

NHS Briefing

Data Governance and Analytics Effectiveness



Organisations that capture and use high quality data are often more successful at delivering their strategies. For NHS Trusts a lack of accurate, complete and timely data can increase operational and financial risk. Failure to govern and use data effectively could lead to poor patient experiences and reputational damage.

Data issues can undermine a Trust's ability to run an efficient service, as key information that should influence decision making is unavailable or inaccurate.

Parliament and regulators increasingly focus upon the importance of obtaining good quality data and the benefits of using this data to drive critical decision making. This is reinforced by legislation (such as the False or Misleading Information offence) and increased requirements for data quality reviews. The importance of basing decisions on data-derived insight is increasingly recognised:

- The NHS Five Year Forward View stresses the importance of the use of information to improve patient outcomes and clinical quality; and
- The Francis Report and subsequent updates focus on collecting accurate data to monitor performance and improve the quality of clinical care.

What does this mean in practice? Why invest effort, and what is achievable? A skilled analytics capability can enable a Trust to become an insight driven organisation. Such a Trust can:

- **Make the same decisions on a timely basis:**
 - Proactive use of data analytics can allow Trusts to manage patient flow, anticipate attendances and forecast expected treatment completions, therefore improving A&E services.
 - “Live” interrogation of patient feedback as it is received can be used to improve patient experiences. This can identify benefits beyond the obvious: for example real-time interrogation of complaints raised can resolve the issue immediately, improving the patient experience and minimising the ongoing impact.
- **Make cost effective decisions:**
 - Reviewing the impact of annual leave requests against the current booked leave and predicted sickness absence can inform the approval process as early as at request or shift review stage. This drives proactive rescheduling of rotas and use of the most appropriate and cost effective staff to deliver the service, such as overtime or bank staff rather than a reactive deployment of agency workers.
 - Comparing costs and outcomes for different groups of patients on the same care pathway (for example, between hospital sites) reveals variation and may identify the root causes, such as differences in referral patterns for individual GPs, or treatment pathways for individual consultants. Over time, this insight can be used to improve patient outcomes and increase pathway resource efficiency.

• **Make better decisions:**

- Analytics based on local health economy population records can risk-stratify patients based on demographic, clinical or other characteristics. This can identify groups of patients with high unmet needs, or those at the highest risk of requiring pre-emptive treatment.
- Trusts can improve clinical decisions by using evidence of the impact of interventions on specific patient cohorts to shape treatment decisions and improve outcomes. For example, risk stratifying patient populations based on demographic and clinical characteristics can better predict and manage long term conditions and risks of admission to secondary care; an important theme of the Better Care Fund.

• **Make innovations in services:**

- Clinician-led research and development is supported and accelerated by the ability to access and analyse patient data in a timely and secure way. The quality and ease of access to data can be a significant asset when industry is selecting sites for clinical trials of new medicines and medical technology.

The reality is that many Trusts either do not have such a vision or their current data quality and analytics capability acts as a barrier to achieving it.

Our experience of performing informatics capability assessments and data quality and governance reviews has highlighted common barriers preventing Trusts from maintaining high quality data sets and using them to drive decisions:

- Trusts have seldom identified the elements of their strategic vision which can only be delivered with better information and insight and are therefore unable to articulate the business rationale for the effort required for improvement.

This results in a lack of an analytics strategy to support the overarching Trust corporate strategy. Consequently, the objectives and benefits which can be delivered through analytics are not well understood at a Board level, and the leadership and capability required to deliver improved information and insight is lacking.

Where Trusts have identified a business rationale for investing in insight, they are often faced with a complex existing landscape of poor quality data to work with. Our experience indicates that this has arisen because:

- Data governance is viewed as a burden. Trusts focus on data quality for accuracy in national reporting rather than as an enabler for effective analytics.

Data quality is not a compliance issue: it is a pre-requisite for performance improvement.

- Trusts often rely on the Quality Accounts assurance process or internal audit reviews. However, such reviews usually focus on a limited number of metrics and are tested using small samples. In addition, as reviews are infrequent it can lead to data quality issues falling down the agenda.

