate cost.

The first four findings in this report are symptoms of poor data governance and while resolving this issue is not the only cause, it absolutely should be the bedrock on how a successful data strategy is built.

Many institutions have attempted to introduce data governance. It is extremely challenging to do so whilst so much data is 'in flight' and this is reflected in how successful these initiatives have been. However, the very fact that the value of an assurance framework is understood is very encouraging when considering how to improve and embed a higher level of data maturity.

**Risks of doing nothing**

Without effective data governance, data will go rogue. It will be copied, changed, reconstituted into the primary datasets without anyone really understanding the impact. Without this solid framework to manage data, it is extremely hard to create a sense of trust in 'corporate data' leading to extensive and extending silos in which data is hidden. This has implications for cost, quality and lost opportunities.

**Opportunities for change**

Implementing pragmatic data governance is not without challenges. It is important to remember these are roles and not new jobs. While training is essential, the requirement for a cumbersome framework is not. Governance activities will fix existing problems, raise the profile of data and begin to create trust in its use. Data governance will take time but the rewards are more than worth the effort.

*'People just export data they care about from our BI system, so they can populate their own spreadsheets. We then spend nearly every meeting talking about whose data is right' – BI Manager*

*'We know there are over 100 copies of our student records system. What we don't know is what people are doing with them and which reports they are seeding. No wonder we can never agree how many students we have' – Deputy Director of Planning*

## Recommended response

While it would seem the response should be centred on data governance, this finding will be well served by all three recommendations; embed a data culture, implement the governance and actively manage the data in this environment.

## Other findings from the assessment data

The data collected from the assessments has sufficient richness for subsequent analysis work to be carried out. While there is not space in this report to share the detail, it is worth highlighting the headline findings.

People and Culture scores show the widest variance between REACTIVE and STABLE maturity levels. This is encouraging as it demonstrates that changing our relationship with data is a people led change. Data Capability tends to be driven top down and by recognising the value of data, senior leaders can begin to prioritise improvements to this capability.

Business change is communicated too late. This leads to quick fixes that devalue the asset value of data by locking in undocumented and sub optimally implemented business rules. As this continues, it becomes almost impossible to unwind back to a steady state. This is driven by a lack of understanding of the complexity of data and its integration

Data Strategy is patchy at best. Data does not have an aspirational end state. It is not supported by principles or non-technical models. Therefore the impact of change is not well understood. With this lack of strategy, data can only be managed tactically and in silo leading to many of the issues discussed in the five findings.

People have wildly varying views of their institution's capability depending on role. Broadly the more senior the assessed, the higher they score the capability of the institution and the value of data. This was examined in finding 1, but the nuance here is the further away from data operations people are, the better they believe it is.

## Summary and recommendations

In this report it has been demonstrated that data is primarily managed in silos against questionable quality expectations and without an intrinsic link to wider business processes. Furthermore the way in which data is generally perceived and valued is assessed at a far higher level than the underpinning data management operations and approach.

One of the ongoing problems with data is it is hard to visualise what is happening to it and where the real value lies. This drives behaviour to fix data problems when they occur and have a narrow focus on external returns or operational issues. Such an approach leads to data being 'the problem of the few' not the opportunity of the many.

