

WORKING AT CSIRO: DESPATCHES FROM THE FRONT LINE

REPORT ON THE 2010 STAFF SURVEY



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EXECUTIVE SUMMARY

In 2009, researchers from the University of New South Wales, University of Melbourne and University of South Australia commenced a research project that focused on work and the working environment in CSIRO. A number of individual interviews and focus groups were conducted in 2009 with staff across six CSIRO divisions. These interviews were followed by a survey 'Working at CSIRO: Despatches from the Frontline' that was distributed to staff across CSIRO in mid 2010. This report draws on both sets of data. The 2010 survey received responses from over 2100 CSIRO employees, a response rate of 49% of the surveys distributed, and is representative of CSIRO's staff population in terms of age and gender. The 2009-2010 interviews and survey follow on from an earlier research project undertaken in 1998-1999 by a number of the same researchers.

Individual and focus group interviews with staff in 2009 identified the CSIRO matrix organisational structure, the centralisation of support services and the introduction of an enterprise resource planning ICT system (SAP) as major changes impacting on CSIRO staff. The CSIRO matrix was a significant cause of concern and many research participants believed it created conflict over goals and confusion over who was responsible for supervision. Many participants also believed that the CSIRO matrix constrained their promotional opportunities and reduced the overall quality of their work.

The centralisation of support services was also believed to disconnect support staff from CSIRO's mission, while many scientists responded that such centralisation had constrained their ability to undertake scientific work. The introduction of the SAP ICT system generated a particularly strong reaction from staff, with an overwhelming majority of survey respondents believing that this system hindered CSIRO's ability to deliver innovative scientific solutions.

The 2010 survey also explored staff views in relation to job autonomy, job variety and organisational learning. A majority of respondents reported having a clear understanding of what was expected of them at work and many believed that their jobs contained variety and were not overly repetitious. Concerns were expressed by respondents, particularly at the workgroup level, over their ability to influence management decisions and actions. Many respondents also reported a lack of control over the resources they needed to accomplish their work. In addition, many survey respondents did not believe that CSIRO did enough to support employees who took calculated risks. These issues present problems for organisations striving for high levels of innovation.

Many survey respondents experienced high levels of job motivation and believed that they enjoyed high levels of job security. Nevertheless, many also reported moderate levels of emotional exhaustion and expressed unhappiness with their careers and with opportunities for career development. Many survey respondents were also critical of the level of performance feedback that they received and with the lack of mentoring opportunities available to them. Overall, a high proportion of staff reported continuing to work for CSIRO without feeling committed to the organisation, or experiencing pay or job satisfaction. The data analysis suggests potential improvement strategies, including making adjustments to the CSIRO matrix organisational structure and the operation of support services. Other human resource solutions include improving career management and mentoring opportunities, enhancing the provision of feedback by supervisors, and making a stronger commitment to organisational learning.

1. INTRODUCTION

In 2009 a number of CSIRO staff were interviewed concerning their work and working environment. These interviews were followed by the survey 'Working at CSIRO: Despatches from the Frontline' that was distributed to staff across CSIRO in mid 2010. This report draws on both sets of data and focuses on findings that relate to CSIRO's matrix organisational structure, the centralisation of support services and the impact of the SAP ICT system on staff. The report also details employee perceptions of job autonomy, task interdependence, role ambiguity, organisational learning and risk taking.

2. BACKGROUND TO THE SURVEY

The 2010 survey follows on from an earlier research project undertaken in 1998-1999. In 1998, researchers from the University of Melbourne worked with the CSIRO Staff Association to develop a survey investigating a range of workplace issues such as job satisfaction, workload pressures, relationships between staff, and the performance management system. CSIRO Executive later joined the project, and an organisation-wide survey was conducted over 1998 and 1999.

The same group of researchers, with additional support from the University of New South Wales, re-engaged with the CSIRO Staff Association in 2009 to explore the possibility of conducting further research. This research aimed to extend on the 1999 project to capture some current issues being experienced by CSIRO staff, such as the impact of re-structuring on the current work environment. CSIRO Management were invited to participate in and endorse the research but declined.

3. DATA COLLECTION PROCESSES

The 2009-2010 research project initially involved interviews and focus groups across several CSIRO divisions. In 2009, semi structured interviews were held with research scientists and support staff from August to November across six divisions of CSIRO and at different levels of the organisation. The Divisions participating in the interviews included Plant Industry, Sustainable Ecosystems, Minerals, Energy Technology, Land and Water, ICT and Property Services. Participants were interviewed for approximately one hour. The interviews were digitally recorded, transcribed and analysed using qualitative software. A total of two focus groups comprised of four and six staff and 21 individual interviews were undertaken.

The interviews and focus groups identified significant concerns around three CSIRO organisational change initiatives implemented over the last seven years. The initiatives identified were:

- the introduction of a stronger matrix component into CSIRO's organisational structure and operations.
- the transfer of many support services from within divisional structures to central shared services units.
- the introduction of an enterprise resource planning ICT system (SAP)

4. INTERPRETING THE RESULTS

Issues raised in the interviews were incorporated into the survey along with a number of existing summated scales which measure a variety of employee attitudes and behaviours. A summated scale is an index made up of several survey items measuring the same construct. Researchers regard summated scales as more effective measures of an employee's attitudes and behaviours than a single item (which tend to be subject to measurement error). For example, in the survey we include nine items to measure an employee's level of organisational commitment. In order to assess the reliability of a summated scale we generate an alpha statistic. A scale is generally regarded as reliable if the alpha coefficient is equal to or exceeds 0.70. All the scales used in this report met this threshold level. For all items on the survey, 1 = strongly agree and 5 = strongly disagree.

In this report the percentage of respondents agreeing or disagreeing with each question is typically provided. For ease of interpretation the percentage of respondents who indicated they were neutral or who could not decide between agree (strongly agree, agree) or disagree (strongly disagree, disagree) have been excluded. Where appropriate the mean for all respondents are presented and also the means for particular groups – male/female, union/non union and for scientists only. The mean provides an effective way to summarise the responses of our survey respondents.

In the latter sections of the report we provide some correlation statistics. A correlation statistic (r) ranges between 0 and (+ or -) 1. The closer the correlation is to (+ or -) 1, the stronger the relationship between the two variables. A positive correlation (+) means that when one variable increases so does the other variable; a negative correlation (-) means that when one variable increases, the other variable decreases.

We apply conventional tests of “statistical significance” when interpreting the data. We refer to differences between groups (for example, union versus non union members and male versus female) as statistically significant when the probability (p value) is less than 5% (meaning the likelihood that the difference between the two groups occurred by chance is less than 5%).

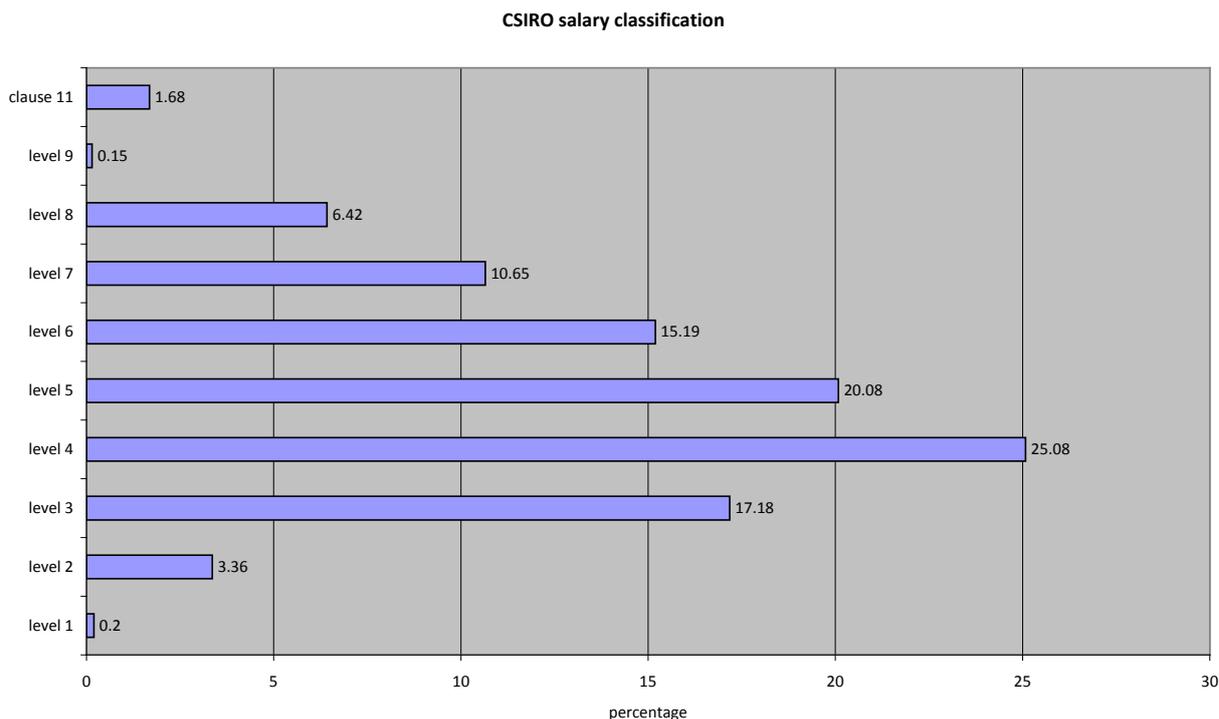
Statistical significance is not the same as practical significance. Practical significance is where the difference is large enough to be of practical value. Results that are not statistically significant may be practically significant, warranting further discussion among relevant parties.

