The HWMD maturity model
A foundational framework to measure effectiveness of institutional research e-infrastructures

SURVEY TOOL -
https://prodsurvey.rcs.griffith.edu.au/HWMDeresearchMaturitySelfAssessment

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The HWMD maturity model

- Provide some context for maturity of e-research services.

- Reflect on the utility of the maturity model and self-assessment tool

- Outline the process of development
  - Review some of the self-assessment items
  - Consider further development
Background

- **Research outputs from Australia are valued**
  - 2013 Australia ranked 9th in the OECD for research outputs
  - Increased relative citation impact by 76% over 9 years to 2013

- **Innovation from research is valued**
  - Global competitiveness for innovation has gone from fifth in the world to eighteenth (Department of Education & Department of Industry, 2014. *Boosting the commercial returns from research, discussion paper. Australian Government.*)

- **Australian institutions are optimising research performance**
  - Australian Research Council (ARC) through *Excellence in Research for Australia* (ERA);

- **Attention is shifting to research data assets**
  - Research Data Infrastructure Committee (RIDC), 2014

- **Significant investment**
  - Education Investment Fund (EIF) & National Collaborative Research Infrastructure Strategy (NCRIS)
Institutional Context

- Institutions have responded to new agenda in different ways
  - Traditional services (IT, Library and Information services) have extended capabilities to meet demand
  - Boundaries become blurred, some overlap, silo working
- Each Institution is unique in what and how they deliver services and infrastructure
- Challenges around different terminology in use and what is covered by each term used
  - e-research, cyber-infrastructure, e-infrastructures, e-science, e-research infrastructure, research data infrastructure
Drivers for change

- **CAUDIT and CAUL**
  - Agree the need to integrate the e-research environment
  - It requires separate governance and engagement models to be successful due to evolutionary nature of capability pathways
  - Researchers and institutions do not necessarily separate the e-Research infrastructural components into discrete facilities but rather engage with them along the research pathway

- **Many senior managers find it difficult to measure performance in meeting the needs of researchers**
  - AeRO IT Research Support Expert Group
  - CAUDIT Research Working Party

- **International Efforts**
  - JISC (UK)
  - EDUCAUSE (US)
  - EPSRC (UK)
  - European Commission
Online Research Survey Tool

HWMD eResearch Services Maturity Self Assessment Tool

This is a BETA draft for comment of the HWMD eResearch Services Maturity Self Assessment Tool. For the purposes of this draft for comment a default response is configured so the graph at the end of the survey shows results without you having to answer all questions. When the survey is live we expect it would take at least 20 minutes to complete, however it can be saved or returned to at a later time.

It has been created in response to the (Australian) nationally recognised need for tools to measure progress in implementing e-research infrastructures and services. The items and scale in the tool have been developed from the literature and industry good practice examples.

The development of this self assessment tool is being presented at the THETA: The Higher Education Technology Agenda conference 11-13 May 2015 at the Gold Coast Australia. The abstract is available via this link.

When completing this self assessment the term "institution" is used. If more applicable to your case you can take this to mean just your organisational unit or faculty rather than the whole institution. Also the term "e-infrastructures" is meant to be used in its broadest meaning to include hardware, applications, processes and people etc.

We will ask for your contact details so we can contact you should we have any follow up questions on any feedback you provide. This isn't mandatory, but we do appreciate any feedback you are willing to provide. All data will be de-identified for analysis and neither you nor your institution will be identified in any published materials produced. Further information can be obtained from Malcolm Wolski m.wolski@griffith.edu.au

By proceeding to the next section you are giving your consent to participation, if you do not wish to participate please exit now.

 Purpose and intended uses

- BETA “draft for comment”
- Intended to help senior managers, heads of service, department/organisation unit managers, institutional executives to gauge where they are with providing e-research services and infrastructures (including socio-technical environment of e-Research not just technology)
- Can be used to identify gaps, duplication, overlap, and highlight areas needing development.
“Ultimately research is originated by people and in building the e-Research platform we are embedded in a network of human as well as technological relationships. We need to understand how these relationships exist and how they may be nurtured and accommodated or might even change in this new landscape.” (Fitzgerald, 2008; p. 2).
Dimensions from the literature

- Governance & leadership
- Research information & data management
- Service delivery & management (integrated view)

- eRESEARCH ENABLING FUNCTIONS (agnostic of service/organisational units and institutions)
  - Technological infrastructure (including support)
  - Collaboration & community engagement
  - Workforce education training & development
Scale in the Self assessment tool

1 – not contemplating
This capability/function may not exist or may not be considered as important in implementing eResearch infrastructures and support.