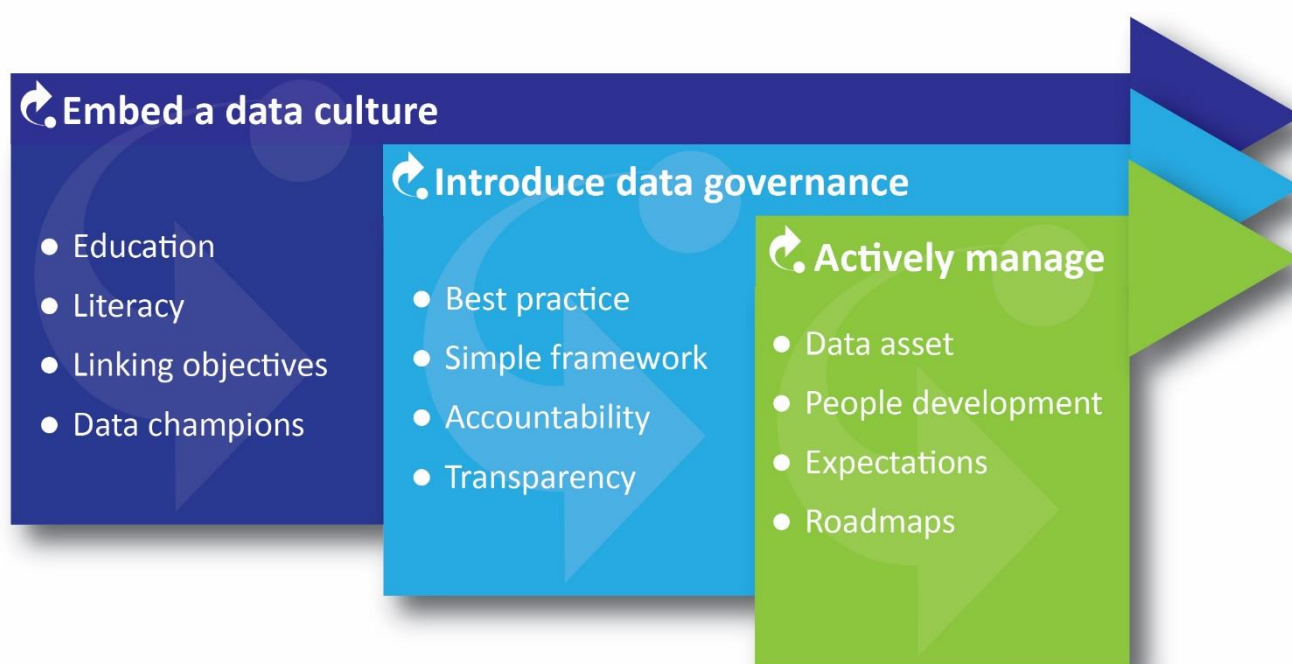
Therefore this is the right time for the sector to redefine its relationship with data. To assess, manage and use data as both a tactical and strategic asset. That aspiration can be articulated quite simply: provide fair access to data for everyone. Success would see data everyone trusts in support of both operational activities and evidence based decision making. It would remove significant duplication and other non-productive activities. Known reporting commitments – both internal management information and external returns – would be delivered in a more efficient and transparent manner.



There is more; much of the student experience is powered and assessed with data. Considering the needs of the learning cohort is an excellent first step to understanding how data – properly managed and underpinned with appropriate capability – can make visible and positive changes to the environments of those working both inside the institution and those who are on their educational journey.

When data is treated as an asset it is trusted. When it is trusted, it delivers value for everyone in the institution and those it serves. It is the sleeping giant of productivity and analysis. To being to take this opportunity, a simple three step approach is being advocated.

These are a package of interlinked measures. Embedding a data culture is taking an organisational stance that data is everyone's opportunity and backing that up with actions to trigger change. Implementing Data Governance is one of these actions, lifting data out of silo so it can be understood, trusted and available for all, not just those responsible for the major operations and outputs. Finally actively managing data to an end state is how this change is sustained.



## Embed a data culture

Redefining the institution's relationship with data is firstly a people led change. The mistake often made is to spend valuable time understanding every available dataset before asking 'What can we do with it?' It is far better to consider the short and long term objectives of the organisation and how improvements in data capability can support and unblock these.

This approach is embedded in the toolkit and taught to all those who have attended the workshops. By considering the enterprise value of data, it immediately has relevance to almost everyone inside and outside the institution. Data stops being about outputs or individuals and starts to visibly support all aspects of daily activity.

Changing culture takes time and effort. It is best led top down but not in a dogmatic manner. All the success stories inside and outside the sector are grounded in an inclusive dialogue with all interested parties – academic, professional services and students.

These successes are not built on adding more people or allocating extensive budgets to some kind of 'data project'. Historically this has not been a successful approach. A data culture asks 'what is it we want to change',



'how will we effect that change' and 'how will we sustain this change'. It is as much about choosing what not to do as it is about what to embark on.

The toolkit explains this process in far more detail.

## Introduce data governance

Data governance – done properly – will deliver appropriate data quality at an understood cost, a single version of trust for shared data and provide the foundations for successful business intelligence initiatives.

