ICT in the Australian Construction Industry

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The Project & its Partners

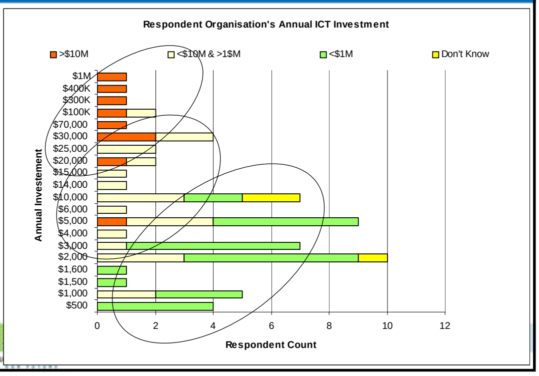
Scope

- Web-based national survey (Australia, November 2003) of non-building, building (commercial/industrial), and residential sub-sectors.
  - The types of ICT being used across the construction industry sub sectors and for various project sizes.
  - The preferred modes of ICT training amongst construction industry employees and their organisations.
  - The drivers and barriers to the uptake of ICT on construction projects.

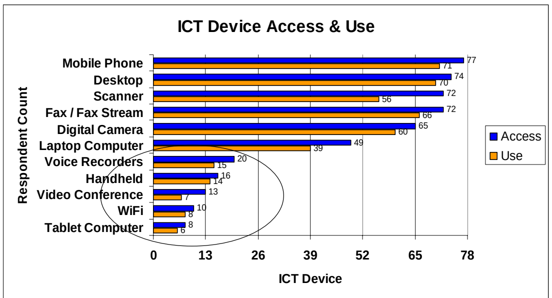
Respondent Profile

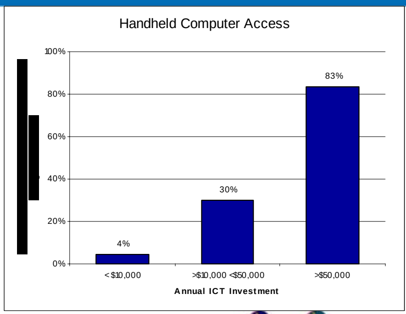
- 92% of respondents were from the East Coast of Australia (predominantly Brisbane, Sydney, Melbourne).
- 78% of respondents had some form of tertiary qualification.
- 71% of respondents were in some form of managerial role within their organisation.
- All respondents had greater than 1 year and 54% had at least 10 years service in their present position.
- 63% of respondents were from a contracting organisation and 29% were from a consultant/specialist organisation with the remaining 12% being spread between Supplier and Client organisations.
- 90% of respondents organisations had annual turnover's of less than \$5M and 10% of respondents organisations had annual turnover's of \$100M+ or greater.
- 80% of respondents were from the building (vertical) construction sub-sector.

Current ICT Status: Organisational Investment



ICT Device Use & Access

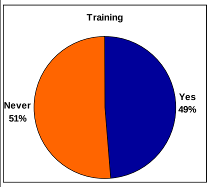




ICT Training

- Important issues:
  - Official ICT training participation
  - Company support for training (allowance for time or workload flexibility).
  - Training mode preference.
  - Competence expectations.

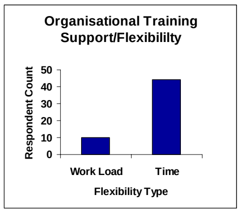
Official ICT Training



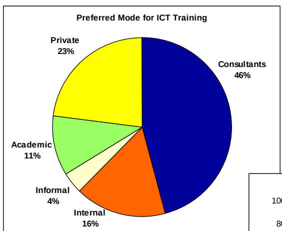
- When comparing responses by company classification:
  - Subcontractors were more likely to have never undergone official training.
  - Larger ($100M+ turnover) organisations had a higher proportion of respondents indicating they had undergone official training

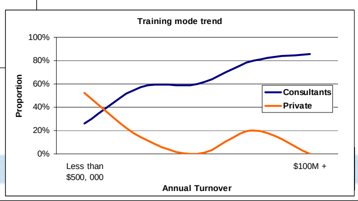
Organisational Support & Flexibility

- Was time made available to attend ICT training?:
  - Yes in over 50% of cases.
- Was workload reduced to allow for this taking of company time?:
  - Generally not.



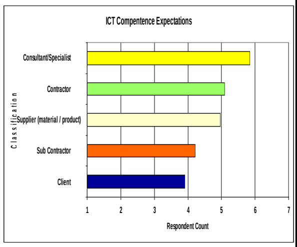
Training Mode Preferences



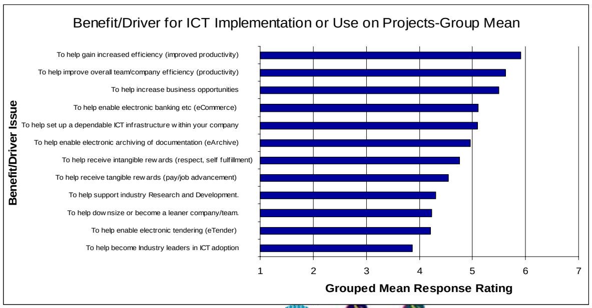


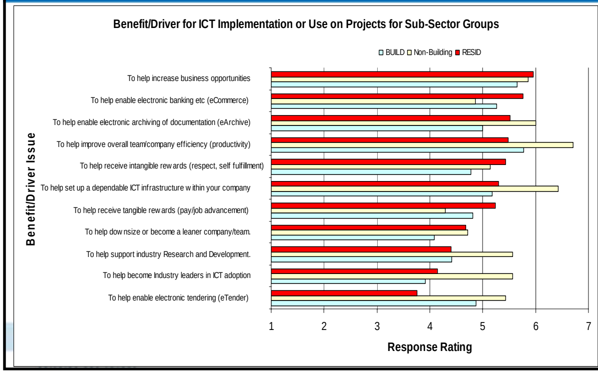
Competence Expectations

- Consultants were expected to have a greater level of ICT competency than all other team members. Contractors and Suppliers were rated next with Clients and Sub-contractors rated lowest (an average level of competence was still expected).
- Those in managerial roles tended to expect a higher competency from all team members than did other groups.
- Subcontractors tended to expect a greater level of competency from themselves than did other groups. They also expected a higher level of competency from contractors than other groups.



