Legal Framework for e-Research Project

Legal and project agreement issues in collaboration and e-Research: Survey Results

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Queensland University of Technology

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Preface

This report presents initial results from a national survey undertaken as part of the Legal Framework for e-Research Project. The survey was designed to explore the nature of e-Research and collaborative research in the Australian context. It should be noted that results presented are initial findings and an analysis of the legal context and the development of strategies will be included in a more detailed Project report due for release in early September 2007.

I am thankful to Maree Heffernan who has led the survey implementation and carried out data analyses on the survey responses and to Dr Amanda McBratney, Dr Anne Fitzgerald, Dr John Abbot and Scott Kiel-Chisholm for their efforts in developing and promoting the survey document.

I would also like to thank the following people for their valuable contribution to the development and distribution of the survey: Nikki David, Shane Dalgleish, Amy Barker, Tanya Butkovsky, DVC Professor Tom Cochrane, Dr Terry Cutler, Professor Mary O'Kane, Margot Bell, Professor Ian W. Turner, Ruth Bridgstock, Professor Paul Roe, Michael McArdle, Kerrin Anderson, Malcolm McBratney, Dr Evonne Miller, Steve Matheson, Dr Graeme Kernich, Dale Gilbert, Ray Duplock, Michael Dean, Mike Finney, Associate Professor Gillian Hallam, Clare McLaughlin, Professor Mark Perry, Terry Bell, Ruth Bridgstock, Associate Professor Chris Collet, Dr Joe Young, Karen Barnett, Dr Vladimir Likic, Professor Bernard Pailthorpe, Professor Stuart Cunningham, Professor Zee Upton, Samantha Cobb, Gaye Middleton and Professor Amanda Spink.

Special thanks must also go to the many people who helped us disseminate the survey and the individuals who took the time to complete the survey.

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1.   Introduction

This report presents the results from a survey conducted by Queensland University of Technology's Faculty of Law as part of the Legal Framework for e-Research Project, funded by the Australian Commonwealth Department of Education, Science and Training (DEST), under the Systemic Infrastructure Initiative (SII), Research Information Infrastructure Framework for Australian Higher Education, as part of the Commonwealth Government's *Backing Australia's Ability - An Innovation Action Plan for the Future (BAA)*.

The term 'e-Research' encapsulates research activities that use a spectrum of advanced ICT capabilities and embraces new methodologies emerging from increased access to:

- broadband communications networks, research instruments and facilities, sensor networks and data repositories;

- software and infrastructure services that enable secure connectivity and interoperability;

- application tools that encompass discipline-specific tools, and interaction tools (DEST, n.d).

The survey aims to explore the nature of research collaborations and to identify common legal and project agreement problems encountered in forming research collaborations in order to form strategies to facilitate and streamline the process of e-Research in the Australian context. Specifically, the aims of the survey were to:

- Identify e-Research activities and levels of engagement;
- Understand the nature of the collaborative research landscape;
- Investigate characteristics of informal collaborations and agreements; and
- Explore legal issues related to data and databases.

2. Methodology

2.1 Participants & Procedure

A mix of expert and snowball[1] sampling was utilised in the present study.   In stage one, potential survey 'champions' (experts in specific e-Research, hypercomputing and legal fields) were contacted by the Project Leader and asked to distribute the participation request (in the form of an email including a hyperlink to the online survey) to appropriate staff and colleagues in their organisation and networks (colleagues involved in e-Research and/or collaborative innovation). Approximately two weeks later, in stage two, the email participation requests were sent to the remainder of the database. This email contact requested that the research participation email be distributed to colleagues involved in collaborative innovation and/or e-Research. A participant database of 1655 email contact addresses was developed from web-based resources and the project team's contacts. Fifty-two emails were non-deliverable, and 21 individuals declined to participate, reducing the final database to 1582 email addresses. The final sample consists of 176 participants, representing a maximum response rate of 11%[2].

Figure 1 depicts the organisations, networks and individuals included in the sampling database and the sources of participant contact information. Pro and Deputy Vice-Chancellors located in every Australian University were contacted, and to ensure adequate coverage of research areas (and the inclusion of participants at the 'researcher' level), all Cooperative Research Centres, ARC Special Research Centres, and ARC Centres of Excellence across Australian Universities were also individually invited to contribute to the project. Successful ARC linkage applicants (including governmental and industry-based collaborators) and discovery applications for the preceding three years were included in the database. Based on internet searches, affiliated researchers attached to University or Faculty-based research centres involved in collaborative or e-Research based activities were contacted via email. In terms of the governmental sector, research managers in the Department of Primary Industries (or equivalent) and development/innovation departments (or equivalent) in each State were contacted, in addition to governmental research and science agencies such as the Australian Nuclear Science and Technology Organisation and the Commonwealth Scientific and Industrial Research Organisation. In terms of the industrial sector, internet searches were based on R&D arms of biotechnology, pharmaceutical, communications and banking organisations Australia-wide. Intellectual property/copyright legal specialists were selected based on: Internet searches (intellectual property lawyers, contracts officers) and project team legal community contacts. The final sample included research managers, researchers, legal advisors and contracts/commercialisation officers located in universities, government departments and commercial/industrial sectors across Australia. The

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[1] Snowball sampling refers to the identification of individuals who meet certain criteria (e.g. experience with e-Research and collaborative innovation) and then asking these individuals to recommend other individuals that also meet the criteria for the study.

[2] Due to the sampling method utilised the response rate indicates the responses gained from the direct email invitations sent by the research team, thus the 'actual' response rate is lower than that specified.

online survey was only available to Australian respondents, with international access blocked.

Data was analysed using SPSS software, with descriptive statistics carried out on all variables. Difference testing (one-way ANOVAs, chi-square tests and independent-samples t-tests) was carried out on a number of key variables to compare responses by organisational role (researcher, manager, legal/contracts), disciplinary area (science and technology, arts and social sciences), extent of involvement in e-Research and organisational sector (university versus other sectors) [3]. Although there are issues with performing tests of significance on non-random samples, tests were conducted to explore relationships amongst variables with the understanding that findings cannot be generalised to other populations[4]. There are a number of limitations with the present study, including factors such as: expert and snowball sampling are non-random sampling techniques; snowball sampling results in a lack of control over the demographics of the sample; once invited to participate, participants effectively 'self-selected'; and the sample is biased towards university researchers and managers.

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[3] Involvement classified as either 'not at all or slightly involved in e-Research' or 'moderately or extensively involved in e-Research'.

[4] "Strictly speaking, tests of significance should only be used to analyze data from properly drawn probability samples. Nevertheless, tests of significance are used with nonprobability samples. These tests are useful for establishing the extent of relationships among variables, even though the conclusions cannot be safely generalized to any population. " (http://srmdc.net/chapter19/21.htm)

Figure 1. *Web-Based Participant Contact Sources for Legal & Research Fields*
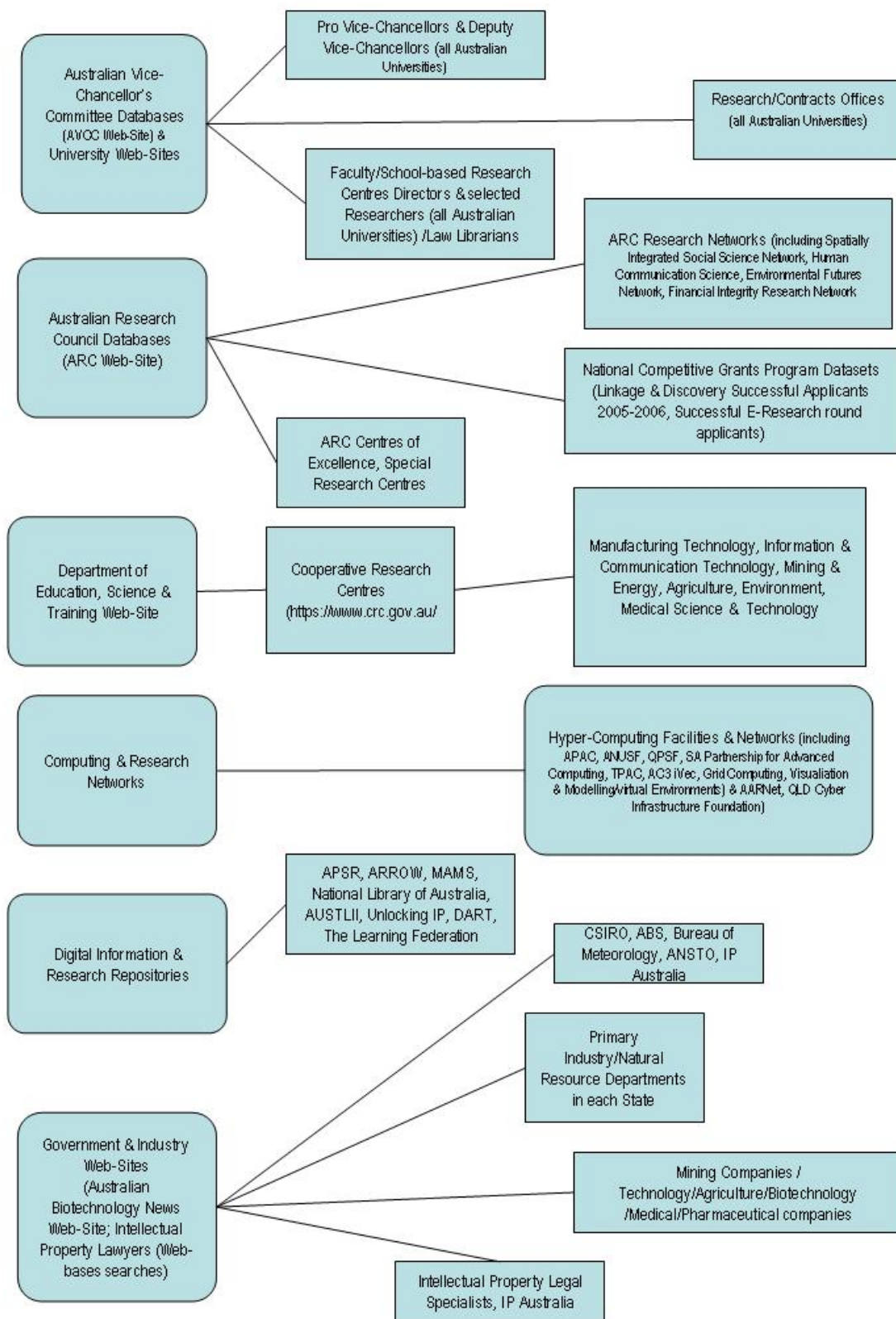
2.2 Instrument

An online questionnaire (See Appendix A) was developed to examine the nature of collaborative arrangements and data issues underpinning collaborative innovation and e-Research and hosted on QUT's server for six weeks during April and May 2007. The questionnaire consisted of sections covering e-Research (Section A), organisational/research areas (Section B), collaboration profiles (Section C), project agreement issues (Section D), databases (Section E) and data (Section F). A range of open-ended comment areas were also included in the differing sections to allow more detailed responses or extra information to be gathered regarding legal issues in the context of e-Research and collaborative research. The questionnaire was pilot tested on 15 individuals currently engaged in either collaborative research or the provision of legal advice regarding research collaborations. Questions were refined following feedback from these participants. All participants completed Sections A – D of the survey, with only those selecting the options of researcher or research manager at Question 7 receiving the additional sections on databases (Section E) and data (Section F). The following section details the sources of various questions included in the survey.

Section C – Collaboration

A number of studies and reports influenced the development of the items relating to the 'Collaboration' section of the survey. Specifically, the following reports/articles influenced question development in this section: Australian Bureau of Statistics (Australian Bureau of Statistics (ABS), 2006, p. 12),Goddard and Isabelle (2006), Liebskind, Oliver, Zucker and Brewer (1995), Mann (2005) and Siegel, Waldman, Atwater and Link (2004). This section included questions related to the importance of a number of resources to participants' collaborative projects[5]; the frequency of collaborations involving different parties[6]; the frequency and nature of differing types of collaborative arrangements[4]; and an open-ended question regarding views on the most critical factors in successful collaborations.

Section D – Project Agreement Issues

The majority of the items included in the 'Project Agreement' section were developed by the project team, with some influence from findings presented in a number of studies or reports, including: Australian Productivity Commission (2007), Blomqvist, Hurmelinna and Sepannen (2005), Casey (2004), David and Spence (2003), Hall, Link and Scott (2000), Howard Partners(Howard Partners), Hurmelinna (2005), Lambert (2003), McGauchie (2004), National Council of University Research Administrators & the Industrial Research Institute (2006), Siegal, Waldman et al (2004) and Zucker (1995). This section included questions regarding the frequency of a range of activities associated with project negotiation; views on the necessity of formal agreements; the frequency of a range of general and specific problems

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[5] Scale: 1=Not at all important; 2=Not very important; 3=Somewhat important; 4=Very important
[6] Scale: 1=Never; 2=Rarely; 3=Sometimes; 4=Often

encountered in negotiating formal agreements[4]; information related to ways to improve and streamline the negotiation process; [7] and open-ended questions requesting participants' views on the commercialisation of research and general comments on legal issues in the context of e-Research.

Sections E & F – Databases & Data

The items in the 'Databases' and 'Data' sections of the survey were developed by the project team. Only those who selected the 'researcher' or 'research manager' options at Question 7 received the questions in this section (resulting in a sample of 95 participants). These sections included questions regarding registration requirements; awareness of, and compliance with, legal restrictions associated with copying, extracting or re-using information from databases; and policies and procedures regarding the sharing of data.

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[7] Scale:1=Strongly disagree; 2=Disagree; 3=Agree; 4=Strongly Agree

3. Results

3.1 Demographic Characteristics of the Sample

A total of 176 respondents completed the survey, with Table 1 presenting information related to organisational role by organisation type of participants. Figure 2 depicts the organisational role of final survey participants[8]. Of the 176 participants, 85 (or 48%) were in research roles, 66 (or 38%) were in research and/or organisational management and 25 (or 14%) were in legal or contracts roles. The majority of participants were from the University sector (64.8%), with 9.1% from Industry/Commercial and 9.1% from Government sectors, 10.8% from other Research Institutes and 6.3% from law firms. For researchers, approximately 86% of participants were employed by Universities, 8% employed by Governmental departments or agencies, 4% employed by Research Institutes. For those in managerial roles, approximately 52% were employed in the University sector, 21% in other Research Institutes, 14% in Industry/Commercial sector and 12% in Governmental departments or agencies. For those in legal or contracts roles, 40% were employed by law firms, 28% were employed by Universities, 20% in Industry and 12% in Governmental departments or agencies. Reflecting the large number of university employees, over half of respondents (59%) were employed by organisations with more than 500 employees, 15% employed by organisations with 51-500 employees, 13% employed by organisations with 11-50 employees and 14% employed by organisations with 10 or fewer employees.

Figure 2. *Organisational Role of Participants*

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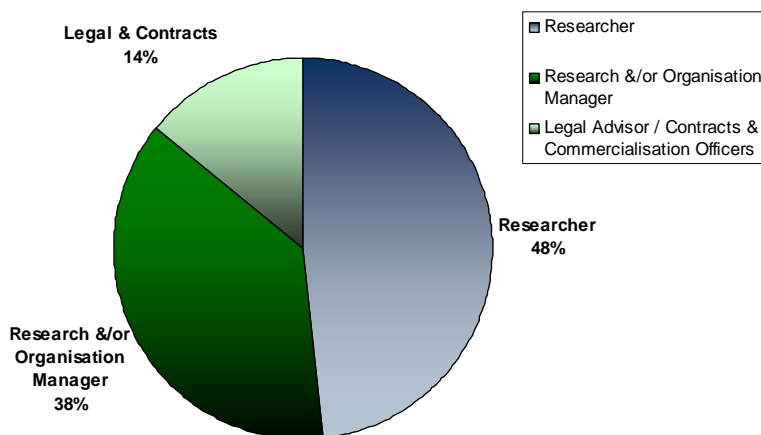
[8] Note: Participants who selected 'other' at Question 7 (What is your primary role in the organisation?) were recoded into the categories of researcher, research/organisational manager, legal advisor, commercialisation officer or contracts officer depending on their specified role. For example, those who selected 'other' and specified teaching and research were recoded as 'researcher', those who specified organisational management such as the role of CEO were recoded as 'research and/or organisation manager'.

Table 1. *Organisational Role of Participants by Organisational Type*

		Researcher (*n*=85) %	Organisational Role Manager - Research &/or Organisation (*n*=66) %	Legal & Contracts (*n*=25) %
Organisation Type	Industry (*n*=16)	2.4%	13.6%	20.0%
	University (*n*=114)	85.9%	51.5%	28.0%
	Research Institute (Other) (*n*=19)	3.5%	21.2%	8.0%
	Government (*n*=16)	8.2%	12.1%	4.0%
	Law Firm (*n*=11)	-	1.5%	40.0%

Approximately one-third (34.3%) of participants stated that they are extensively involved with e-Research (37.1% moderately involved; 18.3% slightly involved and 10.3% not at all involved). Thirty-one percent of researchers, 41% of research/organisational managers, and 28% of the legal/contracts respondents stated that they are extensively involved in e-Research (see Figure 3). There were no significant differences in the extent of involvement in e-Research by organisational role, disciplinary area or organisational sector.

Figure 3. *Respondents' Involvement in e-Research*
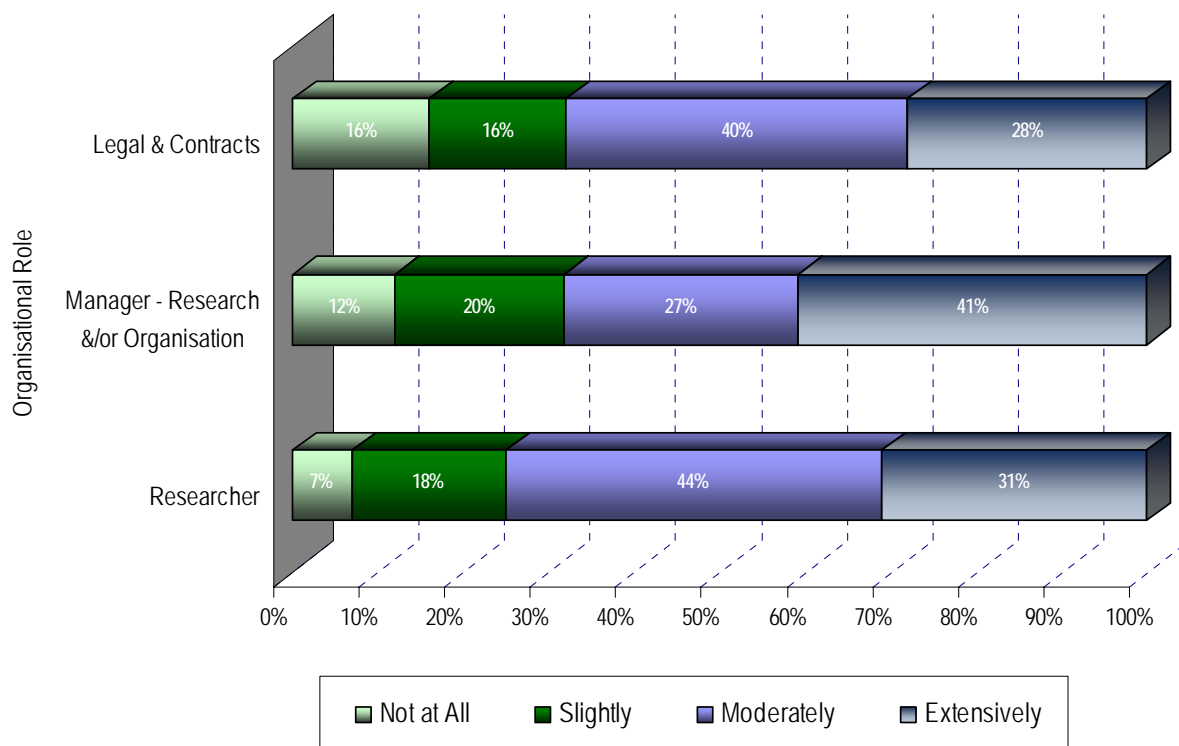
Respondents specified a diverse range of fields that their research covers, with approximately 63% indicating that their research is in the areas of science and technology[9] and 37% indicating that their research is in the fields of the arts and social sciences[10]. Of those in the science and technology fields, 26% identified information technology, 23% identified medical/health care, 16% identified environment/ecology, and 16% identified biotechnology as research fields that they are involved in. Of those in the arts and social science fields, 17% identified education, 16% identified law, 15% identified social sciences, 10% identified business/commerce and 10% identified media/communication as research fields that they are involved in. Note that participants could choose more than one area of research. Over one-third of those from science and technology fields and 31.3% from the arts and social science fields stated that they are extensively involved in e-Research.

Participants were asked to describe the types of e-Research activities that their role involves. One-hundred and fifty-four participants described the kinds of activities that their e-Research involves, with these coded into broad categories based on the predominant theme of the comment. The complete list of activities is included in Appendix B, with example comments presented below. Activities described by participants included: data collection/ management/ modelling/ visualisation and the use of databases (approximately 49% of activities); online or internet-based research (approximately 15% of activities); services to support e-Research (approximately 12% of activities); the use of communication tools (approximately 7% of activities); the dissemination of information (approximately 3% of activities); and management of e-Research activities (approximately 3% of activities).

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[9] Science & Technology includes: astronomy, agriculture/plant science, biology, biotechnology, chemistry, climate studies, computing/information technology, environment/ecology, engineering, earth sciences, medical/health care, manufacturing, mathematics, mining, marine systems, nanotechnology, photonics, physics, public health/epidemiology, transport.
[10] Arts & Social Sciences includes: visual/graphic art, architecture/design, business, economics/accounting/finance, education, drama, geography, history, law, languages, media & communication, music, politics, psychology, sociology, social sciences, tourism.

Comments: Types of e-Research Activities
Data & Databases

"Exchange of algorithms and data across a variety of platforms, and with collaboration involving nodes at Adelaide, Melbourne (multiple), Sydney, Brisbane, Canberra."
(Research Manager, University; Science & Technology)

"Running computational code on high performance computers, generating massive data sets, transferring and manipulating data, sharing data and results internationally, displaying and publishing data. Similarly, large data sets are captured and processed via physical experiments using laser diagnostics and synchrotrons. Experiments are controlled robotically over the internet.. Joint supervision of postgraduate students, such as through the [name deleted] with [country name deleted], electronic participation internationally in research juries."
(Research Manager, University; Science & Technology)

"Humanities computing, cultural informatics; sustainable digital repositories; digital scholarly practice; online access to public knowledge; digital citation; multi-layered frameworks of interconnection; online dictionaries and encyclopaedias."
(Researcher, University; Arts & Social Sciences)

"Broad based [transport] research. There is increasing use of electronic data gathering and the use of modern communications systems to gather and deliver remotely accessed data for near real time situation analysis."
(Research Manager, Research Institute; Science & Technology)

Communication

"Using on line collaboration tools for sharing of information, development of ideas, discussion of research outcomes."
(Research Manager, Industry; Science & Technology)

Research

"I am the founder of the [network name deleted]. This is a project that involves social science research into online networks (such as networks on the WWW), and the development of e-Research tools to facilitate this research."
(Researcher, University; Arts & Social Sciences)

3.2 Collaboration Profile

3.2.1   Resources Involved in Collaborative Projects

Figure 4 depicts the relative importance of a range of resources involved in collaborative projects. Overall, respondents rated 'online tools, databases and electronic resources' and 'discipline-related literature' as being the most important resource to their collaborative projects (with 78.4% identifying online tools as 'very important', *mean*=3.73; and 77% identifying discipline-related literature as 'very important', *mean*=3.68). Informal contacts were viewed as slightly more important than collaborators in formal agreements with 60% identifying informal contacts as 'very important' (*mean*=3.51) and 56% identifying collaborators in formal research agreements as 'very important' (*mean*=3.35). Overall, patent literature was viewed as the least important resource (17% identifying patent literature as 'very important'; *mean*=2.28). Twelve participants nominated resources other than those listed, such as virtual and 'real' conferencing facilities, the AVCC, research students, and informal involvement with other researchers.

Figure 4*. Relative Importance of Collaboration Resources*
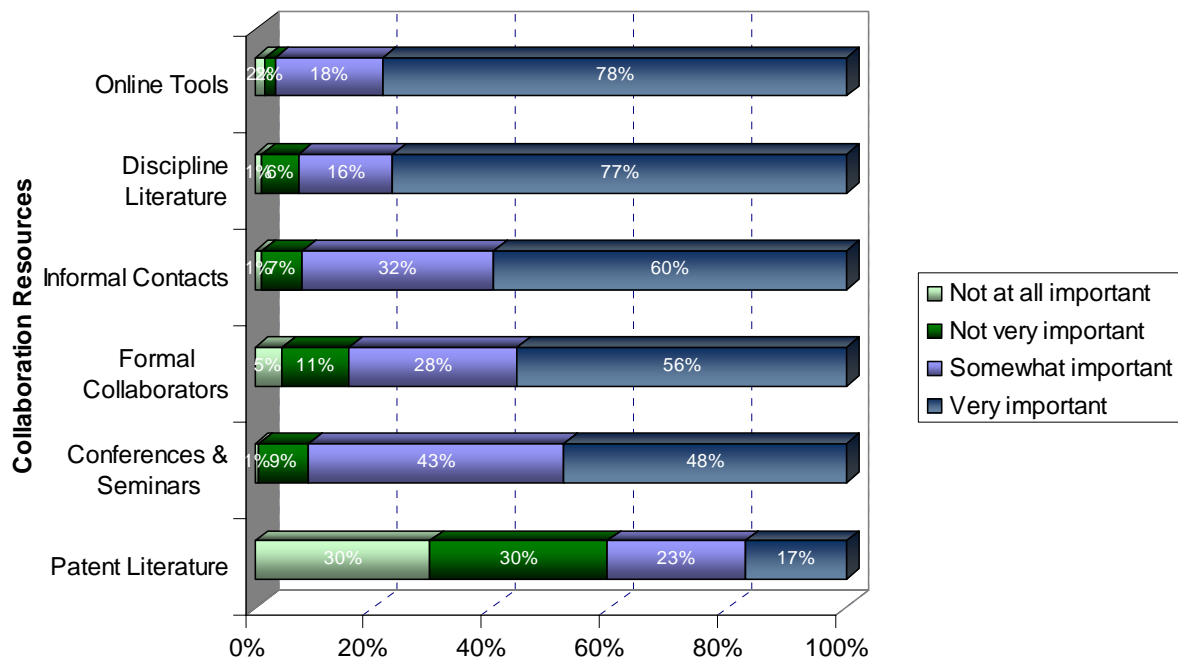
Table 2 depicts the mean responses regarding the importance of various resources to collaborative projects by organisational role. One-way ANOVAs were carried out to explore differences in agreement types by organisational role. Patent literature was identified as being more important by those who have legal and contract roles (*mean*=3.12) than by managers (*mean*=2.42; *d*=0.7, *s.e.*=0.232, *p*=0.009) or researchers (*mean*=1.92; *d*=1.2, *s.e.*=0.225, *p*=0.000) and patent literature is also more important for managers than researchers (*means* 2.42 and 1.92 respectively; *d*=0.51, *s.e.*=0.162, *p*=0.006). Discipline-related literature was viewed as being more important by researchers than by managers (*means* 3.86 and 3.52 respectively; *d*=0.34, *s.e.*=0.102, *p*=0.003) or those who have legal and contract roles (*mean*= 3.52; *d*=0.34, *s.e.*=0.142, *p*=0.047).

Table 2. *Mean Level of Importance[11] of Various Resources to Collaborative Projects by Organisational Role*

Resources	Role in the Organisation		
	Researcher N=85 Mean	Manager - Research &/or Organisation N=66 Mean	Legal & Contracts N=25 Mean
Online tools & databases	3.75	3.70	3.76
Patent literature	**1.92**[a**b***]	**2.42**[a** c**]	**3.12**[b***c**]
Discipline-related literature	**3.86**[a**b*]	**3.52**[a**]	**3.52**[b*]
Seminars & conferences	3.46	3.29	3.36
Informal contacts	3.53	3.48	3.48
Collaborators in formal agreements	3.31	3.36	3.48

***p<.001, **p<.01, *p<.05
[a, b, c] Significant differences between roles

Table 3 presents mean responses regarding the importance of collaborative resources by disciplinary area. Independent-samples t-tests were carried out to explore differences in perceptions of the importance of resources by disciplinary area. The only significant difference in responses by disciplinary area was regarding the importance of collaborators in formal agreements. Collaborators in formal agreements were viewed as more important by those in Science & Technology than by those in Arts & Social Science fields (*means* 3.50 and 3.08 respectively; *t*=3.02, *p*=0.003).

[11] Scale: 1=Not at all important; 2=Not very important; 3=Somewhat important; 4=Very important

Table 3. *Mean Level of Importance of Various Resources to Collaborative Projects by Disciplinary Area*

Resources	Disciplinary Area	
	Science & Technology N=111 Mean	Arts & Social Sciences N=64 Mean
Online tools & databases	3.74	3.72
Patent literature	2.32	2.22
Discipline-related literature	3.74	3.58
Seminars & conferences	3.38	3.38
Informal contacts	3.53	3.45
Collaborators in formal agreements	**3.50****	**3.08**

**p<.01, *p<.05

Table 4 presents the mean responses regarding the importance of these resources by level of involvement in e-Research. Independent-samples t-tests were carried out to explore differences in perceptions of the importance of resources by extent of involvement in e-Research. The only significant difference was in terms of the importance of online tools and databases. Online tools and databases were viewed as more important by those who are moderately or extensively involved in e-Research compared with those who are not at all or slightly involved (*means* 3.82 and 3.52 respectively; t=2.63, p=0.011). In terms of differences by sector, the only significant difference between those in university settings versus government/industry was in the importance of patent literature, with university participants placing less importance on this resource (*means* 2.08 and 2.65 respectively; t=-3.45, p=.001).

Table 4. *Mean Level of Importance of Various Resources to Collaborative Projects by Level of Involvement in e-Research*

Resources	e-Research Involvement	
	Not at all – Slightly N=50 Mean	Moderately – Extensively N=125 Mean
Online tools & databases	**3.52**	**3.82***
Patent literature	2.24	2.30
Discipline-related literature	3.60	3.71
Seminars & conferences	3.46	3.34
Informal contacts	3.56	3.49
Collaborators in formal agreements	3.16	3.42

*p<.05

3.2.2   Parties Involved in Collaborative Projects

The frequency of involvement with differing parties involved in collaborative research was explored by asking respondents how frequently their collaborative projects involved industry (including commercial laboratories/R&D enterprises), universities, other research institutes, government agencies, colleagues within their organisation, clients/customers/users, suppliers and consultants (on a scale of 1 'never' through to 4 'often'). Figure 5 depicts the relative frequency of involvement of differing parties involved in the respondents' collaborative projects (Table 5 presents the mean frequencies by organisational role; Table 6 presents the mean frequencies by disciplinary area; and Table 7 presents the mean frequencies by extent of involvement in e-Research).

As expected, there is a large degree of inter-university collaboration, with universities cited as the party most frequently involved in the respondents' collaborative projects, 81.3% stating that their projects often involve universities (*mean*=3.76). Colleagues in their own organisation were also rated highly, with 72.2% of respondents identifying them as often being involved in their projects (*mean*=3.54). Suppliers and consultants were the parties least likely to be involved in respondents' collaborative research projects (*means* of 2.15 and 2.23 respectively). Six participants nominated parties other than those listed, such as research/postgraduate students, patent/ trade mark attorneys and lobbyists.