Data governance is primarily an assurance function. It is a set of roles and does not need to be constituted as a physical team. It has a remit to provide 'fair access for all' so must operate institution wide without any other agenda. It is obviously linked to changes in data culture as described.

As with any assurance framework, it must be shown to support the institution goals, both short and long term. It cannot be seen as a blocker or an added layer of bureaucracy. To mitigate this, it requires a mandate from senior management and a set of principles to transparently manage the data asset both tactically and strategically.

By considering data as an asset, there is now a single function with authority to move this data from its silos. Now it is understand what is required from the data for the entire institution, appropriate quality metrics can be set and significant duplication removed with the benefits of far more clarity in the collection and cleaning processes. As a consequence, conversations about 'whose data is right' no longer have any merit because a shared understanding of the data supply has been developed.

Once data is trusted, it can be shared through BI type processes and solutions removing the cottage industries rife in some institutions where every team, faculty, school etc. are spending time and effort in creating their own version of data. This is entirely different than providing the data in one format that suits nobody. It is using all four dimensions within data capability to service data requests so they best match the aspirations of the requester.

Introducing data governance is the manifestation of changing the relationship with data and treating data as an asset. There are many places to start without having to spend months developing complex frameworks. The toolkit and signposting covers these in detail.

## Actively manage

'If you don't know where you are going, you will end up somewhere else' is an appropriate quote to frame this recommendation. Attempting to solve 'data problems' one at a time will never be anything but a very short term fix to the highest profile issue. In many instances this devalues the data asset as these fixes prioritise one data output or operation over others. The next fix may very well reverse that.



To counter this, the solution is to actively manage the data asset. First fix the scope and remit of what is considered to be the data asset. This makes the whole process so much more manageable as otherwise it can be seen as too big a problem. From here there is a step to assess how much work is required to meet the remit and make a realistic priority call on what to do first.

Now this package of change can be aligned to current initiatives, known issues, staff development and show direct support of published objectives. This step is as important for both those within the institution and those consuming its services. Sustainability is at the heart of this model as discussed in the first two recommendations. This is a combination of data literacy and data governance with a key output being an agreed 'end state' to manage the data towards.

As the priorities, goals and objectives of the institution change, so must the way data is managed in support of it. This is why the model is circular – data must be actively managed as an asset to be sufficiently flexible to react to the needs of the institution.

This approach to the planning and sustainability of a data asset is covered in detail in the toolkit.

There is, of course, the option of doing nothing. A nexus of internal and external pressures suggest this would be an unwise strategy. It will result in a lost opportunity to both significantly increase the capability and efficiency in managing data and to use this data to make better informed decisions.

While this analysis of assessments provides some headline outputs from the data capability project, this is just a small part of a far richer toolkit with a process and best practice to drive improvements for every institution. The project has trained over 160 practitioners in the art of improving data capability; they are ready and able to start this journey and they need broad support. Data is shaping and changing our world. Recognising this suggests the sector must change with it. Already a number of institutions are undertaking initiatives to shift data from being the problem of the few to the opportunity of the many.

There is no better time to start the journey than now.

## APPENDIX A – Data capability questionnaire

The self-assessment questionnaire includes 30 questions, each with 5 possible responses. The questions, with a count of each response, is listed below.

### 1 - How do you manage data accountability and ownership across the whole organisation?

|  |    |
|--|----|
| Our data sets have no clear accountability for ownership or sign-off   | 17 |
| Responsibility for data operations is held within the IT team.   | 6  |
| Core Datasets are a jointly owned asset between those managing the data and those accountable for it. None core data has unclear accountability              | 61 |
| Core datasets have a single point of accountability but non core data still resides in business units where ownership and accountability is unclear          | 35 |
| We have a senior management sponsor for all data assets in our organisation. Information asset ownership is embedded and distributed across the organisation | 3  |

### 2 - How is data / the outputs of data valued in the organisation?

|  |    |
|--|----|
| The value of outputs from data are unknown - both in terms of what they are and to whom they provide value   | 0  |
| Data is understood to be the source of some recognised outputs, but the cost of production is not understood   | 84 |
| Data is valued as the source of our key institutional, statutory and internal outputs and the costs are understood                                       | 30 |
| Data outputs are of an appropriate cost and quality to match expectations of what is required  | 7  |
| The outputs of data are an integral part of how we deliver our most important services, and their value is well understood across our whole organisation | 1  |