5. SURVEY RESPONSE RATES AND REPRESENTATIVENESS

‘Working at CSIRO’ survey packages, including a hard copy survey, information sheet and reply-paid envelope, were distributed across all CSIRO sites in person by Staff Association delegates between 19 April and the 24th of May 2010. Surveys were returned in reply paid envelopes to the research team at the University of New South Wales. Delegates recorded distribution numbers in their site which were collated to calculate the overall distribution rate.

Some resistance occurred at both the corporate and local level to the distribution of the survey, which limited distribution in some areas. Compiled distribution rates from Staff Association delegates showed 4280 surveys were distributed. The research team received 2116 returned surveys. This represents a response rate of 49%, which is a particularly good response rate.

Comparisons of demographic data available on CSIRO staff and the demographics of survey respondents show that the survey population is representative of the CSIRO staff population for gender and age. Some 41% of survey respondents are female and the CSIRO staff population is 39% female. The average age of survey respondents is 44.1 years and the median age of CSIRO staff is in the 40-44 year age bracket. The survey over-represents Staff Association members, as 63% of the survey population were union members compared to the current membership rate of 47%. Within the survey population 86% of respondents are working full time with CSIRO. The figure below presents the survey population for salary classification level.



In the sections that follow we combine the interview and survey data around some major themes: the CSIRO organisational change initiatives (section 6), career and performance management (section 7), proactive behaviours (section 8), employee well being and morale (section 9), and a range of HR outcomes (section 10). The final section (eleven) concludes the report.

6. CSIRO'S ORGANISATIONAL CHANGE INITIATIVES

The Matrix

The 2001 Strategic Action Plan identified the development of *One CSIRO* as a key objective. A key goal of *One CSIRO* was to break down divisional boundaries and enhance collaboration across the organisation to enable CSIRO to tackle major science challenges. The implementation of a stronger matrix component in CSIRO's organisational structure and operations was the key to achieving this goal.

To examine the impacts of the matrix on collaboration respondents were asked to indicate agreement or disagreement with the following statement: 'CSIRO's input-output matrix structure enhances collaboration across CSIRO divisions'. Some 30% of respondents agreed with this statement (6% strongly agreed and 24% agreed), while 32% disagreed (with 11% strongly disagreeing and 21% disagreed).

Enhanced collaboration, according to CSIRO, would lead to better quality science outcomes. Respondents to the survey were asked to indicate agreement or disagreement with the following statement: 'CSIRO's input-output matrix structure enhances the quality of my work'; 9% of respondents agreed with this statement (1% strongly agreed and 8% agreed), while 59% of employees disagreed (27% strongly disagreed and 32% disagreed). Scientists had a higher level of disagreement at 65% (33% strongly disagreed and 32% disagreed). Therefore, there was an overall rejection by survey respondents of the notion that the CSIRO matrix had improved their ability to undertake quality work. The view was shared by many interview participants, for example:

‘...if you look at CSIRO ... our only asset is people. And the only way that you can obtain science outcomes is through people. And yet they’ve put science outcomes over here and people management over here and then wonder why there’s a problem” (CSIRO Scientist, 2009).

Matrix organisations can lead to problems around the diffusion of authority, role conflict, clarity of communication lines and difficulties related to assessment of performance. To examine the views of CSIRO staff they were asked to indicate agreement or disagreement with the following statements:

CSIRO’s input-output matrix structure	strongly agree	agree	disagree	strongly disagree
Creates conflict between input and output goals	24% Sci-30%	30% Sci-32%	9%	3%
Leaves me confused about who has responsibility for managing my work outcomes	26% Sci-30%	31% Sci-33%	16% Sci-14%	8%
Reduces accountability for resolving conflicts in project teams	18% Sci-20%	24% Sci-27%	12%	4%

The above table highlights strong concerns from staff that the CSIRO matrix creates conflicts over goals (62% of scientists), causes confusion in relation to supervision of work (63% of scientists), and leads to reduced accountability for resolving conflict in Flagship and Theme project teams. This concern was also evident in the interviews with staff undertaken in 2009, with one scientist noting:

“...I think the matrix just disconnects everything. There’s no-one that’s responsible or anything. It’s just continual buck passing” (CSIRO Scientist, 2009).

“A divorce between people and outcomes. A divorce between responsibility and authority. Nobody knows what their roles are. People make it up as they go along. I mean it’s code for nobody takes responsibility actually...I only have persuasion. That’s my only management tool. I don’t have any authority over anyone...” (CSIRO Scientist, 2009).

For individuals working within a matrix organisation there is potential for higher levels of role conflict. This issue was examined with the following questions.

CSIRO’s input-output matrix structure	Strongly agree	Agree	Disagree	Strongly disagree
I get conflicting requests from two or more people	17%	24%	19%	7%
I do things that are likely to be accepted by one person but not accepted by other	12%	27%	19%	7%
I have to do things that should be done differently	15%	27%	15%	6%

The responses to these questions again highlight the levels of concern among staff over conflicting requests from either side of the matrix (41%) and the dilemma faced by staff when undertaking tasks that are likely to be poorly received by one side of the matrix management structure (39%).

Discussions with staff also raised issues relating to work motivation, professional capability, communications difficulties with APA supervisors, and promotional opportunities as a result of the matrix. These issues are examined in the questions below:

CSIRO's input-output matrix structure	Strongly agree	Agree	Disagree	Strongly disagree
Requires me to work in areas that do not match my expertise space	6%	13%	27%	10%
Provides opportunities to do work I am passionate about	4%	14%	24%	14%
Limits my ability to build my professional capability	10% Sci-13%	18% Sci-21%	21%	6%
Increases my promotional opportunities	2%	7%	26%	24%
Maximises opportunities for communications between my APA supervisor and myself	3%	6%	28% Sci-30%	25% Sci-29%

The table above highlight that 50% of staff believed that the matrix did not enhance their promotional opportunities, while 59% of staff did not believe that the matrix enhanced opportunities to communicate with their APA supervisor. This supervisor was likely to be more important than their Flagship or Theme supervisor when the staff member needed to prepare a case for promotion.

Many scientists interviewed believed that the CSIRO matrix hampered their career development and distanced them from their Divisional capability manager. With considerably more staff to manage, many from outside of their areas of scientific expertise, supervisors were often believed to be unaware of the career development needs of many of their subordinates.

Support services

Changes to the delivery of support services, to improve efficiency and consistency, was also part of the *One-CSIRO* message. This change has involved the centralisation of a range of services that were previously delivered within divisional structures. Centralised Shared Services facilities were established for functions such as human resources, IT, purchasing and property management. The centralisation of support services was undertaken to increase efficiency and a range of other support services, including purchasing and workshops, were disestablished. The survey examined a number of these issues and the results are provided in the following table.