Figure 5. *Relative Frequency of Involvement with Differing Parties*
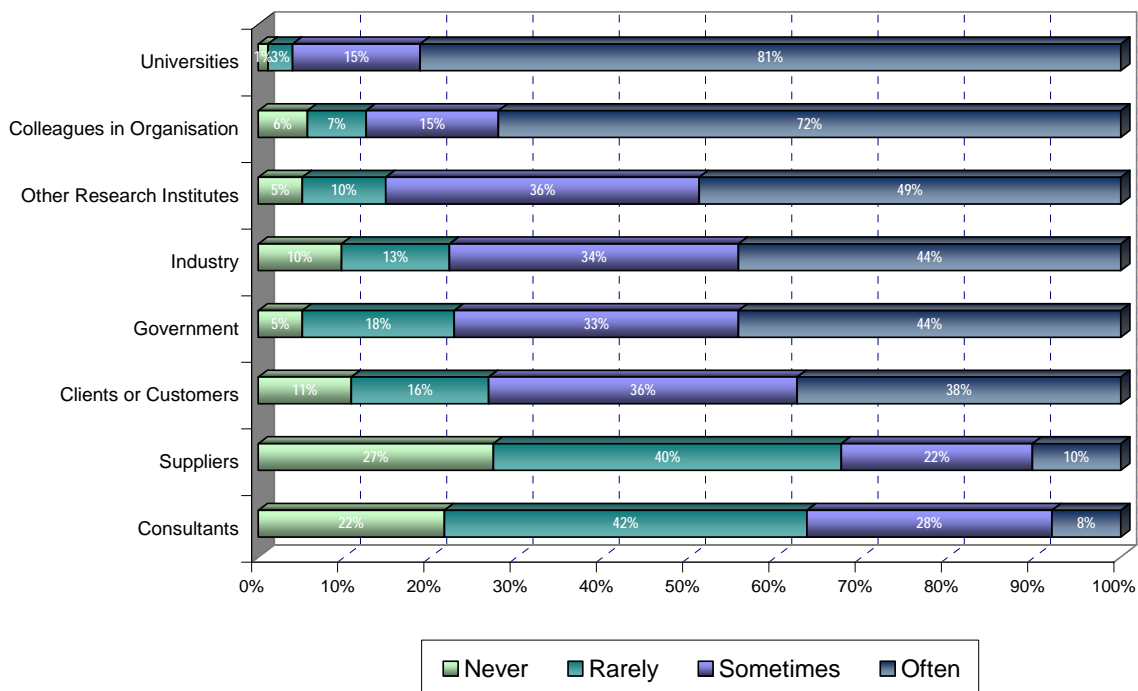
Table 5 presents mean responses regarding involvement with differing parties by organisational role. One-way ANOVAs were carried out to explore differences in involvement with differing parties by organisational role.   Respondents who have legal and contract roles were more likely to be involved with industry (d=0.63, $s.e.$=0.216, p=0.012), government (d=0.5, $s.e.$=0.199, p=0.034), clients or customers (d=0.93, $s.e.$=0.202, p=0.000), suppliers (d=0.57, $s.e.$=0.208, p=0.017), or consultants (d=0.59, $s.e.$=0.194, p=0.008) than researchers. Managers are more often involved with industry (d=0.38, $s.e.$=0.155, p=0.042), other research institutes (d=0.37, $s.e.$=0.136, p=0.021), government (d=0.41, $s.e.$=0.143, p=0.014), clients or customers (d=0.84, $s.e.$=0.146, p=0.000), suppliers (d=0.44, $s.e.$=0.15, p=0.01), or consultants (d=0.35, $s.e.$=0.14, p=0.034) than researchers. Researchers , compared to those who have legal and contract roles, are more often involved with colleagues in their own organisation (d=0.46, $s.e.$=0.192, p=0.047).

Table 5. *Relative Frequency of Involvement with Differing Parties by Organisational Role*

Parties Involved	Role in the Organisation		
	Researcher	Manager - Research &/or Organisation	Legal & Contracts
	N=85	N=66	N=25
Industry	2.89[a*b*]	3.27[a*]	3.52[b*]
Universities	3.74	3.83	3.64
Other Research Institutes	3.12[a*]	3.48[a*]	3.36
Government	2.94[a*b*]	3.35[a*]	3.44[b*]
Colleagues in Organisation	3.66[a*]	3.52	3.20[a*]
Clients or Customers	2.55[a***b***]	3.39[a***]	3.48[b***]
Suppliers	1.91[a**b*]	2.35[a**]	2.48[b*]
Consultants	2.01[a*b**]	2.36[a*]	2.60[b**]

[***]p<.001, [**]p<.01, [*]p<.05
[a, b.] Significant differences between roles

Table 6 presents mean responses regarding involvement with differing parties by disciplinary area. Independent-samples t-tests were carried out to explore differences in involvement with differing parties by disciplinary area. Respondents from Science & Technology area stated that they are more often involved with other research institutes than those from Arts & Social Sciences (*means* 3.52 and 2.88 respectively; t=5.25, p=0.000).

Table 6. *Relative Frequency of Involvement with Differing Parties by Disciplinary Area*

Parties Involved	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Industry	3.21	2.97
Universities	3.82	3.66
Other Research Institutes	**3.52*****	**2.88**
Government	3.16	3.16
Colleagues in Organisation	3.60	3.42
Clients or Customers	3.05	2.89
Suppliers	2.21	2.05
Consultants	2.18	2.30

***p<.001, **p<.01, *p<.05

Table 7 presents mean responses regarding involvement with differing parties by level of involvement in e-Research. Independent-samples t-tests were carried out to explore differences in involvement with differing parties by extent of involvement in e-Research. There were no significant differences in responses by level of involvement in e-Research. In terms of differences by organisational sector (see Table 8), university participants were less likely than government/industry participants to be involved with industry (*means* 3.02 and 3.32 respectively; *t*=-2.01, *p*=.046), clients or customers (*means* 2.77 and 3.42 respectively; *t*=-4.37, *p*=.000), suppliers (*means* 2.00 and 2.44 respectively; *t*=-3.00, *p*=.003) or consultants (*means* 2.09 and 2.48 respectively; *t*=-2.92, *p*=.004)

Table 7. *Relative Frequency of Involvement with Differing Parties by Level of Involvement in e-Research*

Parties Involved	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Industry	3.24	3.08
Universities	3.70	3.78
Other Research Institutes	3.14	3.34
Government	3.14	3.18
Colleagues in Organisation	3.40	3.59
Clients or Customers	3.00	3.00
Suppliers	2.04	2.20
Consultants	2.36	2.18

***p<.001, **p<.01, *p<.05

Table 8. *Relative Frequency of Involvement with Differing Parties by Organisational Sector*

Parties Involved	Sector	
	University N=114	Government/Industry N=62
Industry	**3.02**	**3.32***
Universities	3.82	3.66
Other Research Institutes	3.21	3.44
Government	3.10	3.29
Colleagues in Organisation	3.61	3.42
Clients or Customers	**2.77**	**3.42***
Suppliers	**2.00**	**2.44***
Consultants	**2.09**	**2.48***

*** $p<.001$, ** $p<.01$, * $p<.05$

Participants were asked to specify the most important international collaborators involved in their research projects (see Figure 6). Of the specified list of countries, the USA (*mean importance*=3.1; 40% identified as 'very important'), followed by the UK (*mean importance*=2.8; 25% identified as 'very important') were identified as the most important countries to the participant's collaborative projects. Of the other countries specified by participants, India, Israel, Singapore, Thailand and islands in the Pacific were the most common (26 participants nominated countries other than those listed).

Figure 6. *Importance of International Collaborators*
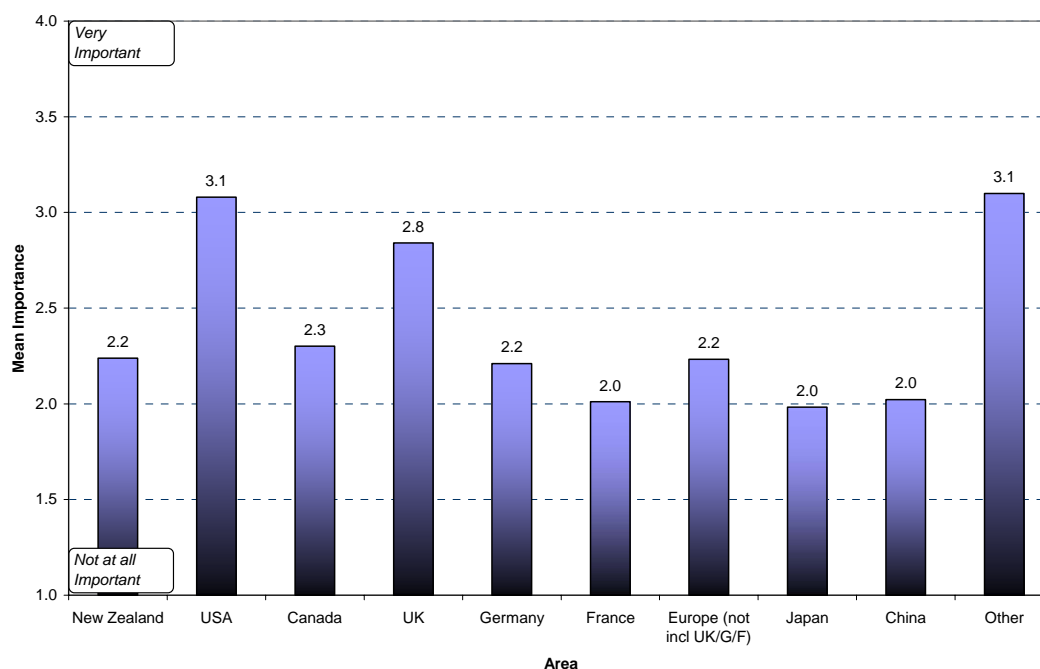
3.2.3 Collaborative Project Agreement Types

Participants were asked to rate the relative frequency (on a 4-point scale[12]) with which their collaborations involved a number of elements or arrangements, such as: informal networks (including informal conversations, conference interactions); informal agreements leading to co-authored publications; confidentiality/non-disclosure contracts; research contracts (for one project); master research contracts (involving multiple research projects); permanent research arrangements such as strategic alliances; multi-party research consortia; cooperative research centres; joint ventures and cross-licensing; patents/software (or other intellectual property licences); technical assistance agreements; and consulting agreements.

Figure 7 presents the relative frequency of responses to the 12 agreement/arrangement types for the total sample. 'Informal networks (including informal conversations, conference interactions)' (*mean*=3.6), 'informal agreements leading to co-authored publications' (*mean*=3.1) and 'single research contracts' (*mean*=3.1) were the most frequent arrangements cited. Approximately 70% of respondents stated that their collaborations often involve informal networks (including informal conversations, conference interactions), 36% stated that their collaborations often involve informal agreements leading to co-authored publications and approximately 40% stated that their collaborations often involve single project-based research contracts. Only 7% of the sample stated that their collaborations often involve joint ventures or cross-licensing (41% never; *mean*=2.0) and technical assistance agreements (*mean*=2.1). Approximately one-in-three participants stated that their collaborations never involve patents, software, know-how or other intellectual property licences (32.4%) or Cooperative Research Centres (30.1%). 'Commercialisation agreements' were mentioned as an additional type of agreement that is involved in collaborative projects.

[12] 1=Never; 2=Rarely; 3=Sometimes; 4=Often

Figure 7. *Relative Frequency of Various Types of Collaboration Agreements/Arrangements*
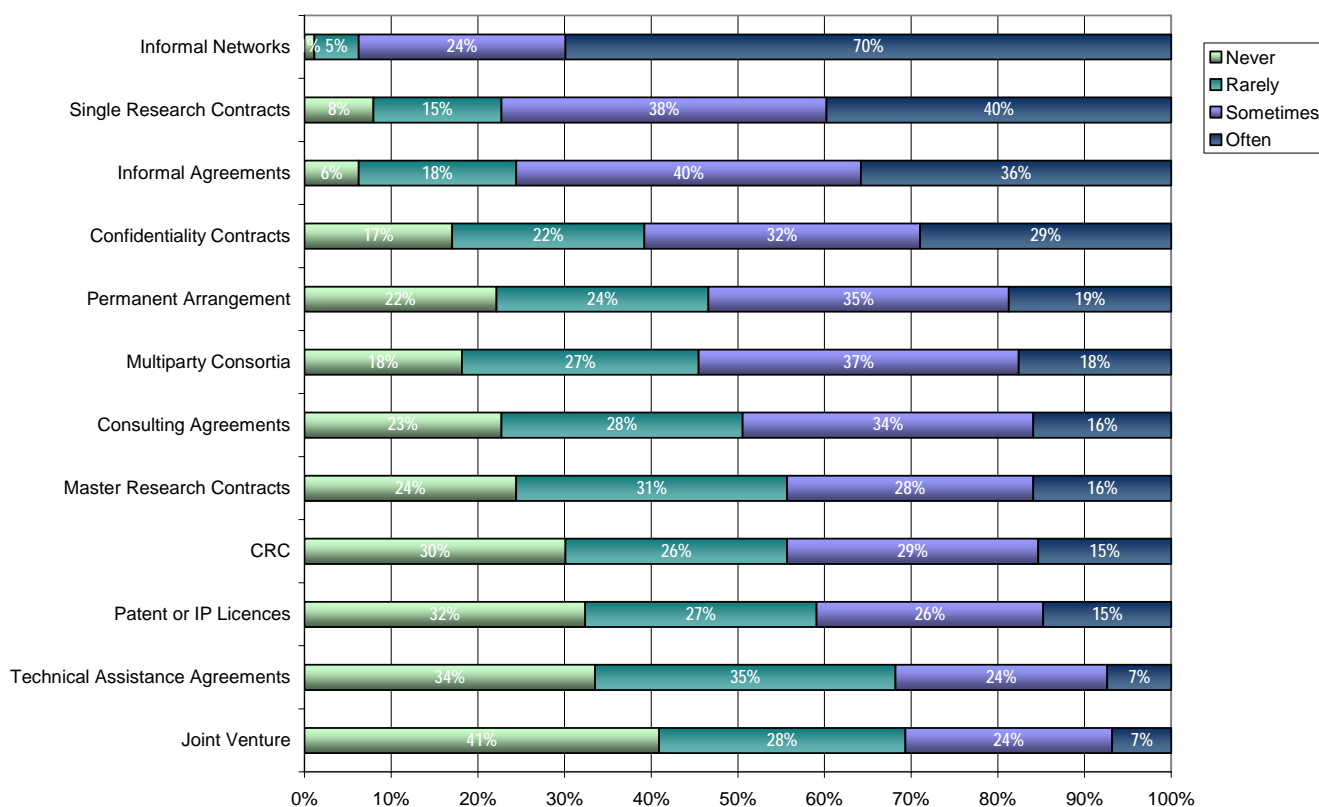
Table 9 presents the mean frequencies of various types of collaboration agreements by organisational role. One-way ANOVAs were carried out to explore differences in agreement types by organisational role. Researchers (d=0.72, $s.e.$=0.196, p=0.001) or managers (d=0.5, $s.e.$=0.202, p=0.041) (compared to those who have legal and contract roles) state that their collaborations more often involve informal agreements leading to co-authored publications. Those who have legal and contract roles are more likely than researchers to state that their collaborations involve master research contracts (d=0.61, $s.e.$=0.228, p=0.023), CRC (d=0.66, $s.e.$=0.235, p=0.016) or technical assistance agreements (d=1.0, $s.e.$=0.198, p=0.000).

Managers are more likely than researchers to state that their collaborations more often involve confidentiality/non-disclosure contracts (d=0.56, $s.e.$=0.161, p=0.002), multiparty research consortia (d=0.46, $s.e.$=0.159, p=0.011), CRC (d=0.48, $s.e.$=0.169, p=0.015), joint ventures (d=0.58, $s.e.$=0.144, p=0.000), patents (d=0.51, $s.e.$=0.15, p=0.003), technical assistance (d=0.53, $s.e.$=0.142, p=0.001) or consulting agreements (d=0.42, $s.e.$=0.157, p=0.024).

Respondents who have legal and contract roles are more likely than managers or researchers to state that their collaborations more often involve confidentiality/non-disclosure contracts (d=0.61, $s.e.$=0.231, p=0.024; d=1.17, $s.e.$=0.224, p=0.000), joint ventures (d=0.55, $s.e.$=0.206, p=0.021; d=1.13, $s.e.$=0.199, p=0.000), patents (d=1.12, $s.e.$=0.215, p=0.000; d=1.63, $s.e.$=0.209, p=0.000) or consulting agreements (d=0.58, $s.e.$=0.225, p=0.031; d=0.99, $s.e.$=0.218, p=0.000).

Table 9. *Mean Frequency of Various Types of Collaboration Agreements/Arrangements by Organisational Role*

Collaboration Involves:	Researcher (N=85)	Manager - Research &/or Organisation (N=66)	Legal & Contracts (N=25)
Informal Networks	3.66	3.62	3.52
Informal Agreements	**3.24**[a***]	**3.02**[b*]	**2.52**[a***b*]
Confidentiality Contracts	**2.35**[a**b***]	**2.91**[a**c*]	**3.52**[b***c*]
Single Research Contracts	2.96	3.18	3.28
Master Research Contracts	2.15[a*]	2.47	2.76 [a*]
Permanent Arrangement	2.33	2.68	2.60
Multiparty Research Consortia	2.34[a*]	2.80[a*]	2.52
CRC	**2.02**[a*b*]	**2.50**[a*]	**2.68**[b*]
Joint Venture	**1.59**[a***b***]	**2.17**[a***c*]	**2.72**[b***c*]
Patents	**1.81** [a**b***]	**2.32**[a**c***]	**3.44**[b***c***]
Technical Assistance Agreements	**1.72**[a***b***]	**2.24**[a***]	**2.72**[b***]
Consulting Agreements	**2.13**[a*b***]	**2.55**[a*c*]	**3.12**[b***c*]

*** $p < .001$, ** $p < .01$, * $p < .05$
[a, b, c] Significant differences between roles

Table 10 presents the mean frequencies of various types of collaboration agreements by disciplinary area. A series of independent-samples t-tests were conducted to examine differences in responses by disciplinary area. Respondents who are from Science and Technology ($n=111$) (compared to those from Arts & Social Sciences ($n=64$)) state that their collaborations more often involve master research contracts (*means*=2.48 and 2.14 respectively; $t=2.12$, $p=0.035$), permanent research arrangement (*means*=2.63 and 2.27 respectively; $t=2.26$, $p=0.025$), multiparty research consortia (*means*=2.66 and 2.31 respectively; $t=2.27$, $p=0.025$), or CRC (*means*=2.42 and 2.06 respectively; $t=2.19$, $p=0.03$).

Table 10. *Mean Frequency of Various Types of Collaboration Agreements/Arrangements by Disciplinary Area*

Collaboration Involves:	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Informal Networks	3.62	3.63
Informal Agreements	3.01	3.11
Confidentiality Contracts	2.81	2.56
Single Research Contracts	3.14	2.98
Master Research Contracts	**2.48***	**2.14**
Permanent Arrangement	**2.63***	**2.27**
Multiparty Research Consortia	**2.66***	**2.31**
CRC	**2.42***	**2.06**
Joint Venture	2.02	1.86
Patents	2.26	2.17
Technical Assistance Agreements	2.15	1.88
Consulting Agreements	2.38	2.48

*$p<.05$

Comments

"We operate in a much more legally regulated environment than 3-5 years ago and institutions are reluctant to enter into arrangements without formal agreements."
(Research Manager, University; Science & Technology)

"(Informal Collaborations are used…) to formulate initial ideas."
(Researcher, University; Science & Technology)

"Informal collaborations cannot ethically be used for detailed disclosure or to govern entire research projects. They need to be subjected to ethics clearances if this is the case."
(Researcher, University; Arts & Social Sciences)

Table 11 presents the mean frequencies of various types of collaboration agreements by extent of involvement in e-Research. Independent-samples t-tests were carried out to explore differences in frequencies of agreements by e-Research involvement. Respondents who are moderately/extensively involved in e-Research stated that they are more often involved with technical assistance agreements than those that are not at all or slightly involved in e-Research (*means* 2.15 and 1.84 respectively; t=2.01, p=0.046).

Table 11. *Mean Frequency of Various Types of Collaboration Agreements/Arrangements by Level of Involvement in e-Research*

| | e-Research Involvement | |
Collaboration Involves:	Not at all – Slightly N=50	Moderately – Extensively N=125
Informal Networks	3.56	3.65
Informal Agreements	2.90	3.11
Confidentiality Contracts	2.72	2.74
Single Research Contracts	3.14	3.06
Master Research Contracts	2.28	2.38
Permanent Arrangement	2.26	2.59
Multiparty Research Consortia	2.38	2.61
CRC	2.46	2.22
Joint Venture	1.96	1.98
Patents	2.14	2.28
Technical Assistance Agreements	**1.84**	**2.15***
Consulting Agreements	2.58	2.38

*p<.05

Table 12 presents the mean frequencies of various types of collaboration agreements by organisational sector. Independent-samples t-tests were carried out to explore differences in frequencies of agreements by sector employment. Respondents that are located in the university sector (compared to those in government/industry) stated: that they are more often involved with informal agreements leading to co-authored publications (*means* 3.25 and 2.69 respectively; t=4.11, p=.000); and less involved with confidentiality contracts (*means* 2.53 and 3.10 respectively; t=-3.517, p=.001); master research contracts (*means* 2.23 and 2.60 respectively; t=-2.317, p=.022); CRC's (*means* 2.11 and 2.65 respectively; t=-3.319, p=.001); joint ventures (*means* 1.75 and 2.35; t=-4.135, p=.000); patents (*means* 2.04 and 2.60 respectively; t=-3.454, p=.001), technical assistance agreements (*means* 1.91 and 2.32 respectively; t=-2.832, p=.005) and consulting agreements (*means* 2.31 and 2.65 respectively; t=-2.140, p=.034).

Table 12. *Mean Frequency of Various Types of Collaboration Agreements/Arrangements by Organisational Sector*

Collaboration Involves:	Sector	
	University (N=114)	Government /Industry (N=62)
Informal Networks	3.65	3.58
Informal Agreements	**3.25**	**2.69*****
Confidentiality Contracts	**2.53**	**3.10*****
Single Research Contracts	3.02	3.23
Master Research Contracts	**2.23**	**2.60***
Permanent Arrangement	2.46	2.56
Multiparty Research Consortia	2.57	2.48
CRC	**2.11**	**2.65****
Joint Venture	**1.75**	**2.35****
Patents	**2.04**	**2.60****
Technical Assistance Agreements	**1.91**	**2.32****
Consulting Agreements	**2.31**	**2.65***

***$p<.001$, **$p<.01$, *$p<.05$

Table 13 presents information related to perceptions of the use of informal collaborations or agreements. Over half the sample (53.4%) described informal collaborations or agreements as often being used for small, discrete exchanges of information (mean 3.5) and almost half (43.8%) described informal collaborations as sometimes being used for detailed disclosures or discussion of information (17% also stating that they are often used for detailed disclosure; mean 2.7). Almost two-thirds of the sample feel that informal collaborations will be increasingly used in e-Research (due to contexts such as time constraints and rapidly changing research environments). There were no significant differences by organisational role, disciplinary area, level of involvement in e-Research or organisational sector.

Table 13. *Perceptions of Uses of Informal Collaborations or Agreements*

	Small exchanges of information	Detailed disclosures	Govern project	Will be used in the future
	%	%	%	%
Never	2.3%	11.4%	23.3%	8.5%
Rarely	2.8%	27.8%	36.9%	28.4%
Sometimes	41.5%	43.8%	29.5%	47.7%
Often	53.4%	17.0%	10.2%	15.3%

Participants were asked to describe the size, location, duration and nature of their three most significant collaborative projects (see Table 14). Approximately three-quarters of collaborative projects involve one to ten researchers, tending to be short-term (less than three years in duration) and formal. Approximately half of the projects described do not involve overseas collaborators (with approximately one-third of projects having 1-25% overseas involvement). The more significant the collaboration, the more likely it is to be within the context of a formal agreement.

Table 14. *Characteristics of Three Most Significant Collaborative Projects*

Characteristics	Collaboration 1 (*n*=153) %	Collaboration 2 (*n*=145) %	Collaboration 3 (*n*=127) %
No. of Researchers			
1-10	75.8	74.7	78.7
11-20	12.4	15.1	15.0
21-50	6.5	7.5	4.7
51-100	3.3	2.1	0.8
101+	2.0	0.7	0.8
% from Overseas			
None	45.8	52.1	57.5
1-25%	36.6	30.1	32.3
26-50%	9.8	6.2	3.9
51-75%	4.6	6.2	2.4
76-79%	3.3	5.5	3.9
Duration			
Short-term (<3yrs)	51.0	58.6	66.9
Long-term (>3yrs)	49.0	41.4	33.1
Agreement Type			
Formal	70.6	63.4	55.1
Informal	29.4	36.6	44.9

3.2.4 Collaborative Research Project Outcomes

Participants were asked to rate the importance of 14 research outcomes (entering formal research agreements; patents, copyright, intellectual property; exclusive licences; non-exclusive licences; royalties, revenue, return on investment; start-up companies; co-authored publications; sharing knowledge via public disclosure or publications; sharing knowledge to limited community; student exchanges; product development, or solutions for industry/market; inflow of knowledge from industry; inflow of knowledge from researchers; better equipment, facilities; and improved research practices such as better quality, cost control, scientific evaluation) to their collaborative projects (see Figure 8).

Almost two-thirds (62%) of the sample identified co-authored publications as a very important outcome of collaborative projects (mean importance=3.44); the inflow of knowledge from researchers was identified by 60% of the sample as being very important (mean importance=3.47); and sharing knowledge via public disclosure or publications was also viewed as very important by 60% of the sample (mean importance=3.41). Figure 8 displays the mean relative importance of these research outcomes by organisational role. Three participants nominated additional outcomes such as 'improved networking' and 'rewards for communicating with others'.

Figure 8. *Importance of Research Outcomes to Collaborative Projects*
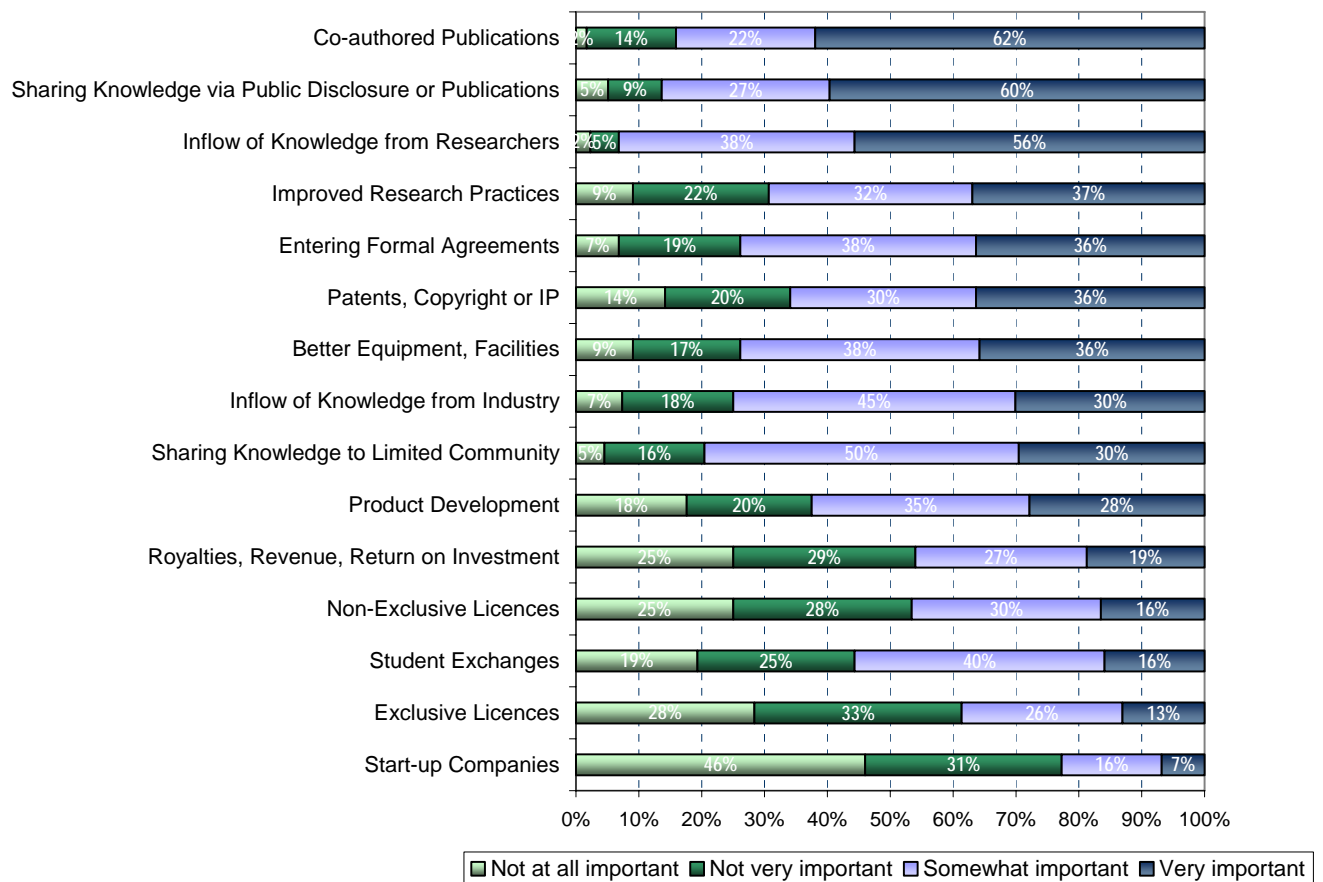
A series of one-way ANOVAs and independent samples t-tests were carried out to examine potential differences in the importance of these collaboration outcomes by organisational role, by disciplinary area, level of involvement in e-Research and organisational sector.

Table 15 presents the mean importance attached to the 14 research outcomes by organisational role. Entering formal research agreements (d=0.39, $s.e.$=0.147, p=0.024), patents or IP (d=0.49, $s.e.$=0.161, p=0.008), exclusive (d=0.38, $s.e.$=0.152, p=0.033) or non-exclusive (d=0.39, $s.e.$=0.16, p=0.043) licences, royalties (d=0.41, $s.e.$=0.161, p=0.03), start-up companies (d=0.43, $s.e.$=0.144, p=0.009) or product development (d=0.50, $s.e.$=0.167, p=0.008) were more important for managers than for researchers. Patents or IP (d=0.70, $s.e.$=0.231, p=0.007; d=1.19, $s.e.$=0.224, p=0.000), exclusive (d=0.82, $s.e.$=0.218, p=0.001; d=1.20, $s.e.$=0.211, p=0.000) or non-exclusive (d=0.69, $s.e.$=0.229, p=0.008; d=1.08, $s.e.$=0.222, p=0.000) licences, royalties (d=0.80, $s.e.$=0.231, p=0.002; d=1.21, $s.e.$=0.224, p=0.000), or start-up companies (d=0.51, $s.e.$=0.206, p=0.038; d=0.94, $s.e.$=0.2, p=0.000) were more important for those who have legal and contract roles than for managers or researchers.

Co-authored publications (d=0.81, $s.e.$=0.172, p=0.000), sharing knowledge via public disclosure or publications (d=0.50, $s.e.$=0.19, p=0.026) or student exchanges (d=0.63, $s.e.$=0.219, p=0.012) were more important for researchers than those who have legal and contract roles. Product development was more important for those who have legal and contract roles than researchers (d=0.72, $s.e.$=0.232, p=0.006). Co-authored publications (d=0.57, $s.e.$=0.177, p=0.005) or better equipment or facilities (d=0.56, $s.e.$=0.219, p=0.032) were more important for managers than those who have legal and contract roles.

Table 15. *Mean Importance of Collaborative Research Outcomes by Organisational Role of Participant*

Outcomes	Researcher (N=85)	Manager - Research &/or Organisation (N=66)	Legal & Contracts (N=25)
Formal Agreements	**2.82**[a*]	**3.21**[a*]	3.28
Patents or IP	**2.53**[a**b***]	**3.02**[a**c**]	**3.72**[b***c**]
Exclusive Licences	**1.92**[a*b***]	**2.30**[a*c***]	**3.12**[b***c***]
Non-Exclusive Licences	**2.08**[a*b***]	**2.47**[a*c**]	**3.16**[b***c**]
Royalties	**2.07**[a*b***]	**2.48**[a*c**]	**3.28**[b***c**]
Start-up Companies	**1.54**[a**b***]	**1.97**[a**c*]	**2.48**[b***c*]
Co-authored Publications	**3.65**[a***]	**3.41**[b**]	**2.84**[a***b**]
Sharing Knowledge - Public	**3.58**[a*]	3.32	**3.08**[a*]
Sharing Knowledge - Limited	3.08	3.03	2.96
Student Exchanges	**2.67**[a*]	2.52	**2.04**[a*]
Product Development	**2.44**[a**b**]	**2.94**[a**]	**3.16**[b**]
Industry Knowledge	2.84	3.06	3.24
Research Knowledge	3.45	3.55	3.32
Better Facilities	2.96	**3.20**[a*]	**2.64**[a*]
Improved Research Practices	2.91	3.08	2.92

Table 16 presents data related to importance of outcomes by disciplinary area. Student exchanges (*means*=2.66 and 2.3 respectively; t=2.37, p=0.019) and product development (*means*=2.91 and 2.39 respectively; t=3.22, p=0.002) were more important for those who are from Science and Technology (*n*=111) than those from the Arts & Social Sciences (*n*=64).