- Trusts are focused upon the systems impact of the requirement for a “paperless NHS” by 2018 and the significant PAS/EPR decisions required as the NHS National Programme comes to an end in 2015-2016. The perception that these system changes will resolve data quality issues can result in neglect of the need for data governance.

System changes will not, by themselves, tackle data quality issues. Indeed, if poor quality data is migrated as part of PAS/EPR projects, old issues will remain and many of the potential benefits identified in an EPR business case will not be realised: as per the adage, ‘rubbish in equals rubbish out’. That said if performed effectively, PAS/EPR projects can provide a useful catalyst to identify and remediate data quality concerns, as part of the associated system migration workstreams.

System changes will not, by themselves, tackle data quality issues.

Our experience indicates that there are five key themes associated with a lack of information and poor data quality which prevent Trusts from taking action to become insight driven organisations. This NHS Briefing provides further insight into these themes and the suggested actions to address them. In summary, they consist of:

1. Making the case for better information and high quality data

High performing organisations capture and use high quality data. Achieving this needs the whole organisation to buy into the need for information and data quality and governance objectives. Identification and promotion of the elements of strategy, which can only be delivered through better information and insight, and the benefits to be gained beyond the regulatory imperative are critical to secure internal understanding, buy-in and leadership.

2. Leadership and ownership

The information, data quality and data governance agenda is often insufficiently owned at the Executive level and throughout the Trust. Indeed, it is frequently considered an ICT or Informatics domain and simply delegated to these functions. Development and delivery of an Information Strategy and data quality and governance efforts, need to be tackled on a Trust wide basis. It is critical that this remit is owned by the function with the greatest capability and interest in improving the status quo.

Further, information strategy objectives and data quality issues must also be on the Board agenda. This is seldom the case and awareness of data quality issues within the Trust is often limited even in otherwise well governed Trusts. We believe that including data quality scores attributable to routine KPIs as part of Board reporting, together with the improvements enabled by improved data quality, maintains focus on this topic.

3. Developing the structures and mechanisms for data governance

Good governance of an organisation’s data requires a clearly defined and empowered structure and process.

4. Organisational adoption of the importance of data governance

Data governance is not simply about policy documentation – it must be implemented. It is critical to maintain involvement of key sponsors from across the Trust, to deliver change and to realise the benefits of change. Sponsors across the organisation can promote new ways of working and communicate the benefits to staff so they can see the impact of their efforts.

5. Analytics capability

Realising the benefit of improved data quality and delivering the key information to enable Trust strategy requires a dedicated analytics team with the appropriate leadership, expertise and capacity.

Making the case for better information and high quality data

Gaining the commitment required to invest in the delivery of better information and achieving a high quality data landscape needs the buy-in of the whole organisation. Three key factors often mean information and data governance initiatives do not get beyond the first hurdle and do not achieve buy-in from the required stakeholders:

- The issues and benefits identified when making the case often focus on accurate regulatory reporting, rather than real business benefits. The benefit of being able to produce an 18 weeks RTT report at the push of a button should not be overlooked, but it does little to tackle a Trust's key strategic challenges and to capture the hearts and minds of front line staff. Rather, when making the case for better information and high quality data, the issues identified should be the key challenges of the Trust's strategy, demonstrating that they can only be tackled effectively with better information. For instance:

- variance management;
- resource planning;
- resource utilisation; and
- staff engagement.

Clinicians and operational management are most likely to engage with an initiative which tackles such key strategic challenges or which results in a real impact on how they work. For example, improving the accuracy of theatre data so that a meaningful procedural level duration estimate can be calculated at a patient cohort level. Subsequent practical improvements, such as better theatre utilisation and patient throughput, provide a powerful case for seeing data as an asset and an enabler to the delivery of the Trust's vision, rather than a regulatory reporting compliance requirement. As analytic tools become available, Trusts should consider the best mechanisms for giving the right members of staff access to them.



Dummy data for illustrative purposes only

- Clinicians are not directly involved in identifying the needs for better information and high quality data. Trusts need a high level of clinical involvement to identify the strategic benefits delivered by improving information and data quality.
- Trusts do not use dedicated analytics specialists to define the 'art of the possible'. Analytics specialists have a key role to play in this and in identifying benefits. The focus here should be on the medium to long term vision and the advanced analytics, aligned to the Trust's strategy, made possible with a rich and accurate data landscape.