### 3 - How is data represented in your organisation?

|   |    |
|---|----|
| Data has no formal representation. There are no links between what the organisation does and the data which support that.                                 | 4  |
| Data is represented in low level technical models to aid daily operations and systems development. It is rarely surfaced outside IT/IS and Operations.    | 32 |
| Data is represented through a variety of models and schematics but not well integrated with wider business operating and change models.                   | 79 |
| Data is represented as a 'journey' or 'supply chain' as part of wider business processes so ensuring value/dependencies/criticality is understood by all. | 6  |
| We have co-created a common business vocabulary for data around a canonical model which is the master view of the data journey in our organisation        | 1  |

#### 4 - Do specific roles exist for data management activities e.g. Data Steward, Data Architect, Data Analyst, and Report Developer?

|  |    |
|--|----|
| We don't have specific roles or any concept of why we would need them  | 3  |
| We perform the most basic data management roles, mainly around data cleaning - but they are not formalised                                   | 35 |
| We have some formal data management roles, primarily in operations but the stewardship roles are not filled outside of IT.                   | 42 |
| We have a number of data specific roles which confer accountability across a variety of departments, for both operations and business change | 42 |
| Our organisation has a range of data 'super-users' in every part of the business advocating and supporting data as an organisational asset   | 0  |

#### 5 - Are data improvement proposals sponsored at a senior management level?

|  |    |
|--|----|
| We have no data improvement proposals sponsored at a senior level  | 6  |
| We have some ideas that tend to be specific to big problems we're trying to fix. These initiatives can get priority if they are deemed important | 34 |
| Senior management are aware of the value of data improvement, but support is project or issue based  | 58 |
| Some data improvement initiatives are supported/run at a senior management level although they often lose support in the long-term               | 22 |
| All data improvement initiatives are sponsored by senior management with strong support for providing the resources needed to undertake them     | 2  |

#### 6 - Are data management issues and/or risks recorded in auditable logs and/or risk registers?

|  |    |
|--|----|
| We do not perform risk assessments on our datasets. Therefore nothing is recorded in any logs                                  | 17 |
| We record risks and issues in our business unit / departmental risk logs although not always with mitigation                   | 45 |
| We record and review risks and issues in our corporate risk logs   | 46 |
| We effectively manage risk with data using appropriate governance, mitigation, escalation and regular review                   | 13 |
| Risk and quality are actively managed for all datasets. Breaches and metrics are flagged and responded to by senior management | 1  |

#### 7 - How are data management principles and goals embedded into wider policy documents?

|   |    |
|---|----|
| We don't believe data is referenced in any organisational policies  | 12 |
| We have some policies around data but they are not well communicated nor respected  | 44 |
| We have data policies, but rarely invoke sanctions if they are breached   | 51 |
| We have built actionable policies across multiple functions and they form part of our wider policy library                              | 12 |
| We ensure that the principles and goals of best practice data management are embedded and advocated in all appropriate policy documents | 3  |

## 8 - What is your organisations approach/capability around data analytics?

|   |    |
|---|----|
| We have no analytics capability other than spreadsheets in individual departments   | 4  |
| Data cannot be analysed to support operational or strategic decision making   | 3  |
| We have a basic, people driven analytical capability for one or two datasets  | 42 |
| A Business Intelligence function is in place and providing decision support to more than one department/faculty                     | 67 |
| We have made an investment in predictive analytics capability and supporting technology in support of our most important activities | 6  |

## 9 - Is data collected for which there is no obvious purpose or value?

|   |    |
|---|----|
| We continue with data collection for collections sake for no obvious rationale other than 'we've always done this'  | 3  |
| We definitely collect data we don't use or collect more than once. We don't know if something will break if we stop collecting it though                  | 32 |
| There is some confusion around why some data is collected, but we understand our primary data feeds and where the master copies are                       | 78 |
| We use our data models, data governance and business processes to root out unneeded data  | 7  |
| We regularly review our data collection activities in line with our operational and strategic needs. Data collection is driven directly from these models | 2  |