CSIRO's support services	Strongly agree	Agree	Disagree	Strongly disagree
Enhances the quality of my work	7%	24%	24%	15%
Requires me to work in areas that do not match my expertise base	12%	17%	23%	10%
Requires me to do work that could be more efficient in done by other types of employees	29% Sci-36%	26% Sci-28%	16%	6% Sci-3%
Support service call centres worked well for me	5.2%	23%	24%	17%
Disconnects support staff from CSIRO's mission	27%	24%	12%	4%

Some 54% of Scientist's (scientist, engineer, postdoctoral) indicated that the new support services structure reduced their efficiency and represented an impediment to their research performance. Also of concern is the 51% of respondents who believed that the new support structures disconnected support staff from CSIRO's mission. Studies have shown that connection with an organisation's mission is a positive driver of staff satisfaction, productivity, commitment and reduced turnover.

Respondents were also asked to indicate agreement or disagreement with the following statement: 'CSIRO support services enhanced CSIRO's ability to deliver great science and innovative solutions'. Some 36% of respondents agreed with this statement (9% strongly agreeing and 27% agreeing), similarly 36% of respondents disagreed with the statement (14% strongly disagreeing and 22% disagreeing). Scientists had a lower level of agreement at 31% (6% strongly agreeing, 25% agreeing) and a higher level of disagreement at 39% (16% strongly disagreeing). There was a relatively high level of disagreement by scientists to the question of whether support services had enhanced their ability to undertake their scientific work.

One reason for these results is the substantial administrative workload now undertaken by scientists. The absence of IT staff with local (discipline-specific) knowledge of the equipment used across the sciences was a key problem for many interview participants. There was also strong criticism of the shift of responsibility for supply purchasing and management, and equipment servicing from support staff to scientists. These changes were perceived as having a significant and negative impact on the time available for undertaking scientific work. The efficiency and effectiveness of support services under the centralised systems was also widely criticised, particularly in relation to the slower response rates of centralised call centres.

"...you know here we are faced with the biggest bloody science challenges and what are our key scientists doing spending you know one day a week using SAP" (CSIRO Scientist, 2009).

"...and then stationery, we now have to go out and organise our own stationery, so if you're paying for people, you know on \$80,000 plus salaries to go and figure out their own stationery, like its just beyond a joke. And like water bills, there was someone walking down one of the corridors down there, and it was a story about them walking down with a water bill saying "we just got a water bill!, what are we going to do with it?" (CSIRO Scientist, 2009).

Interviews and focus group participants also highlighted a range of concerns over the lack of local or discipline-specific knowledge when dealing with complex problems when support services were removed from close proximity to scientists.

"...we used to have carpentry department, machine workshop – that's metal workshop, and instrumentation so the teleclimax, painters, plumbers. So anything we needed done, we just have to go and talk to them, explain the situation, or send a piece of paper saying that we need to have something done, internal mail, and something gets done. Now that could be as simple as changing a light bulb to putting up a shelf, or renovating growth rooms, to putting up some whatever. They did everything. Now, we have to log the job to the central service centre. And because it's a call centre based or web based, it goes to people who are not in Canberra. So if you explain the building, explain the facility, they have no idea what [a] growth room is. And then you spend many hours explaining" (CSIRO Scientist, 2009).

SAP

The 2010 survey asked respondents to indicate agreement or disagreement with the following statement: 'CSIRO's SAP System enhanced CSIRO's ability to deliver great science and innovative solutions'; 5% of respondents, however, agreed with this statement (1.3% strongly agreed, 3.7% agreed) while 79% of respondents disagreed with the statement (54% strongly disagreed, 25% disagreed).

The following table helps explore these issues.

CSIRO's SAP system	Strongly agree	Agree	Disagree	Strongly disagree
Makes CSIRO more efficient	2%	6%	21%	57%
Requires me to do work that would be more efficiently done by others	39%	24%	8%	3%
Makes effort logging my hours simpler	4%	9%	21%	44%
Enhances the quality of my work	1%	2%	27%	51%

CSIRO staff also believed that the work that the SAP system required them could be carried out more efficiently by others (63%) and overall SAP did not enhance the quality of their work (78%).

The interviews with scientific staff also highlighted a number of reasons for such stark findings. There was considerable frustration among scientific staff interviewed with the time it took them to process expenses and to record their hours on the SAP system:

"Every single thing I do takes me half an hour to do anything simple in SAP. To the point where, you know at the... and this is what's happening. I buy my own stamps, I've been using my own money, I don't ever claim reimbursement for things anymore because I couldn't be bothered going through SAP so when I'm away for a trip and I need a meal I just bloody pay for it. I would actually rather just pay \$15 for my own dinner than have to spend 20 minutes on SAP. That's... you know and so the subsidy that this organisation... and so you know if they look at their numbers they probably do, they crow all the time, they've given money to science. Well they haven't. Most the scientists are subsidising it out of their time and their own money and they're doing work that SOF3 support people would do twice as well" (CSIRO Scientist, 2009).

Creating a culture supportive of creativity and innovation?

A number of studies have demonstrated the impact of work design and the work environment on creativity and innovation outcomes. Amabile et al. (1996) demonstrated how work climate factors can impact on innovative research outcomes in R&D environments. Amabile's work identifies factors such as organisational encouragement, supervisory encouragement, work group support, individual job autonomy-freedom, challenging work and sufficient resources as factors that facilitate creativity and innovation. Amabile et al. (1996) also identify workload pressure and some management practices as presenting obstacles to creativity and innovation.

The importance of CSIRO's people to its reason for existence is identified on its web site:

CSIRO's purpose is: 'By igniting the creative spirit of our people we deliver great science and innovative solutions for industry, society and the environment'. People are at the centre of everything we do.

In the following sections we provide a summary of responses to a series of questions about the characteristics of work in CSIRO. We examine five aspects of work: the level of job autonomy, role ambiguity, task interdependence, the extent of routine in work, as well the amount of resources

available to carry out the work. Consistent with the work of Amabile et al. (1996), CSIRO's innovation performance would benefit from scientists having a high degree of job autonomy, low levels of role ambiguity and jobs with low levels of routine and challenging work.

Job Autonomy

Autonomy or freedom in one's job has been cited as a factor that increases the creativity and innovation of individuals and workgroups. Survey respondents largely believe they have control over their work (59%) and have a say in decisions relating to their work (60%). About 20% of respondents did feel, however, that they had little autonomy or control over their work. Results are presented below.

Job autonomy	Strongly agree	Agree	Disagree	Strongly disagree
I am never in control of how my job is scheduled	5%	13%	40%	19%
I have a lot of input in deciding what tasks or parts of tasks I will do	18%	42%	14%	5%
I have little to no influence over things that affect me on the job	5%	19%	39%	12%
I am able to chose the way to go about doing my job (the procedures to use)	22%	49%	8%	4%

Task Interdependence

Changes to CSIRO's organisational structure and the provision of support services should have increased the level of interdependence within the organisation. As indicated earlier, the intended goal of these initiatives were to generate increased synergy and to break down divisional barriers. Clearly there is a high degree of interdependence within CSIRO as can be seen in the table below where most respondents indicated their work was dependent on others.

Task interdependence - Questions	Strongly agree	Agree	Disagree	Strongly disagree
My job depends on the work of many different people for its completion	18%	38%	17%	5%
My job cannot be done unless other sections do their work	17%	34%	19%	6%
I depend on other people for support, services or information to do my work	20%	45%	11%	3%

Role Ambiguity

As indicated in the table below most respondents had a clear understanding of what was expected of them and most were provided with clear explanations of what was to be done. Again a small number of respondents indicated that their roles were ambiguous.

Role ambiguity-questions	Strongly agree	Agree	Disagree	Strongly disagree
I generally know what my responsibilities are	30%	53%	4%	2%
I know exactly what is expected of me	24%	42%	10%	4%
I typically receive a clear explanation of what is to be done	11%	35%	19%	7%

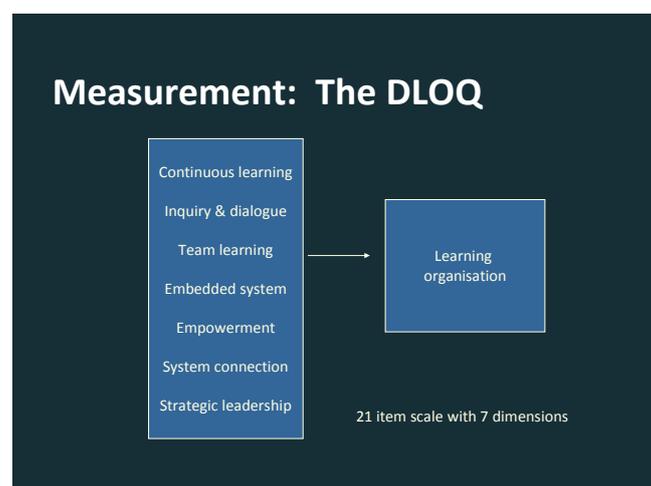
Routine Nature of Jobs

Most respondents felt their jobs had variety and that they were required to undertake a number of different tasks, as can be seen in the table below.