Successful programmes often start with targeted initiatives which can provide "quick wins" – this promotes buy-in, and supports the business case for further action. Visual dashboards with an element of self-serve also help to encourage usage amongst stakeholders, thus improving engagement and understanding of the benefits.

Leadership and Ownership

It is critical that leadership is effectively assigned and that it defines an implementable Information Strategy and sets the agenda for the organisation's data governance effort. Trusts seldom develop a strategy for information and assign leadership, less still Executive level leadership. Assigning an Executive level leader for the Trust's Information Strategy is important to maintain focus, momentum and to deliver the benefits identified.

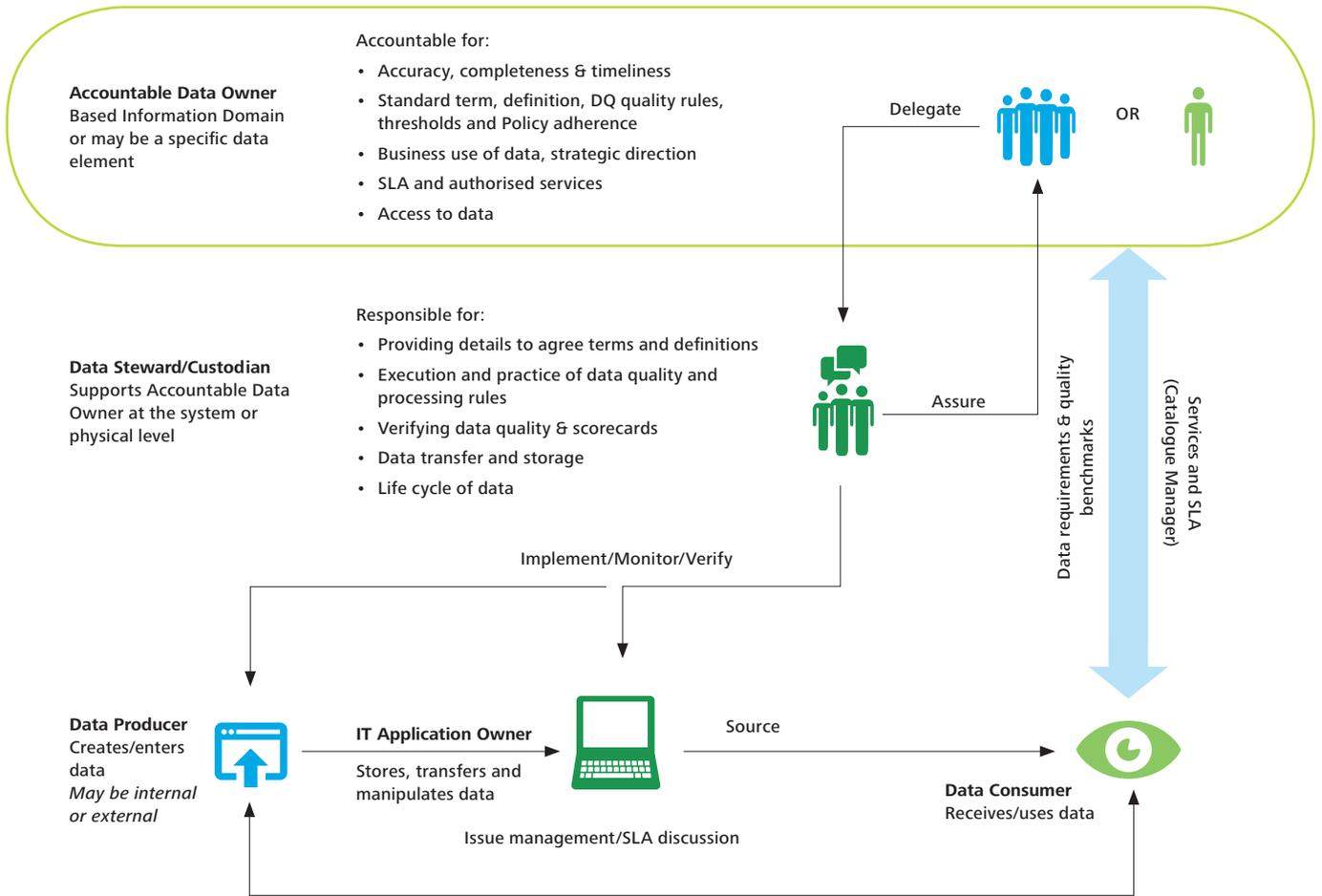
The same is true when Trusts are setting the agenda for data governance and assigning leadership and ownership responsibilities. We typically see the following risks and mistakes:

