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WISE COUNCIL

INSIGHTS FROM THE CUTTING EDGE OF DATA-DRIVEN LOCAL GOVERNMENT

Tom Symons

Appendix 2 - the Data Maturity Model

Note there is an interactive online self assessment tool version of this model with associated results and comparisons with peers and similar organisations here:

https://datamaturity.lginformplus.local.gov.uk

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Any omissions and errors are those of the author.

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Local Government Association

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Appendix 2 - **Data maturity framework**

Data maturity can refer to the readiness of a local authority to take on data work of different levels of complexity. Data maturity models are often used to explain *"a journey from looking at retrospective ad hoc data to explain the past, to a more continuous 'current/real time' understanding of the here and now, a level of optimizing for efficiency and effectiveness, through to the ultimate state of predicting and creating the future"*.[63] Defining the parameters of this journey can be a useful way of thinking about the different aspects of how value is created through data.

DataKind estimate there are 40-50 data maturity frameworks now in use, each developed for various different contexts such as the ODI's open data framework, DataKind's charity sector framework or IBM's Big Data framework. Our desk research suggested that no UK-specific local government data maturity frameworks existed. In response, we have developed a prototype of a data maturity framework in collaboration with the eight in-depth case studies.

Each case study was asked to retrospectively situate itself on the framework in each category, as if it was at the outset of the project again. The case studies were also asked to indicate whether they had progressed further along the framework in the intervening period. The self-assessments for each case study can be seen the case study summaries in **Appendix 1**.

The case studies in the main reported being in the nascent to mid-range of the framework for each category, with none of the case studies identifying as 'datavore' when they started out. Some case studies reported that as a result of their ongoing work, they have moved into the datavore category on some criteria. This suggests that the framework developed represents a realistic way of thinking about data in UK local government. It also suggests that other local authorities considering work of this kind should not be deterred if they are currently at the nascent end of the spectrum.

There is scope for this framework to be developed further through testing it with local authorities and gathering their feedback. This is work that Nesta will explore in the future. This data maturity framework is a prototype that aims to provide a useful set of considerations at the outset of a data-led project.

		Nascent	Basic	Intermediate	Advanced	Expert
Data management	**Collection**	Data collection is a by-product of operational and service delivery, and driven by central government requirements and key performance indicators.	Collection goes beyond operational use and mandatory reporting requirements but there is little strategic purpose behind collection or use.	Data is used well in operational settings and data is sometimes collected for strategic purposes but predominantly there is little strategic rationale for collection and use.	Data is used well in operational settings and other data is collected in line with broader organisational strategies and decision-making.	Data is collected extensively across all services and in-line with organisational strategy. Data can provide a holistic view but data is not collected where the immediate use is not apparent (avoiding data exhaust). Data is seen as an organisational asset.
	Organisation	Data is organised in silos with limited ability to share across the council.	Some data can be more widely published or shared and integrated manually.	Lots of data is exported and shared across the council, but mostly it requires manual integration.	Most data can be shared and integrated, some of it automatically through data warehouses or federated approaches.	A data warehouse or federated data models are used so that data is owned diffusely but can be integrated easily/ automatically. There is an information asset list or inventory which is published as metadata.
	Quality (accuracy, completeness, currency and consistency)	Data quality is patchy but is not addressed.	Data quality is low but can be addressed on an ad hoc basis when basic analysis is undertaken.	Most data that is exported from IT systems is of useable standard but errors remain and are not addressed comprehens-ively. Data quality is maintained and improved by staff involved in line of business data collection.	Data is generally of useable quality, and most staff understand the need for accuracy in inputting data.	All data is of useable quality and data quality issues understood and managed by all staff proactively. All staff take responsibility for the quality of the data they collect.
Data Governance and Openness	**Governance**	Data protection is a major reason not to share data and undertake analysis.	Information governance concerns prohibit most sharing of data for analysis purposes. Assigned senior level data owners responsible for specific data sets and accountable for	Data sharing does occur but not extensively, and there is limited consistency in decisions made about sharing. The organisation has assigned senior level data owners for specific	There are some information sharing protocols and data can be shared internally and externally to undertake analysis.	Information governance protocols based on specific use-cases have been embedded in IT systems to enable responsible data sharing. A Corporate Management team member proactively drives information /