Routine-questions	Strongly agree	Agree	Disagree	Strongly disagree
My job has variety	30%	47%	6%	3%
The duties in my job are repetitious (i.e. I do the same thing over and over)	6%	14%	37%	20%
I have the opportunity to do a number of different things in my job	26%	50%	6%	2%

Organisational Learning Dimensions

The work by Amabile and Gryskiewicz (1990) highlight the factors that facilitate creative and innovative outcomes and the importance of knowledge and learning in building individual capability. While employers aim to recruit the brightest and best, it is the organisational environment and systems that allow that human capital to be maintained and optimised. The 2010 survey included items from the organisational learning questionnaire. A learning organisation has been defined as “one that learns continuously and transforms itself. . . Learning is a continuous, strategically used process— integrated with and running parallel to work.. . Learning also enhanced organisational capacity for innovation and growth. The learning organisation has embedded systems to capture and share learning” (Watkins and Marsick, 1993 8). The learning organisation measure has seven dimensions as can be seen in the figure below.



The following tables provide a summary of participant responses for each of these seven dimensions.

Continuous Learning. In CSIRO-	Strongly agree	Agree	Disagree	Strongly disagree
People help each other learn	18%	50%	9%	4%
People are given time to support learning	8%	36%	22%	10%
People are rewarded for learning	5%	24%	26%	11%

Inquiry and Dialogue. In CSIRO-	Strongly agree	Agree	Disagree	Strongly disagree
People give open and honest feedback to each other	5%	28%	22%	10%
Whenever people stayed their view, they also ask what others think	3%	25%	23%	7%
People spend time building trust with each other	4%	30%	20%	7%

The data in these two tables suggest that to improve the effectiveness of structural changes that seek to improve collaboration across divisions, such as the matrix, further development of enabling skills such as building trust, being open to suggestions from others and providing feedback is needed.

Team Learning. In CSIRO	Strongly agree	Agree	Disagree	Strongly disagree
Teams/groups have the freedom to adapt their goals as needed	3%	24%	27%	9%
Teams/groups revise their thinking as a result of group discussion or information	6%	43%	14%	%
Teams/groups are confident that the organisation will act on their recommendations	1%	9%	38%	20%

The results on these items indicate opportunities for improvement in the enabling skills and systems underpinning these items. Of greater concern is the final item that indicates a belief that workgroup recommendations will not be acted on.

Embedded System. In CSIRO	Strongly agree	Agree	Disagree	Strongly disagree
CSIRO creates systems to measure gaps between current and expected performance	2%	18%	25%	11%
CSIRO makes its lessons learned available to all employees	2%	14%	32%	16%
CSIRO measures the results of the time and resources spent on training	2%	9%	31%	17%

The input – output matrix model was criticised by many interview participants, particularly capability managers, for limiting learning and development activities. While responsibility for capability development lay within Divisions -the input side, funding is largely under the control of Flagships and Themes - the output side of CSIRO, who are responsible for project outcomes. Scientists' perceptions of learning and development opportunities were also often linked to the availability of funding. Those with access to funds for conference travel were largely happy with learning and development

opportunities. Nevertheless, many capability managers were critical of their inability to fund learning and development and believed that the Flagships and Themes were unwilling to provide funding for learning and development because their focus was on scientific output not staff development.

“I think the way the matrix is implemented is different in different divisions potentially. I mean we basically gave up all our budget to the output, so it affects us very severely because there’s capability versus the output and we have no money to have capability meetings. All of our funding comes through small projects. So it’s severely affected our ability to meet as a disciplinary group, we don’t have the budget to do that. It’s also made capability people feel quite useless you know, they sort of, they are almost irrelevant. We are going through the stage at the moment where all the new planning is happening, you are trying to do some strategic capability planning but really you’ve got all the alphas sitting out as being product people pushing what’s going on...” (CSIRO focus group participant, 2009).

“With this change, this new structure where you have the output theme leaders controlling all the money, they have no interest in developing people, that’s not their role. Their role is to bring in work and then they’ll grab their resources as they need them and then throw them away again when they don’t need them” (CSIRO Scientist, 2009).

This conflict impacts scientists’ ability to attend conferences and undertake overseas travel to keep up with the latest developments in research in their disciplinary field.

Freedom to Take Calculated Risks

Learning and innovation both requires an environment that is tolerant to some degree of risk taking. For many survey respondents CSIRO does not support employees who take calculated risks.

Empowerment.	Strongly agree	Agree	Disagree	Strongly disagree
CSIRO recognises people for taking initiative	4%	32%	22%	11%
CSIRO gives people control over the resources they need to accomplish their work	4%	26%	25%	15%
CSIRO supports employees who take calculated risks	2%	15%	24%	14%

System Connect.	Strongly agree	Agree	Disagree	Strongly disagree
CSIRO encourages people to think from a global perspective	6%	32%	17%	8%
CSIRO works together with the outside community to meet mutual needs	7%	37%	12%	4%
CSIRO encourages people to get answers from across the organisation when solving problems	6%	37%	17%	7%

Leadership and Learning

The strategic leadership dimension of the learning organizational scale examines participants' perceptions of leaders behaviours (personal commitment) towards learning in the organisation.

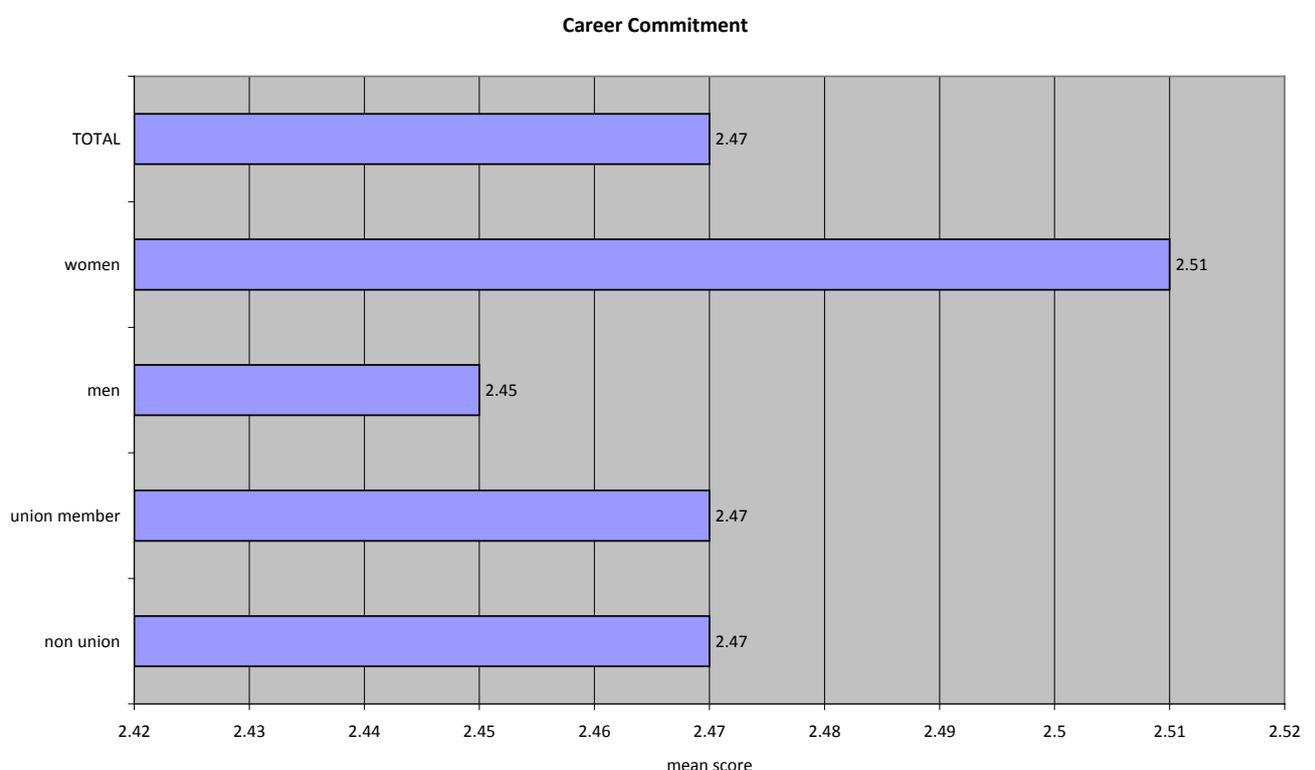
Strategic Leadership. In CSIRO	Strongly agree	Agree	Disagree	Strongly disagree
Leaders mentor and coach those they lead	4%	26%	24%	12%
Leaders continually look for opportunities to learn	3%	24%	21%	9%
Leaders ensure that the organisation's actions are consistent with its values	3%	23%	21%	10%