Table 16. *Mean Importance of Collaborative Research Outcomes by Disciplinary Area*

Outcomes	Disciplinary Area	
	Science & Technology (*n*=111)	Arts & Social Sciences (*n*=64)
Formal Agreements	3.10	2.91
Patents or IP	2.88	2.88
Exclusive Licences	2.26	2.19
Non-Exclusive Licences	2.43	2.30
Royalties	2.38	2.42
Start-up Companies	1.89	1.73
Co-authored Publications	3.51	3.31
Sharing Knowledge - Public	3.44	3.34
Sharing Knowledge - Limited	3.07	3.00
Student Exchanges	**2.66***	**2.30**
Product Development	**2.91****	**2.39**
Industry Knowledge	3.01	2.91
Research Knowledge	3.52	3.36
Better Facilities	3.08	2.86
Improved Research Practices	3.06	2.80

Table 17 presents data related to importance of outcomes by level of involvement in e-Research. Inflow of knowledge from researchers was viewed as more important by those that are moderately-extensively involved with e-Research compared to those not at all-slightly involved with e-Research (*means*=3.55 and 3.26 respectively; t=2.56, p=0.011).

Table 17. *Mean Importance of Collaborative Project Outcomes by Level of Involvement in e-Research*

Outcomes	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Formal Agreements	3.06	3.02
Patents or IP	2.90	2.86
Exclusive Licences	2.24	2.23
Non-Exclusive Licences	2.42	2.36
Royalties	2.28	2.45
Start-up Companies	1.80	1.86
Co-authored Publications	3.26	3.51
Sharing Knowledge - Public	3.26	3.46
Sharing Knowledge - Limited	3.02	3.05
Student Exchanges	2.30	2.60
Product Development	2.76	2.70
Industry Knowledge	2.94	3.00
Research Knowledge	**3.26**	**3.55***
Better Facilities	2.80	3.09
Improved Research Practices	2.90	3.00

*$p<.05$

Table 18 presents data related to importance of outcomes by organisational sector. Formal agreements (*means* 3.23 and 2.93 respectively; t=-2.07, p=.04), patents/IP (*means* 3.19 and 2.71 respectively; t=-2.95, p=.004), exclusive licences (*means* 2.61 and 2.03 respectively; t=-3.83, p=.000), royalties (*means* 2.82 and 2.17 respectively; t=-4.10, p=.000), start-up companies (*means* 2.08 and 1.70 respectively; t=-2.62, p=.010), product development (*means* 3.08 and 2.54 respectively; t=-3.37, p=.001), and inflow of knowledge from industry (*means* 3.18 and 2.87 respectively; t=-2.248, p=.026) were viewed as more important outcomes by those in government/industry compared to those in the university sector. Co-authored publications (*means* 3.66 and 3.05 respectively; t=5.186, p=.000) and sharing knowledge via public disclosure or publications (*means* 3.61 and 3.03 respectively; t=4.58; p=.000) were viewed as more important by those in the university sector compared with those in government/industry.

Table 18. *Mean Importance of Collaborative Project Outcomes by Organisational Sector*

Outcomes	Sector	
	University (*n*=114)	Government /Industry (*n*=62)
Formal Agreements	2.93	3.23*
Patents or IP	2.71	3.19**
Exclusive Licences	2.03	2.61***
Non-Exclusive Licences	2.21	2.69**
Royalties	2.17	2.82***
Start-up Companies	1.70	2.08*
Co-authored Publications	3.66	3.05***
Sharing Knowledge - Public	3.61	3.03***
Sharing Knowledge - Limited	3.04	3.05
Student Exchanges	2.68	2.24
Product Development	2.54	3.08*
Industry Knowledge	2.87	3.18*
Research Knowledge	3.46	3.47
Better Facilities	3.09	2.85
Improved Research Practices	2.98	2.95

***p<.001, **p<.01, *p<.05

3.2.5   Critical Factors in Successful Collaborations

Participants were asked to describe the critical factors in their most successful collaborations via an open-ended question (a total of 145 comments were received). Comments were thematically coded[13] using the following descriptors: Synergies and Shared Goals &/or Resources; Relationships & Communication; and Business Planning & Practice (see Appendix B for the complete list of comments). A number of participant's comments referred to a variety of factors, thus for coding purposes, the first factor specified was used to classify responses. Approximately half (49.0%) of comments made predominantly reflect the importance of research synergies and shared goals and resources, with approximately 40% of comments predominantly referring to the importance of good relationships and communication

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Comments: What do you see as the critical factors in your most successful collaborations?
Synergies & Shared/Goals Resources (approximately 49% of comments)

"Synergy in interests, communication of expectations (if we have these two, I have found generally there will be ease amongst the parties when negotiating)."
(Legal Advisor, Government)

"They were all run as classic skunk works where the altruistic came together informally with...synergistic interests and the shear determination to make it work." (Research Manager, Government; Science & Technology)

"Synergy in interests supported by the concrete research execution plan. This has to be developed through frequent (weekly) intense meetings (face-to-face or similar remote collaboration...not just simple video conferencing!). (Researcher, University; Science & Technology)

"For commercial research collaborations - overlapping and complementary interests, overlapping and complementary skills, business planning, clear and honest communication paths, expectations of ongoing relationships and partnerships, joint negotiation of research, precise but flexible milestones for purely curiosity driven research - complementary and overlapping interests and skills, clear delineation of responsibility, reciprocity in interaction, good communication, opportunities for formal and informal interaction, reasonable time frames + flexible deadlines." (Research Centre Manager, University; Arts & Social Sciences)

Relationships & Communication (approximately 40% of comments)

"Ability to get on with others on a social basis. Successful outputs of a timely nature." (Research Manager, Research Institute; Arts & Social Sciences)

"Knowledge of the people involved, the informality of the processes, goodwill between collaborators, reputations of the participants and recognition of the research outcomes likely to be achieved." (Researcher, Government, Science & Technology)

Business Planning & Practice (approximately 11% of comments)

"Agreeing and documenting commercial arrangements (IP, revenue sharing etc) before the project commences." (Commercialisation Officer; Industry)

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[13] Where comments referred to a number of factors, the first factor (or the dominant factor) listed guided the coding process.

3.3 Project Agreement Issues

Almost one-third of the sample believe that formal agreements are always necessary (31.1%), with approximately two-thirds stating that formal agreements are sometimes necessary (68.0%). Only one participant stated that formal agreements are never necessary. Many comments emphasised the importance of trust in collaborative arrangements. As one participant commented: *"If a hand shake and mutual respect won't do it…contracts are not going to save you from each other" (Research Manager, Research Institute; Arts & Social Sciences).* Thirty-six participants commented on the necessity of formal agreements (see Appendix B for complete listing of open-ended comments).

The average time taken to finalise formal collaborative research agreements (from initial contact) is 2.2 months for confidentiality/non-disclosure agreements (range 1-12 months); 3 months for simple two-party agreements (range 1-12 months); and 8 months for large, complex or multi-party agreements (range 1-30 months). As one participant commented: *"Legal agreements represent the largest impediment to timely research. The writing of proposals and obtaining funds is the easiest and quickest part. Legal agreements require early involvement of lawyers." (Researcher, University; Science & Technology)*

A majority of the sample were satisfied with the level of input they have into formal agreements (79.7%), with only 15.3% stating that they would like more input (5.1% stated that they would like less input). For those in research roles, 22.4% stated that they would like more input into formal agreements and for research/organisational managers, 6.1% stated that they would like to have more input. Appendix B contains the complete listing of open-ended comments made regarding input into formal agreements (19 participants chose to comment on input into formal agreements).

Participants were asked to identify the frequency with which a range of activities occur in the context of project agreements (see Figure 9). Almost two-thirds (62%) of the sample often consult with others such as managers and legal/contracts advisors before concluding formal agreements (5.6% never consult and 7.9% rarely consult others). Almost half of the sample stated that they often initiate discussions with other researchers for possible collaborations (44%) and 38.4% stated that they have input into the actual form of the final agreement (and 31.6% stating that they sometimes have input into the final agreement). Over half of the sample (56.5%) also stated that they never conclude formal agreements without consultation or assistance.

Figure 9. *Relative Frequency of Project Agreement Activities*
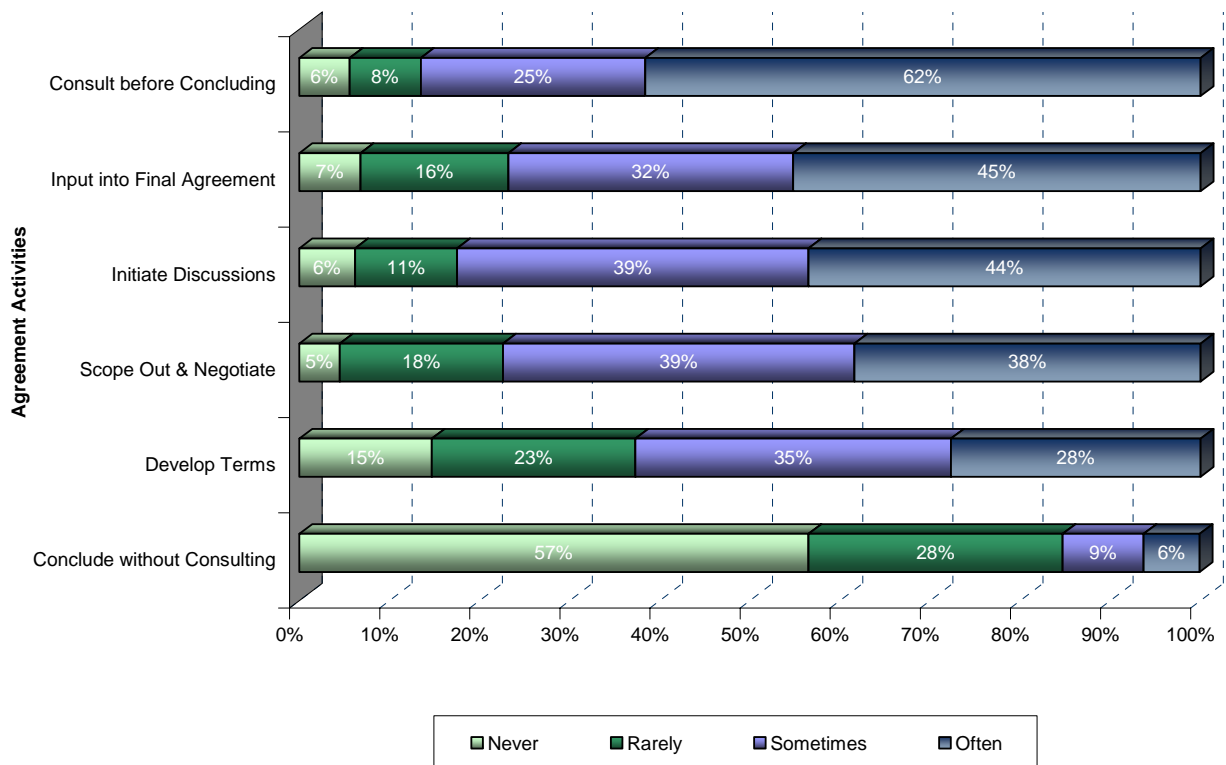
There were significant differences in responses by disciplinary area, whereby those in Science & Technology fields are more likely than those in Arts & Social Science fields to 'initiate discussions with other researchers for possible collaborations' (*means* 3.41 and 2.81 respectively, t=4.62, p=.000); 'scope out collaborative projects, negotiate milestones and outcomes; (*means* 3.22 and 2.91 respectively, t=2.39, p=.018); and 'have input into the actual form of the final agreement' (*means* 3.29 and 2.91 respectively, t=2.64, p=.009). There were also significant differences by organisational sector, whereby those from government/industry are more likely than those from the university sector to 'assist in developing terms sheets, heads of agreement or memoranda of understanding' (*means* 3.21 and 2.52 respectively; t=-4.54, p=.000). Participants from universities are more likely than those from government/industry to initiate discussions with other researchers for possible collaborations (*means* 3.29 and 3.02 respectively; t=2.001, p=.047).

Commencing collaborative research projects prior to the signing of agreements is a relatively common practice; with 26% stating that they 'often', and 54.2% stating that they 'sometimes', commence projects before agreements are signed (only 6.8% stated that they never start projects prior to sign-off). Comments indicate pressure surrounding timelines is often the reason for the early commencement: *"Almost always, in fact. Generally, you've got a short-ish timeline, and you can't afford to wait*

months for the haggling to stop. If you don't start before the contract is signed, you'll won't finish on time and end up in violation of the terms of agreement." (Researcher, University; Science & Technology) and *"The legal and contractual processes can often be much slower than the time it actually takes to complete the research!" (Contracts Officer, Research Institute; Science & Technology).*

Participants were asked to share their views on the commercialisation of research (see Appendix B for complete listing of comments). One-hundred and thirty-five participants commented on the commercialisation of research. Many of these comments reflected the view that commercialisation is an important part of the research process (approximately 30% broadly supporting commercialisation) although there can be conflicts involved. Almost one-in-four participants commented that commercialisation should play no role in research (or a limited role) or interferes with the process and/or integrity of the research.

Comments: Views on the Commercialisation of Research (135 Comments made)
Generally Supportive of Commercialisation (approximately 30% of comments)

"Strongly support it, even though my present organisation is for purely public benefit environmental research. My idea of the 'perfect' R&D setting is where there is a portfolio or spectrum of R&D from public good through to commercial. This depends on their being effective reward mechanisms and 'safe havens' for researchers to move between these classes of activity."
(Research Manager, Research Institute; Science & Technology)

"In general, I'm in favour of it. Bringing academic research into an industry context is great, if you can use it to increase productivity, or quality of life, or whatever the focus is. I do think that the content of the research needs to be public domain, and so am generally opposed to trade secret protection. Unfortunately, I also think the patent system, which is supposed to allow a compromise between the two, is broken. Patents are granted far too easily, far too broadly, and are not in fact very comprehensible to non-lawyers. So, while a lot of ideologically-inclined articles talk about the wonderful benefits associated with providing protection to inventors, my experience is that patents are actually legal weapons for companies. Consequently, most researchers that I associate with view them with great scepticism, preferring to use private negotiations to force the content into public domain."
(Researcher, University; Science & Technology)

Depends on the Nature of the Research (approximately 18% of comments)

"Totally dependent on the context.. Commercialisation assumes that there are clients who want and can afford products, knowledge and tools and are themselves able to make money out of the use of these materials. In some areas, e.g. social sciences, the client is essentially society and hence researchers have a social responsibility and obligation to provide society with useful knowledge and tools at cost."
(Researcher, University; Arts & Social Sciences)

"Extremely difficult in the social sciences and humanities. Successful commercialisation often involves patents and then the ability to mass-produce at low cost - these are often not possible/relevant in the context of IP developed in the social sciences and humanities."
(Researcher, University; Arts & Social Sciences)

"Good way of making research accessible - having it utilised. Only concern is where $ is more heavily weighted than public good - e.g. ensuring medical innovations are not priced out of the hands of those who need them." (Research Manager, University; Arts & Social Sciences)

"Research in my area is, in general, already paid for by taxpayers, so it should be made available as freely as possible." (Research Manager, University; Arts & Social Sciences)

It Interferes with Research (approximately 9% of comments)

"As research funding and university funding from government dries up, there is increasing push to commercialise every aspect of research. Sometimes this is not feasible, simply not the market for it, or project may be too underdeveloped. It can interfere with freedom of research in that students and staff looking to areas with obvious commercial potential and not necessarily the best research or areas that interest them. Universities may be becoming a de facto R&D site of different companies, meaning they get their research on the cheap." (Legal Advisor, University)

"Whilst commercialisation can be beneficial, I believe that it can blur the vision of senior management where the aim of the research can be exploited for financial gain through commercialisation opportunities. Commercialisation should not be viewed as the ultimate aim of research at Universities. If a research outcome can be commercialised then those which specialised knowledge about procedures need to be involved to protect the interests of researchers (primarily), the University and research partners (who may be industry based)." (Research Manager, University; Arts & Social Sciences)

Figure 10 depicts the relative frequency of a range of general problems potentially encountered in negotiating formal agreements. The most frequent problems encountered by participants were 'unreasonable delays in project commencement' (mea*n*=3.0; 27% stating that this often occurs); 'difficulties with government agencies' (mea*n*=2.7; 21% stating that this often occurs); 'difficulties with university technology transfer offices' (mean 2.5; 19% stating that this often occurs); and negotiation resulting in something that 'became too complex for what the project was' (mea*n*=2.7; 17% stating this often occurs). Over one-third of the sample (36%) stated that sometimes negotiation difficulties prevented the project from proceeding and that trust had been eroded.

Figure 10. *General Problems in Negotiating Formal Agreements*
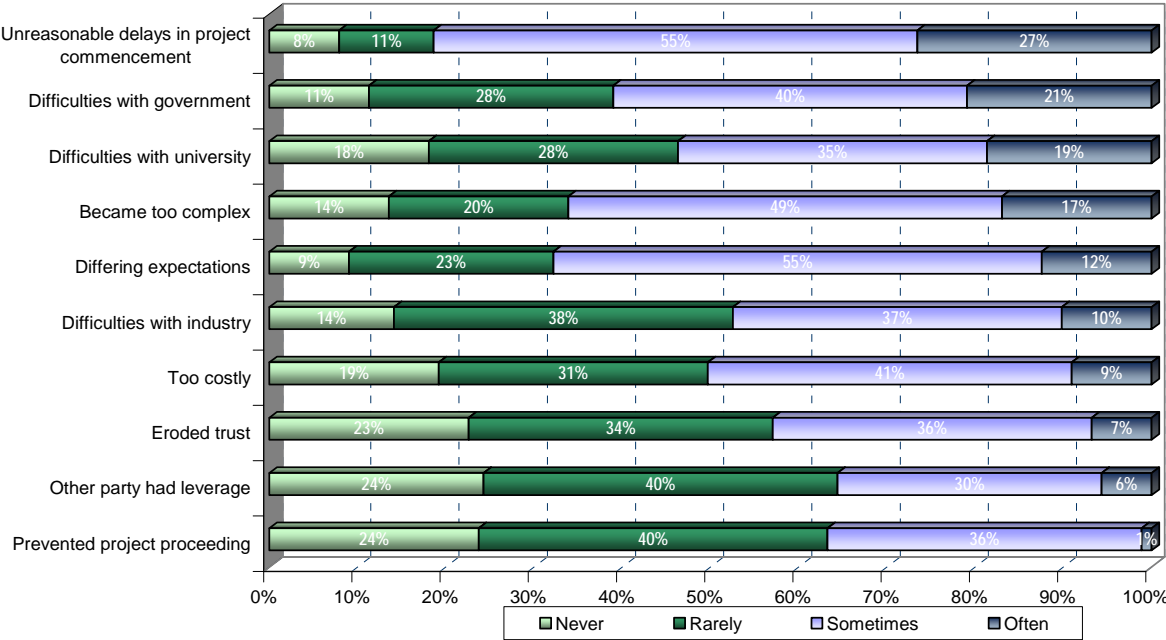
One-way ANOVAs were conducted to examine differences in frequencies of negotiation issues by organisational role (see Table 19). Respondents who have legal and contract roles (compared to those in research roles) more often encountered the problem of the other party having all the leverage (mea*n*=2.88 and 1.99 respectively; *d*=0.89, *s.e.*=0.185, *p*=0.000) or parties having differing expectations (*means*=3.08 and 2.52 respectively; *d*=0.56, *s.e.*=0.177, *p*=0.005) (*d*=0.76, *s.e.*=0.191, *p*=0.000) and managers (*mean*=2.12).

Table 19. *General Problems Encountered in Negotiating Formal Agreements by Organisational Role*

General Problems	Role in the Organisation		
	Researcher	**Manager - Research &/or Organisation**	**Legal & Contracts**
	N=85	**N=66**	**N=25**
Unreasonable delays in project commencement	3.05	3.05	2.68
Prevented project proceeding	2.15	2.12	2.12
Became too complex	2.67	2.70	2.72
Too costly	2.33	2.45	2.44
Eroded trust	2.27	2.29	2.16
Other party had leverage	**1.99**[a***]	**2.12**[b***]	**2.88**[a***b***]
Differing expectations	**2.52**[a**]	**2.82**	**3.08**[a**]
Difficulties with industry	2.36	2.44	2.72
Difficulties with university	2.46	2.55	2.76
Difficulties with government	2.61	2.77	2.80

***$p<.001$, **$p<.01$, *$p<.05$
[a, b] Significant differences between roles

Table 20 presents the mean frequencies of general negotiation problems by disciplinary area, and Table 21 presents means by level of involvement in e-Research. There were no significant differences by disciplinary area, with both those in science and technology and the arts citing unreasonable delays in project commencement as the major negotiation problem.

Table 20. *General Problems Encountered in Negotiating Formal Agreements by Disciplinary Area*

General Problems	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Unreasonable delays in project commencement	3.10	2.83
Prevented project proceeding	2.16	2.11
Became too complex	2.75	2.61
Too costly	2.39	2.42
Eroded trust	2.28	2.27
Other party had leverage	2.08	2.31
Differing expectations	2.67	2.78
Difficulties with industry	2.42	2.45
Difficulties with university	2.63	2.38
Difficulties with government	2.75	2.63

Table 21 presents means by level of involvement in e-Research. The only significant difference between those 'not at all-slightly' involved and those 'moderately-extensively' involved in e-Research, is that those less involved with e-Research tend to encounter problems associated with the parties having different expectations more so than those moderately to extensively involved with e-Research (*means* 2.96 and 2.61 respectively, *t*=2.8, *p*=0.006).

Table 21. *General Problems Encountered in Negotiating Formal Agreements by Level of Involvement in e-Research*

General Problems	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Unreasonable delays in project commencement	2.88	3.04
Prevented project proceeding	2.06	2.16
Became too complex	2.64	2.70
Too costly	2.26	2.45
Eroded trust	2.36	2.21
Other party had leverage	2.28	2.11
Differing expectations	**2.96****	**2.61**
Difficulties with industry	2.58	2.38
Difficulties with university	2.52	2.54
Difficulties with government	2.76	2.67

**$p<.01$, *$p<.05$

Participants were also asked to rate the frequency of a range of specific issues that can cause problems in negotiating formal agreements (see Figure 11). The highest mean frequencies were attached to 'intellectual property-ownership' (mean=2.99; 30% stating that this is often an issue); 'data ownership and access' (mean=2.83; 19% stating that this is often an issue); 'intellectual property-licensing' (mean=2.71; 21% stating that this is often an issue); 'intellectual property-overvaluing it' (mean=2.66; 23% stating that this is often an issue); and 'liability/indemnity clauses' (mean=2.60; 20% stating that this is often an issue). Half of the sample (53.1%) identified that these problems can also be a problem during the performance of the agreement.

Figure 11. *Specific Problems in Negotiating Formal Agreements*
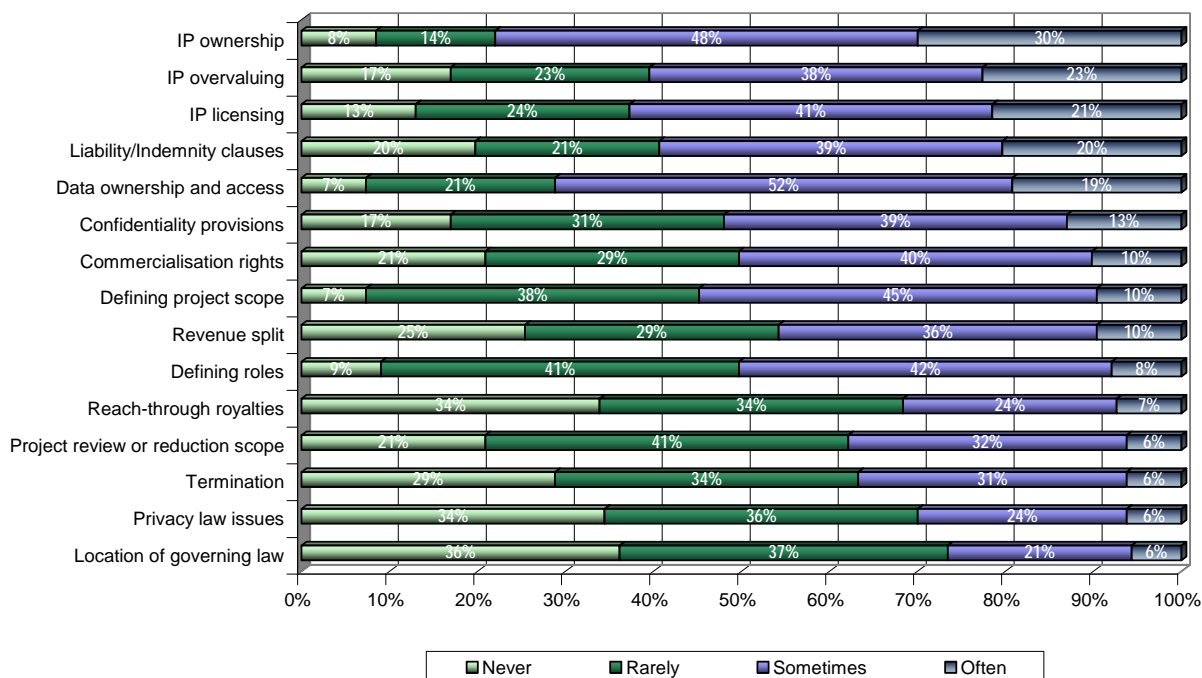
Mean responses by organisational role (in terms of specific issues that can cause problems in negotiating formal agreements) are presented in Table 22. A one-way ANOVA was conducted to compare frequency scores by organisational role for each of the statements. Defining parties' roles/responsibilities (d=0.44, $s.e.$=0.173, p=0.034), commercialisation rights (d=0.63, $s.e.$=0.206, p=0.007), location of governing law (d=0.58, $s.e.$=0.197, p=0.01), revenue split (d=0.72, $s.e.$=0.21, p=0.002), reach-through royalties (d=0.71, $s.e.$=0.205, p=0.002), liability/indemnity clauses (d=1.03, $s.e.$=0.22, p=0.000) and termination (d=0.73, $s.e.$=0.198, p=0.001) are more often an issue for those who have legal and contract roles than for those in research roles. Revenue split (d=0.65, $s.e.$=0.217, p=0.009), reach-through royalties (d=0.59, $s.e.$=0.212, p=0.018), liability/indemnity clauses (d=0.72, $s.e.$=0.227, p=0.005) or termination (d=0.63, $s.e.$=0.205, p=0.007) are more often an issue for those who have legal and contract roles than for those in managerial roles.

Table 22. *Mean Frequency of Specific Problems in Negotiating Formal Agreements by Organisational Role*

Issue	Researcher (*n*=85)	Manager - Research &/or Organisation (*n*=66)	Legal & Contracts (*n*=25)
Defining roles	**2.36**[a]*	2.53	**2.80**[a]*
Defining project scope	2.44	2.65	2.80
Data ownership and access	2.76	2.82	3.08
IP ownership	2.93	2.94	3.32
IP licensing	2.62	2.67	3.08
IP overvaluing	2.64	2.65	2.72
Commercialisation rights	**2.21**[a]**	2.44	**2.84**[a]**
Revenue split	**2.16**[a]**	**2.23**[b]**	**2.88**[a]**[b]**
Reach-through royalties	**1.89**[a]**	**2.02**[b]*	**2.60**[a]**[b]*
Liability/Indemnity clauses	**2.33**[a]***	**2.64**[b]**	**3.36**[a]***[b]**
Confidentiality provisions	2.52	2.36	2.60
Location of governing law	**1.78**[a]**	2.02	**2.36**[a]**
Privacy law issues	1.96	2.08	1.96
Project review or reduction scope	2.19	2.21	2.36
Termination	**1.99**[a]***	**2.09**[b]**	**2.72**[a]***[b]**

*** p<.001, ** p<.01, * p<.05
[a, b] Significant differences between roles

Mean responses by disciplinary area (in terms of specific issues that can cause problems in negotiating formal agreements) are presented in Table 23. There were no significant differences by disciplinary area.

Table 23. *Mean Frequency of Specific Problems in Negotiating Formal Agreements by Disciplinary Area*

Issue	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Defining roles	2.44	2.58
Defining project scope	2.54	2.63
Data ownership and access	2.83	2.83
IP ownership	3.01	2.97
IP licensing	2.73	2.69
IP overvaluing	2.73	2.53
Commercialisation rights	2.46	2.28
Revenue split	2.38	2.14
Reach-through royalties	2.13	1.94
Liability/Indemnity clauses	2.66	2.50
Confidentiality provisions	2.48	2.48
Location of governing law	1.93	2.02
Privacy law issues	1.92	2.19
Project review or reduction scope	2.21	2.27
Termination	2.07	2.27

Mean responses by level of involvement in e-Research regarding specific issues that can cause problems in negotiating formal agreements are presented in Table 24. There were no significant differences by level of involvement in e-Research.

Table 24. *Mean Frequency of Specific Problems in Negotiating Formal Agreements by Level of Involvement in e-Research*

Issue	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Defining roles	2.62	2.43
Defining project scope	2.72	2.50
Data ownership and access	2.80	2.83
IP ownership	3.04	2.97
IP licensing	2.88	2.64
IP overvaluing	2.54	2.70
Commercialisation rights	2.58	2.30
Revenue split	2.46	2.22
Reach-through royalties	2.16	1.99
Liability/Indemnity clauses	2.78	2.52
Confidentiality provisions	2.48	2.46
Location of governing law	2.04	1.91
Privacy law issues	1.98	2.02
Project review or reduction scope	2.22	2.22
Termination	2.26	2.08

Comments: Problems Encountered in Developing Formal Agreements (97 Comments made)
Timing & Delays

"When very bureaucratic agencies were involved (especially university IP / commercialization arms) long delays and many iterations were required." (Research Manager, Industry; Science & Technology)

"We had a 12-month ARC grant for which it took 15 months to get an MOU signed." (Researcher, University; Science & Technology)

"Timing is mainly the problem - complex projects often have multiple "approval" layers involving not only the formal paper agreement but maybe Human Research Ethics/Animal Ethics, OHS considerations etc - as these may be duplicated in each of the organisations involved in the project - eg research involving several hospitals." (Research Manager, University; Science & Technology)

Different 'Languages'

"Lawyers don't understand researchers, researchers don't understand lawyers, etc." (Researcher, University; Arts & Social Sciences)

"I'm doing a lawyer's work without being a lawyer (though I do have a law degree) and - have to say it - a significant impediment to achieving clarity in a formal relationship is the presence of lawyers and their insistence on (a) translating plain English into legalise, (b) managing risk to the point of paralysis, and (c) failing to understand the practicalities of IP management. This is a particular problem with dealing with government departments. Lawyers are tools of an organisation, they rarely understand the business and should not be the drivers." (Research Manager, University; Arts & Social Sciences)

"Problems often arise because the parties do not properly communicate and therefore they are not aware that they may have different expectations." (Researcher, University; Science & Technology)

Lack of Expertise

"Universities have got no idea about operating in a commercial/contractual environment and are consistently the major sticking point in multi-agency RD contract negotiation. The solution is for Universities to recruit suitably qualified contract/legal staff!" (Research Manager, Industry; Science & Technology)

"The greatest problems I have had were when govt dept officials had little experience in managing R&D and their legal dept's are inexperienced. Significant problems have arisen when organisational leadership abrogate the negotiation to their lawyers. in fact, when both sides do this you can almost guarantee grid lock because each side adopts highly risk averse positions almost immediately". (Research Manager, Research Institute; Science & Technology)

Half of the sample (53.1%) identified that the specific problems mentioned above can also be a problem during the performance of the agreement. The majority of the sample (78%) stated that when negotiating agreements they are generally able to resolve the issue of publication or public release of results (e.g. by a limited delay in release to allow preservation of intellectual property rights) to their reasonable satisfaction (9% stated that it was resolved but that the delay had a serious adverse effect on their publication and 6% stated that it was resolved but there was a complete embargo on some information).