- Data quality concerns are often regarded as a technical issue and as such, responsibility tends to be routinely delegated to the IT team. IT is a supporting function in delivering improved data quality but it is not usually best placed to lead. Responsibility and ownership for data governance should be delegated to the key consumers and users of data who inherently have the greatest interest in its improvement and the most opportunity to improve data at the point of capture within their business-as-usual activities.

Typically, an exercise to map the key benefits identified in the business case to the organisational areas with the most influence and interest in improvement of the associated data, identifies the Chief Operating Officer or Medical Director as the most logical source of ownership for data governance.

- Data governance often lacks senior leadership. Data governance should have an Executive level sponsor and leader (usually the same as for the information strategy), who must raise awareness at Board level.
- Too often a team or individual is given responsibility for data throughout its lifecycle. This is unrealistic and results in an ineffective ownership system where owners are unable to influence the quality of data. Responsibilities should be assigned appropriately across the Trust's data flows, from the point of capture to the point of consumption. All teams who interact with data have a responsibility for its accuracy and completeness whilst it is in their control. This can be effectively addressed through a definition of data ownership types. For example, data producers performing data entry tasks are responsible for its complete and accurate entry. IT Application owners are responsible for the complete and accurate flow, storage and manipulation of data within their application, and so on.

An example of an ownership model is depicted below, but each organisation will need to identify an appropriately tailored solution.



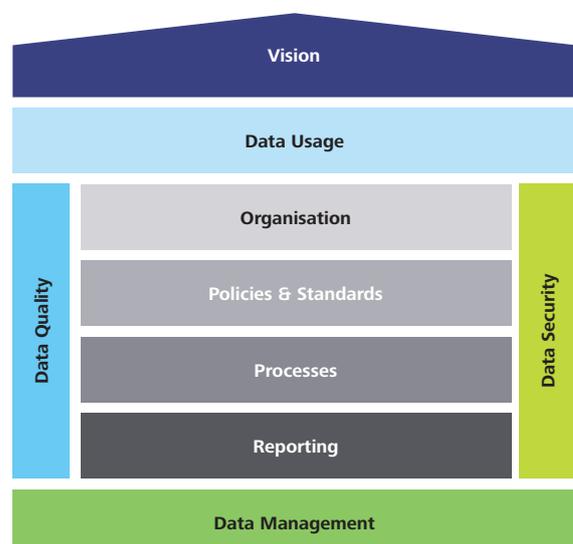
Developing the structures and mechanisms for data governance

A clear vision of how to extract value from the use of high quality data enables a Trust to prioritise elements of a governance framework. Typically, we see a data governance vision focussed on improvements in domains such as quality, security, usage and management, often prioritising data quality in the first instance.

Once the vision is clear, an organisational structure (and the supporting mechanisms) accountable for managing and governing its data is required. Some of the key structures and mechanisms which need to be established to run an effective data governance process include:

- a vision for how high quality data will be delivered and used in the organisation;
- a road map for how to deliver improvement and the overall vision;
- a data governance organisational structure which incorporates a data governance committee (or allocates responsibility to an existing committee). Data governance committees often lack the teeth to resolve the issues and drive real improvement. It is important that the committee has mechanisms (either budget or escalation routes) that enable it to act on issues identified;
- Terms of Reference describing the vision, purpose, authority and remit of the Data Governance Leadership and the Data Governance Committee. The Terms of Reference sets out the responsibilities, operation, and attendees of these groups;

- a data policy setting out the principles to guide the decision making of the Data Governance Committee as well as providing high-level focus for anyone using data within the organisation;
- data standards which define common data entities, their attributes and inter-relationships as well as records of authority for each data object and data element; and
- a Reporting Pack detailing data quality measurements is required to drive committee decisions and monitor compliance with the data policy and standards.