Less than a third of respondents to the survey (30%) agreed that leaders mentored and coached staff, while only 26% believed that leaders ensured that the organisation acts in accordance with its values. Overall, there appears to be only a weak link between leadership and learning.

7. CAREER AND PERFORMANCE MANAGEMENT

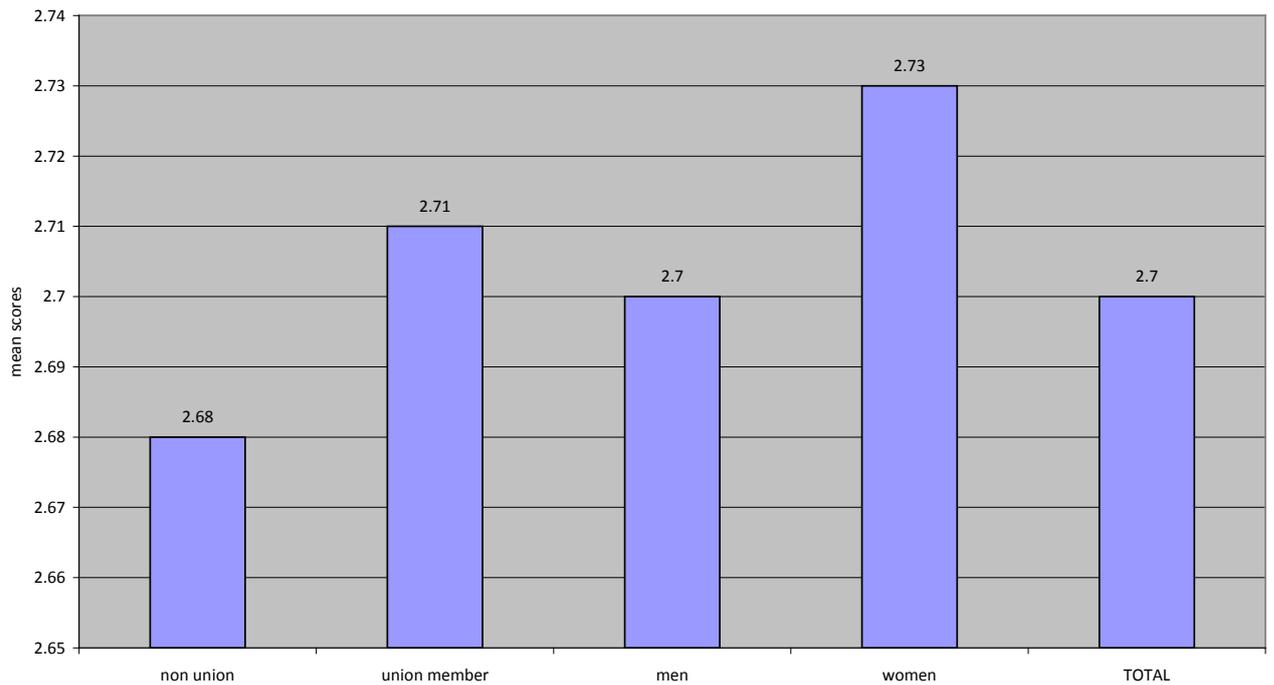
In this section we summarise a series of questions on the level of career commitment and career development opportunities at CSIRO. We also examine experiences with the performance feedback aspects of the APA process.

Our five career commitment items assess the extent to which respondents like their career or would be prepared to give up their career on a scale of one (strongly agree) to five (strongly disagree). The overall mean was 2.47 and there were no statistically significant differences based on either union membership or gender. The mean for scientists was 2.31 and 2.57 for non scientists (statistically significant).



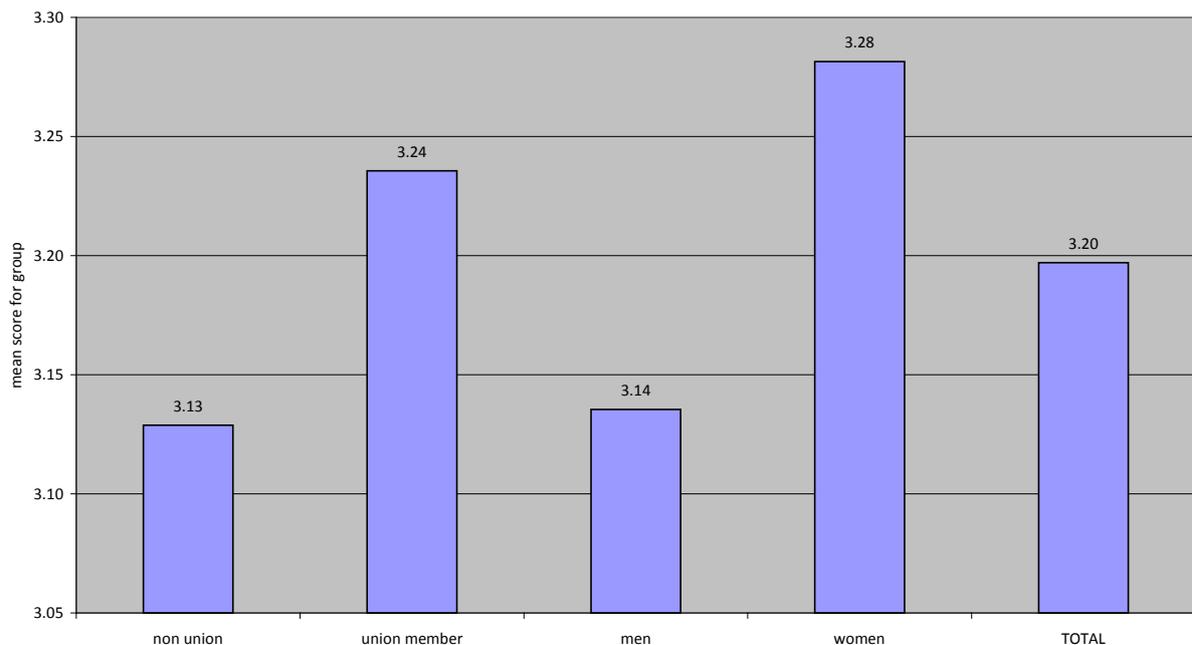
A related aspect is the extent to which respondents were satisfied with their career development. We asked five questions that asked about the level of success with progress towards career goals. The overall mean was 2.70 and there were no statistically significant differences based on either union membership or gender. The mean for scientists was 2.61 and 2.76 for non scientists, which is statistically significant.

Career development



We also measured the perception of promotion opportunities within CSIRO. We used a three item measure that asked about how often promotions occur and the chances of getting ahead in the organisation. The overall mean is 3.20 and there no statistically significant differences based on both union membership and gender. The mean for scientists was 2.87 and 3.39 for non scientist (which is statistically significant).