2 – scoping & investigating
This capability is recognised as an element of good practice but may only be delivered in ad hoc ways by interested individuals or teams. There is a genuine attempt to identify where this capability is provided, and explore how further capacity can be developed to support and deliver in a consistent, reliable and repeatable way.

3 – planning & piloting
There are formulated strategies and plans to increase capability and capacity in this area and there may be some piloting underway to evaluate what may work best.

4 – implementing & monitoring.
Changes are being implemented and may be monitored to assess the effect and benefits with the intention to modify ways of working

5 – integrated & optimising.
Changes have been integrated into routine ways of working and core services are routinely evaluated to continually improve quality, effectiveness and efficiency.
Concerned with the executive and overarching ownership of e-Research in the institution including planning and budget response, policy development and implementation, organisational structures and processes
Governance and Leadership

About executive leadership in the institution to enable an e-research culture and the governance mechanisms required to direct and manage implementation of the institution’s strategy.

Please indicate where you think your institution/organisational unit is in relation to the statements below. The scale reflects increasing levels of capability and capacity.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not Contemplating</th>
<th>Scoping &amp; Investigating</th>
<th>Planning &amp; Piloting</th>
<th>Implementing &amp; Monitoring</th>
<th>Integrated &amp; Optimising</th>
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</thead>
<tbody>
<tr>
<td>My institution has an executive level steering committee that provides clear strategy for research e-infrastructure, creates institution wide policies and recommends budget for implementation and ongoing costs.</td>
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<td>My institution has a Research data management policy (either separate or within a research conduct policy) that may also identify services available to researchers.</td>
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<td>My institution has an inter-disciplinary senior management team who work collaboratively to provide governance and leadership to the eResearch community both internal and external to the institution.</td>
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Covers the provision, support and awareness of e-Research applications, tools and hardware available through the institution and includes facilitating the use of cloud infrastructure.
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<tr>
<th>Statement</th>
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<td>My institution provides reliable, high-performance and economically</td>
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<td>efficient computational infrastructure, networks, virtual research</td>
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<td>environments, collaborative tools and other related services to</td>
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<td>researchers/research groups.</td>
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<td>My institution provides an eResearch integrated service catalogue for</td>
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<td>institutional (including outsourced services) and national applications</td>
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<td>and services e.g. cloud services, hardware, applications, federated</td>
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<td>access, secure transfer of files, research collaboration applications.</td>
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<td>My institution provides integrated Tier 0,1,2,3 level support for</td>
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<td>researcher end users of eResearch systems (i.e. non-admin systems).</td>
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<td>My institution provides institutional level specialist support to</td>
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<td>researchers/research groups for key HPC and other facilities and tools</td>
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<td>used by researchers that is comparable to corporate systems.</td>
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<td>My institution provides sufficient storage (including cloud services)</td>
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<td>to meet current requirements and has in place plans to meet future</td>
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<td>needs.</td>
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<td>My institution has in place a sustainable support model for central</td>
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<td>institutional infrastructure provided by IT departments.</td>
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Concerned with provision of specialist guidance and services to researchers and research groups from the inception of a research proposal through the research lifecycle from grant application, project start up, data collection, analysis and computation through to archiving, digital preservation and re-use.
Focuses on the effectiveness of mechanisms used by the institution to engage with researchers, faculty and the wider stakeholder community.
This dimension focuses on workforce capability (Figure 7) in four subcomponents: a) building digital literacy, b) best-practice bibliometric & data impact practices; c) career pathway development and recognition; and d) special subject matter expertise.
This dimension focuses on the operations and performance of the e-Research support service for example, IT, Library and information services, with the aim of improving services offered to researchers and reporting on progress and outputs that add value to the institution.
Next steps

Do the survey and give us feedback – questions we have

1. Is this useful as a self-assessment tool?
2. The Goldilocks question – is it too detailed, to lite or just right?
3. Is this useful for benchmarking?
4. Are the dimensions right?
5. Is the scale right?
6. Any feedback on questions and sub-components is good
7. Are you interested in spending time in completing a proper survey for analysis?
8. If we produced a new version we to get someone to “sign off” on it – a community of practice group, CAUL or CAUDIT etc?

Example an interesting bit of feedback for us to consider already ... does reference to “my institution” assume the best maturity model is to do it all in-house.