> **Comments: Problems experienced during the performance of agreements**
>
> *"The agreement seems to be more a road-block that once past, can permit smooth traffic flow."(Research Manager)*
>
> *"Universities do not often have the resources to provide detailed project management support post-agreement sign off, given how busy academic researchers are these days, this can create problems." (Research Manager, University; Science & Technology)*
>
> *"I think that sometimes it is all legal jargon [maybe necessary if things go bad] but that the people on the ground representing the respective parties usually don't care what is in the agreement they just get on with the research project!"(Researcher, University; Science & Technology)*
>
> *"Project scope can sometimes change during performance of the agreement. Sometimes this needs to be renegotiated. Sometimes parties do not understand rights to contract materials and IP even in the presence of formal agreements and misunderstandings can potentially compromise research relationships. The changing commercial status of ancillary technologies over the life of a research project can sometimes have an effect on the project." (Research Manager, University; Arts & Social Sciences)*

The majority of participants feel that they have an understanding of what the terms of their formal collaborative agreements mean (mean=3.2; 29.4% strongly agreeing and 59.9% agreeing that they know what the terms mean). There was also relatively high agreement with a statement regarding knowing about the requirements of intellectual property ownership (mean=3.1; 25.4% strongly agreeing and 58.8% agreeing).

The majority of the sample have not used mediation/arbitration (mean agreement=1.5; 67.2% strongly disagreeing with the statement, 'I have gone to mediation or arbitration to resolve disputes') or court (mean agreement 1.3; 77.4% strongly disagreeing with the statement, 'I have gone to court to resolve disputes'). Over half of the sample strongly agreed (16.9%) or agreed (45.2%) with the statement: 'I rely on trust to resolve disputes rather than my formal agreement' (mean agreement=2.71). Approximately half of the sample strongly agreed (8.5%) or agreed (45.2%) that they rely on the terms of their formal agreements to resolve disputes (mean importance=2.54).

Table 25 depicts means by organisational role. Respondents who have legal and contract roles are more likely to agree (than researchers) that they know what the terms mean (d=0.73, $s.e.$=0.149, p=0.000) or IP requirements (d=0.53, $s.e.$=0.163, p=0.004), they rely on terms of formal agreements (d=0.5, $s.e.$=0.168, p=0.01), used mediation or arbitration (d=0.51, $s.e.$=0.17, p=0.009), or have gone to court (d=0.57, $s.e.$=0.14, p=0.000) to resolve disputes. Managers tend to agree more that they know what the terms mean (d=0.26, $s.e.$=0.108, p=0.045), that they know about IP requirements (d=0.38, $s.e.$=0.117, p=0.004), or they rely on terms of formal

agreements to resolve disputes (*d*=0.36, *s.e.*=0.121, *p*=0.011) than researchers. Researchers (*d*=0.71, *s.e.*=0.186, *p*=0.001) or managers (*d*=0.52, *s.e.*=0.192, *p*=0.019) tend to agree more that they rely on trust to resolve disputes than those who have legal and contract roles. Those who have legal and contract roles agree more that they know what the terms mean (*d*=0.47, *s.e.*=0.154, *p*=0.008) or have gone to court to resolve disputes (*d*=0.47, *s.e.*=0.144, *p*=0.004) than managers.

Table 25. *Mean Agreement Regarding Aspects of Formal Agreements by Organisational Role*

| Aspects of Formal Agreements | Role in the Organisation | | |
| | Researcher | Manager - Research &/or Organisation | Legal & Contracts |
	N=85	N=66	N=25
Know what terms mean	2.95[a*b***]	3.21[a*c**]	3.68[b***c**]
Know IP requirements	2.84[a**b**]	3.21[a**]	3.36[b**]
Formal agreements not flexible enough	2.67	2.47	2.52
Rely on trust to resolve disputes	2.87[a***]	2.68[b*]	2.16[a***b*]
Rely on terms of agreements to resolve disputes	2.34[a*b**]	2.70[a*]	2.84[b**]
Used mediation or arbitration to resolve disputes	1.33[a**]	1.53	1.84[a**]
Used court to resolve disputes	1.19[a***]	1.29[b**]	1.76[a***b**]

***p<.001, **p<.01, *p<.05
[a, b, c] Significant differences between roles

A series of independent-samples t-tests were carried out to examine differences by disciplinary area and level of involvement in e-Research. Table 26 depicts mean agreement levels regarding aspects of formal agreements by disciplinary area. Respondents from Arts & Social Sciences agree more than those from Science & Technology fields that they have gone to court to resolve disputes (*means* 1.47 and 1.21 respectively; *t*=2.24, *p*=0.028).

Table 26. *Mean Agreement Regarding Aspects of Formal Agreements by Disciplinary Area*

Aspects of Formal Agreements	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Know what terms mean	3.22	3.03
Know IP requirements	3.12	2.94
Formal agreements not flexible enough	2.55	2.64
Rely on trust to resolve disputes	2.74	2.67
Rely on terms of agreements to resolve disputes	2.54	2.53
Used mediation or arbitration to resolve disputes	1.43	1.56
Used court to resolve disputes	**1.21**	**1.47***

Table 27 depicts mean agreement levels regarding aspects of formal agreements by level of involvement in e-Research. A series of independent-samples t-tests were carried out to examine differences by level of involvement in e-Research. There were no significant differences in responses by level of involvement in e-Research.

Table 27. *Mean Agreement Regarding Aspects of Formal Agreements by Level of Involvement in e-Research*

Aspects of Formal Agreements	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Know what terms mean	3.26	3.10
Know IP requirements	3.12	3.02
Formal agreements not flexible enough	2.48	2.60
Rely on trust to resolve disputes	2.76	2.67
Rely on terms of agreements to resolve disputes	2.56	2.53
Used mediation or arbitration to resolve disputes	1.44	1.49
Used court to resolve disputes	1.30	1.31

Participants were asked to rate their level of agreement with 12 statements regarding ways to improve the negotiation process (see Figure 12). The highest levels of agreement were: 'Communication, making an express effort to understand the other party's culture, objectives, drivers and mission' (mean agreement=3.5; 54.2% strongly agreeing); 'Parties have had prior dealings together' (mean agreement=3.4; 40.7% strongly agreeing); 'Each party's organisation has a clear intellectual property policy that balances issues of access, cost recovery and return on investment (mean agreement=3.1; 31.1% strongly agreeing); 'A generally accepted working rule that intellectual property generated in collaborative research should be divided according to relative inputs, measured by demonstrable relevance to the generated property' (mean agreement=3.0; 23.7% strongly agreeing); and 'A triage approach, sorting agreements into those that need significant negotiation and those that do not' (mean agreement=2.9; 17.5% strongly agreeing).

The lowest level of agreement was with the statement: 'Creating a new government agency to develop and maintain a master database of standard clauses for research contracts, issue guidelines and oversee licensing practices' (mean agreement=2.1; 32.8% strongly disagreeing and 32.2% disagreeing).

Figure 12. *Ways to Improve the Negotiation Process*

	Strongly Disagree	Disagree	Agree	Strongly Agree
Communication	2%	1%	43%	54%
Prior dealings	1%		58%	41%
Clear IP policy	2%	15%	51%	31%
Working rule	6%	14%	57%	24%
Triage approach	7%	18%	58%	18%
Increases resources, education, training	7%	21%	57%	14%
Online portal - Comprehensive	18%	34%	36%	12%
Online portal - Limited	14%	20%	59%	8%
Groups facilitating interaction	7%	32%	53%	8%
Deferral approach	18%	46%	30%	6%
Creation of an agency	33%	32%	30%	5%
Increased availability of services	11%	42%	43%	4%

Comments: Ways to improve the negotiation process (14 comments made)

"No more bureaucracy PLEASE!! We already have adequate resources (BDMs, solicitors etc)" (Researcher, University; Science & Technology

"While I don't think a new govt agency is needed, I think some of the existing ones should implement the proposals in this table regarding 'standard resources and templates'. As is happening now with the creative commons tools being developed via ANZLIC." (Research Manager, Research Institute; Science & Technology)
)
"I disagree regarding the clear IP policy statement because these then become binding barriers to negotiation. No-one will change these once set, but if both sides have such policies, often no agreement can be reached. I think that creating new organization to help with such agreements is just going to create an additional source of inertia in this already difficult situation." (Research Manager, University; Science & Technology)

"No one would want to use government developed standard documents given that government sponsored research funding agreements are so poor. For example - the inclusion of moral rights clauses is totally against the research ideals in universities." (Legal Advisor, University; Arts & Social Sciences)

A one-way ANOVA was conducted (on each statement) to explore differences in perceptions of ways to improve the negotiation process by organisational role. Table 28 depicts mean agreement levels by organisational role. Managers were more likely to agree than researchers that communication (*means*=3.65 and 3.38 respectively; *d*=0.28, *s.e.*=0.099, *p*=0.017) or increased resources, education/training for transfer offices (*means*=2.89 and 2.6 respectively; *d*=0.29, *s.e.*=0.124, *p*=0.05) will improve the negotiation process. Managers (*mean*=3.15,*d*=0.75, *s.e.*=0.174, *p*=0.000) and researchers (*mean*=3.02, *d*=0.62, *s.e.*=0.168, *p*=0.001) are more likely to agree than those who have legal and contract roles (*mean*=2.4) that a "working rule" will improve the negotiation process. Respondents who have legal and contract roles are more likely to agree than researchers that increased availability of services (*means*=2.76 and 2.22 respectively; *d*=0.54, *s.e.*=0.164, *p*=0.004) or increased resources/education/training for transfer offices (*means*=3.12 and 2.6 respectively; *d*=0.52, *s.e.*=0.172, *p*=0.008) will improve the negotiation process.

Table 28. *Mean Agreement Regarding Ways to Improve the Negotiation Process by Organisational Role*

Ways to Improve the Negotiation Process	Role in the Organisation		
	Researcher N=85	Manager - Research &/or Organisation N=66	Legal & Contracts N=25
Prior dealings	3.35	3.39	3.44
Communication	**3.38^{a*}**	**3.65^{a*}**	3.48
Clear IP policy	3.04	3.18	3.16
Working rule	**3.02^{a***}**	**3.15^{b***}**	**2.40^{a***b***}**
Triage approach	2.84	2.86	2.92
Deferral approach	2.33	2.23	2.04
Groups facilitating interaction	2.53	2.65	2.88
Increased availability of services	**2.22^{a**}**	2.48	**2.76^{a**}**
Increases resources for transfer offices	**2.60^{a*b**}**	**2.89^{a*}**	**3.12^{b**}**
Creation of an agency	2.11	2.03	2.12
Online portal - Comprehensive	2.47	2.39	2.32
Online portal – Limited	2.60	2.64	2.56

***p<.001, **p<.01, *p<.05
$^{a, b}$ Significant differences between roles

Table 29 presents mean agreement levels regarding ways to improve the negotiation process by disciplinary area. Independent-samples t-tests were conducted to explore differences in perceptions of ways to improve the negotiation process by disciplinary area. Those who are from Science and Technology (*mean*=3.1, *n*=112)) are more

likely to agree than those from Arts and Social Sciences (*mean*=2.8, *n*=64)) that a "working rule" will improve the negotiation process (*t*=2.51, *p*=0.013).

Table 29. *Mean Agreement Regarding Ways to Improve the Negotiation Process by Disciplinary Area*

Ways to Improve the Negotiation Process	Disciplinary Area	
	Science & Technology N=111	Arts & Social Sciences N=64
Prior dealings	3.38	3.38
Communication	3.51	3.47
Clear IP policy	3.11	3.11
Working rule	**3.10***	**2.80**
Triage approach	2.88	2.84
Deferral approach	2.20	2.34
Groups facilitating interaction	2.59	2.67
Increased availability of services	2.43	2.34
Increases resources for transfer offices	2.74	2.84
Creation of an agency	1.97	2.25
Online portal - Comprehensive	2.40	2.48
Online portal – Limited	2.65	2.55

*p<.05

Table 30 presents mean agreement levels regarding ways to improve the negotiation process by level of involvement in e-Research. Independent-samples t-tests were conducted to explore differences in perceptions of ways to improve the negotiation process by level of involvement. Those who are moderately-extensively involved with e-Research (*mean*=2.47) are more likely to agree than those that are not at all-slightly involved with e-Research (*mean*=2.20) that "increased availability of services similar to contracts/technology transfer offices on a fee-for-service basis" will improve the negotiation process (*t*=2.51, *p*=0.013).

Table 30. *Mean Agreement Regarding Ways to Improve the Negotiation Process by Level of Involvement in e-Research*

Ways to Improve the Negotiation Process	e-Research Involvement	
	Not at all – Slightly N=50	Moderately – Extensively N=125
Prior dealings	3.34	3.39
Communication	3.52	3.48
Clear IP policy	3.16	3.09
Working rule	3.02	2.97
Triage approach	2.82	2.87
Deferral approach	2.30	2.22
Groups facilitating interaction	2.56	2.65
Increased availability of services	**2.20**	**2.47***
Increases resources for transfer offices	2.92	2.73
Creation of an agency	2.12	2.06
Online portal - Comprehensive	2.34	2.45
Online portal – Limited	2.42	2.67

To explore views on ways to streamline documentation processes, participants were asked to rate their level of agreement with a range of statements (see Table 31 and Figure 13. The statement that drew the highest level of agreement was: "Master agreements that allow descriptions of new projects to simply be 'tacked on' are useful" (mean=3.13; 28% strongly agreeing and 59% agreeing). There were also high levels of agreement with the following: "Using simple confidentiality agreements allows disclosures to occur quickly" (mean=3.08; 25% strongly agreeing and 61% agreeing); "Standard agreements would be customised anyway" (mean=3.02; 16% strongly agreeing and 72% agreeing); and "Agreements generated by assembling standard clauses would be customised anyway" (mean=3.00; 16% strongly agreeing and 73% agreeing). The highest levels of disagreement were attached to the statements: "Standard agreements for different collaborations would be widely used" (mean=2.81; 4% strongly disagreeing and 28% disagreeing); "A database of standard clauses for assembly into formal agreements would be widely used" (mean=2.86; 6% strongly disagreeing and 19% disagreeing); and "Licensing based on the 'free/open source software' model (e.g. free access but limitations can be imposed on use, re-use, dissemination, commercialisation of content) would be widely used" (mean=2.96; 5% strongly disagreeing and 20% agreeing). There were no significant differences by organisational role, disciplinary area or level of involvement in e-Research.

Table 31. *Mean Agreement Regarding Ways to Streamline the Documentation Process by Level of Involvement in e-Research*

Ways to Streamline the Documentation process	Mean Agreement 1=Strongly Disagree -> 4=Strongly Agree N=176
Master agreements that allow descriptions of new projects to simply be 'tacked on' are useful	3.13
Licensing based on the 'free/open source software' model (eg. free access but limitations can be imposed on use, re-use, dissemination, commercialisation of content) would be widely used	2.96
Using simple confidentiality agreements allows disclosures to occur quickly	3.08
Standard agreements for different collaborations would be widely used	2.81
Standard agreements would be customised anyway	3.02
A database of standard clauses for assembly into formal agreements would be widely used	2.86
Agreements generated by assembling standard clauses would be customised anyway	3.00

Figure 13. *Ways to Streamline the Documentation Process*

Participants were asked to rate the importance of a range of contracting issues in the context of an increase in the practice of e-Research (see Figure 14). 'Intellectual property (e.g. patents, copyright)' (mea*n*=3.42; 53% stating that it will be 'very important' and 38% stating that it will be 'somewhat important') and 'Data ownership or access' (mea*n*= 3.42; 51% stating that it will be 'very important' and 42% stating that it will be 'somewhat important') were the issues that participants felt would become most important with the increase of e-Research. This was followed by 'Ease and speed of entering formal agreements' (mea*n*=3.32; 42% stating that it will be 'very important' and 50% stating that it will be 'somewhat important') and 'Flexibility of formal agreements' (mea*n*=3.32; 43% stating that it will be 'very important' and 48% stating that it will be 'somewhat important').

'Competition/anti-trust issues around research structures' was seen as the least important issue in the context of increasing e-Research activities (mea*n*=2.75; 21% strongly agreeing, 40% stating that it will be 'somewhat important', 32% stating that it is 'not very important' and 7% stating that it is 'not at all important). The only significant difference between responses by organisational role was in the view of the future importance of 'Liability' (*d*=0.45, *s.e.*=0.175, *p*=0.03) whereby those who have legal and contract roles (*mean*=3.52) perceive that the issue of liability will become more important with the increase of e-Research than those in researcher roles (*mean*=3.07).

Figure 14. *Future Importance of Various Contracting Issues*

Figure 14. *Future Importance of Various Contracting Issues*

Issue	Not at all important	Not very important	Somewhat important	Very important
Intellectual Property	2%	7%	38%	53%
Data ownership or access	2%	5%	42%	51%
Flexibility of formal agreements	2%	7%	48%	43%
Ease of entering formal agreements	2%	6%	50%	42%
Privacy laws	6%	11%	44%	39%
Liability	3%	13%	46%	37%
Cross-border disputes	7%	28%	38%	27%
Competition	7%	32%	40%	21%
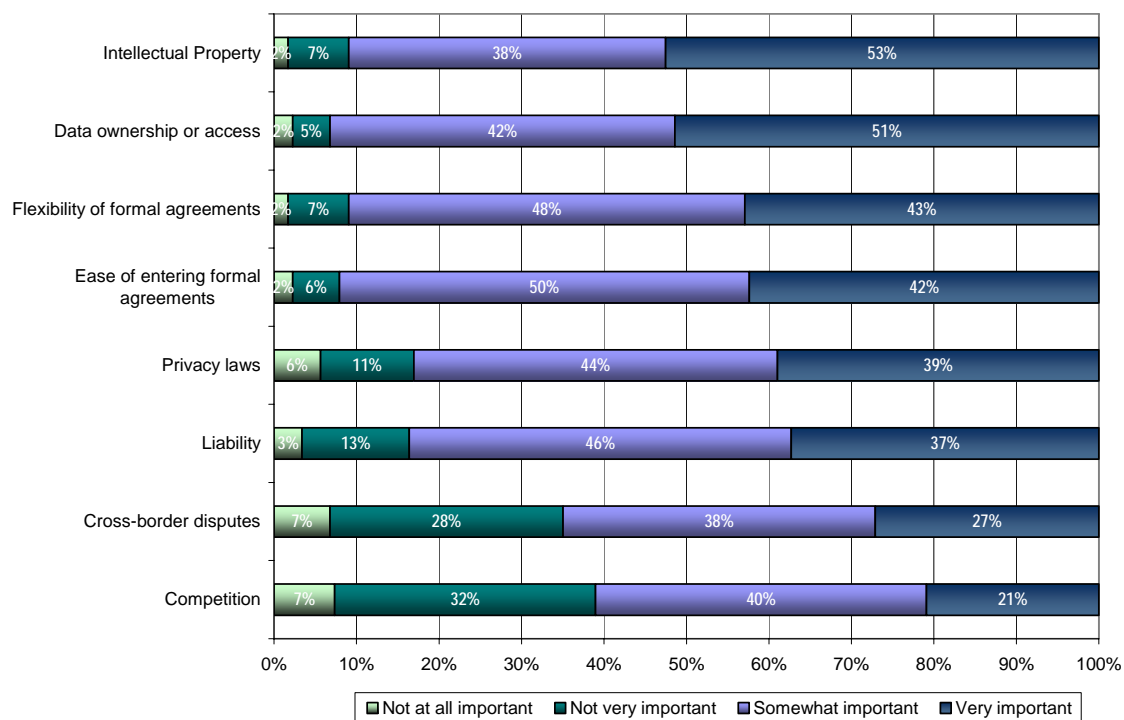
Comments: Description of other legal issues in the context of e-Research which you believe have, or will have, a significant positive or negative impact on your work…

"Perhaps the biggest problem facing e-Research is the lack of understanding and agreement as to what is required in terms of local and national information infrastructure to support e-Research activities. Without this common framework of understanding it is actually very difficult to come to legal agreement as to collaborative arrangements, sharing, interaction beyond a narrow set of participants. This then actually inhibits the establishment of an open e-research environment that starts to utilise the potential offered by digital technologies." (Researcher, University; Arts & Social Sciences)

"Our clients seem to indicate that they would only go into these type of arrangements (we used to note the commons licensing approach in general copyright commercialisation advices) are only appropriate if there is a clear revenue stream." (Legal Advisor; Law Firm)

"The use of contracts and legal agreements at first point of contact for all e-Research transactions will actually be an enormous impediment to "interoperation" and I believe will damage machine interaction with data repositories and other resources with licenses that require a human to read the license..... let's face it, the vision is for machines to interrogate the repositories and analyse them using tools available. We need to have a way to ensure a way of knowing or acknowledging the agreements while using machines to undertaken e-Research." (Researcher, University; Science & Technology)

"Licensing IP from research institutions will require significant due diligence due to e-Research. The institutions themselves will have to manage the e-research activities of individual researchers if they wish to create viable IP assets." (Commercialisation Officer, Industry; Science & Technology)

3.4 Databases

A total of 95 participants completed the database section of the survey (participants who selected the organisational roles of researcher and research manager). Just over three-quarters are located in universities, with one-quarter of the sample in government or industry. Approximately 37% of the 95 participants stated that they are extensively involved in e-Research (34% moderately involved; 20% slightly involved and 9% not at all involved), with 63% identifying science and technology fields and 37% identifying arts and social science fields as their area research.

Almost half (43.2%) of the sample access external databases in conjunction with their research activities on a daily basis; 36.8% on a weekly basis; and 11.6% on a monthly basis. Approximately 20% are required to register for all the databases they access, whilst 22% are required to register for more than half of the databases they access, with only 20% stating that they are not required to register to access databases.

Awareness of, and compliance with, legal restrictions associated with copying, extracting or re-using information from the databases accessed was relatively high, with 74.8% stating that they have an awareness of these restrictions and 79.0% stating that they always comply with restrictive notices presented on databases. Almost half of the databases accessed are located in Australia (47%), with over one-third located in the United States (34%). Figure 15 depicts the range of countries specified by participants.

Figure 15. *Geographical Location of External Databases*
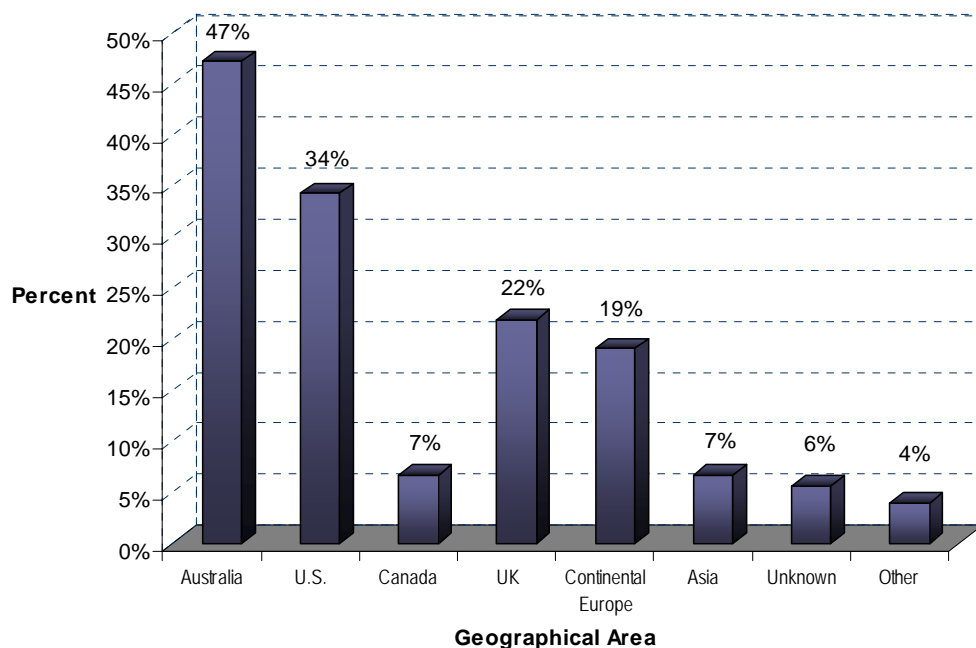
Almost three-quarters (70.5%) of the sample felt that clearer explanations of what can be legally copied, extracted or re-used from particular databases would help facilitate their research. Fifty participants (or 52.6% of the sample) produce data or datasets that are deposited into a database. Of these participants, two-thirds (66%) created the database themselves (or their organisation created the database), and the remainder deposit into a database created by another body or institution. In terms of the location of this database, 30% are located outside of Australia. The majority of data generated is made available for access and use by other researchers (88% stating this is the case).

For those that deposit data or datasets into a database, 46% stated that it is on the basis of 'open access', whereby data is freely accessible with no restrictions on the use that can be made of it; 38% stated that it is on the basis of restricted access (such as to specific individuals or groups); and 8% stated that it is on the basis that it is subject to restrictions on the uses that can be made of the data (see Figure 16).

Figure 16. *Basis of Availability of Data to Other Researchers*
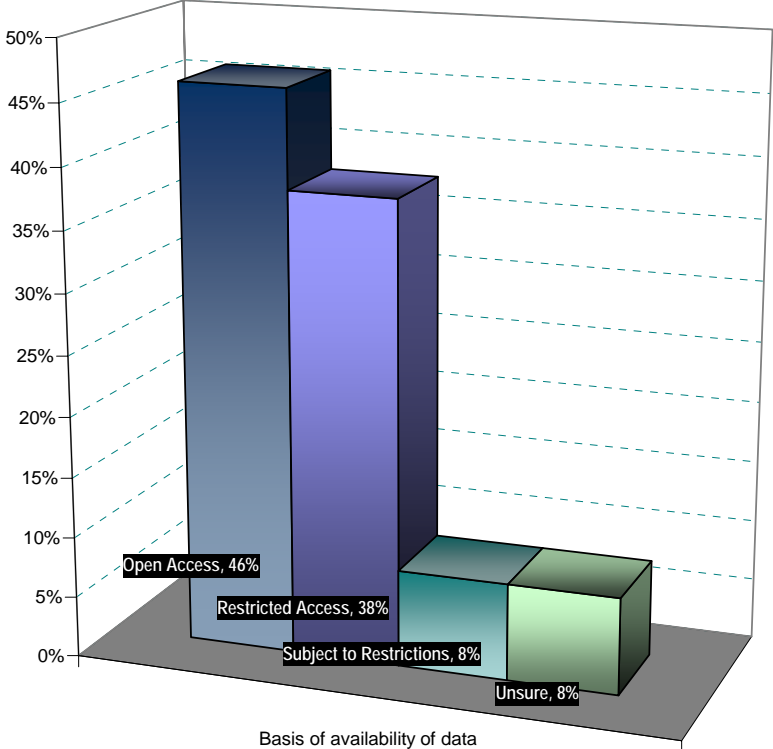
Many of the participants stated that their organisation does not have a policy setting out the basis on which research data should be deposited into databases for access by other researchers (53.7% stating that their organisation does not have a policy). Table 32 presents information related to organisational policies by disciplinary area, extent of involvement in e-Research, and organisational sector. Those that are less involved with e-Research are less likely to be in an organisation that has a policy setting out the basis on which research data should be deposited into databases (almost 2/3 of those 'not at all-slightly' involved in e-Research and approximately ½ of those 'moderately-extensively' involved in e-Research work in organisations that do not have a policy setting out the basis on which research data should be deposited into databases for access by other researchers).

Table 32. *Presence of Organisational Policy Regarding Depositing of Data by Sector, Discipline and Extent of Involvement in e-Research*

Does your organisation have a policy setting out the basis on which research data should be deposited into databases for access by other researchers?	Yes %	No %
Organisational Sector: University	45%	55%
Other	50%	50%
Disciplinary Area: Science & Technology	44%	56%
Arts & Social Sciences	51%	49%
Extent of Involvement in e-Research: Not at all-Slightly	36%	64%
Moderately-Extensively	51%	49%

For those participants whose organisation possesses a policy regarding the depositing of data for access by others (*n*=44), 84.1% stated that researchers are provided with guidelines on how the policy is to be applied in practice. Just over half (55.2%) of the 95 participants stated that they (or their organisation) prepare plans for the management and/or sharing of research data, with 62.3% of these participants stating that these plans are prepared at or around the time that grant applications for project funding are prepared. Approximately 38% stated that plans are prepared later (such as "during the project sometime - after analysis" or "once the value of the data has been identified").

Overwhelmingly participants felt that it would assist them to have access to a 'plain' English 'how-to-guide' explaining the legal restrictions associated with databases (89.6% stating this would assist). Of those that stated that a how-to-guide would not be of assistance, the following comments indicate potential reasons: *"…because they are already provided by the databases"; "most databases I use have no restrictions"; it "is likely to be a large document"; "I don't have time to read yet more documentation written in general terms that wouldn't tell me what I needed to know about my specific situation*" and *"it is the responsibility of the research office"*.

A number of participants chose to comment on the utility of a how-to-guide: *"This may well be useful in a day-to-day sense but it would also be interesting from a digital scholarly practice perspective to see how the legal restrictions and or guidelines actually assist or impinge on scholarly practice." (Researcher, University; Arts & Social Sciences); "Lately we've been trying to apply creative commons licences in some cases, the availability of this licence has helped in some negotiations about data access." (Researcher, University; Arts & Social Sciences)*; *"A fascinating question, given that Australia is one of the very few jurisdictions relying on copyright as the relevant property right for databases (Europe has the database right, the US does not recognise property rights in data)." (Research Manager, University; Arts & Social Sciences)*.

"At the University level this policy is highly generalised which means that researchers and research projects have to set policy that is appropriate to the work they are doing. In our case our focus is on public domain knowledge (the better use thereof) and so our policy involves open access as a fundamental requirement (this does not mean that there may not be data that has to be restricted - but in all projects there must always be public knowledge and it is this knowledge/information that is used to enable interconnectivity with other databases or information systems." (Researcher, University; Arts & Social Sciences)

"Policy only really informs the procedure and approvals for lodging data." (Research Manager, University; Arts & Social Sciences)

"Open access, or by password protection. We have over 4 million data items.... some are open some are protected. Our policy is frequently set by the owners of the data." (Researcher, University; Science & Technology)

"Filtering process to protect certain data (and populations it came from) from exploitation, by exclusion or fuzzing, such that available data is freely accessible but not complete (as the data behind the firewall)." (Research Manager, Government; Science & Technology)

"We typically release all our codes as open source. We sometimes use [name deleted] to host our code." (Research Manager, University; Science & Technology)

"[University name deleted], that is part of the project, seems to have a policy that runs up against ARC-rules. There is at least one researcher on our project who is being tardy about releasing data, despite the fact that it technically belongs to the ARC." (*Researcher, Research Institute; Science & Technology)*

3.5 Data

A total of 95 participants completed the data section of the survey. Almost all of the 95 participants use or generate alphanumeric data (97%), 63% use or generate images such as photographs, diagrams, graphs and/or video and 6% use or generate audio/sound data. Participants were asked whether they have a clear understanding of who owns the data both used and generated in their research projects (see Figure 17).

Overall, 26% strongly agreed and 63.5% agreed with the statement 'I have a clear understanding of who owns the data I use in my research projects' (10.4% disagreed or strongly disagreed). As can be seen in Figure 17 responses were similar by disciplinary area. In terms of understandings of ownership of data generated, 33.3% strongly agreed and 50.0% agreed that 'I have a clear understanding of who owns the data generated in my research projects'. For those in Science & Technology fields, 39% strongly agreed and 44% agreed with this statement. In the Arts and Humanities fields, 26% strongly agreed and 60% agreed with this statement.