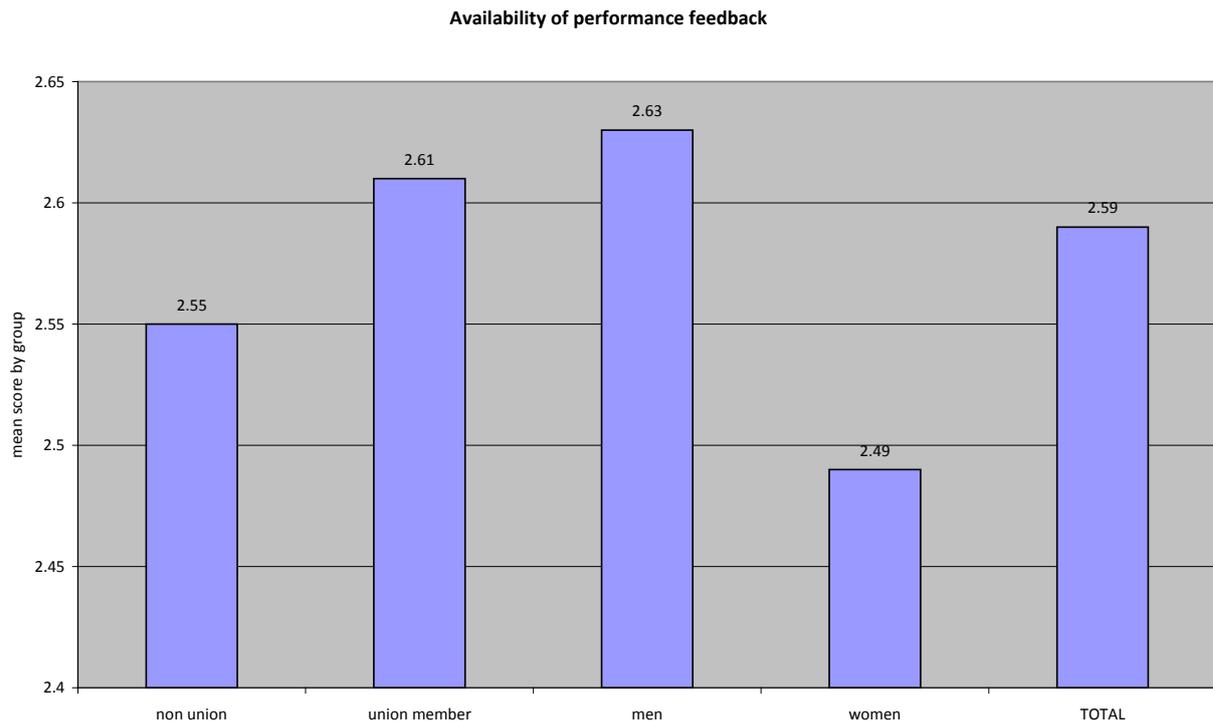
Promotion opportunities



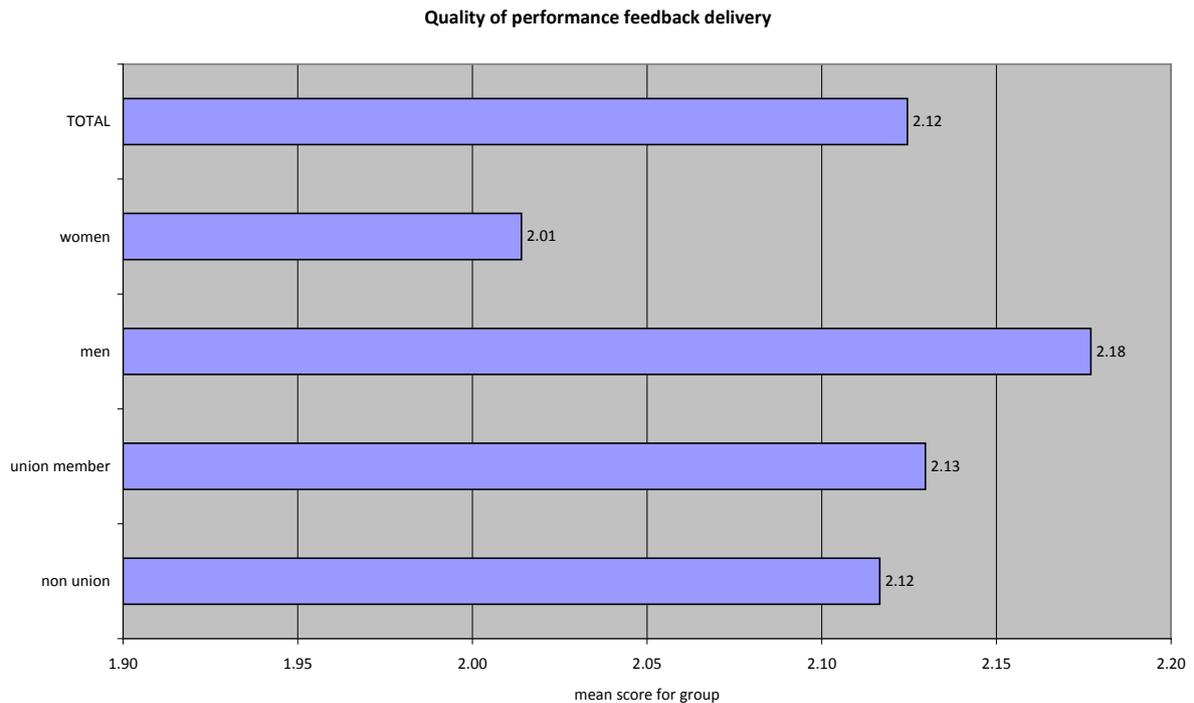
Researchers have demonstrated that feedback is a resource to the subordinate which can lead to more positive attitudes toward the performance appraisal process. Feedback provides an opportunity to clarify the "rules of the game," which gives subordinates an opportunity to make

choices about how to operate within the performance appraisal process and work in such a way that maximizes their assessed performance. Research has demonstrated that both the availability of feedback and the quality of the feedback delivery are important to creating a positive feedback environment.

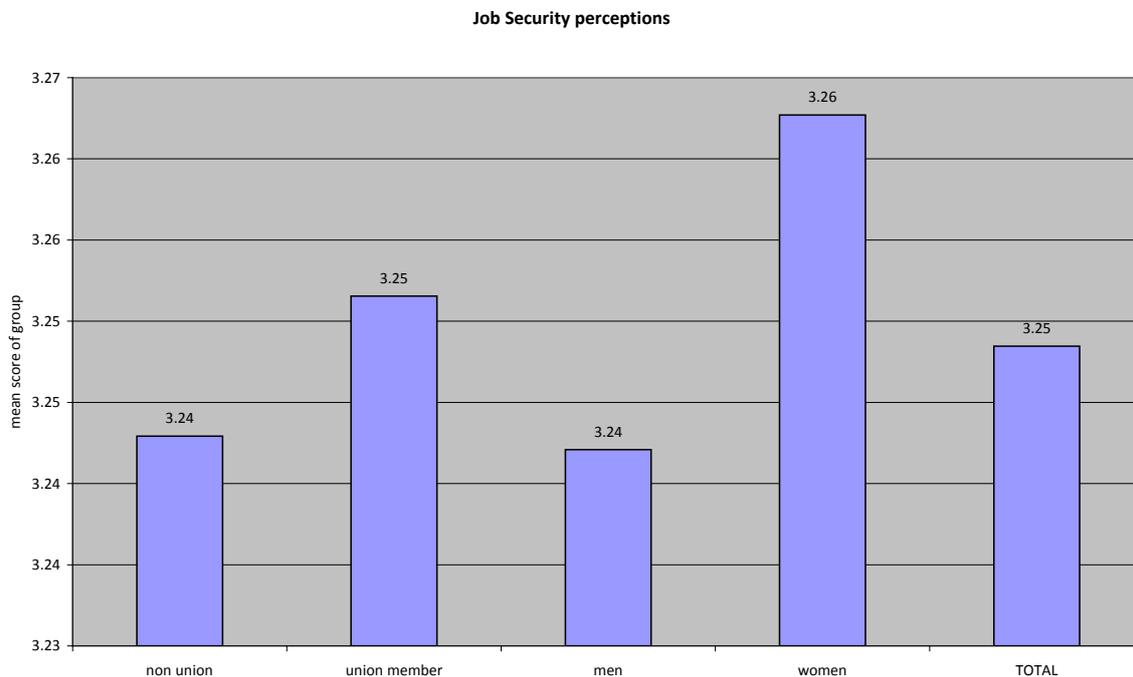
Feedback availability refers to the amount of contact a subordinate has with his or her supervisor and the “ease with which feedback can be obtained”. We measured the availability of feedback with five items which asked about the extent to which the APA supervisor was available to provide performance information. The overall mean was 2.50 and there were no statistically significant differences based on union membership but significant difference based on gender. The mean for scientists was 2.64 and 2.56 for non scientist (which is statistically significant).



