Data quality management

Service Description



anmut

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About Anmut

Anmut provides public sector decision-makers with the tools and insights to understand how data supports their organisation's goals and where to invest to create measurable value.

We specialise exclusively in data management. Our multi-disciplinary team has proven experience delivering evidence-based outcomes for government organisations. Typical results include clearer prioritisation of data investments, reduced rework and processing costs, strengthened governance, and faster, lower-risk cloud or digital programmes.

We are Cyber Essentials Plus certified and operate an Information Security Management System aligned to ISO 27001. We treat data protection and responsible handling as core to every engagement. For more information visit anmut.co.uk.

"Anmut is unique in that they bring the best of both worlds: the rigour of a Big Four combined with the agility and creativity of a start-up."

"Anmut apply data science to data problems."

CDO, UK Government organisation

Overview of our data quality management offering

Organisations need to manage many different types of assets to create and protect value for stakeholders. Effective asset management means understanding which assets are most critical to the organisation, knowing the condition and quality of the assets, monitoring their economic or financial return, and deciding which assets should be invested in, sold, or otherwise disposed of. Without understanding the condition of your asset and improving it to the required level, the value being created by your asset cannot be entirely realised. Data is no different. That is why we provide clients with data quality management services designed specifically for their data assets.

Data Quality Management is a subset of our Data condition service assess the fitness for purpose of data for its intended use. To ensure data assets are fit for purpose, a holistic and repeatable assessment of the data's condition is necessary. To enable this assessment, we have developed our world-leading data quality management services.

We have developed our assessment because we have seen over many years that assessments are not comprehensive in nature. Traditional approaches focus solely on the technical measurement of quality and do not consider the context in which the data is being used. Data condition is an assessment of whether data can meet its key operational use cases and identifies the root causes of potential failure.

At Anmut, we specialise exclusively in data asset management to help our clients develop their data strategies and the disciplines necessary to execute those strategies. Our strength lies in our focus on data asset management and our unique team of data scientists, computer scientists, software developers, business leaders, world-class academics, performance management experts, governance specialists, data architects and programme managers who deliver our services.

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Just as financial asset managers analyse leading and lagging indicators of markets, and heavy infrastructure professionals analyse leading and lagging maintenance indicators for critical assets – so too, as data asset managers, we analyse the leading and lagging condition indicators for data assets.

With our lagging indicator assessment, we go beyond traditional profiling techniques and analyse whether data assets are technically fit for their purposes. Using a combination of workshops and document review, we collect user requirements that support critical use cases against which a technical assessment is possible. We formulate user requirements against the 14 data condition dimensions in our framework, such as completeness, validity and accuracy, which provide the basis for a common language to describe the required characteristics of data. We then measure whether the data is meeting the captured use case requirements using our proprietary data condition toolkit.

We also conduct a leading indicator assessment to understand why poor data condition arises. We diagnose the environment in which a data asset sits by analysing 56 key management disciplines. This assessment focuses on evaluating the maturity of the data's governance, architecture, management, quality management, technology and data usage. This can be done either using Anmut's data maturity assessment product, or through bespoke workshops to capture data pain points. By understanding these leading indicators of poor data condition, we can determine sustainable cost-effective fixes and strategies to improve the value and condition of your data asset.

How Anmut delivers its data quality management services

At Anmut, we are passionate about using data to drive positive change for the benefit of our clients, their stakeholders and society. We care enough about our clients to solve their most important problems. We do this by building relationships based on trust and empathy, as well as continuously learning so that we can continue to develop industry-leading solutions which help our clients create the most value from their data investments.

During the onboarding phase of projects, we work with our clients and their key internal stakeholders to confirm project goals, scope, deliverables, approach, and the project plan. We also set our projects up for success by running design principles and project alignment sessions with the appropriate functional and technology leaders. By spending time upfront with the principal sponsors to understand expectations and gain alignment on the objectives and outcomes, we ensure that our project work is delivered efficiently, deadlines are met, and appropriate stakeholder engagement is there from the outset. Requirements to complete the work such as access to key documentation, stakeholders and data are discussed at an early stage of the project to ensure delivery is not impacted.

For the duration of our projects, we work closely with our client teams, including both technical and non-technical stakeholders. This means our clients gain a detailed understanding of our innovative methodologies and can build up the knowledge base required to make the most out of our data quality management services long after our work is complete. In addition to our genuinely collaborative approach, we deliver written reports, observation and measurement logs detailing our data condition methodologies and the analysis from the leading and lagging indicator assessments.