Figure 17. *Understanding of Data Used and Generated in Research Projects by Discipline*
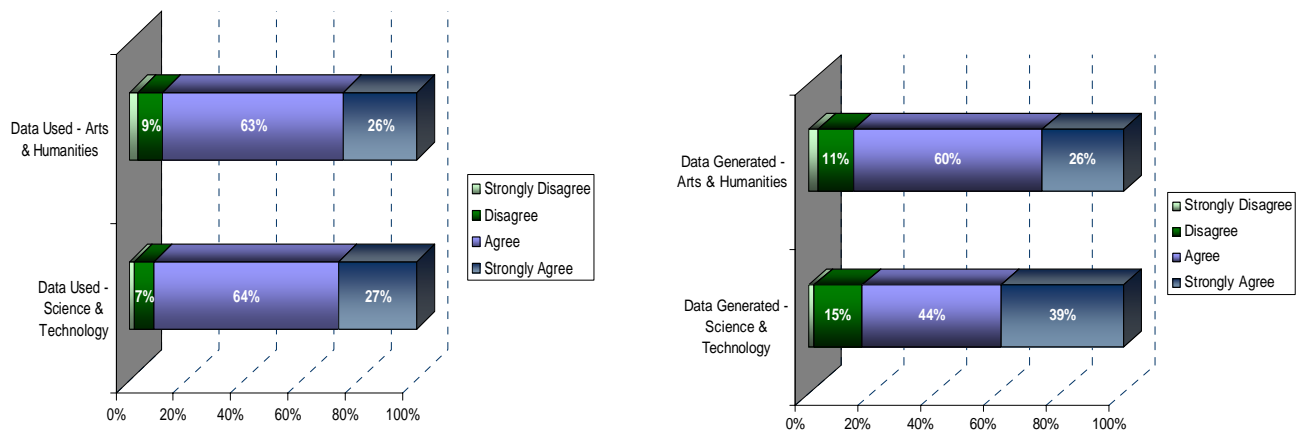
The majority of the sample takes steps to ensure research data is available in a form which can be readily stored and accessed (81.2%) and 56.3% stated that their organisation currently has defined mechanisms to assist in the storing and accessing of data in the long term. Comments suggest that the storage, preservation and accessing of material in the longer term can be a challenge for organisations: *"Though this is problematic…as there does not exist the underlying infrastructure to manage this data beyond the life of the projects"* and *"Maintaining the data over the long term can be difficult as versions of software change"*.

Almost half of the 95 respondents (47 individuals or 49%) had reservations about people outside of their projects or organisation having access to their data. To explore potential reasons for these reservations, participants were asked to rate their agreement (on a scale of strongly disagree through to strongly agree) with 9 statements. Figure 18 depicts the relative agreement related to each statement. The highest level of agreement was attached to the statements: 'You are bound by a formal collaborative research agreement not to disclose data' (mean=2.96; 27.7% strongly agreeing); 'Your projects seek to commercialise the outcomes and you do not wish to compromise this' (mean=2.60; 25.5% strongly agreeing); and 'You do not want to give away your ideas (mean=2.85; 21.3% strongly agreeing); 'You do not want your data to be used in research that you oppose or personally disagree with' (mean=2.60; 12.8% strongly agreeing and 46.8% agreeing).

Managers (*n*=17) had more reservations than researchers (*n*=30) about people outside the project or organisation having access to data because they are bound by a formal collaborative research agreement not to disclose data (*means*=3.29 and 2.77 respectively; *t*=2.1, *p*=0.042) and reservations about not compromising the commercialisation of outcomes (*means*=3.12 and 2.3 respectively; *t*=2.72, *p*=0.009). Those who are from Science & Technology fields (*mean*=3.09, *n*=23) have greater reservations than those from the Arts & Social Sciences (*mean*=2.13, *n*=23) about people outside the project or organisation having access to data because the project seeks to commercialise the outcomes (*t*=3.38, *p*=0.002). Independent-samples t-tests were carried out to explore differences in reservations by disciplinary area, organisational sector and extent of involvement in e-Research. Participants in the university sector were also less likely to agree with the statement 'Your projects seek to commercialise the outcomes and you not wish to compromise this' than participants from government and industry (*means* 2.33 and 3.45 respectively; *t*=-3.421, *p*=.001).

Figure 18. *Reasons for Reservations Regarding External Access to Data*
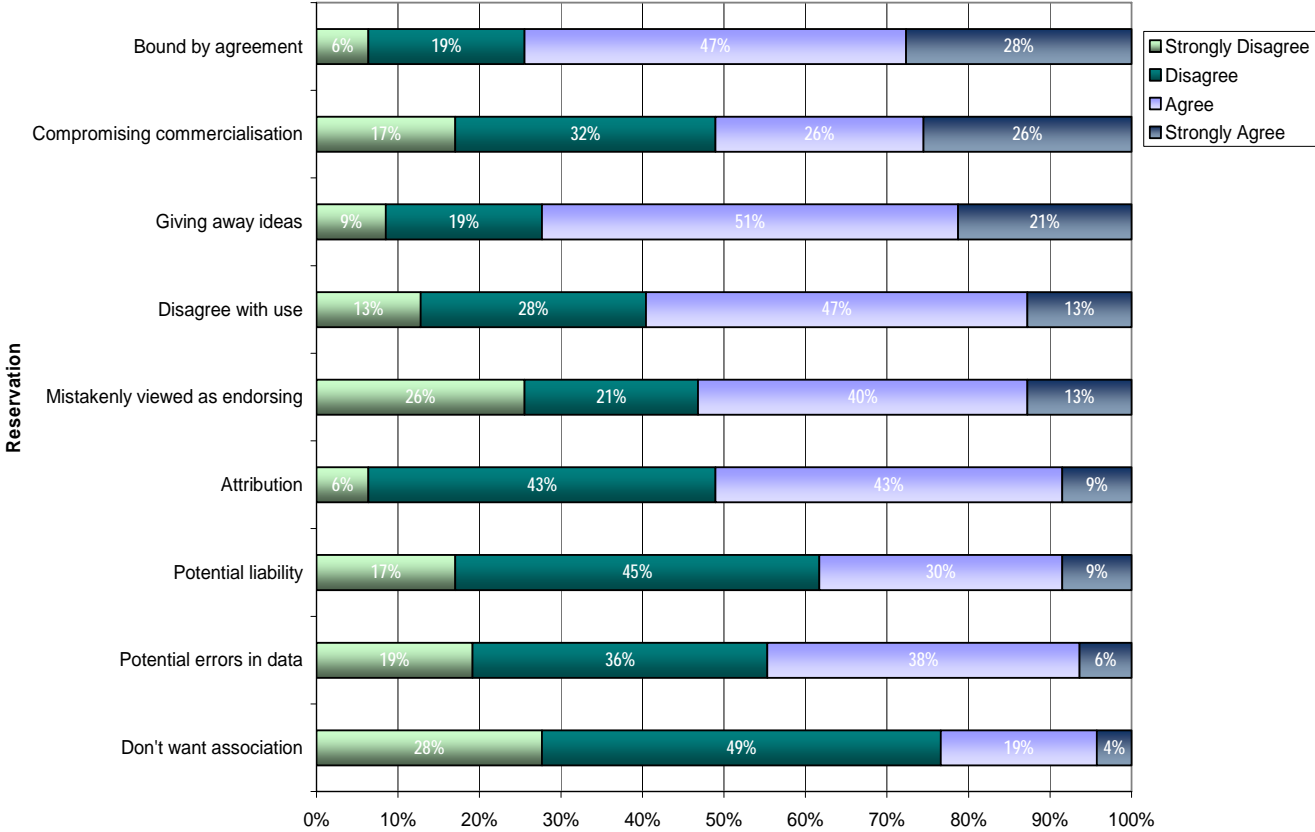
Almost three-quarters (74.5%) of those respondents who had concerns about people outside their project or organisation having access to data created as a result of the research project stated that their concerns would be reduced by having a legally binding agreement that clearly defined legal ownership and limited liability for the recipient's use of the data. For those that felt that such an agreement would not reduce their concerns, the following comments indicate potential reasons for this perception: "*No confidence in the law binding such people*"; "*Because ownership and liability aren't problems: ethics are*"; "*The issues of control over the use of data would not be dealt with by this*" and "*Too difficult to obtain adherence*".

4.   Appendices

Appendix A: Survey Instrument

Survey on legal and project agreement issues in collaboration and e-Research

A survey conducted by the QUT Faculty of Law as part of the Legal Framework for e-Research Project, funded by the Australian Commonwealth Department of Education, Science and Training (DEST), under the Systemic Infrastructure Initiative (SII), Research Information Infrastructure Framework for Australian Higher Education, as part of the Commonwealth Government's Backing Australia's Ability - An Innovation Action Plan for the Future (BAA).

Survey Information

• This survey is being conducted by the QUT Faculty of Law as part of the Legal Framework for e-Research Project, funded by the Australian Commonwealth Department of Education, Science and Training (DEST), under the Systemic Infrastructure Initiative (SII), Research Information Infrastructure Framework for Australian Higher Education, as part of the Commonwealth Government's Backing Australia's Ability - An Innovation Action Plan for the Future (BAA).

This survey aims to identify common legal and project agreement problems encountered in forming research collaborations. *The survey data will be used to form strategies to facilitate and streamline the process of collaborative e-Research.*

• Your participation in this survey is very much appreciated.

• We recognise that your time is valuable; the survey will only take approximately 15 minutes to complete.

• All responses to this survey are strictly anonymous. Information has been requested regarding the nature of your organisation and your role in the organisation, but no information is requested that specifically identifies particular organisations or individuals. By completing this survey, you allow us to copy and publish your responses to open-ended questions.

• Please answer all questions.

• If you have any questions regarding this survey, please feel free to contact:

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Section A: e-Research

You may be engaging in e-Research if, for example, you ... utilise high performance computing capabilities; use the internet to access and contribute to data repositories or for data sharing; connect with others electronically for your research; use an online collaboration tool such as a Wiki.

e-Research capabilities advance and augment traditional research methodologies, and in particular allow researchers to:

- discover knowledge, whether held in digital or physical forms;
- access data as well as the software tools that are being made available to manipulate or analyse this data;
- synthesise, curate and disseminate new knowledge efficiently;
- facilitate interactivity and research collaboration, allowing researchers to work seamlessly from desk-to-desk within and between organisations.

e-Research encapsulates research activities that use a spectrum of advanced Information and/or Communication Technologies (ICT) and embrace new methodologies emerging from increased access to:

- broadband communications networks, research instruments and facilities, sensor networks, data repositories and their associated data standards, management and curation tools, and high performance computing resources;
- software and infrastructure services that enable secure connectivity and interoperability between researchers and the wide variety of data repositories, computers, systems and networks on which they depend;
- application discipline-specific tools such as graphics intensive visualisation and simulation software, and interaction tools that provide the human interface allowing researchers to interact with each other and with their instruments, computational tools and data resources.

Q01. To what extent do you regard yourself as a person involved with e-Research?
(Please click on the appropriate box)

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Extensively

Q02. Please briefly describe the kinds of activities your e-Research involves:

Section B: Organisational Areas & Role

Q03. In which of the following areas does your research lie? (Please mark all that apply by clicking on the appropriate box(es))

Science/Technology/Engineering

- [ ] Astronomy
- [ ] Agriculture/Plant Science
- [ ] Biological
- [ ] Biotechnology
- [ ] Bioinformatics
- [ ] Chemical
- [ ] Climatic Studies
- [ ] Computing/Information Technology
- [ ] Chemical Engineering
- [ ] Civil Engineering
- [ ] Electronics
- [ ] Energy/Fuels
- [ ] Environmental/Ecological
- [ ] Forestry/Wood Products
- [ ] Geological/Earth Sciences
- [ ] Livestock
- [ ] Medical/Health Care
- [ ] Mechanical Engineering
- [ ] Materials
- [ ] Manufacturing
- [ ] Mathematics
- [ ] Mining/Mineral Processing
- [ ] Marine Systems
- [ ] Nanotechnology
- [ ] Photonics
- [ ] Physics
- [ ] Public health/Epidemiology
- [ ] Transport
- [ ] Water
- [ ] other (please specify) [_____]

Humanities

- [ ] Art/Visual Art/Graphic Design
- [ ] Architecture/Design
- [ ] Business/Commerce/Management
- [ ] Education
- [ ] Drama
- [ ] Geography
- [ ] History
- [ ] Law
- [ ] Languages
- [ ] Media/Communications
- [ ] Music
- [ ] Politics
- [ ] Psychology
- [ ] Religious Studies
- [ ] Sport/Recreation
- [ ] Social Sciences
- [ ] Tourism
- [ ] other (please specify) [_____]

Economic/Financial

- [ ] Accounting
- [ ] Economics
- [ ] Finance/Financial Mangagement
- [ ] other (please specify) [_____]

Other

- [ ] other (please specify) [_____]

Section B: Organisational Areas & Role

Q04. Which of the following best describes the organisation you work for?
(Please select one option)

- ⚪ Industry (including commercial laboratory/R&D enterprise)
- ⚪ University/higher education institution
- ⚪ Other research institute
- ⚪ Government agency / department
- ⚪ Law firm
- ⚪ Other (please specify) [_____]

Q05. How many personnel are employed by your organisation?
(Please select one option)

- ⚪ 1-10
- ⚪ 11-50
- ⚪ 51-500
- ⚪ 501+

Q06. What is your job title (e.g. Research Officer, Director, Chief Investigator, Professor, etc)?
(Enter response in the area below)

[_____]

Q07. What is your primary role in the organisation? (Please select one option)

- ⚪ Researcher
- ⚪ Research manager
- ⚪ Legal advisor
- ⚪ Commercialisation officer
- ⚪ Contracts officer
- ⚪ Other (please specify) [_____]

Section C – Collaboration

Collaboration Profile

In the following sections, a "collaboration" includes participating in research projects and sharing information with other parties. A "formal" agreement implies that the terms of the collaboration have been specifically agreed, usually with the express approval of the collaborating organisations. A formal agreement will usually be set out in a written document. An "informal" agreement implies that the researchers themselves have entered into a collaboration with other researchers, and the terms are probably not set out in a written document.

Note:

Q08. How important are the following resources to your collaborative projects?				
(For each statement please rate importance by clicking on the appropriate box)	Not at all Important	Not very important	Somewhat important	Very Important
Online tools, databases, electronic resources	○	○	○	○
Patent literature	○	○	○	○
Discipline-related literature	○	○	○	○
Seminars, conferences, workshops	○	○	○	○
Informal contacts	○	○	○	○
Collaborators in formal research agreements	○	○	○	○
Other (please specify)	○	○	○	○

Q09. How often do your collaborations involve the following parties?				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
Industry (including Commercial laboratories/R&D enterprises)	⊙	⊙	⊙	⊙
Universities/Higher Education Institutions	⊙	⊙	⊙	⊙
Other research institutions	⊙	⊙	⊙	⊙
Government agencies	⊙	⊙	⊙	⊙
Colleagues in my own organisation	⊙	⊙	⊙	⊙
Clients/Customers/Users	⊙	⊙	⊙	⊙
Suppliers	⊙	⊙	⊙	⊙
Consultants	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

Q10. Please tell us how frequently your collaborations involve the following:				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
Informal networks (including informal conversations, conference interactions)	⊙	⊙	⊙	⊙
Informal agreements leading to co-authored publications	⊙	⊙	⊙	⊙
Confidentiality/non-disclosure contracts	⊙	⊙	⊙	⊙
Research contracts (for one project)	⊙	⊙	⊙	⊙
Master research contracts (involving multiple research projects)	⊙	⊙	⊙	⊙
Permanent research arrangement (eg. strategic alliance between institutions)	⊙	⊙	⊙	⊙
Multiparty research consortia	⊙	⊙	⊙	⊙
Cooperative Research Centre (CRC)	⊙	⊙	⊙	⊙
Joint Venture, cross-licensing	⊙	⊙	⊙	⊙
Patent, software, know-how or other intellectual property licences	⊙	⊙	⊙	⊙
Technical assistance agreements	⊙	⊙	⊙	⊙
Consulting agreements	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

Q11. In my experience, **informal** collaborations or agreements are…				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
Used for small, discrete exchanges of data or information	○	○	○	○
Used for detailed disclosures, discussion of data and information, provision of assistance	○	○	○	○
Used to govern entire research projects in the absence of a formal agreement	○	○	○	○
Going to be increasingly used in e-Research (eg. due to time constraints, rapidly changing research environment, changing parties)	○	○	○	○
Other (Please Specify)	○	○	○	○

Q12. Across all your collaborations how important are the following outcomes?				
(For each statement please rate importance by clicking on the appropriate box)	Not at all Important	Not very important	Somewhat important	Very Important
Entering formal research agreements	○	○	○	○
Patents, copyright, intellectual property	○	○	○	○
Exclusive licences	○	○	○	○
Non-exclusive licences	○	○	○	○
Royalties, revenue, return on investment	○	○	○	○
Start-up companies	○	○	○	○
Co-authored publications	○	○	○	○
Sharing knowledge via public disclosure or publications	○	○	○	○
Sharing knowledge to limited community	○	○	○	○
Student exchanges	○	○	○	○
Product development, or solutions for industry/market	○	○	○	○
Inflow of knowledge from industry	○	○	○	○
Inflow of knowledge from researchers	○	○	○	○
Better equipment, facilities	○	○	○	○
Improved research practices (eg. better quality, cost control, scientific evaluation, lab notebook usage)	○	○	○	○
Other (Please Specify)	○	○	○	○

Q13. Thinking of your three most significant collaborative projects, what are their sizes, locations, duration and nature?

Collaboration no.1

a. Number of Researchers

[▼]

b. % from o/seas countries

[▼]

c. Duration

[▼]

d. Formal / Informal

[▼]

Collaboration no.2

a. Number of Researchers

[▼]

b. % from o/seas countries

[▼]

c. Duration

[▼]

d. Formal / Informal

[▼]

Collaboration no.3

a. Number of Researchers

[▼]

b. % from o/seas countries

[▼]

c. Duration

[▼]

d. Formal / Informal

[▼]

Q14. How important are the following countries to your collaborations?				
(For each statement please rate importance by clicking on the appropriate box)	Not at all Important	Not very important	Somewhat important	Very Important
New Zealand	○	○	○	○
USA	○	○	○	○
Canada	○	○	○	○
UK	○	○	○	○
Germany	○	○	○	○
France	○	○	○	○
Other Continental European Countries	○	○	○	○
Japan	○	○	○	○
China	○	○	○	○
Other (Please Specify) [ ]	○	○	○	○

Q15. What do you see as the critical factors in your most successful collaborations? (For example, synergy in interests, business planning, communication of expectations, flexibility in milestones, ease of negotiations, timely documentation, etc.?)
(please briefly specify)

[ ]

Section D – Project Agreement Issues

Q16. Please rate the frequency of the following activities:				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
I initiate discussions with other researchers for possible collaborations	◎	◎	◎	◎
I scope out collaborative projects, negotiate milestones and outcomes	◎	◎	◎	◎
I assist in developing terms sheets, heads of agreement or memoranda of understanding	◎	◎	◎	◎
I have input into the actual form of the final agreement	◎	◎	◎	◎
I consult with others (eg. research manager, higher management, finance department, lawyers/contracts office) before concluding formal agreements	◎	◎	◎	◎
I conclude formal agreements myself without any other consultation or assistance	◎	◎	◎	◎

Q17. How satisfied are you with the level of input you have into formal agreements?
(Please click on one option)

- ◎ I'm satisfied with my level of input into formal agreements
- ◎ I would like more input into the terms of formal agreements
- ◎ I would like less involvement in the terms of agreements

Please feel free to comment briefly

Q18. Do you believe formal agreements are necessary? (Please select one option)

- ◎ Always
- ◎ Sometimes, eg. for complex, cross-sectoral or multiparty projects
- ◎ Never

Please feel free to comment briefly

Q20. Do collaborative research projects ever commence involving your organisation before agreements are signed, where there is a clear intention to enter into formal arrangements?

- ◎ Never
- ◎ Rarely
- ◎ Sometimes
- ◎ Often

Please feel free to comment briefly

Q21. Please tell us your views on commercialisation of research
(eg selling/licensing/exploiting the results of research, its benefits and disadvantages).

Q22. We would like to know more about the general problems you have encountered in negotiating **formal** agreements				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
Unreasonable delays in project commencement occurred	○	○	○	○
Prevented the project from proceeding	○	○	○	○
It became too complex for what the project was	○	○	○	○
It was too costly	○	○	○	○
The process eroded trust between the parties	○	○	○	○
The other party had all the leverage	○	○	○	○
The parties had differing expectations	○	○	○	○
Difficulties dealing with industry	○	○	○	○
Difficulties dealing with university technology transfer office	○	○	○	○
Difficulties dealing with government agencies	○	○	○	○
Other (Please Specify)	○	○	○	○

Q22a. We would greatly appreciate any further information you could provide us with regarding problems you have encountered in the development of formal agreements. Please type your response below.

Q23. There are specific issues that can cause problems in negotiating **formal** agreements. Please specify the frequency of the following problems/issues in the context of formal agreements that you have encountered:				
(For each please rate frequency by clicking on the appropriate box)	Never	Rarely	Sometimes	Often
Defining parties' roles /responsibilities	⊙	⊙	⊙	⊙
Defining project scope	⊙	⊙	⊙	⊙
Data ownership, access	⊙	⊙	⊙	⊙
Intellectual property – ownership	⊙	⊙	⊙	⊙
Intellectual property – licensing	⊙	⊙	⊙	⊙
Intellectual property – overvaluing it	⊙	⊙	⊙	⊙
Commercialisation rights	⊙	⊙	⊙	⊙
Revenue split or royalty streams	⊙	⊙	⊙	⊙
Reach-through royalties or claims	⊙	⊙	⊙	⊙
Liability/indemnity clauses	⊙	⊙	⊙	⊙
Confidentiality provisions	⊙	⊙	⊙	⊙
Location of governing law	⊙	⊙	⊙	⊙
Privacy law issues	⊙	⊙	⊙	⊙
Project review or reduction of scope	⊙	⊙	⊙	⊙
Termination and associated issues	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

Q23a. Please feel free to explain or add further comments

Q24. Do the same issues (as described in Question 23) cause problems during performance of the agreement?

○ Yes (feel free to comment further)
○ No (please identify major problem issues)

[text box]

Q25. When negotiating agreements, are you generally able to resolve the issue of publication (or public release of results), eg. by a limited delay in release to allow preservation of intellectual property rights?

○ No
○ Yes, to my reasonable satisfaction
○ Yes, but the delay has a serious adverse effect on my publication
○ Yes, but there is a complete embargo on some information
Feel free to comment further

[text box]

Q26. On average, how long does it take to finalise a formal collaborative research agreement from initial contact? (Please indicate in months. Leave Blank if Not Applicable)

[ ] Confidentiality agreements/non-disclosure agreements

[ ] Simple two party agreements

[ ] Large projects, complex or multiparty agreements

Q27. Please rate your level of agreement with the following aspects of **formal** agreements	Strongly Disagree	Disagree	Agree	Strongly Agree
I know what the terms of my formal collaboration agreements mean	○	○	○	○
I know what relevant funding agreements require regarding intellectual property ownership	○	○	○	○
Formal agreements are not flexible enough to accommodate evolving projects or changing parties	○	○	○	○
I rely on trust to resolve disputes rather than my formal agreement	○	○	○	○
I rely on the terms of my formal agreements to resolve disputes	○	○	○	○
I have gone to mediation or arbitration to resolve disputes	○	○	○	○
I have gone to court to resolve disputes	○	○	○	○
Other (Please Specify)	○	○	○	○

Q27a. Please feel free to explain or add further comments

[text box]

Q28. Please rate your level of agreement with the following ways to improve the negotiation process				
	Strongly Disagree	Disagree	Agree	Strongly Agree
Parties have had prior dealings together	⊙	⊙	⊙	⊙
Communication, making an express effort to understand the other party's culture, objectives, drivers and mission	⊙	⊙	⊙	⊙
Each party's organisation has a clear intellectual property policy that balances issues of access, cost recovery and return on investment	⊙	⊙	⊙	⊙
A generally accepted 'working rule' that intellectual property generated in collaborative research should be divided according to relative inputs, measured by demonstrable relevance to the generated property	⊙	⊙	⊙	⊙
A 'triage' approach, sorting agreements into those that need significant negotiation and those that do not (eg. by asking if the project is likely to result in valuable intellectual property or not)	⊙	⊙	⊙	⊙
A 'deferral' approach, where parties concentrate on identifying and describing their contributions, postponing negotiations on intellectual property exploitation issues until eg. a specific milestone, or commercialisation prospects improve so that detailed negotiations are necessary	⊙	⊙	⊙	⊙
Groups or associations facilitating interaction between potential collaborators (especially cross-sectoral collaborators), technology matching	⊙	⊙	⊙	⊙
Increased availability of services similar to contracts/technology transfer offices, on a fee-for-service basis	⊙	⊙	⊙	⊙
Increased financial resources, education, training in business, marketing skills for contracts/technology transfer offices	⊙	⊙	⊙	⊙
Creating a new government agency to develop and maintain a master database of standard clauses for research contracts, issue guidelines and oversee licensing practices	⊙	⊙	⊙	⊙
A comprehensive online portal providing: • Virtual negotiation room • Virtual documentation office (agreements generated using a database of standardclauses) • Educational materials, guidelines • Information on collaboration opportunities • A technology matching service ....would be widely used	⊙	⊙	⊙	⊙
A more limited online portal providing: • Educational materials, guidelines • Information on collaboration opportunities ....would be widely used	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

28a. Please feel free to provide further comments or suggestions

Q29. Please rate your level of agreement with the following statements regarding the streamlining of the documentation process	Strongly Disagree	Disagree	Agree	Strongly Agree
Using simple confidentiality agreements allows disclosures to occur quickly	⊙	⊙	⊙	⊙
Master agreements that allow descriptions of new projects to simply be 'tacked on' are useful	⊙	⊙	⊙	⊙
Licensing based on the 'free/open source software' model (eg. free access but limitations can be imposed on use, re-use, dissemination, commercialisation of content) would be widely used	⊙	⊙	⊙	⊙
Standard agreements for different collaborations would be widely used	⊙	⊙	⊙	⊙
Standard agreements would be customised anyway	⊙	⊙	⊙	⊙
A database of standard clauses for assembly into formal agreements would be widely used	⊙	⊙	⊙	⊙
Agreements generated by assembling standard clauses would be customised anyway	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

29a. Please feel free to provide further comments or suggestions

Q30. How important do you feel the following contracting issues will become with the increase of e-Research?	Not at all Important	Not very important	Somewhat important	Very Important
(For each statement please rate importance by clicking on the appropriate box)				
Ease and speed of entering formal agreements	⊙	⊙	⊙	⊙
Flexibility of formal agreements	⊙	⊙	⊙	⊙
Privacy laws regulating data and information sharing	⊙	⊙	⊙	⊙
Data ownership or access	⊙	⊙	⊙	⊙
Intellectual property (e.g. patents, copyright)	⊙	⊙	⊙	⊙
Liability	⊙	⊙	⊙	⊙
Cross border disputes and jurisdictional issues	⊙	⊙	⊙	⊙
Competition/anti-trust issues around research structures	⊙	⊙	⊙	⊙
Other (Please Specify)	⊙	⊙	⊙	⊙

Q31. Please describe any other legal issues in the context of e-Research which you believe have, or will have, a significant positive or negative impact on your work. You can describe a particular scenario to illustrate your point.

Section E – Databases

We regard a database as a collection of information stored in a computer in a systematic way.

Q32. How often do you access external databases in conjunction with your research activities?
(Please select one option)

- ○ Daily
- ○ Weekly
- ○ Monthly
- ○ Other (please specify) [＿＿＿＿＿＿＿＿]

Q33. Are you required to register in order to access the databases?
(Please select one option)

- ○ Yes, for all databases
- ○ Yes, for more than half of the databases
- ○ Yes, for about half of the databases
- ○ Yes, for less than half of databases
- ○ No

Q34. In which geographical areas are the databases located? (Select all that apply)

- ☐ Australia
- ☐ USA
- ☐ Canada
- ☐ UK
- ☐ Continental Europe
- ☐ Asia
- ☐ Unknown
- ☐ Other (please specify) [＿＿＿＿＿＿＿＿]

In the context of accessing external databases as part of your research activities...	Yes	No	Please feel free to comment
Q35. Are you aware of legal restrictions associated with copying, extraction or reuse of information from the databases you access?	○	○	
Q36. Do you always comply with restrictive notices presented on databases (particularly copyright restrictions)?	○	○	
Q37. Would it facilitate your research to have clearer explanations on what can be legally copied, extracted or reused from particular databases?	○	○	
Q38. Does your research usually result in the production of data or datasets that are deposited into a database?	○	○	

Q39. If your data or datasets are deposited onto a database, this database was created by:

- ○ You (or your research organisation)
- ○ Some other body or institution

Q40. Is this database located outside Australia?

- ○ Yes
- ○ No
- ○ Unsure

Q41. Is your data available for access and use by other researchers?

- ○ Yes
- ○ No
- ○ Unsure

Q42. If your data or datasets are deposited onto a database available for access and use by other researchers, on what basis is it made available to them?

- ○ Open access, that is, freely accessible with no restrictions on the use that can be made of it
- ○ Restricted access, that is, the research data can only be accessed and used by, for example, specified individuals or research groups
- ○ Subject to restrictions on the use that other researchers can make of your research data
- ○ Unsure

Q43. Does your organisation have a policy setting out the basis on which research data should be deposited into databases for access by other researchers?

- ○ Yes
- ○ No

Q44. If your organisation has a policy setting out the basis on which data should be deposited into databases for access by other researchers, can you provide any details of the policy?

Q45. If your organisation has a policy setting out the basis on which data should be deposited into databases for access by others, are researchers provided with guidelines on how the policy is to be put into practice?

- ○ Yes
- ○ No

Q46. Do you (or your organisation) prepare plans for the management and/or sharing of your research data?

- ○ Yes
- ○ No

Q48. Would it assist you to have access to a plain English "how to guide" explaining the legal restrictions associated with databases?

- ○ Yes
- ○ No (If No, why not?)

Feel Free to Comment

Section F – Data

Q49. What types of data does your research routinely use/generate?

- ☐ Alphanumeric text (consisting of letters, numbers, punctuation marks, and mathematical and other conventional symbols)
- ☐ Images (including photographs, diagrams, graphs and similar illustrations)
- ☐ Sound
- ☐ Other (please specify) _____

Please rate your level of agreement with the following statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
Q50. I have a clear understanding of who owns the data **I use** in my research projects?	○	○	○	○
Q51. I have a clear understanding of who owns the data **generated** in my research projects?	○	○	○	○

There is increasing awareness of the benefits to future research of storing and providing access to research data in the long-term, after completion of publicly funded research projects.	Yes	No	Please feel free to comment
Q52. Do you presently take steps to ensure research data is available in a form which can be readily stored and accessed?	○	○	
Q53. Does your organisation currently have defined mechanisms to assist you in storing and accessing your data in the long term?	○	○	
Q54. Do you have any reservations about people outside your project or organisation having access to data created as a result of your research project?	○	○	

Q55. You have reservations about people outside your project or organisation having access to data created as a result of your research project because:

	Strongly Disagree	Disagree	Agree	Strongly Agree
The data might have errors in it	○	○	○	○
You do not want to give away your ideas	○	○	○	○
You want attribution for the data and others are unwilling to give you that	○	○	○	○
You fear some liability for undesirable results of the other's research	○	○	○	○
You are bound by a formal collaborative research agreement not to disclose data	○	○	○	○
Your projects seek to commercialise the outcomes and you do not wish to compromise this	○	○	○	○
You do not wish to be associated with any other project	○	○	○	○
You do not want to be mistakenly viewed as endorsing the other project or its outcomes	○	○	○	○
You do not want your data to be used in research that you oppose or personally disagree with	○	○	○	○

Q56. If you have objections to people outside your project or organisation having access to data created as a result of your research project, would your concerns be reduced by having a legally binding agreement that clearly defined legal ownership and limited your liability for the recipient's use of the data?

- ○ Yes
- ○ No (If not, why not?) _____

Feel Free to Comment

Section G – Final Comments

We welcome any further input you may have in the context of collaboration and e-Research. If you can elaborate on specific issues raised in the survey, or have other issues you think should be addressed, please input your ideas and suggestions here. Please feel free to inform us how perceived problems can be solved.

Thankyou for participating in the survey.