## 10 - Is the quality of data regularly problematic in terms of frequent /repeatable operations?

|  |    |
|--|----|
| Data is of inconsistent quality, and that quality is impossible to measure   | 3  |
| We clean data far too late so we spend a huge amount of time manually modifying it to get it to a minimum quality state            | 42 |
| Our core datasets are of an acceptable quality, but its hard work to keep them that way  | 70 |
| We set, monitor and maintain quality metrics for the majority of our data, and any remedial work is mostly automated               | 6  |
| We ensure our data is rigorously maintained to the published levels of quality using automated tools and rigorous business process | 1  |

## 11 - Are there multiple copies of the datasets with little or no reconciliation?

|   |    |
|---|----|
| Yes. We have no idea how many, where they are or what they are used for. Therefore no master copy exists                                    | 9  |
| Faculty and registry data doesn't reconcile and changes are not supported by robust business process and/or data governance                 | 35 |
| We have basic mastering/single version of the truth for our core datasets, even if this means we just know where the copies are.            | 59 |
| A single version of the truth is in place, in line with our data models and data governance for core datasets.                              | 17 |
| Our data is created, integrated, consumed and purged with traceability to the master data model, and supported by rigorous business process | 2  |

## 12 - How (if at all) is meta and reference data management used in your organisation?

|   |    |
|---|----|
| We don't have any formal meta and/or reference data available for any of our core or non core datasets  | 33 |
| Meta and reference data is used - where available - to help understand impacts to datasets, but no formal taxonomy/dictionary is in place             | 60 |
| Meta and reference data is available (if not complete) for the core datasets, but generally developed and maintained within the IT or operations team | 25 |
| Meta and reference data is developed by the information asset owners and is available as part of a lineage/audit process of change                    | 3  |
| Meta and reference data is complete, rich, managed and maintained. No ambiguity means high re-use and accelerated development of new services         | 1  |

## 13 - Are you constantly 'running to stay still' with your daily data activities?

|   |    |
|---|----|
| It always feels like we are firefighting, because we are struggling to keep up with demands of operational and change activity                      | 9  |
| People have to go to extreme lengths/work long hours just to 'keep the lights on' so there is not time/energy to improve anything                   | 35 |
| Our most repeated activities are reasonably well resourced. We struggle to deal with change or new initiatives though                               | 63 |
| Our daily activities are well understood, staffed and processed efficiently. We are able to handle unexpected events and periods of additional work | 14 |
| Daily activities are largely automated and supported by simple business processes. It is very rare we need to intervene                             | 1  |

## 14 - Are data activities prioritised over other things that need to be done?

|   |    |
|---|----|
| The only priority for data activities is to fix whatever is broken right now!   | 2  |
| Other activities are always seen as more important than improving our data management capability  | 30 |
| Known data outputs - especially those relating to funding or regulatory matters - are prioritised. But improvement activity is not            | 78 |
| Priorities are embedded in the data improvement plan which is sponsored by an accountable individual. We modify this as new priorities emerge | 12 |
| Data activities are core to our operations and strategy and therefore is considered a high priority activity                                  | 0  |

## 15 - Is there an understanding of best practice in data management and/or formal Data Governance?

|  |    |
|--|----|
| We have no concept of best practice. Our data management is chaotic and we don't have time to understand scope and reach                           | 3  |
| There is little best practice or data governance activity outside of maintaining regulatory compliance/statutory reporting                         | 59 |
| The data management function is fit for purpose and no more. Therefore we do have some best practice but it is not organisation wide               | 49 |
| We trust (most of) our data, understand it, and know what will happen when we change it. Our best practice and governance ensures we look after it | 11 |
| We have a defined and respected data principles, goals and practices which are consistently applied to all of our data operations                  | 0  |



## 16 - Do you have an approach/plan to improving data quality, and if so how is that manifested?

|   |    |
|---|----|
| We do not have an approach to improving data quality and there is a sense of apathy towards such initiatives across the business          | 5  |
| We have some good ideas, but nothing formal enough to call a plan. We tend to be 'fix and forget'   | 79 |
| We have data quality targets and KPIs, but these are not always measured so the benefits of improving data quality is not well understood | 32 |
| We have a data quality plan with performance measures that are monitored and assessed   | 4  |
| Our data quality plan links the outputs to the wider organisational initiatives and is monitored by senior management                     | 2  |