> *"What surprised me about working with Anmut was the level of empathy. You spent time properly understanding our business and unique behaviours and were able to provide key insights that we weren't able to deliver in-house. You worked with us to develop a great understanding of the data value of our business, which has helped us to distil and communicate this value to investors."*
>
> CEO, European digital health organisation

Client requirements

In addition to working collaboratively with our client teams, the following, where available, help to optimise the delivery of our data quality management services:

1. Data inventory;
2. Data dictionary;
3. Logical data flow diagrams;
4. Existing data profiling;
5. Use case documentation;
6. Existing policies and standards detailing current data requirements how data is currently being governed;
7. Access to data; and
8. Data models.

One of the activities we complete during the onboarding of our clients is to confirm the project scope and approach. As part of this activity, we review the above requirements with our client, and in cases where the required inputs are not available, we will suggest options based on our previous client projects and agree on a revised approach before moving forward.

An example of our experience

THE CHALLENGE

A major government infrastructure organisation commissioned Anmut to measure the fitness for purpose of data they hold on their most material asset class, valued at over £68bn. The goal was to measure the extent to which data supports their key business use cases, with a view to developing a set of recommended remediation activities.

THE SOLUTION

1. Use case identification

We started by identifying and defining the key business use cases that the asset data is used for. We studied existing documentation, engaged with senior stakeholders, and leveraged prior data valuation work that outlined how the data creates value for stakeholders to define four key use cases to be the focus of our assessment.

An intended output of this assessment was a score to indicate the fitness for purpose of asset data in support of each of the identified priority use cases. These scores highlight the business impact of poor data condition.

Having identified priority use cases, we studied existing documentation and engaged with relevant stakeholders to map out the data landscape, starting from data collection and finishing with the data use. These data flow maps informed *how* data is collected, *who* collects it, *where* it is mastered, *transformations* it undergoes as well as the *key processes and actions*.

2. Requirement capture

Before defining the data specifications that had to be met to fulfil each use case, we identified stakeholders that play a role in fulfilling them. We engaged with them to understand the key tasks they perform and how data is utilised. Some of these stakeholders were hands-on with the data itself, others consumed the data in the form of reports and dashboards.

We facilitated collaborative workshops to build out and define the requirements they had of data, spanning a variety of dimensions, such as completeness, validity, timeliness, accuracy and precision, and the specific data elements these requirements related to.

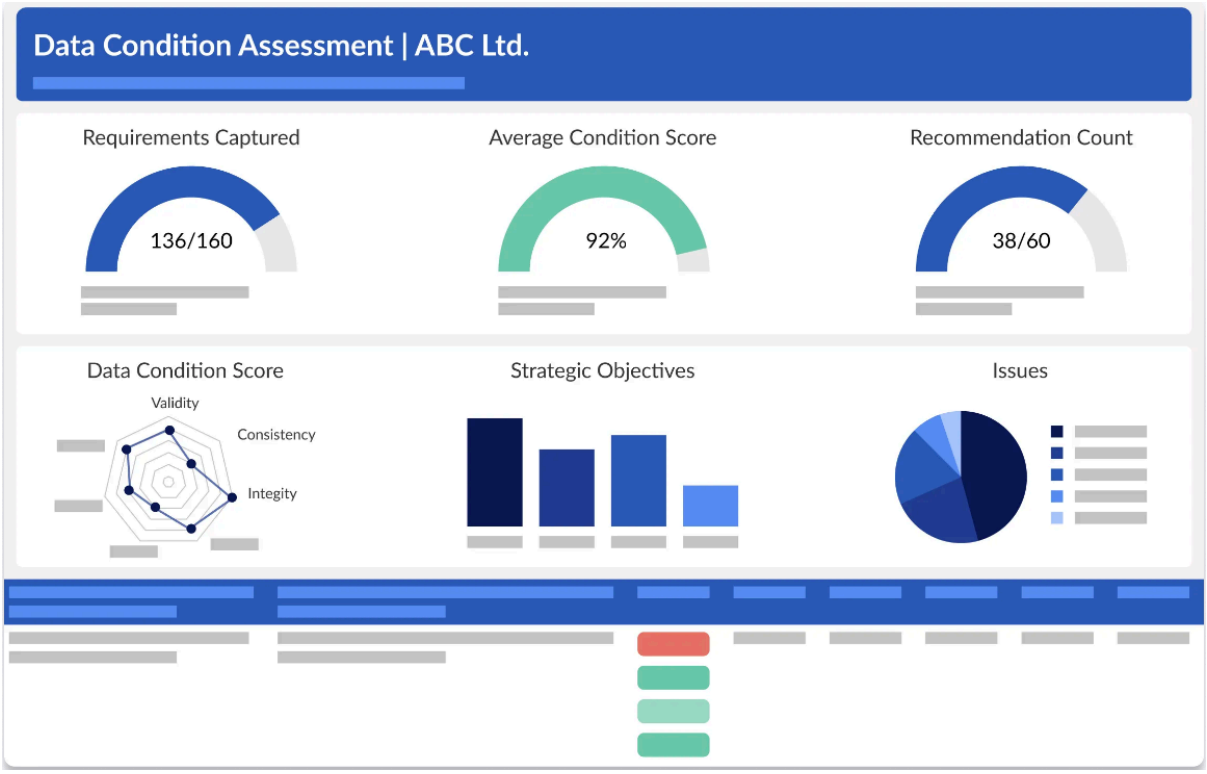
We also studied official published standards they had in place around the design, construction, and maintenance of the assets, and translated what that meant for the data.