Appendix B: Complete Listing of Open-Ended Comments

Organisational Role	Briefly describe the kinds of activities your e-Research involves…
Researcher	I have a few international collaborators, with whom I have written papers, discuss projects, and apply for joint funding on a regular basis.
Researcher	Searching for references and material and then working with a group of people by email
Researcher	Online mentoring collaborative teaching and learning
Researcher	E-mailing versions of papers to other collaborators etc Research on ethical issues related to e-research, e-commerce etc
Researcher	Researching for review papers and developing joint author electronic publications
Researcher	Use of cultural probes, online blogs and social networks for data collection and analysis, use of ICT and new media for collaboration with other team members and field workers
Researcher	Exchanging and commenting upon draft reports, papers, software prototypes, etc.
Researcher	Interactions with other researchers, both in Australia and overseas through collaborative software. Analysis of data appearing in online spaces. Use of electronic surveys.
Researcher	Interaction with research colleagues, accessing papers and knowledge sources on the Web.
Researcher	I am involved in humanities computing, especially digital archiving…[ ]
Researcher	Micro simulation models of the [name deleted] system. Trajectory models of [area deleted]. All the standard data access and collaboration tools
Researcher	Sharing information, sharing hard data with collaborators, submitting and retrieval of data to international global databases, sharing software seeking out new collaborators, esoteric community engagement and networking publishing
Researcher	Joint project with [name deleted] in [country name deleted], topic discussions and brain storming, downloading and uploading radiology images, testing algorithms
Researcher	Computational modelling of dynamic environmental systems. Data visualisation and analysis
Researcher	Data sharing and other electronic interactions between research collaborators across the globe
Researcher	Use the internet to access and contribute to data repositories or for data sharing
Researcher	Data infrastructure for e-Research
Researcher	Land-atmospheric modelling
Researcher	Use and contribute to global data bases. Collaborate with international colleagues utilise high-performance computing
Researcher	Electronic data capture and analysis
Researcher	Humanities computing, cultural informatics; sustainable digital repositories; digital scholarly practice; online access to public knowledge; digital citation; multi-layered frameworks of interconnection; online dictionaries and encyclopaedias
Researcher	Access of online databases; Data-input, data-retrieval and data analysis via web-based packages; access to academic writing via the web; group and collaborative information communication using web-based packages
Researcher	Performing online questionnaires for creative communities of practice & undertaking ethnographic analyses of online interaction between network members
Researcher	I'm a research fellow with an e-research study responsible for recruitment of participants
Researcher	Web services for delivery and discovery of spatial data, parallel processing of large spatial datasets
Researcher	Spatial Information storage, management, analysis, reporting Wiki forum development
Researcher	Corpus construction, online presentation of media and time-aligned text, construction of data repositories
Researcher	Use of data repositories in the life sciences
Researcher	Managing shared data collections. Videoconferencing.
Researcher	Bioinformatics and data mining
Researcher	Gene discovery, computer simulation modelling of crop responses
Researcher	Building digital repositories of data in [deleted] it is a federation of [ ], that automatically catalogues and makes accessible to scientists. In addition I am involved in HPC and data analysis of model outputs. I manage the [name deleted] group in [location deleted]
Researcher	I use the internet to access electronic data and programs I also am involved in publishing an eBook
Researcher	I'm involved in using high-speed network infrastructure for the real-time transfer of data between remote locations. Essentially we are able to use modern fibre optic networks to transfer large volumes of data that in the

	past could only be done via shipping magnetic media, such as tapes or hard disks from location to location using road or air freight.
Researcher	Data mining
Researcher	Exchange of data via web sites and ftp, downloading of raw data before processing and distribution of the processed data, collaboration with others via email
Researcher	Access to shared data facilities, as well as the use of electronic media for communication, access, and sharing of research.
Researcher	High performance computing tasks in molecular modelling, molecular docking (drug design) 3D visualisation in a collaborative environment interstate/international collaborations to share data sets and 3D visualisation Storage and retrieval of large datasets, development of relational databases to track scientific/experimental data.
Researcher	Creating shared repositories
Researcher	Grid-based computation Workflow demonstrators
Researcher	Data analysis; Use of internet to search readings, journals, find interesting facts etc Storage of information Creative aspects, pictures etc
Researcher	Applied economic analysis
Researcher	Sharing of data with national and international collaborators use of Skype and other IP communications tools to collaborate individually and for group meetings questionnaire data collection via web based surveys
Researcher	Accessing data bases and search engines for literature searches, participating in research networks, disseminating research findings
Researcher	High end computing requirements - projects distributed over multiple sites, linked electronically - papers, code, data etc circulated via the internet - use of blogs for informal circulation
Researcher	HPC, data sharing
Researcher	Shared access to, and use of large data files from survey research projects. Use of common server space for storage of work related to research projects. Collaboration with report writers in document compilation.
Researcher	Utilising repositories of technical reports
Researcher	Collaborating using on line tools and contributing to online data bases
Researcher	Use of high-performance computing and extensive use of visualization tools, including development of both hardware and software solutions to increase uptake of visualization in research.
Researcher	Developing a database containing [deleted] records from [location deleted]. The database will consist of over 100000 images, XML versions of the documents portrayed in the images, data tables extracted from XML docos, further tables linking subjects to subsequent generations. Part of this research will go online—[ ]--, while the rest will remain under lock and key. The online data will likely form part of the [name deleted] website.
Researcher	Developing databases for research support and research data management.
Researcher	Sourcing existing research information for clients to support consultancy work in preventative health
Researcher	Researching policy documents related to my area of work, including legal and policy and procedural documents produced by Government, academic and not-for-profit organisations. Searching for information related to areas of work similar to my own. Searching for contact details for individuals and organisations engaged in similar work
Researcher	Accessing government historical archives via Internet. Accessing other archives (e.g. online historical records from the Registry of Births, Deaths and Marriages) for research.
Researcher	Literature, database and patent searching. Network communication between researchers working in similar areas. Collaborative laboratory interaction on the same project
Researcher	Sourcing online content about e-learning evaluating web 2.0 software and tools writing academic papers conducting online surveys
Researcher	Electronic Journal access
Researcher	Reading: [ ] and science direct research papers, Internet websites
Researcher	Research of the latest findings relevant to the particular area I am involved in i.e. search engines, journal, Google searches.
Researcher	Cohort study conducted over time in complete electronic mode in terms of participation, data collection and follow-up
Researcher	Electronic journal editor Website manager Developer of collaborative e-tools, and user of same
Researcher	Research works with colleagues from other institutions.
Researcher	Online surveys, communication with other researchers, access to electronic databases
Researcher	Projects on facilitating global learning via sharing courses across continents. Supervision of student studying aspects of online and technology mediated learning.
Researcher	I am involved in research into grid technologies and in collaboration with researchers in health on its application to their research. I also extensively use the web as a resource and tool for sharing information
Researcher	Mostly related [internet research area deleted]
Researcher	Research and Development of infrastructure (advanced collaboration and remote visualization) technologies.
Researcher	Research of information held on databases and websites related to elections and electoral governance. To produce qualitative papers and research on trends and outcomes

Researcher	Developed and implemented a national online survey for [deleted]; use online tools to connect management teams for research projects using Wikis for participants to evaluate project events
Researcher	Collecting data by electronic surveys
Researcher	I am the founder of the [network name deleted]. This is a project that involves social science research into online networks (such as networks on the WWW), and the development of e-research tools to facilitate this research.
Researcher	An online survey as part of a research project and the provision of information from government to private industry
Researcher	Online collaboration under contracted research with clear IP resolution, international collaboration on identified projects with no contract and informal collaboration and exchange of ideas
Researcher	With colleagues, developing an international network of free access providers of legal information - more 'research infrastructure' than research.
Researcher	Support of the research work of the [institute name deleted]
Researcher	All the activities listed on the previous page.
Research Manager	Using on line collaboration tools for sharing of information, development of ideas, discussion of research outcomes.
Research Manager	Message boards, skype, e surveys
Research Manager	Spatial information acquisition, analysis, value-adding.
Research Manager	I utilise statistical computing software; I use the internet to access and contribute to data repositories and for sharing of data; I interact with co-researchers over the internet
Research Manager	Data bases, digital media, publications, development of search engines
Research Manager	Data mining, accessing market and scientific information as part of background analysis of an investment opportunity.
Research Manager	Data/information exchange
Research Manager	Access data as well as the software tools that are being made available to manipulate or analyse this data; - synthesise, curate and disseminate new knowledge efficiently; - facilitate interactivity and research collaboration, allowing researchers to work seamlessly from desk-to-desk within and between organisations.
Research Manager	Sharing data across the internet to write scientific and medical manuscripts for publication, and clinical study reports
Research Manager	My research centre carries out online surveys, runs a data repository and is developing online research tools for archiving, dissemination, and analysis. I also have national and international research collaborations that are facilitated through e-Research tools, such as the Internet and access grid technology.
Research Manager	Clinical program based service performance and outcome monitoring relating to cardiac surgery, involving data management, data mining, data analysis and reporting tools and connectivity to disparate clinical databases. The research aspect relates to the continuing development of best practice in these areas.
Research Manager	Collaborative health data projects in clinical and Bioinformatics
Research Manager	Genetic modelling
Research Manager	Developing standardised interfaces to enable globally distributed data bases to be accessed seamlessly in real time online data mining semantics and ontologies for earth sciences web services
Research Manager	Developed the first Australian [name deleted]. Developing a new repository framework based on Fedora that will support federated authentication and flexible authorization (…) - Hold workshops for university administrators and it managers on federated authentication and authorization.
Research Manager	Broad based [transport] research. There is increasing use of electronic data gathering and the use of modern communications systems to gather and deliver remotely accessed data for near real time situation analysis.
Research Manager	The [name deleted] platform provides clinical researchers with access to data from disparate databases across multiple disease types at multiple institutions with the linked databases creating a virtual repository. The [name deleted] provides an ethically approved, flexible and secure method for interrogating these multiple data sources, containing over 150,000 research records of patient, clinical outcome and genetic data that are record-linked across all databases and institutions.
Research Manager	Exchange of algorithms and data across a variety of platforms, and with collaboration involving nodes at [capital cities deleted].
Research Manager	Data base sharing, electronic communications between research centre nodes, public data base mining, etc
Research Manager	Access databases utilisation of specific software and internet tools
Research Manager	Production, maintenance and application of large observational databases to astronomical research.
Research Manager	Computer simulation, generating shared data and storage thereof, developing websites, search on line for data and ideas, data processing, visualisation, data acquisition
Research Manager	Running computational code on high performance computers, generating massive data sets, transferring and manipulating data, sharing data and results internationally, displaying and publishing data. Similarly, large data sets are captured and processed via physical experiments using laser diagnostics and synchrotrons. Experiments are controlled robotically over the internet. Joint supervision of postgraduate students, such as through the [name deleted] with [name deleted], electronic participation internationally in research juries.
Research Manager	Access to confidential data held by a national organisation, analysis of the data and publication and dissemination of the results.

Research Manager	Developing a means for reuse of research data in field linguistics, including advocating workflows, building a data repository, training in the use of appropriate tools and building tools if they don't already exist.
Research Manager	Establishment of a research database for a national research centre. Establishment (design and construction) of a subject database of research, policy and practice documents and resources in a health-related area - accessed by government and non-government policy people and health service providers, as well as researchers and health educators.
Research Manager	Email data processing, sharing and distribution
Research Manager	Sharing data, utilising data available on the internet, making data available on the internet, submitting and reviewing research papers via the internet, working on joint projects with collaborators via the internet/email who are in different parts of the country.
Research Manager	Online data sharing, data distribution via international websites, data interpretation using web tools, writing and editing scientific and technical reports online, blast searching molecular data etc
Research Manager	Dissemination of new knowledge
Research Manager	All of those mentioned in the Previous question. * knowledge discovery, * data & software access, * curation & dissemination of data - in real time & archival, * facilitation of research collaboration, * collating & reporting the results of research
Research Manager	Management of environmental research via web reporting; dissemination of research results via the web; collection of spatial meta-data
Research Manager	Coordination or scientific evaluation and research projects and sharing and discussion of results
Research Manager	Journal abstracts; research articles; background info - companies, people, products and technologies
Research Manager	Looking for information on the Internet. Writing a joint blog.
Research Manager	I hardly use my university's library now for my research. I put all queries into Google and search the web. I pick up new publications on my research into [climate research area deleted] that way. I also pick up contacts and communicate with them using e-mail
Research Manager	As a research manager in a University, I am involved in the administration aspects of projects where e-research features.
Research Manager	I'm the Director of a research office, and manage contracts for collaborative e-research projects.
Research Manager	As Strategic Coordinator in [name deleted] my role is to interface between all staff of the university and corporate initiatives such as CRC's and other government. This requires considerable e-Research in facilitation, information gathering and agreement development as well as corporate policy issues relating to information exchange etc.
Research Manager	Using email to gain responses to closed-end survey
Research Manager	Research projects
Research Manager	Development of biomedical devices which involves sensors, real-time control and artificial intelligence.
Research Manager	Building and Deploying web based fraud detection systems
Research Manager	I am engaged in research concerning the behaviour and management of the Internet itself. This involves extensive measurements, and modelling of the Internet, as well as design of experiments and simulations related to the Internet.
Research Manager	Remote access to an integrated circuit tester through the Internet.
Research Manager	Providing e-Research services
Research Manager	My role is to promote the e-research activities of others across all disciplines
Research Manager	Copyright law and its application to education, primarily use, reproduction and communication of third party works to support e-learning
Research Manager	Facilitating research across our 15 partners
Research Manager	Facilitator between [university name deleted] campus and State/Federal e-Research activities. [Name deleted] site slated to participate in initial e-Research activities. Working directly with state organization [name deleted] in implementing unified login system for account on resources.
Research Manager	I work to support [state name deleted] researchers in their use of technology and to raise awareness of e-Research amongst researchers who are not utilising technology to its full potential.
Research Manager	Facilitating and supporting researchers to make effective use of high-performance network capabilities.
Research Manager	Using e-resources to support research project - data access, recording and reporting research information
Research Manager	I am Director an e-Research provider organisation
Research Manager	Tele-collaboration [name deleted] and [name deleted] Secure dynamic network provisioning
Research Manager	Promoting awareness of e-Research amongst the research community. Developing tangible examples with various research groups…how e-Research (the enabling of research by advanced ICT) can be of benefit in collaborative activities and activities involving shared resources. Providing enabling technology to these research groups.
Legal Advisor	Intranet, electronic databases and online publications
Legal Advisor	Using AUSTLII database for cases, ATMOSS for Trade Marks, Patsearch and Patadmin for patents, ADDS for Designs as well as general blogs and web-articles in relation to general research on intellectual property issues.

Legal Advisor	Generally the resources accessed are legal databases such as LexisNexis Au, Austlii, AGIS, Hansard, Lawlex
Legal Advisor	Designing databases to archive research datasets, training researchers to use research databases, providing information on and offline, assisting in the design of metadata schema, researching and providing advice on standards, digital conversion and sustainable practices.
Legal Advisor	Using Wiki's and online search tools to perform legal research in relation to points of law as a student and law clerk and in relation to the businesses of clients as a law clerk.
Legal Advisor	Any day to day research regarding developments in the law, or requirements of the law
Legal Advisor	I research daily as part of my employment. I use mainly online tools to access legislation, case materials, corporate and company details and other general information. The medium is mainly broadband internet delivery.
Legal Advisor	Research for legal publications on cases
Legal Advisor	I am a researcher at the [organisation name deleted] Institute and supervise a number of Ph.D. students as well as undertaking my own research into various legal areas. I carry out extensive literature searches covering the areas of the law. I am also [examining] legal recognition of [deleted] within the online gaming environment.
Legal Advisor	Legal research
Legal Advisor	Copyright clearance for other people's e-research, advising on copyright issues, obtaining information on e-research for others
Legal Advisor	Legal analysis & advice for clients
Legal Advisor	Offering copyright advice to staff & students involved in e-Research rather than actually conducting research myself
Contracts Officer	Access to data in both digital and physical forms, use and access to software to analyse experimental data, synthesise, curate and disseminate new knowledge efficiently; communication of information throughout the company and network of stakeholders, facilitate research collaboration,
Contracts Officer	Collaborative health research across multiple centres in Australia and internationally
Commercialisation Officer	Email, electronic databases, internet IP database
Commercialisation Officer	Using high performance computing capabilities- developing secure research collaboration links
Commercialisation Officer	Trawling the internet and databases for information
Commercialisation Officer	Management of research - contracts, agreements, companies, structures
Commercialisation Officer	Support external client and internal stakeholders in preparing, conducting and analysing the results of online surveys. Also conduct a research which seeks to understand the impact of online services adoption by organisations and communities.
Commercialisation Officer	Providing intermediary services to identify and bring together research groups to pursue e-research projects.

Organisational Role	What do you see as the critical factors in your most successful collaborations (e.g. synergy in interests, business planning, communication of expectations, flexibility in milestones, ease of negotiation, timely documentation)?
Researcher	Synergy of interests, intellectual coherence, good communications with the community
Researcher	Informal relationships
Researcher	Local champions in each country to drive local project initiatives - all else done electronically
Researcher	Personal relationships synergy in interests well articulated planning
Researcher	Least amount of formal agreement preparation - or they were prepared by supporting administrative staff. Personal contacts are the most important factor
Researcher	ARC and other joint funding support
Researcher	Communications
Researcher	Timing established relationships joint publications
Researcher	Communication. Timely completion of tasks.
Researcher	Communication of expectations, flexibility in milestones, ease of negotiations, timely documentation,
Researcher	Common interest, expected output from the collaboration and developing new research frontiers.
Researcher	Trust, common purpose, mutually beneficial outcomes
Researcher	Common interests, established liaisons
Researcher	Shared goals/aims, sharing of information and technology
Researcher	Seamless business practice

Researcher	Timeliness, common interests, good communication
Researcher	Synergy in interests, communication of expectations, flexibility in milestones, ease of negotiations, timely documentation
Researcher	Synergy in interest, clear goals, agreed outcomes, good project planning, supporting documentation
Researcher	Common goals; sharing of knowledge and staff; common problems; understanding each others limitations; flexibility; personal respect and collegiality.
Researcher	Common goals; effective communication; anything reducing barriers to progress (e.g. easier legal agreements; more effective processes of ethical clearances in multi-site studies; streamlining of multiplicity)
Researcher	Communication - agreement of success criteria
Researcher	Synergy of interests, timely documentation, effectiveness of information transfer
Researcher	Commitment to long term; flexibility, central record keeping
Researcher	Face to face interaction to build trust and rapport, then ongoing electronic communication to maintain momentum, setting and reaching milestones, outcomes
Researcher	Trustworthy relationships
Researcher	Trust between the partners developed over a long time; provision by us of key software to them, and other technical support, at various times.
Researcher	Frequency of communication face to face/exchange visits - essential to get critical mass whenever possible
Researcher	Openness, trust, win-win outcomes, mutual respect. Synergy in interests, timely business management, effective communication channels.
Researcher	Synergy in interests and brining something of use to the table......followed by publications
Researcher	Common interests; ability to write collaborative applications and papers; trust
Researcher	Synergy of interests, ease of negotiation
Researcher	Efficiency of communication, being able to share data and work on shared data in a timely manner.
Researcher	Timely documentation, reliability of collaborators, expertise
Researcher	Information sharing, ease of collaboration, timeliness
Researcher	Synergy of interests leveraging access to resources and know-how
Researcher	Synergy in interests, mutual trust, communication and shared vision.
Researcher	Project planning and management Communication - success is always dependent on how good communication is !! :>)
Researcher	Parallel interests, joint visions, time and resources (e.g. students or staff)
Researcher	Synergy in interest is the catalyst for the collaboration. Money is also necessary to drive it, for both project costs and visits.
Researcher	Synergy in interests. If you're not all striving for a common goal you don't really have an effective collaboration. Some aspects of the project may be of greater relevance than others to particular parties, but if everyone isn't committed to well-defined outcomes then they are much less likely to be achieved.
Researcher	Understanding and flexibility.
Researcher	Knowledge of the people involved, the informality of the processes, good will between collaborators, reputations of the participants and recognition of the research outcomes likely to be achieved
Researcher	Synergy in interests supported by the concrete research execution plan. This has to be developed through frequent (weekly) intense meeting (face-to-face or similar remote collaboration...not just simple video conferencing!).
Researcher	Success in achieving robust quality and integrity standards
Researcher	Defined area of interest, limited timeframe, ability to communicate easily and significant synergy of team.
Researcher	Synergy of interests, complementary skills, lack of administrative barriers, regular project meetings that are minuted, flexibility.
Researcher	Synergy of interest, complementary skills, communication of expectations
Researcher	Opportunities for face to face discussions, goodwill in negotiations, shared goals, flexibility in plan
Researcher	Synergy in interests, ease of negotiations, low paperwork overhead
Researcher	Common interests, complementary skills, two-way communication, efficient organisation
Researcher	Clear, concise information flow over whole project. Flexibility and communication - both oral and online
Researcher	Commitment to partnerships with shared values and expressed interest in research pathways instead of product development.
Researcher	Planning, commitment
Researcher	Access and ease of communications, synergy in interests
Researcher	Synergy in interests
Researcher	Getting on with the person
Researcher	Synergy in interests

Researcher	Commitment of partners, shared goals, best use of individual skills,
Researcher	Opportunities for face-time contact, previous connections (e.g. having worked in same place at some time)
Researcher	Getting good people - forming appropriate shared expectation – money
Researcher	Synergy in interests
Researcher	Communication of expectations, flexibility in milestones, timely return of messages and requests, ease of negotiations.
Researcher	Communication of expectations, timely documentation, understanding the roles of each partner
Researcher	Good relationships amongst team members, shared vision of project direction and outcomes, respect for different expertise and capacities
Researcher	Synergy in interests, complementary skills, personality
Researcher	Common interests, similar work ethic, ability to work together, good communication through frequent formal and informal meetings
Researcher	Synergy in interests, flexibility in milestones, ease of negotiations, timely documentation, business planning, communication of expectations
Researcher	Synergy of interests, ensuring expectations are aligned
Researcher	Communication in general. Ease of negotiations and timely documentation.
Researcher	Planning, clear implementation and documentation of data collection, high level co-operation between partners facilitated by effective communications channels
Researcher	Clarity of expectations, common goals.
Research Manager	Leverage of combined resources
Research Manager	Drive for commercial success. Profit sharing. Ease of communication / similar mindset while maintaining strict confidentiality / commercial IP boundaries
Research Manager	Assist commercialisation, build IP. Build relationships
Research Manager	Team gelling together
Research Manager	Close relations, agreed performance and research agendas, clear priorities and good communication
Research Manager	Synergy in interests
Research Manager	Synergy of interests and political will
Research Manager	Alignment of interests, business planning, clear understanding of expectations, flexibility in relationship, ease of negotiations
Research Manager	Common goals
Research Manager	Industry end user outcome focus, understanding end user business, creating value proposition, high quality peer reviewed scientific outputs
Research Manager	Information sharing and reflection on experiences in other jurisdictions and applicability into the Australian context
Research Manager	Shared goals; a relationship built on trust
Research Manager	Research culture of delivery and outcome focus. Willingness to tackle a problem-driven project of relevance to end-users.
Research Manager	Synergy in interests, collaborative project design, project management, regular communication, communication of expectations, flexibility in milestones, timely documentation
Research Manager	Alignment of interest, technical & management oversight & regular review of data, progress, findings and options
Research Manager	Trust, expertise, flexibility, timeliness, reputation
Research Manager	For commercial research collaborations - overlapping and complementary interests, overlapping and complementary skills, business planning, clear and honest communication paths, expectations of ongoing relationships and partnerships, joint negotiation of research, precise but flexible milestones for purely curiosity driven research - complementary and overlapping interests and skills, clear delineation of responsibility, reciprocity in interaction, good communication, opportunities for formal and informal interaction, reasonable time frames + flexible deadlines
Research Manager	Communications (access grid), network accessibility, security, project expectations, project costs (who will pay for what)
Research Manager	Synergy of interest, appropriate ongoing communication, relevance to practical application, publication outcome
Research Manager	Open negotiations and flexible milestones. Clear communications.
Research Manager	Willingness to share data in particular interest area
Research Manager	Synergy in interests, good communications, commitment by all parties.
Research Manager	Synergy in interests, shared excitement in exploring new research topics, a common goal towards publication
Research Manager	Milestones, planning before hand, clear expectations and understandings, agreeing about publications, IP etc before beginning, all parties putting in (no joy riders), having sufficient money to do the job
Research Manager	Identification of a clear industry need, definition of project objectives, outcomes and benefits, participant trust and credibility.

Research Manager	Synergy in interests
Research Manager	Synergy of interests, complementary of expertise, timeliness
Research Manager	Interpersonal relations and communications between collaborators; Realistic expectations of research priorities and outcomes
Research Manager	They were all run as classic skunk works where the altruistic came together informally with...synergistic interests and the shear determination to make it work
Research Manager	Common understanding of technical requirements and knowledge. - Flexibility of work agreements (i.e. ability to start working even before formal agreements/contracts have been drawn up). - Ability of all parties to clearly identify where each party can make the most significant contributions towards a common goal. - trust in each party to deliver on their promises
Research Manager	Enthusiasm of the individual researchers and the industry representatives.
Research Manager	Interpersonal relationships, synergy of interests, clarity about expectations and responsibilities
Research Manager	Synergy of interests Clear documentation and communication of the expectations of the collaboration Clear identification of intellectual property ownership
Research Manager	Planning and workshop, open communication.
Research Manager	Synergy in interest, business planning
Research Manager	Synergy of interests, common clear goals, clear understanding of benefits to parties (e.g., co-authorship, understood author ordering conventions, etc), common research grants or complementary research grants
Research Manager	Synergy and goodwill at the researcher level
Research Manager	Synergy in interests, communication of expectations, explicit agreement on sharing of data and co-authorship of publications
Research Manager	Synergy of interests communication of expectations ease of negotiations
Research Manager	Selecting the best team, open information flow, access to leading-edge facilities, adequate and timely funding
Research Manager	Ability to get on with others in a social basis Successful outputs of a timely nature
Research Manager	Project and business planning. Agreeing expected outputs and outcomes.
Research Manager	The most critical factor is personal relationships. Next would be synergy of interests.
Research Manager	Common goals, trust, ability
Research Manager	Quality and relevance of skills and resources, personal compatibility and commitment to projects, personal and professional ethics
Research Manager	Business planning, ease of communication, compatibility of research objectives, timely task achievements.
Research Manager	Willingness of one or two key collaborators who were well known in the field to support my initiative - this brought others to the table.
Research Manager	Personal contact and commonality of aims.
Research Manager	Synergy of interests, business planning
Research Manager	Communication, project planning, commitment
Research Manager	Open communications, negotiations, common research interests, wide skill sets
Research Manager	Synergy in interests and business priorities
Research Manager	Flexibility in milestones; communication of expectations
Research Manager	Sharing of complementary skill sets and knowledge bases, and access to each other's unique resources. Availability of funding is ultimately the most critical factor
Legal Advisor	Good communication and effective negotiations and presenting amended and reviewed agreements to the other party in a timely fashion
Legal Advisor	Constant communication and trust
Legal Advisor	Shared goals with well-defined consequences if goals are or are not met to provide the parties with a clear understanding of outcomes that are intended to be reached during the collaboration.
Legal Advisor	Communication, appropriate documentation and clear ownership of resultant intellectual property
Legal Advisor	Flexibility, ease of communication and timely gathering of information and distribution of documentation.
Legal Advisor	Ease of negotiations; preparation and communication
Legal Advisor	Making sure the deliverable is useful and fit for the purpose to which it was designed. Successful collaborations must as best as possible meet the needs of all who participate.
Legal Advisor	Critical factors include synergy of interests and management of expectations but also key staff selection and certainty of outcomes.
Legal Advisor	As legal practitioners we find an honest approach is the most critical factor in producing work for our clients.
Legal Advisor	Updating information
Legal Advisor	Commonality of objectives and desired outcomes, mutual trust and respect in the formation & undertaking of the project.
Legal Advisor	Open communication - especially in relation to negotiations. Understanding different limitations and legal frameworks of various institutions

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Legal Advisor	Synergy in interests, communication of expectations (if we have these two, I have found generally there will be ease amongst the parties when negotiating)
Legal Advisor	Successful negotiations on copyright, appropriate documentation & records
Legal Advisor	Funding, sustainability, project planning and management, technical management, availability of easily implemented standards and contacts with cooperative best practice organisations.
Contracts Officer	Provision of required services/research in a timely and cost effective manner
Contracts Officer	Research innovation, timely results, communication of progress to milestones/plan.
Commercialisation Officer	Trust, clear roles, definitions and milestones, continuing communication
Commercialisation Officer	Ease of communication, common goals, understanding each other's business
Commercialisation Officer	Agreeing and documenting commercial arrangements (IP, revenue sharing etc) before the project commences.
Commercialisation Officer	High levels of communication and understanding
Commercialisation Officer	Alignment of interests and effective project management and controls

Organisational Role	Please feel free to comment briefly on your satisfaction with the level of input you have into formal agreements…
Researcher	This is actually a problematic area - simple things like MoUs are Ok but more intricate agreements between Australian Universities outside the ARC framework have been difficult if not impossible due to the time lags they bring to the purpose and difficulty in defining the unknowables of the research.
Researcher	But generally need to be more hands on in order to get things going. Poor support systems within the University, difficulties with Crown Law and getting government organisation to cooperate
Researcher	I am frustrated whenever lawyers are involved as all these agreements take forever and slow down the whole research process and project
Researcher	E-Science is built on the greatest collaborative project of all time - the internet - formal arrangements that prevent publicly funded R&D from being released are an anathema.
Researcher	I would prefer that formal agreements were done more efficiently and via a proforma rather than individually crafted.
Researcher	Most formal agreements are with ARC or other funding bodies which provide no room for negotiation.
Researcher	I am not involved in collaborative research under formal agreements.
Researcher	Would like less of my time committed to the final stages of formalising the final agreement
Researcher	Legal agreements represent the largest impediment to timely research. The writing of proposals and obtaining funds is the easiest and quickest part. Legal agreements require early involvement of lawyers.
Researcher	I find formal agreements a necessary evil. If the parties to the agreement act in good faith throughout (which has always been my experience) then a lot of the detail that goes into drafting them is never really required.
Researcher	I wish we could do without formal agreements - drafting them and getting them approved is a significant pain but they are required in some circumstances and so we live with them.
Researcher	I'm not very convinced that the lawyers add anything useful, so I ignore them. My experience is has been that - in literally every case so far - the university lawyers have very nearly killed the research project by wasting my time and alienating my collaborators. I now actively dissociate myself from the legal process at the outset, and only intervene in the event that my IP rights look like vanishing.
Research Manager	With ever-changing legal, compliance and other issues, I feel that I lack the necessary technical knowledge and expertise and would like more support from professionals in this area
Research Manager	We engage legal expertise and the researchers themselves when developing our negotiation position, but also have institutional objectives at the forefront.
Research Manager	As a [organisation type deleted] CEO I have final sign off on all agreements and contractual arrangements
Research Manager	The legal profession seems to proliferate a variety of forms of research agreements (particularly in relation to IP and indemnities) which adds significantly to the costs of legal advice.
Research Manager	Legal advice often tends to make the collaboration so formal/complicated that it endangers the willingness of collaborators to participate. Sometimes legal advice is too oriented towards protecting the interests of my organisation, so that it does not see that formal agreements need to be balanced win-win arrangements.
Research Manager	Formal multi-party agreements can be difficult to conclude because of each parties desire to "win".
Legal Advisor	As legal practitioners we are usually the party that formalizes agreements on behalf of our clients.