## 17 - How secure is your data and how is that security maintained and audited?

|   |    |
|---|----|
| We don't know whether our data is secure, and well don't know how to find out   | 4  |
| We don't have a risk management framework or data governance activities to support known risks in our datasets  | 27 |
| We have a recognised security framework for our core datasets, and have sufficient confidence in that to be formally internal audited                         | 72 |
| Our data is secured in line with the organisational risk appetite and we are regularly externally audited to ISO standards                                    | 19 |
| We ensure all data is security marked in line with our published framework. We run regular sweeps and tests to ensure auditing to the highest external levels | 0  |

## 18 - Do you have repeatable/documented processes to undertake the most frequent internal data operations?

|  |    |
|--|----|
| Extracting, transforming and loading data is very expensive to do as it is not standardised - even for frequent operational activities | 6  |
| Do and forget mentality - so no defined business process for many repeatable activities  | 28 |
| Our business processes are at well enough defined to produce timely and accurate organisational outputs and external returns           | 81 |
| We can just 'push the button' to process our most repeatable transactions/operational processes  | 6  |
| Our processes are fully integrated with our organisations operating model and the majority of our data operations are automated        | 1  |

## 19 - How are business processes aligned to external returns and reporting obligations?

|  |    |
|--|----|
| We start again every time because we don't have time to document the processes to create the outputs   | 3  |
| There is a process for returns/reports but it needs to be augmented by 'workarounds' that are in individuals heads                                     | 67 |
| Our processes are documented and can be carried out by any trained individual. We struggle when the process doesn't create the output we expect though | 39 |
| Returns and external reports are documented, understood, respected and mostly automated  | 13 |
| Our operating model includes processes, dependencies, timings, metrics for all reporting obligations. Rarely do these need human intervention          | 0  |

## 20 - How are issues tracked, resolved and audited?

|   |    |
|---|----|
| We fix on fail. No analysis of why the failure occurred is done. We do not track issues after resolution                                  | 5  |
| We track issues as they occur, but we do not have time for root cause analysis unless it's a very serious issue                           | 68 |
| We track and record all data issues, but we do not record the resolution in a way it can be re-used                                       | 41 |
| We track, priorities, record issues in a way they can be used in future problem management activity, and be auditable to ISO standards    | 8  |
| We collect, priorities, resolve and record all issues in a standard management framework which includes sophisticated root cause analysis | 0  |

## 21 - How cross functional is collaboration to mitigate risks / fix problems with data?

|  |    |
|--|----|
| There is no collaboration between cross disciplinary teams to diagnose/troubleshoot/resolve data issues                            | 1  |
| There is some ad-hoc collaboration between IT, operations and other business units to fix serious problems                         | 69 |
| We have a forum for sharing issues around quality and other data management issues   | 34 |
| Multi disciplinary teams work together to resolve data issues - either tactically or as part of a data improvement programme       | 16 |
| Data issues are worked on collaboratively between all functions, and prioritised according to wider business initiatives and needs | 2  |

## 22 - How are the data management processes integrated with wider business processes?

|  |    |
|--|----|
| We have not mapped out any processes for data so we cannot integrate them with wider business processes                                    | 15 |
| We have some defined data processes but they are not well aligned with wider business process  | 62 |
| We have mapped out our operational processes allowing us to replicate frequent activities in our operational teams                         | 44 |
| We have clearly mapped the flow of information across the organisation in order to understand the impact of business change on data models | 1  |
| Data processes are clearly documented and rigorously maintained, performance monitoring is in place as a business as usual activity        | 0  |

## 23 - How is the impact of organisation change assessed against current or future data management capabilities?

|  |    |
|--|----|
| We don't consider the impact of change at all. We just try and fit it in as it happens   | 15 |
| We tend to find out about it after everyone else! It is difficult to understand the impact as we don't fully understand the current state        | 32 |
| We are generally represented on the larger projects and change initiatives, but we still find out many changes too late to analyse them properly | 63 |
| We work with project/change teams to ensure data assets are built/maintained as part of these changes  | 12 |
| Data capabilities play a full part in organisational change. Impact assessment is undertaken early and changes are fully funded                  | 0  |