3. Technical assessment

Having articulated requirements in logical business language, we translated this into measurement logic, and then into code, using our proprietary data quality management code package.

We validated our logic with relevant stakeholders, agreed on the necessary data extracts required to test fitness for purpose, and measured the data.

We measured data against 125 requirements, resulting in a wide range of scores. On average, 81% of the asset data met the requirements defining fitness for purpose.



4. Root cause analysis

Not only did we seek to identify the gap between where data was then and where it needs to be, but we also sought to identify the root causes of data issues, so that remediation efforts would have lasting impact. Data does not sit in a silo, it's the result of an ecosystem around it, including people, process and technology. We followed two approaches for this analysis

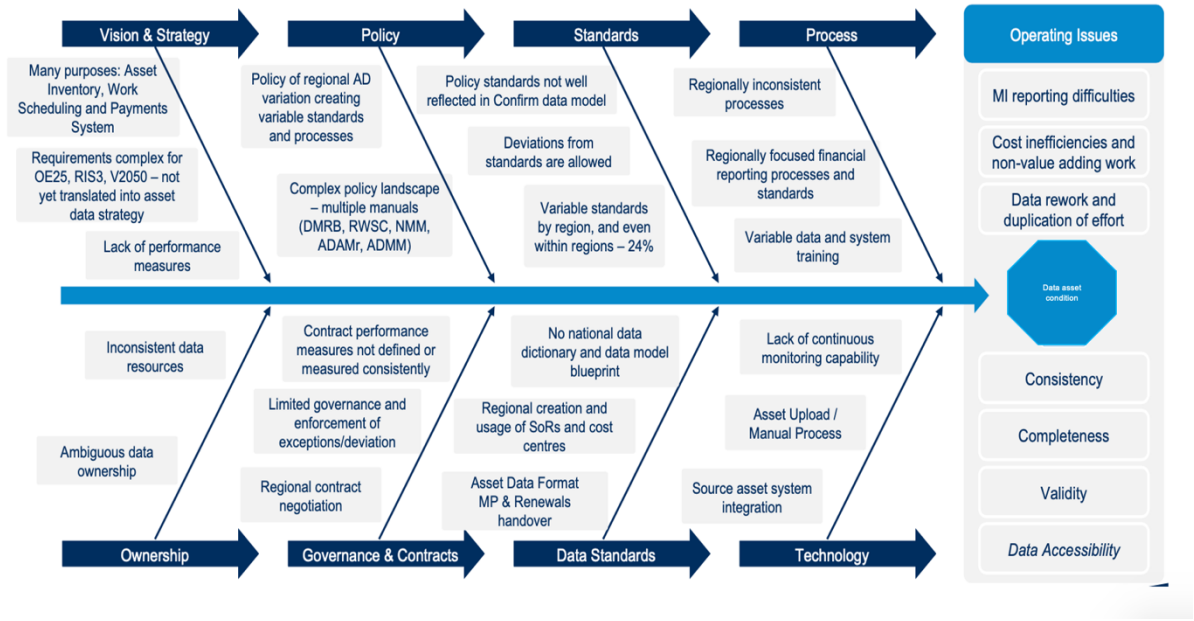
    a. Qualitative pain point identification

The first was a qualitative approach. We took the output of our data flow mapping exercise and used it as a prop to engage with key stakeholders who interact with the data at various points along the data flow. We discussed where they experience pain points with the data, or in the processes that are followed, and elicited potential root causes of these data issues.

We found it helpful to conduct these conversations with multiple stakeholders at once. In complex data landscapes, like this one, stakeholders sitting at either end of the data flow map

might never interact. Some solutions are obvious once stakeholders get a better understanding of the pain they each feel.

Through this exercise, we identified that out-of-date processes were likely the cause of much of the pain felt through data.



b. Exploratory data analysis

The second approach was quantitative. Having measured data against their requirements, we knew how much of the data did not meet each requirement, and importantly, *which* data. We performed an exploratory data analysis on data that failed to meet requirements to identify trends or correlations that might inform potential root causes.

