



It's Data Critical

Data is critical to decision-making. So says **Dr Darren Perrin** of waste and resource consultants, Jacobs UK, and the key to success is being able to solve the data problem and manage our waste systems more effectively

Throughout The Resourcing Future 2015 conference the importance – yet noticeable absence – of data was frequently referenced. Globally, as a sector, we collect a lot of data (often in different ways), but rarely exploit the value of having that data. Good quality data is critical in waste management. The potential consequences of ill-informed strategic decisions are significant, including increased cost, environmental impact and project failure. There must be more emphasis on the accuracy, precision and timeliness of data to achieve the desired strategic outcomes and effectively manage waste and resources.

Although the importance of good data is recognised as a prerequisite to achieving desired outcomes, as an industry we are still immature in executing good practice. We have been slow to adopt technological solutions for data management and strategic solutions. Instead, we remain entrenched in bespoke legacy systems and convoluted, in-house spreadsheet models. The amount and type of waste we produce changes regularly, yet we make significant investment decisions based on "assumptions", "estimates" and out-of-date information.

Thankfully, we are now in a place where software can help the waste industry establish and sustain good quality data. Systems such as edoc (the electronic duty of care) and those available via Cloud Sustainability are UK-produced innovations that pave the way for better data management

practices. Another system, called the naus Waste Intelligence platform also promises to foster strong, data-led decision-making. But, it goes further to also cover the critical need for connectivity between stakeholders: a move away from bespoke systems in the pursuit of perceived competitive advantage.

As we progress towards a circular economy, a key requirement is information on where waste is generated and ends up, along with its quantity, composition and value at any given moment. The true benefits of a circular economy can only be realised if data and information is readily available, comparable and accurate, to allow the market to understand the scale of the opportunity and the impact of changes introduced.

Making The Circular Economy Go Round

INDUSTRY DISCUSSIONS in Europe to date have focused more on the economics, legislation and practicalities of the implementation of a circular economy and less on the access to information to make informed decisions and monitor the progress of these different and improved systems.

While the circular economy focuses on true producer responsibility, councils have an important role to play in the equation. If a product's wastage fails to be designed out, or reuse systems fail, it is the waste collection and treatment

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systems' responsibility to operate as effectively as possible to keep the material within the loop and provide it with another opportunity to go around the materials cycle.

Technology is increasingly capable of improving the consistency and capability of data management by supporting quick and effective decision-making – traditionally, a complex and expensive task. For example, route optimisation software has shown the value of using IT to replace manual approaches to derive an optimised solution based on known variables and experience. Other software tools, such as CIWM's Waste Smart, have begun to use the power of technology to provide decision support. More recently introduced is the aforementioned *naus*, a waste options simulation and strategy support tool.

As councils, waste operators and other stakeholders begin to optimise waste systems to manage the material/resource flows as effectively as possible, they will seek support from industry advisors and consultants. Collectively, consultants bring cross-sector knowledge and past client project experience, which can be used to achieve these objectives; any technology solution should recognise the important role of the external advisors in this exercise.

My observation from working across different geographies over the past five years is that each region's approach to waste and resource management is at different stages of evolution. Within Australasia and the Middle East, strategic planning is being considered with regards to which system and technology to introduce; in Europe, the focus is more on optimising these systems and the principles of the circular economy. However, whilst at different stages, the needs, support required and role of the advisor to support these projects are constrained by the same problems:

- the ability to assess lots of different options quickly
- the ability to extensively assess numerous sensitivities and model quickly the full impacts of any changes (including visibility of unintended consequences)
- and the ability to easily communicate the outcome of these options to engage and get buy-in from stakeholders.

Presently, modelling is usually done as a linear end-to-end process from source of waste, collection through to disposal. In the course of a project you often end up with multiple linear processes saved as separate sheets within a spreadsheet model or separate file versions. This makes it hard to compare the impact of scenario 1 versus 2 versus 4... unless you need to build additional spreadsheets to compile this information for comparison. It doesn't take long

for the complexity to get out of hand when you are building multiple models with a lot of variables.

As consultants and advisors look to optimise existing waste systems, the modelling complexity will only increase and make the current barriers even harder to overcome.

Naus, for example, is currently being used by some early adopters in the UK and Australia: including A.Prince Consulting, Eunomia, Frith Resource Management, Hyder, Jacobs and Resource Futures. At a demonstration to key UK local government stakeholders last April, the *naus* team received positive feedback on its potential applicability to the market, including the ease and speed at which it communicates the waste system and the impacts of any changes to these systems. Councils were primarily interested in entering their waste data into a digital system to help communicate their waste system to stakeholders, seeing the opportunities to quickly explore options to optimise systems and sustain or increase materials recovery.

Besides the standardised modelling approach and data management process, such systems have the ability to build an unlimited number of scenarios in multiple combinations. This is done by breaking up scenarios into three different components so you can analyse your system holistically, depending on what your priorities are. You can look at waste projections, which can be bespoke and created quickly, to model lots of sensitivities; view the performance of and weaknesses in a collection system; and explore the impact of making changes to mass flow configurations by adding or removing facilities, changing the performance of facilities and more.

Whilst this is powerful, given the simplicity and speed in which you can do these, the real power of this approach comes when you start creating different combinations of the above through a simple tick of a box and can immediately see the changes in waste flows through your system and associated key performance indicators.

Embrace Technology, Now

COUNCILS FACE increasing budget cuts and will seek to share services and infrastructure. At the same time, they will need to play their part to deliver the requirements of a circular economy.

It will not be long before it will quickly become a requirement for them to understand the impact of any service change and explore quickly the different options available as cost-effectively as possible given their financial constraints. Manual analysis and data shuffling is too expensive, too slow and inadequate to meet our evolving needs to improve. The way forward is to maximise the benefits of technological advances and use software solutions to drive innovative strategic decision-making. ■



The Author

Dr Darren Perrin is an experienced Chartered Waste Manager with over 17 years' experience in the industry in Europe, Australia and New Zealand. He has worked with various councils in these jurisdictions on waste strategy development and reviews, waste procurement, options appraisals, scheme performance reviews, waste auditing, data management and stakeholder engagement exercises. Darren has led the production of a variety of best practice guidance documents in the UK and Australia within these technical areas and presents at international conferences on strategic planning, data and behaviour change.