## 24 - Do you measure data quality? If so, how do you set your metrics and who monitors them?

|   |    |
|---|----|
| We don't measure quality or create any other data specific metrics  | 36 |
| We don't provide quality measurements regularly, but we can deliver it on a per project/per issue basis if needed         | 37 |
| We have patchy measurement around the core datasets   | 35 |
| We have metrics and quality assessment in place for data deemed important by senior management                            | 14 |
| Organisation wide data quality (and other metrics) are monitored as a business as usual activity at the most senior level | 0  |

## 25 - How does data empirically support decision making?

|  |    |
|--|----|
| Decision making is largely intuitive and not supported by data                                     | 11 |
| Data is used to support decisions but the quality is poor or unknown                               | 29 |
| Data is trusted to support a number of key decisions around daily operations                       | 60 |
| Data is trusted, accurate, timely and available for supporting operational and strategic decisions | 22 |
| Data is presented in customisable, analytical output and provides sophisticated what-if analysis   | 0  |

## 26 - Is there a business continuity process/strategy for data assets?

|  |    |
|--|----|
| We've never seen a business continuity plan so we assume not.  | 32 |
| There is a lack of and/or untested business continuity around the information assets   | 31 |
| Data is included in the plan, but we don't test it as the business changes so we're not confident it'll work   | 35 |
| Data is a key part of the BCP plan and well integrated with the operational processes than come into play during such an event. We test it at least annually                     | 22 |
| Data drives a significant portion of the BCP plan as data availability is core to our operations during an event. We ensure the plans are always up to date and regularly tested | 2  |

## 27 - How well does the wider business understand IT manages data on their behalf?

|   |    |
|---|----|
| There is no recognisable understanding from any business unit of how data is managed by IT  | 16 |
| It is understood that IT is responsible for the data lifecycle, and ownership of datasets that have no 'home' in the business                         | 34 |
| IT is included in wider business processes around outputs, but not fully integrated with new requirements and change                                  | 46 |
| IT has a peer relationship with the wider business and the value of transacting data is understood although not always respected                      | 25 |
| Operational and change activity is seamlessly integrated between IT and the wider business with all roles and responsibilities defined and understood | 1  |

## 28 - What does the function of data architecture do in your organisation (if it exists)?

|  |    |
|--|----|
| There is no concept of data architecture in our organisation. Consequently we have no formal vision, metrics, principles, etc. for data                              | 25 |
| There is no formal data architecture but some of the concepts are partially implemented around information governance  | 58 |
| We have a data architecture function but it is not fully staffed nor does it have a mandate for real enterprise wide change  | 29 |
| Data architecture is understood and embedded but not across all disciplines. We use target architecture to steer our change/development                              | 9  |
| Data architecture forms part of our wider strategic governance, so is viewed as important and useful across the whole organisation and has support from senior staff | 1  |

## 29 - How do technology solutions support your data lifecycle in some/all of the elements (e.g. acquire, clean, use, archive, purge)?

|   |    |
|---|----|
| Technology dependencies are hindering us in managing our data   | 8  |
| Technology does not support our data lifecycle in any recognised manner. We have some tools but no real processes to use them | 36 |
| We have limited data management specific technology which is not/partially integrated with wider management solutions         | 58 |
| We use technology to actively support and develop our data lifecycle management   | 19 |
| We manage data across its full lifecycle by analysing, improving and controlling information assets                           | 1  |

## 30 - How is data represented / modelled in physical repositories?

|  |    |
|--|----|
| All our data is in Silo. There is no modelling or analysis performed when creating or modifying datasets and entities within them                    | 8  |
| Our data is primarily in silo, although we understand some of the key interfaces between the different systems and repositories                      | 41 |
| We have the concept of master data through our primary dataset, but interfaces and extracts do not follow a recognisable model                       | 57 |
| We use Data Warehouse technology to bring together our datasets using master data management best practice   | 13 |
| We have complete three layer models that drive our data design and our warehousing/BI ensures the whole organisation sees 'one version of the truth' | 3  |

## APPENDIX B – Who completed the self-assessment?

The self-assessment form captures job title of the person completing the form. This data suggests that nearly half of the people involved in completing the assessment work in a planning role.

Self-assessment responses by role type