Organisational Role	Please feel free to comment briefly on the necessity of formal agreements…
Researcher	Probably more like almost always - there are exceptions for groups that have worked successfully before, but there is an increasing need for formality
Researcher	Clarifies ambiguities in the long and short term so there are no misunderstandings of deliverables and time lines....
Researcher	When money is changing hands, yes. I'm not generally involved in generating money :-)
Researcher	I see formal agreements as a necessary evil due to the potential of developing IP that could be commercialised. However this is a relatively rare event in our research (more focus public good) and the potential commercial value of discoveries tends to be overestimated. Unfortunately the formal agreements we use are becoming increasingly impractical due to the time and costs of developing the agreements. This is particularly the case for work in the genetic discovery area. I think it is likely we will move towards building strategic alliances with key collaborators with build in IP protection rules.
Researcher	Experience decrees that always need some sort of agreed positioning on milestones, responsibilities and outcomes from the project
Researcher	When money is involved.
Researcher	Always, if money is being exchanged, just to protect all parties and provide redress if someone does act in an inappropriate manner.
Researcher	Depends on scope, purpose and complexity of project
Researcher	It depends on the area of research and the potential benefit. If it takes large amounts of $ and has a large dollar outcome then, sure have formal agreements.
Researcher	But it would be nice if the amount of jargonistic language did have to be included. I realise the importance of the formal agreements. It would be nice, though, to be able to read them and deal with them more easily.
Researcher	Avoid them when possible
Researcher	It largely depends on how much the participants own and value intellectual property.
Researcher	Some kinds of parameters are needed to guide the research process and outcomes. This is also important in terms of ethics clearance and other committee sign off processes.
Researcher	Need to sometimes start things to see what future can develop.
Researcher	Sometimes necessary for multiparty projects.
Researcher	When a team has not worked together previously a formal agreement helps ensure that everyone knows where they stand
Researcher	The higher the level of IP and commerciality the greater the need for formal agreements
Researcher	It depends on the nature of the collaboration, the expectations of each party and what use the collaborative work is put to on completion of the collaborative activity.
Research Manager	Written agreements can still be fairly "informal" in wording and structure but ensure that all parties have a clear understanding of the project, its activities and outcomes as well as expectations about the roles and responsibilities of individual participants.
Research Manager	Almost always, you never know where the basic science/knowledge may lead
Research Manager	The form of agreement needs to be appropriate to the purpose of the collaboration and the nature of risk
Research Manager	Or at least: virtually always. Formal agreements do not have to be written by lawyers - but they do have to capture shared understandings of collaborations, in particular: the rights to use research results.
Research Manager	Clarity between partners at the outset reduces the potential for later disagreement. The agreement need not be complex. Undue complexity is the major disincentive to developing formal agreements.
Research Manager	Formal agreements avoid problems with timelines, expectations, payments
Research Manager	Large, complex, ongoing, multi-institutional or multi-organisational collaborations always require formal agreements. Smaller collaborations involving a few individual researchers may not, although this depends on things such as size of budget and distribution of research resources and possibilities for generating IP
Research Manager	There is often the expectation that, as a facility, I will just load the tools/software at a cost to me, as well as network costs. This needs to be taken into consideration w/ e-Research tool developers and potential users. Another aspect is who will teach the community how to use the tools. I often find this is not considered. Finally - tool developers often do not discuss outcomes with the communities they are developing the tools for. All the above always need to be clarified with a formal agreement as these points get lost in informal agreements.
Research Manager	If a hand shake and mutual respect won't do it then contracts are not going to save you from each other
Research Manager	Depends on nature of project. Usually best to have a written agreement
Research Manager	They are of no use to my carrying out research
Research Manager	I haven't always done this but I should.
Legal Advisor	Again it depends on a lot of factors. Who the collaborators are, the time frame for the collaboration, what the research project involves, the number of collaborators involved.
Legal Advisor	As legal practitioners we cannot stress the absolute importance of having all agreement formalised.
Legal Advisor	Depends on the subject matter and the parties objectives

Contracts Officer	As a commercial entity, commercial agreements are critical
Contracts Officer	Unfortunately it's a fact of life these days that a formal agreement is required for ALL collaborative research.
Commercialisation Officer	Art is to reduce risk of failure so formal agreements are necessary to build research assets in a risky environment
Researcher	The lawyers take too long
Researcher	Almost a necessity given the time the lawyers take to finalise an agreement and the need to start with project deadlines
Researcher	Legal processes, and other admin, are always slow compared to the ideas generation and development processes. If we waited for them we'd never do anything or talk to anyone
Researcher	Business management cannot keep up
Researcher	It is always better to allow the work to lead us rather than waiting on agreements.
Researcher	Informal collaborations where no new finding is needed are common and generally either work by themselves or are directed toward finding funding and hence a formal collaboration.
Researcher	The time between research grant sign-off and the need to commence projects may require some initial collaboration to occur whilst agreement is finalised in order to meet project milestones.
Researcher	You can start to share ideas and discuss the projects, define the roles of each parties and then obtain a formal agreement, only then you actually start implementation of research project
Researcher	This mainly occurs with scientists we have worked with before and plan to work with again in the future.
Researcher	Usually due to delays within our legal section :>)
Researcher	Once again the problem is the time taken to cycle through agreements with lawyers from joint institutions.
Researcher	Often to meet the deadlines required for funding projects it is necessary to start projects as soon as possible. Typically no funds are allocated until formal agreements are finalised, so what happens is that planning and other preparatory work that needs little or no money is undertaken. Sometimes it is necessary to use alternate funds for the project and repay them once the formal agreement is reached. This isn't ideal, but I've been in situations where with a 1 year projects it has taken more than 4 months to get the agreement worked out.
Researcher	Contractual side always lags behind the timelines set for the project, hence often have to begin to capitalise on the context.
Researcher	I probably act on the assumption that the agreement will be sorted out.
Researcher	Almost always, in fact. Generally, you've got a short-ish timeline, and you can't afford to wait months for the haggling to stop. If you don't start before the contract is signed, you'll won't finish on time and end up in violation of the terms of agreement.
Researcher	Most are the outcomes of funding grants, so when the grant is certain, then the project proper begins.
Researcher	It can take so long for the lawyers to work through the contracts that the project can need to be almost completed before the contracts are signed
Researcher	I have had a number of projects that have been completed while [university name deleted] lawyers were still in negotiation with the other organisations lawyers - the long legal process does not reflect the needs and interests of research parties
Researcher	Only when commencement time is critical
Research Manager	Twice we have been told we had the funding, but it did not come through for some months
Research Manager	We have entered into agreements with bodies such as [hosting name deleted] to provide hosting and networking services before the actual agreement has been signed.
Research Manager	It appears work begins on projects to meet timelines before formal agreements are executed, but this is not our preferred approach, but is more based on the concerns of researchers about 'loosing' the project if they don't get started.
Research Manager	It's often the case that researchers will start their collaboration prior to a formal agreement being signed. That's not necessarily bad - the early stage activities can help clarify expectations and obligations.
Research Manager	The time taken to develop & approve agreements has caused start milestones to be overrun.
Research Manager	A good relationship creates environment for early start
Research Manager	It has usually happened when a major funder has indicated they will proceed, but delays are occurring in reaching legal agreements, so the agencies risk manage the situation and begin work in the expectation an agreement will be reached.
Research Manager	Seed projects often turn into formal projects.
Research Manager	This is often practically necessary, even though there are risks
Research Manager	Seed grants
Research Manager	Agreements often take a long time to reach, whereas researchers are often more interested in just getting some interesting work done.
Research Manager	We sometimes finish the project before the contract is signed! Legal/contractual Processes are hopelessly slow, not just within our own organisation, but in those we contract with.
Research Manager	Too often and it always causes problems.
Research Manager	When the other organisation is known to me.

Research Manager	Depends on the size and scope of the project.
Research Manager	Agreements take too long to start, so the project has to commence otherwise funds would be withdrawn.
Research Manager	Preliminary results are often desirable before gaining support for formal collaboration
Legal Advisor	I do not believe that it is best practice to commence a research project prior to the agreement being signed (when the parties have a clear expectation that the agreement will be signed prior to the commencement of the project)
Contracts Officer	The legal and contractual processes can often be much slower than the time it actually takes to complete the research!
Commercialisation Officer	We have chosen this avenue when the risk of not starting the research is greater than the risk of not having an agreement in place (this can be to our advantage) We cannot wait for the lawyers! Because it take too long to complete the formal agreements and contract deadlines mean that the work needs to start

Organisational Role	Please tell us your views on the commercialisation of research (e.g. selling / licensing / exploiting the results of research, its benefits and disadvantages)
Researcher	The university struggles with the interface between NCG funded research and consultancy research. Personally I do consultancy research to get my research into an applied arena. In turn this will often lead to NCG. The University does not get this and never shall the two meet.
Researcher	I think government funded research should remain in the public domain
Researcher	Depends very much on the research area. In mine (area deleted), public benefit is a much higher priority than commercialisation.
Researcher	Totally dependent on the context. Commercialisation assumes that there are clients who want and can afford products, knowledge and tools and are themselves able to make money out of the use of these materials. In some areas, e.g. social sciences, the client is essentially society and hence researchers have a social responsibility and obligation to provide society with useful knowledge and tools at cost.
Researcher	It depends on whether you are researching mousetraps for the market in which case you can commercialise all you like. If you are using human DNA I imagine it would be fraught with hazard.
Researcher	It is essential - for credibility as an organisation, as a contribution to the regional economy, return on the University's investment.
Researcher	It should not be the main aim of research, but should play a more important role than it currently does in my research area
Researcher	In my opinion research should be commercially viable. It not only gives incentives to the researchers but also have a practical value of the research. Purely academic research may be a fruitful activity but I firmly believe in commercialisable research
Researcher	Important if there is an identified market
Researcher	A necessary evil to ensure funding
Researcher	Benefit in my area - especially for IP
Researcher	In the humanities it is not wise to put commercialisation of research at the heart of projects as our research is seldom directly commercial and that criterion can too easily distort or frustrate culturally valuable projects.
Researcher	Sometimes it will stop research
Researcher	My University likes commercialisation because it likes the money. On the other hand, it rewards publications and grants, and these are likely reduced because of the need for secrecy leading up to patents and commercialisation possibilities
Researcher	More support is necessary to support commercialisation of research. However, limited scope and funding currently available for this avenue.
Researcher	This is not terribly relevant for my discipline.
Researcher	A balance needs to be achieved between publicly funded research which is supposed to contribute to a national and/or community benefit and the commercialisation of research outcomes from such projects
Researcher	Research commercialisation is great if it's done ethically, however there also needs to be recognition of the fact that some research is valuable even in it does not have commercialisation potential.
Researcher	Depends who pays for it and what infrastructure it uses. Commercialisation should really only be for service provision, not ideas. E.g. software patents are a terrible idea, but fine to charge a fee for serving up data or processing it.
Researcher	Important when appropriate and realistic
Researcher	This is good in some cases but unnecessary in others. Depends on the type of product and the perceived market.
Researcher	I don't have any strong views. I take commercialisation on a project-by-project basis.
Researcher	Signifies further economic rationalisation of the higher education sector. It is problematic when applied in a top-down driving way. There are some benefits to this obviously in science and technology disciplines but I am not

certain it is relevant to all disciplines, and neither should it be.

Researcher	We commercialise if there is a market but only seek to cover costs as we are interested in broad dissemination of the results
Researcher	In some cases this is appropriate; however, it is often a necessary evil in order to attract funding. If government invested sufficient funds in research this would not be necessary.
Researcher	It depends on the research and the partners, if it is the focus outcome of the research it is probably going to influence the outcomes
Researcher	Commercialisation of research could be limited by customer demand
Researcher	Commercialisation should not always be the driving force behind research (particularly for pure research), but there should be an opportunity to commercialise where appropriate - in a manner that is easy for the researcher to manage.
Researcher	In our area, [area deleted], it is only viable in terms of working joint projects with organisations like archives offices, or developing our own means of data distribution, which might involve commercial opportunities. I'm very much in favour of the former, but the latter would be difficult to implement as technically our data belongs to the ARC, not us.
Researcher	We developed and wrote a patent and then a higher power took it over and someone else got the contract to work on it further....that sucks.....I think the researchers should at least have a stake in what gets done with their research and how it affects their future funding....We need to get a piece of the pie otherwise there is dis-incentive to do the work....
Researcher	Should be an appropriate mix of blue sky and commercially oriented research. Unfortunately the commercially oriented research is driven too much be large companies who can bring the various players together most easily.
Researcher	In the field of research I am involved in (engineering and technology) , commercialisation should be a key outcome
Researcher	Useful in some circumstances as it enables work to continue
Researcher	Important return option. Though public organisations need to publish to first so as to provide level playing field.
Researcher	Probably an economic necessity for organisations in my sector (higher education), given public sector funding shortfalls.
Researcher	It can be a good thing for the organisation However, personally, my research is focussed on the [business area deleted] industry - and is conducted for their benefit - hence most outputs should stay in the public arena
Researcher	Licensing has advantages in terms of capturing IP so that it can be re-licensed for wider use by research community.
Researcher	This is now critical for Universities to function.
Researcher	In Computer Science and IT area, it is strategically important to have both free and commercial licenses. The free license is very important to quickly disseminate the findings get the number of users.
Researcher	There is a great need to gain public recognition and financial benefit for original work
Researcher	I think it is a fact of life that commercialisation of research will increase, as the costs of research and potential earning outcomes increase.
Researcher	Commercialisation is an important aspect of our research program - not for every project (some have public benefit), but for a considerable fraction.
Researcher	It is an important part of research. Basic research is also very important but there is nothing wrong with targeted research.
Researcher	Critical for continued research growth
Researcher	In general, I'm in favour of it. Bringing academic research into an industry context is great, if you can use it to increase productivity, or quality of life, or whatever the focus is. I do think that the content of the research needs to be public domain, and so am generally opposed to trade secret protection. Unfortunately, I also think the patent system, which is supposed to allow a compromise between the two, is broken. Patents are granted far too easily, far too broadly, and are not in fact very comprehensible to non-lawyers. So, while a lot of ideologically-inclined articles talk about the wonderful benefits associated with providing protection to inventors, my experience is that patents are actually legal weapons for companies. Consequently, most researchers that I associate with view them with great scepticism, preferring to use private negotiations to force the content into public domain.
Researcher	Benefits: Allows research to compete and be valued. Places the institution where it can be seen as a viable competitor for grants and other opportunities. Raises the profile of the researcher/centre/institution. Disadvantages: Pressures to produce tangible outcomes, rather than methodological or theoretical that are equally, sometimes more relevant.
Researcher	Ambivalent - underlying philosophy that knowledge should be freely available to all, but recognise that in many places, something that is free is not as valued (for continuing employment, future funding etc) as something that has a monetary value attached.
Researcher	Need to ensure appropriate IP protections and licensing agreements (as required) are in place first
Researcher	We have found it very difficult and that it gets in the way of the research process - but this may be where we are in the research - product cycle at the moment and this may change in the future.
Researcher	Positively, it can provide revenue and facilitate a firm focus to research activities. It can also improve the quality-assurance of research methodologies. Negatively, it can lead to more complex research relationships, can

	reduce the dissemination of information and can be challenging when trying to attribute specific contributions of individuals and teams. A primary commercialisation focus may also reduce the thorough examination of fundamentally interesting basic questions with no apparent immediate commercialisable application.
Researcher	It can be important, but can consume huge chunks of time that could be used to get on with other things
Researcher	The pathway to commercialisation should be as straight forward as possible (with the provision of adequate assistance) as scientists do not necessarily have training or experience in undertaking this type of activity. There needs to be the ability to decide rapidly if an outcome is commercial in nature to allow it to be protected and thereby not unnecessarily inhibit publication/disclosure.
Researcher	Needs a lot of support but requires people who also understand the research not only the commercialisation process
Researcher	It is hard to do, and most academic researchers don't know how to do it.
Researcher	Fine as long as the people involved are competent. Academics typically are bad at commercialisation, because they would not be academics if they were good at it!
Researcher	Research findings backed by tax payers money should be free for tax payers to access
Researcher	Publicly funded research should be publicly available. It has already been paid for once and should not be paid for again.
Researcher	Often more trouble than it is worth.
Researcher	Not so much of an issue in education as so much of the results from research is made freely available.
Researcher	Extremely difficult in the social sciences and humanities. Successful commercialisation often involves patents and then the ability to mass-produce at low cost - these are often not possible/relevant in the context of IP developed in the social sciences and humanities
Researcher	I do not work in a field where commercialisation is relevant.
Researcher	Not very interested in this.
Researcher	As a public researcher I find that in many cases commercialisation issues limits my capacity to collaborate with other researchers. On the other hand commercial income does provide a large part of the funding for our research. Development of research agreements takes up an increasingly large amount of time that could be spent more profitably doing the research. The commercial returns from research activities are very often overestimated leading to excessive commitment of time and resources to protecting "possible income". The risk averse nature of public research organisations and low skill levels of IP staff tends to lead to excessive investment in time relative to potential returns.
Research Manager	Strongly support it, even though my present organisation is for purely public benefit [field deleted] research. My idea of the 'perfect' R&D setting is where there is a portfolio or spectrum of R&D from public good through to commercial. This depends on their being effective reward mechanisms and 'safe havens' for researchers to move between these classes of activity.
Research Manager	It depends on the investment, the potential to commercialise the capacity to commercialise and whether public interest considerations outweigh private interest to get into public domain
Research Manager	It depends entirely who is the user of the research, within the public arena, Universities and public institutions then the result to be aimed for is ongoing funding of the project and the achievement of the product. If the product is going to be privatised then it should only be done with full consideration of commercial factors.
Research Manager	Should be done if appropriate and possible.
Research Manager	As a CRC, it is very important to us.
Research Manager	Very important - necessary to maintain a balance between profits from commercialization with a social conscience - is the potential product actually required?
Research Manager	As appropriate - not the primary purpose but a valuable activity for a research university
Research Manager	Totally in favour of it
Research Manager	Must be a deliberate part of the project and all participants must be committed to the commercialisation result. In [field deleted] research the involvement of an OEM at the beginning will ensure the proper transition from research to product.
Research Manager	A very tough and expensive process. However, it does drive more productive research as long as the researchers buy into the needs of industry and feel rewarded for their efforts. The reward can simply be a high level of recognition and appreciation by the industry partners.

Research Manager	Commercialisation possibilities offer incentives to undertake certain kinds of research and is important in university settings where other incentive structures around, for instance, academic publishing may undermine possibilities for research with commercial potential. However commercial arrangements that lock up and safeguard IP potentially also work to limit scientific development by restricting the flow of technology and knowledge to the research community. I would favour a model of commercialisation which allows commercial benefits to flow to organisations and researchers, but also enables development, and modification of certain kinds of commercial products by a user/research community. In the field of software, open source developments, Linux, the R project etc.; show very clearly the benefits of not commercialising the products of research. On the other hand there are other models of software development in which commercial rights are retained over a core or kernel - a base product - but the additions
Research Manager	You have not defined commercialisation Big C i.e. taking a product to market is of some importance little c i.e. gaining economic benefits is more important
Research Manager	Commercialisation can be useful for the researcher and for the wider community but should not be the focus of research undertakings.
Research Manager	Yes - extremely important to sustainability
Research Manager	Important for impact with RQF
Research Manager	In the current economic climate, this is important, but often detracts from free exchange of research information.
Research Manager	If public good or funded using public $ should have minimal IP protection
Research Manager	As I often develop software, I prefer to go open source. Hardware developed does have commercial applications, but the technology is changing so fast, this is usually futile to commercialize.
Research Manager	I came into this world with nothing; the public paid for my education; I give knowledge back to the public freely because of this; I leave this world with nothing.
Research Manager	My personal belief is that if it is public money it should not be able to be commercialised but given out freely.
Research Manager	Prefer to work for the overall good of the public domain
Research Manager	This is too complex a topic for meaningful comment in a forum of this nature.
Research Manager	Good way of making research accessible - having it utilised. Only concern is where $ is more heavily weighted than public good – e.g. ensuring medical innovations are not priced out of the hands of those who need them.
Research Manager	We are trying to foster the accelerated uptake of e-Research; as such we lay no claim to the IP developed with our research partners, we prefer and encourage the use of creative commons and open source. If we did develop something of commercial value that is not part of a research collaboration we would seek advice on commercialisation.
Research Manager	A common conflict is that between the university researcher needing to publish for career advancement and international reputation and the industry partner (and sometimes university host) wanting to protect IP
Research Manager	It is necessary to be flexible as our research ranges from development of products that may be the subject of an exclusive licence through to simple changes in work practices. The latter is almost impossible to licence or patent and is essentially just for the benefit of the industry at large.
Research Manager	If possible given both commercial, political and social realities of the research
Research Manager	Sometimes essential to provide continued funding, but most of our research outcomes are pure or applied non-commercialised products
Research Manager	Our institution has a separate company to deal with the commercialisation of research. My general view is that it is incredibly expensive and time consuming often with little benefit to the organisation or the researchers involved. That being said, there are some spectacular successes (financial and status/reputation) and for this reason we will continue to support the commercialisation of research, but it is fraught!
Research Manager	Whilst commercialisation can be beneficial, I believe that it can blur the vision of senior management where the aim of the research can be exploited for financial gain through commercialisation opportunities. Commercialisation should not be viewed as the ultimate aim of research at Universities. If a research outcome can be commercialised then those which specialised knowledge about procedures need to be involved to protect the interests of researchers (primarily), the University and research partners (who may be industry based).
Research Manager	As an applied researcher, working in a directed research institution, licensing exploitation is our primary aim. Some public good work is also undertaken. Impact or uptake of work is important.
Research Manager	This is a major part of my job, so I could write a thesis! Clearly for some research results / technologies commercialisation is the most viable means for public update (i.e. without commercialisation there will be insufficient funds to develop the results / technology to the point that they can be publicly used).
Research Manager	Spin-out company model is important to me.
Research Manager	From what perspective: Broadly I think commercialisation of research is necessary but not essential to justify research. It brings with it profile and funding to sustain research groups not only in the commercial area but to the extent that these groups becoming self-funding, to groups who are not able to be so for long periods of time or indeed forever.
Research Manager	It is one of our core outcomes. We hold licences, have started up spin-off company, sold products etc. it is the ultimate measure of impact of applied research for industry.

Research Manager	The transfer of technology from the fundamental to the pre-competitive to the market often requires significantly different levels of risk, resources, personnel and skills. There is a need generally for commercialisation of research but this may take place in specialised organisations who pick up from the pre-competitive research undertaken by, say, university researchers who are also charged with training new researchers and teaching undergraduates.
Research Manager	Research in my field doesn't make sense if its ultimate goal is not commercialisation whether selling the IP, licensing it or sharing it with other partners.
Research Manager	I agree with commercialisation, but it must also benefit the researchers personally.
Research Manager	Advantages: income, profile Disadvantages: restrictions on use of IP, sharing of IP. Milestone demands, reduces publication/research outcomes
Research Manager	Important as proof of relevance
Research Manager	Not a problem for us as long as the owners of intellectual property are happy and it does not breach any ethics permits
Research Manager	Commercialisation is important for the diversification of research funding; protection of IP via licensing essential
Research Manager	Commercial outcomes are an excellent culmination of a research effort. Research institutions trying to hold too tightly to the IP is a commercialisation impediment. Early commercial agreements with those experienced in IP product development often provide the best chance of achieving a commercial outcome. Disadvantage can be early limitations on communication and some R&D avenues.
Research Manager	Commercialisation is a two edged sword. While it may in some cases bring in funding to the University, it often gets in the way of interesting and valuable research, and distorts researchers' behaviour in other ways (increases secrecy, creates sources of disharmony etc).
Research Manager	Astronomers have limited experience in research commercialisation. We are always on the look-out for opportunities, but could do with access to specialist help in this area.
Research Manager	As data provision is my main concern, I feel that commercialisation of data has no role in e-Research
Research Manager	Our research funding stems from the Federal government and as such, all of our current research outputs (reports, codes) are made freely available to the public. In the future, for sustainability reasons, we may consider offering our services on a fee-for-membership arrangement. This will only occur once the project funding has ended and there is a clear need by the users to maintain the infrastructures that have been built or developed by the project.
Research Manager	Research in my area is, in general, already paid for by taxpayers, so it should be made available as freely as possible.
Research Manager	Our research is predominantly public good research funded largely by the tax payer and stakeholders; commercialisation is not a priority for most projects
Research Manager	I have limited experience as the social sciences are not heavily involved.
Research Manager	It is overrated as an outcome. Making it the focus, often leads to bad research. Good research leads often automatically to commercialisation, and often through unexpected mechanisms. My first focus is quality work.
Legal Advisor	Processes should be appropriately documented and more clearly set out so that parties are aware of their obligations. In those circumstances the ability to commercialise is clear and commercialisation is more likely to occur
Legal Advisor	There are clear benefits for formal agreements as the research medium does not remove the need for a structured arrangement between the parties. It also benefits commercialisation to have formal agreements in place.
Legal Advisor	This is fundamental to the perpetuation of the University System.
Legal Advisor	Australian researchers need to be more aware of international practices and more prepared to take risks (i.e. less conservative)
Legal Advisor	In my view it is very appropriate to commercially exploit the results of research and I wish it happened more often (i.e. where a party funds the research). The Government which often funds research would get a return which could be used to fund more research.
Legal Advisor	Extremely important & will become even more so in future.
Legal Advisor	As research funding and university funding from government dries up, there is increasing push to commercialise every aspect of research. Sometimes this is not feasible, simply not the market for it, or project may be too underdeveloped. It can interfere with freedom of research in that students and staff looking to areas with obvious commercial potential and not necessarily the best research or areas that interests them. Universities may be becoming a de facto R&D site of different companies, meaning they get their research on the cheap.
Legal Advisor	Too much time and effort can be expended on this issue before the results have arrived! Universities drive soft bargains on commercialisation.
Legal Advisor	There are serious difficulties facing our clients that wish to commercialise their works through the internet, such as inappropriate technology which does not record the uses of our clients' works. Also, our clients, although offered by us, rarely take up Creative Commons and other open licensing because they are generally SME's that cannot see the advantage in that form of licence. Rather our clients generally prefer an orthodox licence/royalty fee approach.
Legal Advisor	In general terms I believe it is over rated. This does not mean that it should be ignored but it is only in exceptional circumstances that a project involving me would result in a commercial product. It is not something

	that I get hung up on.
Legal Advisor	Happy for it to be read responded to criticised etc but not copied nor commercialised
Legal Advisor	Commercialisation can be valuable if the intellectual property rights of all parties are protected
Legal Advisor	Open access, open source and open publishing has many benefits and I support this as a core paradigm of any research project. However, in the current political climate commercialisation is often necessary to allow implementation and growth of innovation.
Contracts Officer	I think commercialisation of research outcomes is critical to the advancement of technology in general. If handled appropriately there can be benefits for both publicly supported and private organisations.
Contracts Officer	To us this is most important. Commercialisation revenues allow us to fund future research and reward our researchers. A potential disadvantage of this focus is that it may place commercial pressures on the research (to deliver results ahead of competition) when we may wish to utilise research resources in other areas or projects.
Commercialisation Officer	Commercialisation of research is of critical importance but the internal support systems within our University are still at a very early stage of development.
Commercialisation Officer	Increasingly important as a stream of income for Universities but also for increasing reputation, technology transfer and research support.
Commercialisation Officer	It's all Good!
Commercialisation Officer	Well managed commercialisation of research provides an effective knowledge dissemination path.
Commercialisation Officer	Publicly funded research commercialisation should be market driven by groups incentivised to build successful companies Research should be free and open for the commercial community to exploit...

Organisational Role	Comments regarding problems encountered in negotiating formal agreements…
Researcher	Our experience is not extensive yet, but it is often a problem for academics that going back to smaller, individual projects is often easier and more appealing that trying to institute larger collaborative activities.
Researcher	Privacy and IS 42 and sharing information among government departments Cross agency issues Poor support from the University's legal services
Researcher	steadfastness of [university name deleted] proforma legal contracts
Researcher	University and [name deleted] business offices tend to be overly zealous in attempting to extract benefit before anything has been achieved.
Researcher	Formal agreements can sometimes limit the flow of collaboration and inhibit outcomes. Trust and understanding is more important.
Researcher	Agreements often "standard format" that are difficult to alter but do not fit all circumstances
Researcher	Lawyers don't understand researchers, researchers don't understand lawyers, etc.
Researcher	Collaboration is useful and productive but when involving more than a few p arties requires effort to ensure communication etc.
Researcher	Every issue you have outlined in Q22 rings true - I find the whole process frustrating and it stifles research outcomes
Researcher	Slow business models and lack of understanding of today's research technologies and processes.
Researcher	We had a 12-month ARC grant for which it took 15 months to get an MOU signed.
Researcher	Poor processes in the University - lack of experience and expertise + organisational problems - difficulty negotiating directly because need for higher authority approval by people with insufficient expertise and lack of incentive
Researcher	Again, most are with funding bodies so there is no negotiation.
Researcher	Our University has a lengthy, time-consuming, costly procedure where negotiations are carried out by parties other than the researchers involved. Hence I no longer engage in collaborative work necessitating a formal agreement.
Researcher	Unrealistic expectations can be a significant issue, particularly in relation to constraints which may affect research opportunities.
Researcher	The managers are too slow to come up with agreements and licensing, especially in [country name deleted] and are too fuzzy and untrusting of researchers. They always think of the worst case scenario.
Researcher	Private organisations do not trust university researchers in producing useful results to their problems in time, and do not see it as value for their money, even though university academics do not charge commercial rates.
Researcher	Time frame involved in developing the agreement. Legal staff in the organisations of all parties tends to be overworked. The result is the transfer of agreements between parties is expanded by the time these things sit on desks without action.
Researcher	Formal agreements must involve lawyers at the first meeting, done in parallel with lawyers present and negotiating contracts. They should be executed in 1 day, a kind of sudden death arrangement.