Benefits & Drivers

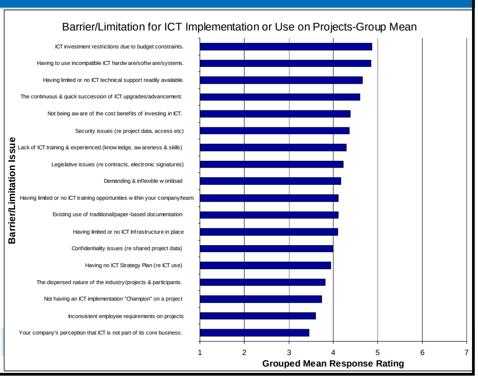


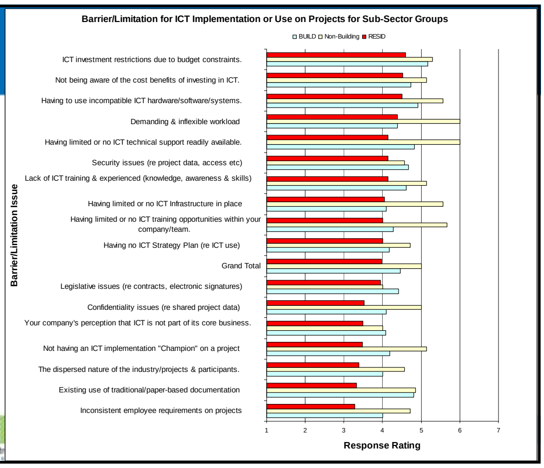


- Non-building sector:
  - 'to help set up dependable ICT infrastructure' was more influential than 'to help increase business opportunities' where the overall mean response showed a different result.
  - Also rated (4th highest) eArchive capability more influential than did the group mean.
  - All issues raised had higher than average influence response for the non-building sub-sector.
- Building construction (commercial/industrial) sector:
  - 'to help gain increased efficiency (improved productivity)' and 'to help improve overall team/company efficiency (productivity)' were most influential benefits/drivers.
  - Other issues, which have a strong influence for the sector, in order of influence are 'to help increase business opportunities'; 'to enable electronic banking etc (eCommerce)'; and 'to help set up a dependable ICT infrastructure within your company'. This consistent with the grouped mean response.

- Residential sector:
  - 'to help gain increased efficiency (improved productivity)' and 'to help increase business opportunities' were the most influential benefits/drivers.
  - Other issues, which have a strong influence for the residential sub-sector, in order of influence are 'to enable electronic banking etc (eCommerce)'; 'to help enable electronic archiving of documentation (eArchive)'; and 'to help receive intangible rewards (respect, self fulfilment)'.
  - This sector rated the increase in business opportunity benefit/driver as more influential than the other sub-sectors.

Barriers & Limitations





- Non-building construction sector:
  - 'having limited or no ICT technical support readily available' and 'demanding and inflexible workload' were seen as the greatest barrier influencing the decision to implement or use ICT on projects.
  - 'ICT investment restrictions due to budget constraints' was not as highly influential for this sub-sector than for the other two.
- Building construction sector:
  - 'ICT investment restrictions due to budget constraints' and 'having to use incompatible ICT hardware/software/systems' were the most influential barrier.
  - Other issues, which have a strong influence for this sub-sector, in order of influence were 'having limited or no ICT technical support readily available'; 'existing use of traditional/paper based documentation'; and 'the continuous & quick succession of ICT upgrades/advancement'.

- Residential sector:
  - 'the continuous & quick succession of ICT upgrades/advancement' and 'ICT investment restrictions due to budget constraints ' were the most influential barrier.
  - Other issues, which have a strong influence for this sub-sector, in order of influence were 'not being aware of the benefits of investing in ICT'; 'having to use incompatible ICT hardware/software/systems'; and 'demanding and inflexible workload'.

Conclusions

- Higher ICT investment was observed for higher annual turnover organisations.
- Higher ICT investment organisations had a higher rate of use and access to emerging or innovative ICTs such as handheld and tablet computers, video conferencing and Wi-Fi devices.
- The most significant barrier or limitation to the implementation or use of ICT on projects was budget constraints.
- Lower turnover construction organisation respondents were less likely to have undergone ICT training.
- Lower turnover construction organisations were less supportive of ICT training through flexible workload and time allocation.

- Higher turnover organisations had a greater preference for the professional consultants mode of training and conversely, lower turnover organisations had a greater preference for self-learning.
- Technical issues such as interoperability and not having an ICT professional on site or within ready access were found to be strong influential barriers to the uptake of ICT on projects for most respondents.
- The overriding driver for ICT uptake for respondents was to improve their operational performance through improved productivity at both the personal level and the organisational /team level.
- Improved business opportunity was also highly influential for respondents.