KRDS BENEFITS FRAMEWORK, VALUE-CHAIN AND BENEFIT ANALYSIS TOOLS: UK Data Archive Case Study

The UK Data Archive, a department of the University of Essex is an umbrella organisation which runs a number of data services, including the ESRC's flagship national data service, the Economic and Social Data Service (ESDS). Our mission statement reads: "to support high quality research, teaching and learning in the social sciences and humanities, by acquiring, developing and managing data and related digital resources, and by promoting and disseminating these resources as widely and effectively as possible." As a consequence of involvement within the earlier Keeping Research Data Safe projects, the Archive, in its role as an internationally recognised trusted digital repository, was particularly interested in co-operating with the further development of the KRDS Benefits Framework and its extension into a Value-Chain and Benefit Impact Analysis Tool (VCBIAT).

The ESDS has already successfully used a prototype version of the Benefits Framework to inform its mid-term funding review (MTR) in 2010. The ESRC, the funders of the ESDS, had assigned a high priority to being able to understand how the ESDS had an impact. A single sheet of paper with examples of benefits across the three dimensions by the two sub-divisions was distributed—at that time they were a mixture of 'generic benefits' and 'benefits specific to the organisation'—and discussed by the MTR Panel. The exercise was warmly received and the process was considered successful in starting to understand how the ESDS had had impact. This activity alone demonstrated the value of the Benefit Framework to staff within the Archive.

However, it was clear, not only internally but within the wider community that the Benefits Framework did not go far enough. It was perfectly useful in terms of understanding what *benefits* an organisation might derive from its activities, but alone it did not provide the means of capturing or measuring the *impact* of the service or the data which were being provided. This led to the KRDS project bringing together an additional methodology which had also been developed with JISC-funding. The I2S2 Value Chain and Benefits Impact project provided an excellent adjunct to the KRDS Benefits Framework for digital repository services.

Combined the two tools can be used in a variety of ways within digital repositories, but the participants in the two KRDS projects believe that they have wider applicability. Together these tools help organisations to articulate and clarify the benefits of services and activities. In particular the Benefits Framework can be used to justify an organisation's activities and the costs of those activities to all of its stakeholders in a reasonably straightforward way. It also demonstrates the applicability of activities internally and externally, and could be used to help prioritise internal activities to maximise visible benefits and explain the necessity of some of the less visible activities. The Benefits Framework also helps to organisations to understand their service impact. The dimensions and their sub-divisions within the Benefits Framework [link to the example] can be used as a guide to thinking about and better articulating benefits of any type of activity. It is not solely about the benefits of digital preservation activities.

The Value Chain and Benefit Impact Analysis Tool extends the value of the Benefits Framework. Not only is it a more precise statement of the benefits of any activity, it allows one to turn a generic benefit into something which is specific to the organisation. A completed VCBIAT can be used externally to show how the repository/service provides additional value, as well as how the resulting impact could potentially be measured or demonstrated as a case-study. The format of the tool focuses ones attention on the measurable impacts, but without excluding the possibility of a more qualitative interpretation of impacts. With the estimation of an impact weighting score, it assists in making decisions about how best to prioritise activities in order to both maximise benefit and impact and demonstrate value-for-money.

It is early days at the Archive for the use of this tool, and we've taken a rather specific approach in completing the VCBIAT which is to try and organise various elements of the tool into a phrase. For example, Given that ***demonstrating value for money*** is a desirable benefit to our ***funders*** the Archive can ***strategically select data for long-term preservation*** to ***ensure that only data with probable long-term use is archived***, where the four italicised selections refer, sequentially to the Generic Benefit, the Stakeholder(s) who benefit, the Action necessary to realise the benefit and the specific benefit to the organisation (labelled in the table "Your expression of Benefit".

Overall, we believe that the Benefits Framework and its more advanced tool can have significant use within the data service community. We know that it influenced the ESRC's call for the economic impact of research data infrastructure. We can also be clear that it will influence the UK Data Archive's implementation of its strategic plan. We will feed some of the elements of both tools into the revisions of our advice to researchers on research data management planning, especially complementing work already carried out on costing research data management.