Researcher	See comments for previous question. The more parties to an agreement the worse it becomes though as so many different legal offices become involved, each with their own ideas, delays etc. Sometimes they have little idea of what the project is really about/requires and suggest unreasonable restrictions/clauses that then have to be removed through lengthy discussions/negotiations
Researcher	University administration process.
Researcher	Once you get lawyers involved, the process gets more complicated but generally the agreement was improved and it's just a reality that these sorts of input are required.
Researcher	Sometimes industry partners have too high expectations however, unwilling to fund the research to the required level.
Researcher	Our technology transfer office (business liaison office) refuses to accept an agreement put forward by our industry partners even this agreement has been accepted by all other Australian and overseas universities.
Researcher	Inordinate delays in getting ethics clearances for trivial matters - projects often have to commence without these leading to delays in signing formal paperwork.
Researcher	There need to be access to legal expertise and this can be costly and cause delay
Researcher	Ownership of IP is often an issue - we have usually overcome this by focussing upon returns from commercialization rather than ownership of IP. We have had some difficulty with involvement of research students in industry-related research projects - specifically, the industry partner had expectations of the students that were incompatible with their research degree (PhD, MSc) requirements.
Researcher	Legal positions, and especially "template" agreements, often miss the point of the research and do not take into account researchers' expectations. The process often degenerates to a conversation between lawyers rather than reflecting the intention of the researchers.
Researcher	Timelines are unrealistic. Government in particular set timelines for outcomes but management and negotiation issues usually eat up a considerable portion of the lead time. Issues of intellectual property and moral rights are sometimes a stumbling block.
Researcher	The main problem I have had is with the amount of time it takes to arrange an agreement, even for very small projects. Some of this comes from poor communication between researchers and the legal unit, some from bureaucratic hurdles, and some from lack of experience and failing to foresee legal issues before they arise.
Researcher	Contributions of dollars from partners for research. Tendency for the approach to become 'sales' like and loss of research integrity with the product taking focus over underlying research questions.
Researcher	The contracts often take a life of their own and contracts are developed that move away from the original collaborative intent.
Researcher	Formal contracts are overly legalistic and erode the trust & goodwill between the parties. They take far too long to settle!
Researcher	The formality has ended up causing mistrust or misunderstanding to the extent that some have refused to sign up and been left out - to their and our detriment
Researcher	The expectation that government agencies have intellectual property /data ownership rights
Researcher	I've really only developed two formal agreements: one for an ARC project (with researchers in [country names deleted] and this went fairly smoothly and the second when I attempted to set up an industry-university agreement with a company who were interested in commercialising software I have developed. That never got off the ground.
Researcher	Formal agreements are needed where cash changes hands. They are necessary evil. Where I sit they are of little help since even if they are violated nobody will sue the other party. Thus it is all based on trust and good will anyway. However it is sometimes useful to have them just to make the commitments crystal clear.
Researcher	Some agreements even though formal, are not sufficiently detailed to completely stop further claims to more work being done. The explanations are not precise enough, with people seeming to know what is expected, yet after the event, more pressure can be brought to bear to produce more detailed results, more investigations, etc.
Researcher	Most of the contracts are worded in such a way that the people conducting the research have trouble understanding what they say. The people responsible for the contracts generally have so many to look after that they don't understand the actual projects and, while the researchers know what they want and have to do, the research can get lost!
Researcher	Delays caused by always having to go through lawyers.
Researcher	All of the problems I have encounter, which are numerous and take about 40% of my time in a day, are with the University lawyers and contracts office in that they are not providing a customer service to me.
Researcher	The research supervisors did not encourage completion of planned milestones. Time was to be used for solving current problems. At the end they were disappointed.
Researcher	Some formal agreements (especially EU projects) place too much of the risk on the research partner(s)
Researcher	Competing interests, overlapping projects, projects overtaken by other developments
Research Manager	Timing is mainly the problem - complex projects often have multiple "approval" layers involving not only the formal paper agreement but maybe Human Research Ethics/Animal Ethics, OHS considerations etc - as these may be duplicated in each of the organisations involved in the project – e.g. research involving several hospitals.
Research Manager	Universities frequently over-engineer agreements.
Research Manager	e-Research is so new it is hard to get people to appreciate what you are trying to do so that they will fund it

Research Manager	When very bureaucratic agencies were involved (esp. university IP / commercialization arms) long delays and many iterations were required.
Research Manager	IP negotiations can be difficult with multiple partners
Research Manager	Legal appropriation of IP in areas where exploitation unlikely or unreasonable
Research Manager	Sharing of IP particularly where one party brought background IP into the project.
Research Manager	Time delays when other organisations don't get back to you. Logistics involved in executing agreements with multiple parties, everyone agrees, then one changes their mind etc - again, time delays Lack of understanding of how Universities are resourced and getting agreement on funding for the real cost of research (Universities do massively subsidise the cost of industry and government research, whether industry or government is prepared to admit it or not!) The tension between University's role to get research into the public domain versus commercial interests, very difficult to get a contract to reflect the University's academics aspirations
Research Manager	Major problems seem to increase where the number of parties involved increase and/or new parties involved. In our project to date the hospitals and research facilities involved have had common interests and thus always reached agreement
Research Manager	I'm doing a lawyer's work without being a lawyer (though I do have a law degree) and - have to say it - a significant impediment to achieving clarity in a formal relationship is the presence of lawyers and their insistence on (a) translating plain English into legalise, (b) managing risk to the point of paralysis, and (c) failing to understand the practicalities of IP management. This is a particular problem with dealing with government departments. Lawyers are tools of an organisation; they rarely understand the business and should not be the drivers.
Research Manager	Universities have got no idea about operating in a commercial/contractual environment and are consistently the major sticking point in multi-agency RD contract negotiation. The solution is for Universities to recruit suitably qualified contract/legal staff!
Research Manager	Lack of clear expectations and understanding of these and how they should be articulated within a formal agreement - i.e. appropriate statements of intent, outcomes etc
Research Manager	Agreements initially developed by senior management based on agreed templates provided by legal counsel are regularly amended beyond recognition when sent for review by panel legal counsel.
Research Manager	Usually no difficulty as commenced using a standard template.
Research Manager	The greatest problems I have had were when govt dept officials had little experience in managing R&D and their legal dept's are inexperienced. Significant problems have arisen when organisational leadership abrogate the negotiation to their lawyers. In fact, when both sides do this you can almost guarantee gridlock because each side adopts highly risk averse positions almost immediately.
Research Manager	Inventor expectations on % royalty that is reasonable
Research Manager	Lawyers on the two sides taking time to converge on legal arrangements
Research Manager	Unreasonable starting positions in [organisation name deleted] for example and [organisation name deleted] in particular are often the cause of lengthy delays. Most other organisations seem to be reasonably easy to deal with.
Research Manager	Disjunct between research managers and researchers with same organisation - researchers want to get on with it on the basis of personal connections, institutions want a contract
Research Manager	Being up front is my approach and I usually get what I want because of this. If my needs are not met, not worth an agreement.
Research Manager	Unrealistic expectations of statutory bodies; very poorly worded agreements/contracts - especially with respect to risk management
Research Manager	Getting people to accept the principle of mutuality in obligations, indemnities and liabilities
Research Manager	Usually the issue is getting all party agreement on IP issues.
Research Manager	Typically the lawyers take a great many iterations (with corresponding time/cost) to come up with agreements which are satisfactory to both parties, even after agreements in principle are made. The time/cost of such agreements means that personally I won't bother with a contract less than $50,000 unless I believe it is going to lead to much larger funding.
Research Manager	We often have huge delays, but we can't afford to let them stop the work, which makes the paperwork all a bit pointless.
Research Manager	Different legislation between States with regard to confidentiality of patient information, and similar data.
Research Manager	We want it simple, but often end up with 30 page documents.
Research Manager	The issue of IP ownership is overwhelming between, for example, the [organisation name deleted] and universities.
Research Manager	None of question 22 applies to me. I don't use formal agreements.
Research Manager	Negotiating appropriate insurance (when required) for participants.
Research Manager	In one inter-state collaboration project two partners from two states ended up considering the collaboration project as competition and eventually developed their own solutions damaging the national project.
Research Manager	Formal agreements often undermine the feeling of freedom and trust that energize a research program. They are necessary but the nature of their complexity often acts as a barrier to the joy of discovery.

Research Manager	Disconnect between researcher expectation and legal process
Research Manager	Access to similar agreements used by others in similar conditions
Research Manager	Legal opinion, and particularly paying for it, on non-standard inter-agency agreements (funding, access issues, IP) (no in-house legal advice available)
Research Manager	Have not had to deal with the university technology transfer office - hence my response of 'never' for that question
Legal Advisor	There have been difficulties in negotiating copyright licences with industry especially on an international level
Legal Advisor	The biggest problem may be staff only realising too late into a project that a formal agreement is necessary.
Legal Advisor	Parties failing to agree on terms before commencing formal licence negotiation (i.e. failing to prepare an adequately detailed term sheet, heads of agreement)
Legal Advisor	The big three issues always arise, liability, indemnities and IP. The lawyers who know absolutely nothing about the project try to impose a one size fits all. They (the lawyers for both sides) do not undertake a proper risk analysis to address and customise the agreement to meet the specific needs of their clients.
Legal Advisor	As legal practitioners our clients who are often SMEs are often disappointed when dealing with larger entities such as government and large corporate in relation to Intellectual Property. In particular, patent and copyright (software) owners often are placed in a position where they have to meet the larger organisations demands because they would not otherwise have access to the capital necessary to commercialize that IP. That is a simple result of having little or no infrastructure in the [name deleted] for the supply of venture capital.
Legal Advisor	Often inaccurate instructions for the preparation of the agreement; unreal expectations as to what is expected of the agreement.
Legal Advisor	Researchers not willing to take on responsibility for the agreements, and not willing to take part in putting the agreement together - when they are ultimately the staff member of the university that will be doing the work. Also, researchers have limited understanding of legal framework, and how much in-house legal services offices save them in costs.
Legal Advisor	The biggest issue that I would name is that in major contracts which the most senior person in the organisation is deeply interested: persons internally at a lower level will be far more interested in meeting an arbitrary timeframe (i.e. so that they can say "that the contract has been signed on time") then the effectiveness or quality of what is to be delivered. In other words, they are driven by short term objectives.
Contracts Officer	I have had similar roles in both public research organisations and in private biotech companies. Generally the relationships and agreements are more complex when viewed from the research organisation perspective. Commercial companies generally have a clearer understanding of what they want from the agreement and are more focused on obtaining the desired outcome. Many research organisations have difficulty in assimilating the dual roles of achieving their research outcomes as well as commercialising.
Contracts Officer	We have encountered all of the problems in the above list at some stage. Agreements involving Universities are often the most protracted. [organisation name] is also quite difficult to deal with at times.
Commercialisation Officer	Legal representation on the other side that delays, confounds and tries to control the process, to the detriment of the parties.
Commercialisation Officer	Commonwealth and State Governments not negotiating to deviate from standard terms
Commercialisation Officer	Agreements are too often negotiated by the researcher, with the technology commercialisation office having to re-align expectations and renegotiate terms. If we all took the view - that for at least publicly funded research, all data & results were 'open' life would be easier, and we would not be open to charges of industry welfare! Time consuming!!

Organisational Role	Comments regarding specific problems in negotiating formal agreements…
Researcher	My research doesn't have commercialisation, royalty or patent issues.
Researcher	Industry strategic focus shifts often before the project has finished
Researcher	Our agreements are generally straight forward a d just need the right words attached. There are no issues of IP or commercialisation which makes it simpler. Basically, we just need a document to point to for specific bits of work and once it's in place, we can get on with the job.
Researcher	Not too many difficulties as deliberately don't enter into projects that involve commercialisation
Researcher	No problems
Researcher	Some organisations have unrealistic expectations
Researcher	Sometimes team members can have very different expectations that emerge as the project progresses, and finding a way to satisfy all needs is problematic.
Researcher	The only problems I have experienced in negotiating formal agreements involve rules internal to [name deleted] - while the client and research team can come to a quick and easy agreement about things, [contracts office] needs to have its finger in every pie and question every research project (obviously [ ] is motivated to call research projects 'consultancies' so that [name deleted] scrapes its 25% funding off the top). I have experienced

	this with projects that are very obviously research collaborations where the IP remains that of the researchers.
Researcher	Our industry partners require unreasonable liability/indemnity clauses considering universities are a not for profit
Researcher	Unforeseen problems sometimes arise, often involving a number of the issues outlined in Q23
Research Manager	Commitments to staff e.g. WH&S or rec leave payouts post project completion
Research Manager	[Name deleted] legal office very helpful in establishing formal agreements. Am very thankful.
Research Manager	I have answered from my viewpoint. When I hand a contract to the legals for comment, that's when everything gets bogged down.
Research Manager	The issue of IP is large, restrictions on the ability of scientists to publish (confidentiality) is of concern.
Research Manager	I work with other people on the fringe of the law. I don't use formal agreements. This works very effectively.
Research Manager	Nil
Research Manager	More likely to encounter scope 'creep than reduction.
Legal Advisor	As legal practitioners we have come to appreciate that some clients want more than they will ever be able to obtain from a deal. This is often manifested by complex, often unnecessarily so, licensing provisions.
Contracts Officer	Once project agreements have been finalised (typically they're for up to 7 years periods) it is very difficult to change the scope or parties to the project once underway. This inhibits flexibility to take on new partners or change research direction as the project progresses, reducing responsiveness and the ability to bring in new thinking.
Commercialisation Officer	Division of commercialisation rights into fields is general university practice. There is little understanding of the difficulties and risks associated with this approach Especially with software being an intangible asset, issues of ownership and licensing tend to play heavily on the minds the participants involved. No doubt this involves scope of potential use and change that software can be subject to if there are no conditions specified.

Organisational Role	Comments regarding the experiencing of problems during the performance of agreements…
Researcher	Most problems occurred prior to agreement
Researcher	The expectations of the parties are rarely totally consonant.
Researcher	As projects evolve, agreements can become obsolete and need to be revisited often.
Researcher	I think that sometimes it is all legal jargon [maybe necessary if things go bad] but that the people on the ground representing the respective parties usually don't care what is in the agreement they just get on with the research project!!!
Researcher	Often desire for change of direction mid-stream
Researcher	Waste time of researchers and delay the project
Researcher	Less than successful achievements of some milestones can cause avarice with respect to the data/information that was achieved
Researcher	Particularly the IP and the royalty issues cause problems.
Researcher	Mostly the IP issues are sorted out before the project commences. The problems that subsequently arise usually concern flexibility in changing milestones.
Researcher	Not in my experience.
Researcher	Delays in getting data usually causes problems
Researcher	Sometimes concerns about the various legal issues cause you to spend so much time in defensive aspects of the project (e.g., providing a document trail indicating you did what you said you would) that the actual research project suffers
Researcher	Access to information is a major issue as many government agencies fear their information/data being made too widely available
Researcher	Agreement was reached because I did not complain. I was afraid.
Researcher	Normally problems occur re setting up original contract setting out rights and responsibilities of both parties
Researcher	On some occasions expectations and deliverables change during the contract. Not all industry partners understand or are prepared to accept this
Researcher	Staff turnover, loss through technological failure can cause ongoing problems
Research Manager	Maybe " sometimes" would be a better response? When parties involved in the research think the agreement was just "on paper" and they can then do what they like in undertaking the research.
Research Manager	Generally not, because we put in a big effort at the beginning.
Research Manager	As mentioned, problems arise where background IP is needed to take the project forward.
Research Manager	University's do not often have the resources to provide detailed project management support post-agreement sign off, given how busy academic researchers are these days, this can create problems
Research Manager	Yes to some (especially the terms dealing with access to and use of research results) but no to others (one can

Organisational Role	
	spend months arguing an indemnity or termination provision with another party's lawyer - but how often are such provisions actually used? - once in a zillion?)
Research Manager	Scope variance process & project close definitions.
Research Manager	In [field deleted] research the problems seem to fall away once the legal agreement is struck. The biggest problems are then 'delivery' and slippage of work. The question of fault comes up if there is non delivery, but so far I have only had one occasion where I requested return of funds after a non delivery. Usually the 'buyer' of the research walks away without a result and a black mark against the provider.
Research Manager	Issues of these natures usually do not arise after agreements have been signed.
Research Manager	Project scope can sometimes change during performance of the agreement. Sometimes this needs to be renegotiated. Sometimes parties do not understand rights to contract materials and IP even in the presence of formal agreements, and misunderstandings can potentially compromise research relationships. The changing commercial status of ancillary technologies over the life of a research project can sometimes have an effect on the project.
Research Manager	IP registers and IP valuation can become a feast for lawyers, without real value, and nevertheless consume a lot of resources and time in particular.
Research Manager	Often agreement is put in the bottom of the draw - only looked at when issues arise.
Research Manager	IP rights to a commercial software involved caused endless headaches in just trying to get necessary information - even with non-disclosure agreement in place.
Research Manager	Because of interpretation
Research Manager	Providing technology solutions to privacy issues is not trivial.
Legal Advisor	Ownership of IP can be disputed down the track even if the agreement is clear.
Legal Advisor	As lawyers we try to address all the potential problems during performance in the agreements we draft for our clients.
Legal Advisor	Often complex royalty schemes require some overview by an accountant.
Legal Advisor	An issue is the indemnity clauses.
Contracts Officer	Once project agreements have been finalised (typically they're for up to 7 years periods) it is very difficult to change the scope or parties to the project once underway. This inhibits flexibility to take on new partners or change research direction as the project progresses, reducing responsiveness and the ability to bring in new thinking.
Commercialisation Officer	Main issue is to manage the researchers in the absence of capacity to do so by the university - requirement for consulting agreements etc. I have come to the conclusion after many years that commercial research is best carried out within a company framework than subcontracted to an academic institution. No - nothing I have ever been involved in has ever had commercial value! It has all been for naught! The agreement seems to be more a road-block, that once past, can permit smooth traffic flow. Mainly scope creep

Organisational Role	Comments regarding the resolving of publication issues
Researcher	Delay causes time management issues in being able to finalise publication
Researcher	n/a
Researcher	I assume I have the right to publish my own work as a preprint in a digital repository.
Researcher	Ownership is often over-valued.
Researcher	An issue in that delays do occur which make the findings sometimes irrelevant.
Researcher	We never delay publication
Researcher	Obtaining publication approval from my major collaborator (a CRC) seems to be a farce. The system for approving publications doesn't match up with the process for publishing an academic paper, and we rarely receive decisions on requests to publish papers at all unless we make an urgent request after the paper has already been accepted for publication.
Researcher	Also detrimental to University career because they want on-going publication output
Researcher	Delays apply not only to publication but to dissemination of findings at conferences/seminars etc.
Researcher	Generally fine, but the process is never smooth.
Researcher	Most of the time, but not always
Researcher	We're not really there yet with the major project I am involved with. I do, however, anticipate that there may problems on this front, unless we manage to divvy up the work to everybody's satisfaction.
Researcher	We work with human patients - for ethical reasons, some data are unable to be published.
Research Manager	Only occasionally is the right to publish a major show-stopper. Most academics realise that if they are working in a commercial space there will be delays required for publication.

Research Manager	This is a key point in negotiating contracts, and is always done in close consultation with the researcher.
Research Manager	Govt departments have caused problems by wanting to approve scientific products and holding up publication.
Research Manager	Health Information Privacy laws are confusing and limit and restrict data sharing for research thereby risking decreasing research output
Research Manager	Not applicable
Research Manager	It is different within each agreement. It depends on the partners and on the commercial expected outcome and the high risk of losing the IP to others.
Research Manager	Hasn't been an issue
Legal Advisor	However, some academics have reported difficulties in this area and publishers policies are often out of step with developments such as institutional repositories
Legal Advisor	Again, in patent (and design) cases this can be of vital importance.
Contracts Officer	For commercially sensitive projects involving IP that must be protected before publication, there is often resistance from academic institutions to clauses permitting us to withhold permission to publish.
Commercialisation Officer	This is never a problem in practice as long as the right communication channels are in place and the parties trust each other.

Organisational Role	Comments regarding aspects of formal agreements…
Researcher	Any agreement that has gone to mediation or court should never have been entered into.
Researcher	I've never had any disputes.
Researcher	It is the mutual rapport and trust between parties that is vitally important. If there is no trust then even a perfectly good legal document may be misused. The formal agreements are for the lawyers and administrators to fight over, as a researcher I am least bothered what is written there as long as I trust my collaborator.
Researcher	Agreements are often forgotten once in operation but on reflection usually are tracked surprisingly well. So we frequently act out the agreement as course of project.
Researcher	I rely both on trust and on the agreement - the agreement smooths the path but the trust gets things done.
Researcher	Difficult to answer last question as very rarely have had disputes and never have gone to court.
Researcher	Honestly, I've given up even trying to follow what the lawyers are talking about. Mostly, my collaborators and I have our own behind-the-lawyers-backs agreements to ignore the lawyers, on the grounds that none of us have a clue what they're talking about. I doubt this is unique to research, however.
Researcher	Again, the main problem is with the people responsible for the contracts not the actual researchers. It can be very difficult and time consuming to address every minor fear they have about a project and make it seem as though the research is not worth undertaking even if the industry partner desperately wants the project to commence
Research Manager	Major problems probably only emerge in .5% of contracts, but when they do they are enormously expensive and time consuming. Building the relationships with the other party is essential. Government research is more difficult to achieve these relationships as personnel are often changing.
Research Manager	I rely upon trust and the close working relationship but this must be contextualised within the scope of the agreement
Research Manager	For some projects and partnerships, despite the presence of formal agreements, it may be better to rely on trust relationships in the first instance to resolve disputes. The formal agreement may provide the parameters within which a trust relationship can be used to resolve issues. There are often differences of opinion about the meaning/intention of aspects of formal agreements and for certain kinds of issues, using trust relationships to reach a resolution is in the long term interests of the project, and the research relationship.
Research Manager	Nothing is better than open and frank discussions up front, try to foresee as much of the issues as possible.
Research Manager	If trust ever broke down then I would use the formal agreement to resolve a dispute.
Research Manager	Nil
Legal Advisor	The above is answered from the point of view of a legal practitioner
	Mutual trust between parties typically sees a fast turnaround on issues. It's only when trust is weaker that reference is made to the formal agreement. I view it as a sign of poor project health if the formal agreement starts being put on the table to help in any dispute resolution.

Organisational Role	Comments regarding ways to improve the negotiation process…
Researcher	Face to face interaction to build trust and rapport
Researcher	No more bureaucracy PLEASE!! We already have adequate resources (BDMs, solicitors etc)
Researcher	Sorry but this I feel that this is a bit out of my area of expertise/interest

Researcher	The only thing I've ever seen work properly is getting to know the people involved, and both sides getting a solid understanding of what happens on the ground for the other party. Basically it just takes time.
Researcher	Many rules websites are complex. Some students read nothing and break to rules.
Researcher	Have used internal portals to assist with contract creation which worked well for a range of standard contracts
Researcher	The online portal sounds very interesting, the extensive one a preferred option
Research Manager	Getting to a situation where parties involves in research collaborations across higher ed, govt and industry were at a similar level of understanding about how to proceed would be helpful.
Research Manager	While I don't think a new govt agency is needed, I think some of the existing ones should implement the proposals in this table regarding 'standard resources and templates'. As is happening now with the creative commons tools being developed via ANZLIC
Research Manager	Pro forma's rarely satisfy your requirements, but they may be a starting point.
Research Manager	I disagree regarding the clear IP policy statement because these then become binding barriers to negotiation. No-one will change these once set, but if both sides have such policies, often no agreement can be reached. I think that creating new organization to help with such agreements is just going to create an additional source of inertia in this already difficult situation.
Legal Advisor	Regarding part 10 of the above, we have learnt from experience not to put faith in government agencies acting efficiently or for the good of SMEs
Legal Advisor	No one would want to use government developed standard documents given that government sponsored research funding agreements are so poor. For example - the inclusion of moral rights clauses is totally against the research ideals in universities.
Commercialisation Officer	I don't think they would be widely used but this does not mean that they would not be valuable.

Organisational Role	Comments regarding ways to streamline the documentation process…
Researcher	Agreements agreed by all University's and Australian Research Organisations.
Researcher	Not really relevant for me hence no strong opinions here!
Researcher	I don't really understand some of these statements.
Researcher	I would think database of standard clauses for assembly into formal agreements would be a good idea - even if they were customised, this is not necessarily a bad thing. At least you have something to work with.
Research Manager	See earlier comment. There must be consistency of approach from legal counsel reviewing the 'whole' document. I have experienced substantial difficulty with internal counsel disagreeing on appropriate forms of drafting.
Research Manager	I don't see any problem with a set of standards being available then tailored to suit... there should be some options for tailoring provided.
Research Manager	Nil
Research Manager	Master agreements useful as a starting point - but there is danger in simply 'tacking on' new projects - one size does not fit all.
Legal Advisor	There is no such thing as a 'standard' agreement - unlikely to ever reflect the parties' intentions accurately!!!
Legal Advisor	Regarding 3. We find clients cannot produce quality proprietary software (and make a buck) where some of their code results from collaborative efforts outside of their organisation. Often clients come to us because of claims of copyright infringement where code is formed in that way. Re 4. Probably not going to happen as each set of circumstances is different.
Commercialisation Officer	This depends on the policy of the parties and their managers - who can negotiate, who can prepare a document, who can agree etc. I believe that there should be significant in-house knowledge rather than reliance on outsourcing expertise for every contract. On open-source software licensing (which our project employs, and we view as one of the key reason's for it success), I'll supply links to others who far better describe why open source licensing is such an excellent fit for collaborative research [deleted].

Organisational Role	Comment regarding other legal issues in the context of e-Research which you believe have, or will have, a significant positive or negative impact on your work….
Researcher	Perhaps the biggest problem facing e-Research is the lack of understanding and agreement as to what is required in terms of local and national information infrastructure to support e-Research activities. Without this common framework of understanding it is actually very difficult to come to legal agreement as to collaborative arrangements, sharing, and interaction beyond a narrow set of participants. This then actually inhibits the establishment of an open e-Research environment that starts to utilise the potential offered by digital technologies.
Researcher	Crown copyright limiting access to data required.

Researcher	I don't think about legal issues when collaborating electronically or otherwise.
Researcher	The use of contracts and legal agreements at first point of contact for all e-Research transactions will actually be an enormous impediment to "interoperation" and I believe will damage machine interaction with data repositories and other resources with licenses that require a human to read the license..... Let's face it, the vision is for machines to interrogate the repositories and analyse them using tools available. We need to have a way to ensure a way of knowing or acknowledging the agreements while using machines to undertaken e-Research.
Researcher	Balancing the need to publish with the protection of IP
Researcher	I don't expect there will be any significant changes from the current situation.
Researcher	Controlling "destruction" of electronic resources on contract completion.
Research Manager	It seems to me that whatever new system is put into place the lawyers have a way of making it more complex – e.g. copyright laws (make my brain hurt) but make it difficult and arduous to put research outputs on line.
Research Manager	Cost for accessibility to accommodate network charges.
Research Manager	Most of these legal issues will have an increasingly negative effect on the work done.
Research Manager	Nil experience.
Legal Advisor	Our clients seem to indicate that they would only go into these type of arrangements (we used to note the commons licensing approach in general copyright commercialisation advices) are only appropriate if there is a clear revenue stream.
Commercialisation Officer	Licensing IP from research institutions will require significant due diligence due to e-research. The institutions themselves will have to manage the e-research activities of individual researchers if they wish to create viable IP assets.

Organisational Role	Comment regarding: "Would it facilitate your research to have clearer explanations on what can be legally copied, extracted or reused from particular databases?"
Researcher	All research data, like all archival collections must be managed as records and by a 'gatekeeper' (both system and human) that documents both the use and the users.
Researcher	Given sufficient documentation it is caveat emptor.
Researcher	We use a creative commons licence and a signed access agreement.
Researcher	Who may have access is not determined by me.
Researcher	Usually want to delay general access.
Researcher	There needs to be a delay so the investment is paid off, but eventually your impact will be higher if you release your data.
Researcher	Depending on the source of data and restrictions placed on it.
Researcher	At least, not once the dataset is functionally complete and we have completed our project.
Researcher	Because of possible patient identifying data.
Research Manager	n/a
Research Manager	Patent and Commercialisation issues.
Research Manager	IP issues are addressed and access forms must be signed before data can be viewed.

Organisational Role	Details of organisational policy regarding the basis on which data should be deposited into databases for access by other researchers…
Researcher	At the University level this policy is highly generalised which means that researchers and research project have to set policy that is appropriate to the work they are doing. In our case our focus is on public domain knowledge (the better use thereof) and so our policy involves open access as a fundamental requirement (this does not mean that there may not be data that has to be restricted - but in all projects there must always be public knowledge and it is this knowledge/information that is used to enable interconnectivity with other databases or information systems.
Researcher	Social science consortiums etc
Researcher	Yes, we have a deposit form that depositors must complete
Researcher	Open access, or by password protection. We have over 4 million data items.... some are open some are protected. Our policy is frequently set by the owners of the data.
Researcher	In house data archive
Researcher	No because I don't control access, it is centrally controlled by the organisation and they dictate who can and can't access our systems
Researcher	Can be accessed via our library home page
Researcher	[University name electronic paper database] contains a list of papers submitted by [university] students and staff. It is a compulsory requirement that papers published by [university] students and staff are to be submitted to [university] DEST publication collection. Information from [project name] meetings is stored on Wikipedia. It can be modified by anyone. It was improperly corrected in the past by members of [project name] group.
Researcher	[University name], that is part of the project, seems to have a policy that runs up against ARC-rules. There is at least one researcher on our project who is being tardy about releasing data, despite the fact that it technically belongs to the ARC.
Researcher	Only non-identifiable data may be deposited.
Research Manager	Policy only really informs the procedure and approvals for lodging data
Research Manager	We typically release all our codes as open source. We sometimes use [name deleted] to host our code
Research Manager	Available on web
Research Manager	Publicly funded research requires open access to the maximum extent possible. Other contract dependent research must have research data available to satisfy research code of conduct standards.
Research Manager	University policy website
Research Manager	Deposit forms are provided on our website
Research Manager	Filtering process to protect certain data (and populations it came from) from exploitation, by exclusion or fuzzing, such that available data is freely accessible but not complete (as the data behind the firewall)

Organisational Role	Comment regarding the utility of a plain English 'how-to-guide' explaining the legal restrictions associated with databases…
Researcher	This may well be useful in a day-to-day sense but it would also be interesting from a digital scholarly practice perspective to see how the legal restrictions and or guidelines actually assist or impinge on scholarly practice.
Researcher	Lately we've been trying to apply creative commons licences in some cases; the availability of this licence has helped in some negotiations about data access.
Researcher	I don't have time to read yet more documentation written in general terms that wouldn't tell me what I needed to know about my specific situation.
Research Manager	Yes, as not a lot of thought has gone into this issue in our organisation yet.
Research Manager	A fascinating question, given that Australia is one of the very few jurisdictions relying on copyright as the relevant property right for databases (Europe has the database right, the US does not recognise property rights in data).

Organisational Role	Comment regarding objections to people outside your project or organisation having access to data created as a result of your research project being reduced by a legally binding agreement…
Researcher	Already have a mechanism in place
Researcher	Because ownership and liability aren't problems: ethics are.
Researcher	Generally if the data can't be made available it's because of how it was collected, not my own feelings about it.
Researcher	No confidence in the law binding such people
Researcher	Too difficult to obtain adherence
Researcher	I don't think the data I work with is the sort of data you are talking about. I don't think anyone is going to be hurt by using my data.
Researcher	I think Australia needs more open access to data sets - we often have to reinvent the wheel because we can't access the data from Jo Blogs study. However, the IP climate in Australia makes it difficult to take the first step and make this data open to the world. Basically, you don't get any credit for data, only publications and reports. Hence, it's not worth your while giving out data for someone else to use and get credit for. Having a legal way of maintaining IP that is supported by the Federal government in the distribution of funding (i.e.: RQF) would be great
Research Manager	The issues of control over the use of data would not be dealt with by this
Research Manager	But it would create other problems e.g. loss of contracts

Organisational Role	Final Comment
Researcher	It would be useful to have an estimate of the cost of e-research capabilities as a percentage of the total cost of the average research project.
Researcher	This is a very important area of research. The delays caused by the need (or perceived need) to protect IP presents a major constraint to research in my field.
Researcher	In many ways e-research should not be different to "normal" research in that the contractual and IP issues are not radically different. The major difference is the ability for data to "stick" and be infinitely reproducible.
Research Manager	The problem with implementing the concept of e-Research is the persistent belief that paper documentation is somehow "safer" than the electronic version and that is some "requirement" to have paper records; electronic records are not legal that is legally valid documents etc. People still feel an overwhelming need to have a "paper" record rather than an e-file. The "people" problems are always the hardest to solve. ...... Good luck!
Research Manager	One area that seems widespread is that research management in government is delegated to low levels where skills and experience are limited.
Research Manager	One major impediment to the broad uptake of e-Research is software licensing restrictions. Software vendors are going to have to adapt to a modern e-Research environment.
Research Manager	Australia should be very ashamed of the state of its federal networking to afford a true e-Research capability, States. Cites/organizations with a better network access will excel faster and further.
Research Manager	We are an organisation that is raising awareness of and aiming to "kick start" the change to e-Research as a new research paradigm. The answers to the questions are made in this context rather than that of a research group involved in research activities.
Research Manager	E-Research without formal agreements in a mutually constructive environment of trust and sharing has expanded my research and publication opportunities exponentially. It is the world as it was meant to be.
Research Manager	Nil
Legal Advisor	As a general rule, the terms of an agreement in my view can be standardized. The nuts and bolts of the project are generally in my experience dealt with in the schedules to the agreement. E-research has the potential to revolutionise current practice for the better.
Commercialisation Officer	US universities rely on a copy of the research application and the mandatory outcome reporting obligations to govt funders (before publication) to manage and catch IP assets. With e-research, participant reporting obligations are critical if the process is to be managed - someone has to pose the right questions on a routine basis. Perhaps a list of the "right" questions would be useful. I really think that you need to have VERY simple, rapid and lightweight solutions. I have had projects collapse because of complex legalities - mostly because I lost interest and could do something else less onerous... I wish you project every success! The problem with this issue is often not the desire to make data available, but the cost and difficulty in actually implementing the systems, particularly when building the systems requires people with an understanding not only of very complex technical issues for managing the data, but also the IP

consequences of their actions and the possibility of legal risk (through unforseen uses) that may accrue from release of the data. For instance, the use of some datasets without understanding their limitations may actually lead to loss of property or life. Is the agency responsible for the release of this data exposed if this occurs - even if the proper disclaimers were attached on release?

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Legal Framework for e-Research Project

The face of global research is changing due to rapid advances in information and communications technology (ICT) and the rise of e-Research. National and international multi-disciplinary collaboration is now possible using a spectrum of advanced ICT capabilities that enhance and allow fast-paced, real-time and large-scale access to knowledge. Advances in ICT present enormous opportunities for Australian researchers.

The Legal Framework for e-Research Project led by Professor Brian Fitzgerald at QUT and funded by the Department of Education, Science and Training (DEST) is examining ways in which the legal framework can be made as dynamic and effective as the advancing technology. By investigating issues such as contractual frameworks, data ownership, access and reuse, IP licensing, privacy and liability the Legal Framework for e-Research project will analyse the role of law in the e-Research environment and make proposals for a more effective legal framework that can better enable the adoption of e-Research methods.

e-Research.law.qut.edu.au