The quality of feedback delivery refers to the recipients’ perceptions of the raters’ intentions when providing feedback. We used five items to determine how supportive and considerate the supervisor was in providing feedback to respondents. The overall mean was 2.12 and there were no statistically significant differences based on union membership but significant differences by gender. The mean for scientists was 2.12 and 2.12 for non scientist (which was not statistically significant).



We asked three questions about job security perception. The questions asked about the level of security over time. The overall mean was 3.25 and there were no statistically significant differences based on either union membership or gender. The mean for scientists was 3.26 and 3.24 for non scientists (which is also not statistically significant).



These findings suggest many respondents were unhappy with their current career and this was most prevalent among scientists. They were also unhappy with their career development and the degree of feedback provided by their supervisors on their performance. On the other hand, respondents were more positive about their promotional opportunities and their level of job security. Whilst these positive aspects of career and performance management are important it is likely that in the long term the negative aspects may lead to higher than desirable absenteeism and turnover.

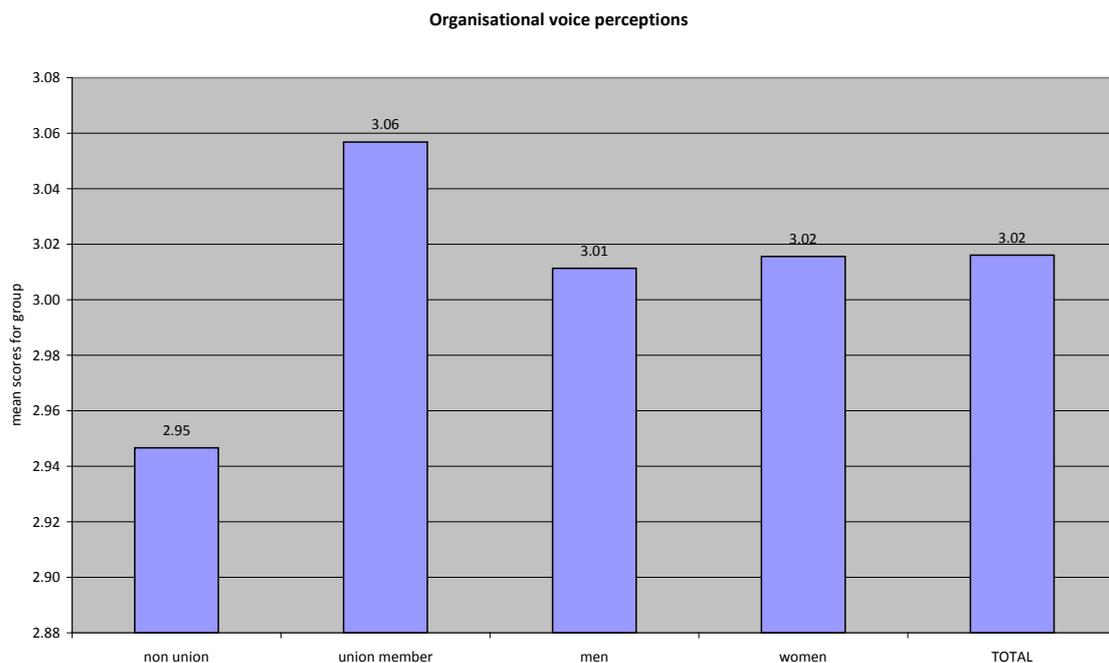
8. PROACTIVE BEHAVIOUR

Individual and Organisational Voice

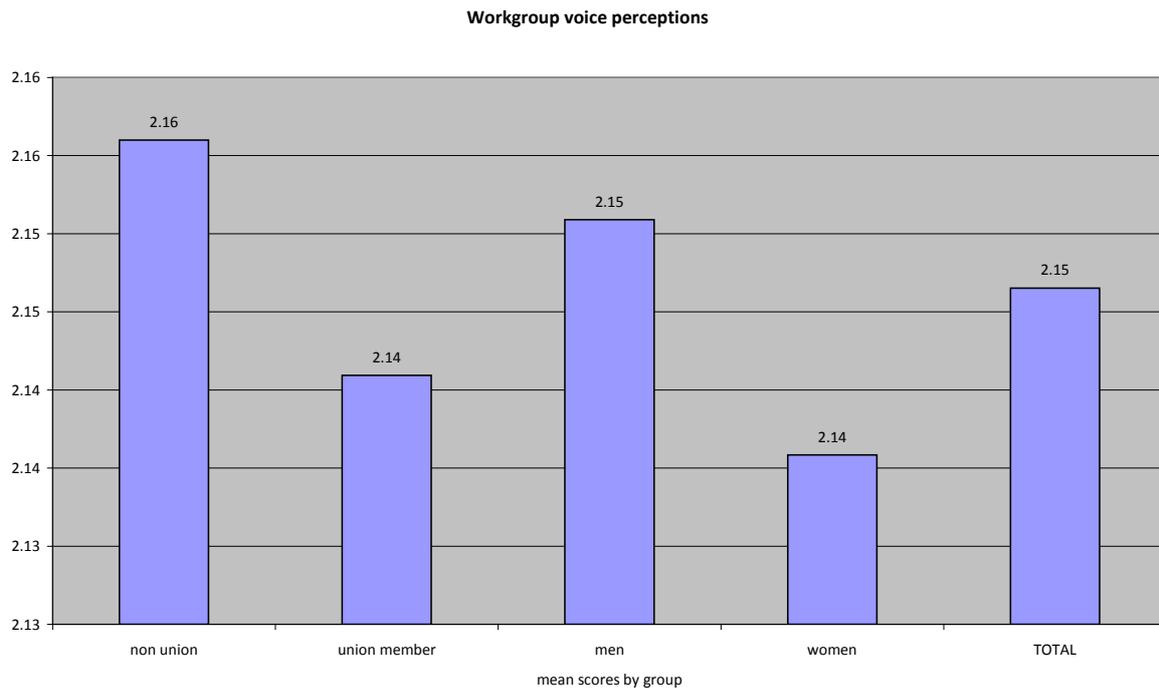
Various meanings and definitions of voice have been advanced in management literature although there is broad agreement that voice mechanisms are generally seen as a way to provide employees with some ability to influence the decisions and actions of management. The existence of employee voice is important as it has been found to be related to organisational commitment, job satisfaction and work performance. Underpinning effective voice is the provision of information, the willingness of management to listen to employees, and management's preparedness to discuss work-related problems and issues.

Included in the questionnaire were eight items, measured on a five-point Likert scale (1 low; 5 high), which provided operational definitions of these three dimensions of employee voice. These variables provided a measure of how employees perceived their voice possibilities at both the organisational level (Organisational Voice) and at the workgroup level (Work-group Voice).

Organisational Voice was found to be quite moderate (3.02) in the 2010 survey. Union members perceived a higher level of voice (3.06) than non-union employees (2.94) and this difference was statistically significant ($p=0.01$). No significant differences were found between male and female perceptions of organisational voice. Details are provided in the figure below.



Work-group Voice was found to be extremely low (2.15) in the 2010 survey. Union members and male employees perceived a lower level of voice, although these differences were not statistically significant. Details are provided in the figure below.



9. WELL BEING AND MORALE

A number of questions were asked that directly related to how CSIRO employees felt about their work, relationships at work and how work impacted on them. These are important issues as research has demonstrated that, as with employee voice, they impact on organisational commitment, job satisfaction and work performance. Each of these constructs were measure by multiple-item scales that had acceptable levels of reliability. Overall, results are presented in the table on page 23.

Co-worker support refers to the extent that co-workers are perceived to provide support when things get difficult at work, when they are willing to listen to job-related problems and when they are helpful in getting the job done. Overall, the level of co-worker support in CSIRO is low and when broken down by gender women have lower levels of perceived co-worker support. No significant differences were found between union and non-union members.

Job fit is an aspect of employee embeddedness in an organisation. Respondents were asked six questions about how valued they feel and the extent to which they are good match with CSIRO. As with co-worker support the scale score was quite low and this was uniform between male and females, and between union and non-union members.