Organisational adoption of the importance of data governance

Trusts may have drafted data quality policies and standards documents. However, these are often not communicated or not implemented in day-to-day operations. The following steps are important in raising the profile of data governance:

- trust-wide communication should take place to raise awareness of the data governance initiative, its objectives and envisaged benefits;
- training for data owners identified in setting up the data governance framework should be delivered. This should focus on the responsibilities for each ownership type, explaining the application of the data policy principles and data standards and the system of reporting through which compliance will be measured;
- there should be periodic communications to demonstrate the benefits of the improved data quality delivered by the data governance initiative;
- data quality measurement scores should be routinely published alongside Trust performance indicators;
- data quality measurement scores should be published on Trust dashboards alongside other dashboards which are displayed to staff; and
- data quality measurement scores should be disaggregated between the score for historic data and the score since the implementation of the data governance framework. Assessing the current performance rather than legacy issues relating to individuals and teams with data ownership responsibilities increases motivation to improve.

False or Misleading Information offence

The False or Misleading Information ('FOMI') offence covers various data sets that Trusts submit on a regular basis, as well as the annual Quality Account. The submission of false or misleading information is a "strict liability" offence for Trusts. This means that it does not need intent for an offence to be committed. If an offence has been committed by a Trust, and it is committed "by, or with the consent or connivance or, is attributable to neglect on the part of a director, manager, or [trust] secretary of the body" then potential penalties would be an unlimited fine or a custodial sentence of up to two years.

However, despite a long history of regulators focusing on data quality, issues remain prevalent. The data governance structures necessary to address this challenge are frequently lacking or not considered a priority for Trusts. A failure to focus on long term plans to provide high quality data can impact on front-line services, lead to reputational damage or decisions based on faulty assumptions.

In the absence of a structured data governance framework, teams often need to firefight inaccurate and incomplete data with manually intensive processes. Even with an appropriate Informatics capability, data quality challenges can make it difficult to deliver the vision of an insight driven Trust.

"Trusts may have drafted data quality policies, however they are seldom implemented in day-to-day operations."

Analytics capability

Deriving insight from data assets, and providing access to the right information for decision making, depends on Trusts having a fully effective Analytics capability. Traditional Informatics arrangements are often tied up in the day to day running of the Trust and facilitating other time consuming activities such as freedom of information requests. In addition, traditional Informatics functions typically have the following challenges:

- absence of senior or day-to-day leadership responsibility;
- use of manually intensive processes;
- a lack of capacity to derive insight from data rather than simply producing information; and
- the Informatics function is not involved in other activities in the Trust leading to poor understanding about its capabilities.

An effective analytics capability with the people, processes and technology capable of unlocking the value of data is essential if a Trust is to effectively deliver on all its strategic objectives. Therefore, if Trusts are concerned about their ability to get value from its data, they should perform an exercise to:

- understand its own unique challenges and the current level of service being provided;
- assign senior and day-to-day leadership responsibility for analytics;
- confirm the Trust's analytics vision and ensure it is aligned to the Trust's Information Strategy;
- identify the gaps in people, process and technology which need to be addressed to progress, identifying quick wins to demonstrate a step change in capability and the longer term initiatives which will build awareness within the Trust; and
- develop a roadmap to enable the analytics capability to deliver the proofing benefits identified in the Trust Information Strategy.

In many cases this may require the establishment of an advanced analytics or data science capability which is separate from the Informatics function. This may collaborate with the Informatics team but is designed to deliver information and insight to enable the Trust to implement its strategy and deliver a landscape of high quality data from which this insight can be generated.

Data analytics are not the goal – they are an enabler to the achievement of a Trust's overall strategy.

Trusts need a system of data governance that addresses data quality, access, usage, and security, coupled with a strategy to derive insight from the data which improves efficiency and outcomes.

Conclusion

The way a Trust handles and uses its data determines how much value it yields. A landscape of poor quality data often acts as a barrier to becoming a truly insight driven organisation.

Analytics is not the goal – it is an enabler to achievement of a Trust's overall strategy. Trusts should embrace analytics not only with tools and technology, but also with people and leadership. To achieve measurable benefits a Trust must create a culture that empowers people to make decisions informed by insights and data, not gut feeling. This is only possible if there is a strong relationship between the organisation's strategy, an understanding of what analytics can deliver and a robust data governance system to deliver a data landscape viewed as an asset.