We found regional trends, where data condition differed by location. We also discovered how some data was deteriorating in condition over time. These insights, among others, gave an indication as to the root cause of data issues, which allowed us to make targeted recommendations to remediate the data.

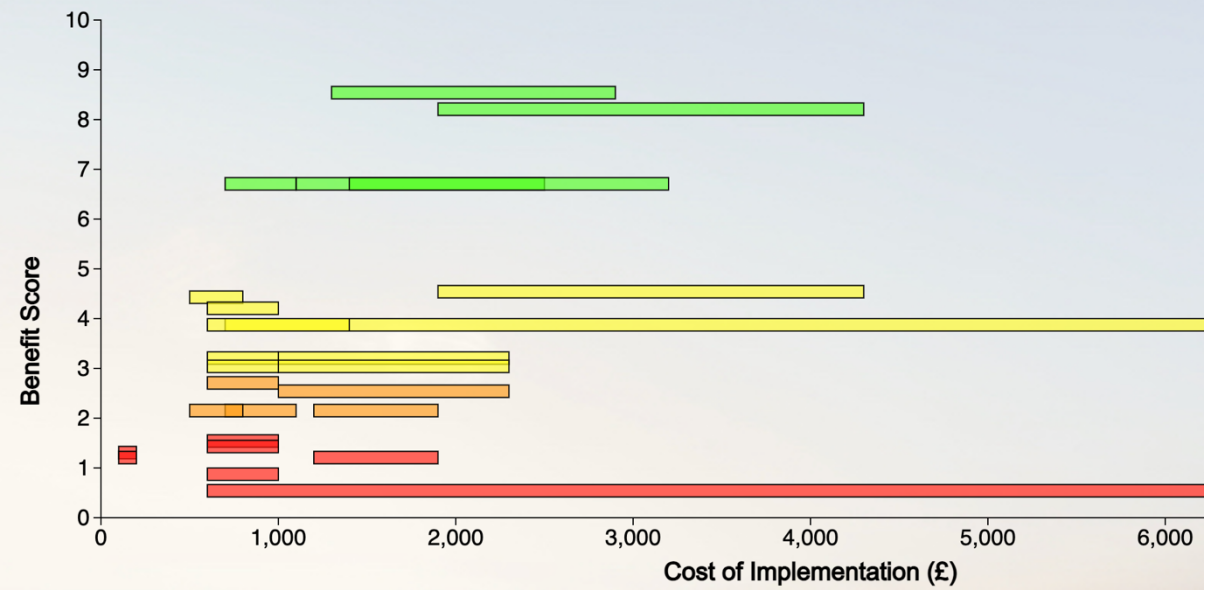
5. Recommendations

The recommendations we made were a mixture of tactical and strategic fixes. Where it was possible to fix specific data records, we identified the ones that needed fixing. However, it's not always possible to backfill data if, for instance, that data related to a measurement that was done years ago. So many of our recommendations focussed on how to set up the right environment for data issues not to repeat themselves in the future. These were the more strategic fixes, aimed at addressing the root causes identified previously.

6. Cost benefit analysis

We provided many recommendations to improve data condition, with varying levels of expense and effort. It was not possible to implement all of them at once, given resource and budget constraints. We therefore helped them to prioritise recommendations by conducting a cost-benefit analysis of each. On the cost side, we estimated and validated with relevant stakeholders the level of FTE resources required to implement a fix. On the benefit side, given our client was a not-for-profit, public-sector organisation, we estimated the extent to which each recommended data fix would enable the organisation to achieve its strategic objectives.

We created a robust methodology, validated it with key stakeholders, collected the information required to implement it and presented findings back to decision-makers. To facilitate decision-making, we visualised all relevant insights in an interactive dashboard so that our client had all the information in one place, with the cost and relative benefits of each recommendation displayed in a visual format.



THE RESULT

The project delivered transformative results for our client:

- **Enhance understanding** of their most valuable data asset, which significantly impacts the outcomes they deliver for their stakeholders.
- **A clear roadmap** to fix the issues identified through the assessment, with fixes ranging from tactical to strategic, fix now vs. fix later, must-haves and could-haves.
- **Line of sight** between the outcomes they strive for and the data that enables it, which gave them the language they need to make the necessary trade-offs and prioritise investment accordingly.

Data protection

At Anmut, we feel strongly that data is one of the most valuable and important assets, which is why we are committed to protecting data by maintaining the highest levels of data security and ensuring compliance with data protection regulations. We are Cyber Essentials Plus certified and have developed a comprehensive information security management system that is aligned with ISO 27001.

RECOGNISED

anmut

Connect your data to your purpose.

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