On the other hand respondents demonstrated a high level of job motivation which reflects employees' attitudes to their job as measured by the importance of the job to their lives, their strong ties to their present job and the degree of satisfaction they receive from their job. This was particularly the case for female employees, although there was no statistical difference between unions and non-union members.

Survey respondents felt a high level of neglect. Neglect was measured by five items that asked respondents about the extent to which they report sick because they do not feel like working, put in less effort than is expected and miss meetings because they do not feel like attending them. This feeling of neglect was significantly higher among female and non-union members.

Employees felt only a moderate level of sacrifice which measures what employees would have to give up if they were to leave CSIRO. There were nine questions and included questions the level of costs they would incur if they were to leave the organisation. Gender differences and union membership did not appear to influence employees' perceptions of sacrifice.

Did such feelings of neglect and sacrifice lead to employees feelings cynical about working for CSIRO? Cynicism was measured four items which asked about the attitude and approach of decision makers within CSIRO. When asked about their levels of cynicism only average levels of cynicism were evidenced. Cynicism was, however, higher amongst women and non-union members, although only the latter difference was statistically significant.

These conditions did, however, lead to moderate feelings of emotional exhaustion. Emotional exhaustion was measure by questions relating to employees feeling emotionally drained from their work, feeling used up and burnt out. This was particularly the case for female employees and non-union members.

Work overload in this context refers to having to work too fast, too hard and not being able to get everything done and was measured by four questions. Employees felt that the workloads were moderate, although female employees and non-union members perceived workload to be higher.

	Overall mean	Scientists only (n=761)	Men	Women	Union	Non union
Co worker support	2.27	2.34	2.31	2.19*	2.27	2.26
Job fit	2.49	2.48	2.51	2.45	2.51	2.45
Job motivation	3.44	3.07	3.31	3.64*	3.42	3.47
Neglect	4.31	4.38	4.26	4.38*	4.28	4.36*
Sacrifice	2.98	2.92	2.98	2.98	2.98	2.98
Cynicism	3.08	3.08	3.08	3.11	3.04	3.15*
Emotional exhaustion	3.13	3.05	3.08	3.22*	3.06	3.24*
Work overload	2.82	2.59	2.74	2.97*	2.75	2.94*

NB: an asterisk denotes a statistically significant difference between the groups.

Overall, the areas for concern to respondents related to poor co-worker support, poor job fit, moderate levels of emotional exhaustion and high levels of neglect. These are conditions that will

lead to lower levels of job satisfaction performance. On the other hand CSIRO employees remain highly motivated which provides a basis for management to rethink how they should manage knowledge workers working at the forefront of scientific research.

10. OUTCOMES

How have these employees perceptions influenced how workers feel about their long term tenure at CSIRO and their satisfaction with both their jobs and pay? Most employees appear to have a limited perception of their job alternatives in terms of the probability of finding an *acceptable* job outside of CSIRO. Moreover, employees felt that if they were to search for an alternative job they would have a reasonably low chance of finding an *acceptable* job within a twelve months timeframe. Whilst these perceptions lead to a stable workforce this does not mean that workers are happy. The high intention to quit, which is measured by two questions suggests that many employees feel trapped in their jobs and continue to work for CSIRO but without feeling committed to the organisation or experiencing job and pay satisfaction. Details are presented in the table below.

	Overall mean	Scientists only (n=761)
Job alternatives	2.70	2.62
Job search	2.58	2.53
Intent to quit	3.28	3.24
Job satisfaction	2.50	2.37
Pay satisfaction	2.74	2.66
Organisational commitment	2.41	2.46

In the final table we provide a summary of the correlations between the measures in our survey. We examine the relationships with our four outcome measures - intent to quit (column 1, job satisfaction (column 2), pay satisfaction (column 3) and organisational commitment (column 4).

In relation to intent to quit (column 1), employees who believe they have a good job fit ($r = -.55$) are highly committed to their current career ($r = -.52$) and perceive opportunities for continuous learning ($r = -.41$) are the least likely to express an intent to quit CSIRO.

Employees who were dissatisfied with their jobs (column 2) were also more likely to neglect their work ($r = -.44$), be emotionally exhausted ($r = -.39$) and cynical about CSIRO ($r = -.34$). Employees who were satisfied with their jobs believed they had a good job fit ($r = .64$) and were highly committed to their current career ($r = .74$).

High levels of pay satisfaction (column 3) were expressed by respondents who were satisfied with their career development ($r = .47$) and promotion opportunities ($r = .49$). Employees who are highly satisfied with their pay were also likely to believe that they would sacrifice a lot by leaving the organisation ($r = .56$).

Employees with the lowest levels of organisational commitment (column 4) were also more likely to be cynical about CSIRO ($r = -.38$), more likely to neglect their work ($r = -.36$) and feel emotionally exhausted by their work ($r = -.31$). Employees who are committed to CSIRO were also likely to be highly committed to their current career ($r = .56$) and believe they were in the right job (job fit; $r = .74$).

	Alpha coefficient α	Intent to quit $\alpha = .72$	Job satisfaction $\alpha = .88$	Pay satisfaction $\alpha = .80$	Organisation commitment $\alpha = .88$
Work characteristics					
Job autonomy	.73	0.07	-0.02	-0.09	-0.06
Role ambiguity	.80	-0.32	0.35	0.19	0.32
Routine	.80	-0.19	0.33	0.14	0.22
Sufficient resources	.85	-0.38	0.35	0.31	0.38
Task interdependence	.83	-0.01	0.08	0.06	0.07
Organisational learning dimensions					
Continuous learning	.77	-0.41	0.38	0.31	0.47
Inquiry and dialogue	.79	-0.34	0.35	0.25	0.44
Team learning	.77	-0.34	0.32	0.25	0.43
Strategic leadership	.81	-0.35	0.34	0.23	0.45
Embedded system	.74	-0.25	0.22	0.19	0.34
Empowerment	.75	-0.36	0.33	0.31	0.42
System connect	.73	-0.35	0.33	0.30	0.45
The Matrix					
Creative collaboration	.86	-0.21	0.20	0.12	0.36
Matrix ambiguity	.79	0.30	-0.22	-0.20	-0.27
Matrix confusion	.70	0.14	-0.09	-0.12	-0.18
Well being and morale					
Co worker support	.91	-0.28	0.27	0.24	0.27
Job fit	.83	-0.55	0.64	0.37	0.74
Job motivation	.90	-0.14	0.39	0.03	0.24
Neglect	.79	0.30	-0.44	-0.14	-0.36

Sacrifice	.76	-0.55	0.53	0.56	0.52
Cynicism	.86	0.40	-0.34	-0.32	-0.38
Emotional exhaustion	.91	0.36	-0.39	-0.24	-0.31
Work overload	.85	0.17	0.02	-0.13	-0.08
Proactive behaviours					
Workgroup voice	.92	-0.33	0.33	0.23	0.35
Organisational voice	.75	-0.37	0.34	0.36	0.41
Career and performance management					
Career commitment	.83	-0.52	0.74	0.24	0.56
Career development	.88	-0.39	0.50	0.47	0.41
Feedback available	.81	-0.25	0.25	0.15	0.27
Feedback delivery	.88	-0.30	0.29	0.27	0.28
Promote	.77	-0.38	0.42	0.49	0.34
Job Secure	.84	-0.21	0.26	0.16	0.26

11. CONCLUSION

This research report represents the findings from an initial qualitative study that informed a large scale and representative study of CSIRO employees that received in excess of 2,100 responses in May 2010. The findings from both studies highlight concerns among CSIRO staff with the operation of the CSIRO matrix organisational structure and the centralisation of support services.

The research also found that a number of factors in the CSIRO work environment were constraining the organisation's ability to foster the creativity and innovation of CSIRO staff. Staff expressed frustration with their careers and with career development opportunities. Many staff also believed they had limited input into management decisions and lacked control over resources at the local level. They also expressed a desire for more mentoring opportunities and enhanced feedback on their performance from supervisors. In addition, employees reported moderate levels of emotional exhaustion.

These findings suggest that more efforts are needed from CSIRO leaders to build trust between management and staff. Potential improvement strategies include making adjustments to the CSIRO matrix organisational structure, improving career management and mentoring opportunities, enhancing the provision of feedback by supervisors, and making a stronger commitment to organisational learning.