Key questions

Key questions which Trusts need to ask of themselves are:

- Is your analytics and information strategy aligned to other Trust strategies?
- Has your Trust identified the elements of its strategy which can only be delivered with better information?
- Is there a risk that your reported data is not accurate or that you are making decisions on unreliable data?
- What sources of assurance has the Board sought around the quality of data? Do you place too much reliance on the mandatory external data governance reviews to assure data quality?
- Is there an opportunity to improve patient outcomes, patient experience, operational efficiency and financial performance of your Trust by using data in a more sophisticated way?
- Has your Trust adequately identified the costs and benefits associated with a data governance effort?
- Does your Trust have in place a system of Data Governance designed to address data quality concerns and enable more effective data usage?
- Is your data governance effort owned at a sufficiently senior level and is the Board aware of data governance issues and concerns?
- Has your Trust set out its analytics and information vision and strategy?
- Does your Trust have the analytics capacity, capability and technology to exploit its data assets?

Contacts

If you would like to discuss any of the issues contained in this report, please contact the authors: Catherine Skilton (cskilton@deloitte.co.uk) in our Health Transactions and Restructuring Team, or Schellion Horn (schellionhorn@deloitte.co.uk) on matters relating to the Competition Authorities.

Deloitte provides a full range of services to the NHS, including Audit, Tax, Consulting and Corporate Finance and you can find relevant contact details below:

Contact	Telephone	Email	Office/team
Leadership			
Rebecca George	020 7303 6549	regeorge@deloitte.co.uk	London
Audit			
Heather Bygrave	01727 885064	hbygrave@deloitte.co.uk	London/St Albans
Craig Wisdom	01727 885634	cwisdom@deloitte.co.uk	London/St Albans
Matthew Hall	01727 885245	mathall@deloitte.co.uk	London/St Albans
Ben Sheriff	020 7303 7027	bsheriff@deloitte.co.uk	London/St Albans
Gillian Russell	020 7303 0960	gilrussell@deloitte.co.uk	London
Julian Hunt	0113 292 1571	jmhunt@deloitte.co.uk	London/Leeds
Jay Bevington	0161 455 6236	jbevington@deloitte.co.uk	Manchester
Gus Miah	0121 695 5349	gmiah@deloitte.co.uk	Birmingham
Tony King	0121 695 5971	tonking@deloitte.co.uk	Birmingham
Paul Thomson	0113 292 1333	pthomson@deloitte.co.uk	Leeds
Sue Barratt	0118 322 2219	sbarratt@deloitte.co.uk	Reading
David Wilkinson	0191 202 5319	dwilkinson@deloitte.co.uk	Newcastle
Ian Howse	029 2036 4319	ihowse@deloitte.co.uk	Bristol
Jon Gooding	01727 885 650	jgooding@deloitte.co.uk	London/St Albans
Corporate Finance			
Phil Lobb	020 7303 6508	plobb@deloitte.co.uk	Health Transactions and Restructuring
Altaf Kara	020 7007 0773	akara@deloitte.co.uk	Health Transactions and Restructuring
Kelly Eaves	07901 517 435	keaves@deloitte.co.uk	Health Transactions and Restructuring
Ian Devlin	020 7007 2513	idevlin@deloitte.co.uk	Health Transactions and Restructuring
Richard Storor	0121 695 5741	rstoror@deloitte.co.uk	Transaction Services
Chris Williams	020 7007 1750	chrwilliams@deloitte.co.uk	Economic Consulting
David Jones	020 7007 2259	davidjones@deloitte.co.uk	Corporate Finance Advisory
Nigel Durman	020 7303 3573	ndurman@deloitte.co.uk	Deloitte Real Estate
Consulting			
Kathy Colgan	028 9053 1200	kcolgan@deloitte.co.uk	London
Sara Siegel	020 7007 7908	sarasiegel@deloitte.co.uk	London
Keith Leslie	020 7303 5494	kleslie@deloitte.co.uk	London
Tax			
Simon Prinn	0118 322 2825	sprinn@deloitte.co.uk	Reading

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