			agreeing new uses and access to data is done on an ad hoc basis.	data sets accountable for agreeing new uses and access to data.		data integration internally and with partners to secure new insights, joined up services and savings. Information sharing and data sharing decisions are based on a balanced risk assessment that weighs privacy concerns against the risk to the organisation or individual of not sharing.
	Openness	Data is not made available to the public in machine readable formats. No public message about how the council uses data.	Data is made available on an ad hoc basis. Data is in a mixture of machine readable and non-machine readable. Public message about data use is technical/ legal in nature.	There is an ambition to make more data available and some data sets are updated at regular frequencies, but is done mostly manually. Data is mainly in machine readable formats.	There is a single open data portal and most data is machine readable. Most data has a scheduled frequency for updating, and some of this is done automatically.	There is an open data portal with multiple data sets, open by default approach and a user-friendly interface which enables basic visualisation and analysis. All open data is machine readable in standard open format and use APIs where possible. At least some data has an ODI open data certificate. A clear public message about how and why data is used.
Data Use	**Decision-making**	Rich in data, poor in intelligence. Data is not a key part of decision-making processes.	Data is used in reports but usually in a cursory way and with little reference to decisions which have to be made.	Data analysis is usually requested for decision making, but can be inadequate because analysis is not of high quality, targeted at the decision to be made or the right data is not available.	Some decisions are informed by data on both the frontline and at senior levels, but it is not consistent across the organisation.	Rich in data intelligence and insight. Data is analysed on specifically for the purposes of key decisions which have to be made, consistently across the organisation. Data is available in a timely fashion to support decision-making.
	Performance and Evaluation	Services and performance are not evaluated using the data available.	Data is used to look retrospectively at performance, often in static format such as a spreadsheet. Data offers little insight into why events or performance variations occur.	Data is sometimes used to understand why events, or levels of performance, have occurred. Performance management using data is of limited value.	Data is sometimes sought to conduct evaluations of services and interventions, but mainly on an ad hoc basis. Data can be used to usefully performance manage staff and services, and there	Data is used to support service delivery in real-time, is used to understand in granular detail issues of performance, and can be used to understand the effectiveness of services and individual interventions.

					is scope for it to trigger changes.	Relevant data is collected to monitor outcomes and historic data sets that are no longer relevant are retired.
	Optimisation and automation of processes	No processes have been automated or improved using data.	Efforts to use data to improve services tend to involve very basic analysis, and is ad hoc across the organisation.	In some services data is used as part of efforts to improve processes, but data dashboards are not routinely available and no processes have been automated.	Data dashboards are used to optimise processes. Data is used to manage services and processes and some are automated.	Data is used in real time where possible, often with APIs. Processes which require little or no human judgement have been automated and optimised using data, such as detecting fraud and error.
Data Skills Capability		Skills and capacity are limited to IT system managers and basic software use. Most staff lack basic data literacy and skills.	Some staff are able to use basic software for simple analysis. Data literacy is patchy.	Data integration and analysis can be performed by some staff, but is not highly sophisticated. Most staff have a basic level of data literacy.	Sophisticated analysis can be undertaken, but not consistently across the organisation. Some staff have good data literacy but it is not uniform.	Data analysts are highly skilled and can work with multiple software packages. Sophisticated data science can be undertaken routinely across the organisation. All staff have a level of data literacy appropriate to their role. The organisation has timely access to all its data from line of business systems whether held internally or in Cloud facilities.
Data Awareness and Culture		There is limited awareness of how data can be used to improve services and outcomes.	Data is seen as having some value in niche uses, but most staff do not routinely try to use data to help them with their work.	Data integration and analysis can be performed by some staff, but is not highly sophisticated. Most staff have a basic level of data literacy.	There are some highly data-literate staff and the culture of the organisation expects data to be used in decision-making and service delivery.	All staff see data as a tool which can support them to do their jobs better.

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