The table below shows a small section of the Archive's completed Value Chain and Benefit Impact Analysis Tool to give a flavour of its use. Internally we elected to adopt an additional 'comments' column to ensure the immediate capture of thoughts or related case studies about the particular benefit which were being realised. This is not shown here because it is largely in note form. We have also removed from this display both the lifecycle phase and the activity name. Given that the mapping of these activities to units of work is likely to differ across different organisations they may not be useful to share. However, what is lost as a consequence of this internal decision to customise the tool, is that there are clear dependencies between benefits. Two additional notes can be provided: First, no benefit should be evaluated in isolation, especially as actions to realise benefits may promote more than one generic benefit. Second, as generic benefits may be associated with more than one action and outcome, multiple impact weightings may need to be examined in conjunction when considering the quantitative impact of the benefits.

Matthew Woollard
26 July 2011

Generic Benefit	Your Expression of Benefit	Action(s) to Realise Benefit	KRDS Outcome Type	Years to benefit	Stakeholders who principally benefit	Quantitative impact(s) of benefit	Qualitative impact(s) of benefit	Weighting of impact
Stimulating new networks and collaborations	Bringing together Data Users working on the same types of data	Carrying out training/data confrontation sessions	Direct	Continuous	Data Users; Funders	Increased use across Data User Communities	Communication between Data Users	3
Demonstrating research data integrity	Ensure high quality data available, and with research integrity	Documented ingest process to include checking data for "issues"	Direct	Near	Data users; Data creators/owners	Less time spent communicating with data owners/creators after archive process		3
Promoting verification of research findings	Improves "science" more generally	Ensure data users cite data correctly by providing the relevant information and tools	Direct	Continuous	Data Owners/Creators; Funders; Data Service	More citations provided for data	Data Owners/Creators gain visibility and improve reputation	2
Demonstrating research data integrity	Access to data provides the possibility for other researchers to check the outcomes of others' research	Ensuring ease of citability	Direct	Continuous	Data Users; Funders	Greater re-use for verification	Cultural shift in data activities	4
Preventing data loss	Demonstrate Trusted Digital Repository status and avoids re-ingest costs	Ensure reliability of preservation system	Indirect	Continuous	Funders; Data Owners; Service; Data Users	Data demonstrably not lost		5
Preventing data loss	Ensure data does not need to be recreated	Ensure reliability of preservation system	Indirect	Continuous	Funders; Data Owners; Service; Data Users	Data demonstrably not lost		4
Providing input for future research	Access to data collections provides new research opportunities	Ensure Collections Development Policy is working properly	Direct	Continuous	Data Users; Funders	Breadth of data use by Data Users increases	Improved science	3
Re-purposing and re-use of data	Maximise value of data holdings through reuse	Ensure data is available for third party repurposing and reuse	Indirect	Continuous	Data Owners; Funders; Data Users; Service	Breadth of data use by Data Users increases	Extra-disciplinary use of data	4
Providing input for future research	Ensure high quality data available	Ensure preservation processes are best practice	Direct	Long	Everyone	Data used many years after ingest		4

Generic Benefit	Your Expression of Benefit	Action(s) to Realise Benefit	KRDS Outcome Type	Years to benefit	Stakeholders who principally benefit	Quantitative impact(s) of benefit	Qualitative impact(s) of benefit	Weighting of impact
Demonstrating value for money	Data sharing designed from the outset	Ensure Data Creators/Owners understand rights and ethical issues in data collection	Direct	Near	Data Creators/Owners; Data Service; Data Users	More data available for re-use	More research based on secondary analysis; more rapid selection procedure; more data available for reuse	4
Reducing the cost of research	Increase likelihood of data being available, earlier in the lifecycle	Ensure Data Creators/Owners understand rights and ethical issues in data collection	Indirect	Near	Funders, Data Creators/Owners; Data Service;	More data available for re-use	More research based on secondary analysis; more rapid selection procedure; more data available for reuse	4
Providing input for future research	Maximising use across Data User community (i.e., including students)	Ensure licensing is optimised to maximise relevant use	Direct	Continuous	Data Users; Funders	Increased use across Data User Communities		4
Widening data use participation	Increase diversity of data use	Publicise availability of data within collection	Direct	Continuous	Service; Data Creators/Owners; Data Users	Greater levels of use; greater access to data (higher visibility to data creator)		3
Providing opportunities for new research	Increase use of data within collection	Publicise availability of data within collection	Direct	Continuous	Service; Data Creators/Owners; Data Users	Greater levels of use; increased number of publications based on data collections	More research based on secondary analysis	3