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# Organisational Skill Sets For the Information Professional

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**Abstract:**

*There has been a recent call for information professionals to possess work skills that span many disciplines. Skyme & Earl(1989) mapped out the characteristics of the business worker and saw technical, business, organisational and personal skills as being important. Organisations are devolving in span of operations and downsizing in personnel levels. Technology is under constant change and information professionals are being asked to cope with the need to develop differing skill sets. Against this scenario our survey mapped the organisational skill sets of the information systems, information services and managerial professional within a range of commercial and academic areas. The results of this survey showed that of the eleven organisational skill sets studied only one, being actively involved with information users, showed a significant difference (ANOVA) between the three groupings.*

*Keywords:* Information Systems, Information Services, Organisations, Skills, Survey

## INTRODUCTION

Skyme and Earl (1989) described the atypical business worker as having business literacy, technical competency plus the organisational astuteness to make business appropriate information systems (IS) use and management decisions. In 1991 the U.S. Secretary of Labor released the SCANS report which described a vision of the specific competencies that will be required by 21st century workers. These included the ability to understand complex systems including social, organisational and technological systems. Inherent in these reports are the skill formation of the personnel that handle information within organisations. Broadbent et al (1992b,209) and Opie (1993,442) found that the numbers of users actually utilising data and information are increasing, and proposed that the skills required by information managers included networking and project management on the technical side, and business redesign and quality management on the business side. Both Watson and Brancheu (1991,222) identified the continued evolution of end user computing as important issues. Broadbent also indicated that the level of information technology awareness in managers (non I/S) was important and that educating business managers was an area of tension for the information systems area. Broadbent's study focussed primarily upon the information systems professional within organisations.

Another study by Broadbent and Nicholson et al (1992a) looked at the middle management function within organisations. This study analysed the information content and information delivery systems used by this management function. Several themes emerged including the inability of middle management to access information in an appropriate format for their needs and the gap between information systems and business management goals. A study by Klobas (1991,150) looked at how information services professionals and computing professionals obtained information. By its nature this comparative study recognised that the tribal groupings of information professionals can be compared and studied as to the way they view and use information. These studies confirm the burgeoning nature of information processing in organisations and the necessity for information professionals to expand their skill sets. Information professionals now are required to work in areas other than their own expertise.

Three tribal information professional groupings are studied in this research project; information systems professionals (Broadbent,1992a), management professionals (Broadbent et al,1992b,210), and information services professionals (Klobas,1994,155).

## ORGANISATIONAL SKILLS

Eleven organisational information skills were identified and categorised into the SCAN schema (Scan, 1992). The SCANS report identified four specific organisational competencies (with a scheme for associated organisational skills);

- monitoring organisational performance (b,c,i)
- correcting organisational performance (e,g,j,k)
- improving organisational systems (c,e,g,j,k)
- designing new organisational systems (a,d,e,f,h,i,k)

The complete list of organisational skills are:

a) Be conversant with **emerging** organisational information systems.

b) Act as a **liaison** between information source and information user within the organisation.

c) Have knowledge of the importance of **informal** information flows within the organisation.

d) Understand the **strategic** nature of information.

e) Understand the need for greater **integration** of information across the organisation.

f) Be aware of the need for information **flows** across organisation boundaries.

g) Have the ability to act as a **change agent** within the organisation.

h) Take part in formal **planning** within the organisation.

i) Be actively involved with information **users** from diverse areas of the organisation.

j) Be actively involved with **quality assurance** programs within the organisation.

k) Be aware of **changing** organisational information processes.

## RESEARCH QUESTIONS

Traditionally the information systems, managerial and the information services person in organisations are involved the creation, use and storage segments of the organisational information cycle. There are several research questions implicit in this paper:

- how do the information groupings rate the importance of the organisational skills?
- do the information groupings have organisational skills that overlap?

More formally, this paper aims to ascertain if there are significant differences between the organisational skill sets of the information systems, management, and information services professional. Results are presented as mean with standard deviation with Levene, ANOVA, Multiple range and Bonferroni tests providing further analysis.

## SURVEY

### Description

The survey was conducted by questionnaire and commenced with a definition of an information professional as a person who creates, uses or stores information in an organisation. No previous survey on organisational skill sets was found. Respondents could remain anonymous. Eleven organisational skills required by information professionals were outlined and a seven point Likert scale (where 1 was marked "Strongly Agree" and 7 was marked "Strongly Disagree") was used. The scale was centred with 4 being marked "Neither Agree or Disagree". The questionnaire was piloted with twenty information systems, information services and management academics. No commercial piloting was undertaken.

### Sampling

The questionnaire spanned both academic and commercial environs. Three groupings of information professionals were surveyed. The information systems professional could range from user support personnel through analyst/programmer to business analyst. The information services professional was defined as the information provider or recorder in organisations. This could range from librarian through to records manager. The management professional was defined as a professional who operates in the management sphere. This could range from line manager to executive manager. Academic groups were sampled with a random stratified sample by discipline and state. All academics were

defined as working in an Australian University as defined in the Journal of Australian Academics(1993). Commercial groups were sampled by systematic stratified sample by industrial groupings. The companies were selected from the 1993 Business Review Weekly and three surveys were sent to the information professional groupings in the organisation. The three leading companies in each of 22 separate industry groupings were selected. Kompass (1993) and Jobson's 1992/1993 Yearbook (1994) were used to provide addresses. It should be noted that two management responses were sought, that of the Human Resources Manager and the Accounts Manager(finance).

## Response

The survey was encompassing in length, but of the returned completed surveys 100% were useable. It should be noted that 15% of the respondent companies replied that they have company policies that restrict their response to surveys and that another 5% were returned unanswered. There were two mailouts, one in November 1993, and the follow-up in February 1994. There were 480 surveys mailed and the response rate was 24% (N=116). This response was considered satisfactory.

# RESPONDENTS

## Demography

Characteristics of the respondents are presented in Tables 1, 2 & 3.(available on request)

# RESULTS & DISCUSSION

## Comparisons between groupings

Table 4. Mean Ratings, Standard Deviations by Group (N=116, significance < .05)

| Skill | Organisational Skills | Overall Mean | Std Dev | Inf Systems (n=31) Mean | SD | Inf Services (n=51) Mean | SD | Management (n=34) Mean | SD |
|---|---|---|---|---|---|---|---|---|---|
| a. | Emerging systems | 2.4 | 1.1 | 2.1 | 1.0 | 2.5 | 1.1 | 2.4 | 1.1 |
| b. | Liaison role | 1.9 | 1.1 | 2.0 | 1.1 | 1.8 | 1.0 | 2.1 | 1.3 |
| c. | Informal flow of information | 1.9 | 1.1 | 2.1 | 1.0 | 1.9 | 1.1 | 1.8 | 0.9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| d. | Strategic value of information | 1.8 | 1.0 | 2.1 | 1.2 | 1.7 | 0.8 | 1.7 | 1.0 |
| e. | Integration | 1.9 | 1.0 | 2.2 | 1.1 | 1.8 | 1.0 | 1.7 | 0.8 |
| f. | Cross organisational flow | 2.4 | 1.1 | 2.6 | 1.2 | 2.4 | 1.2 | 2.1 | 1.0 |
| g. | Change agent | 2.3 | 1.1 | 2.7 | 1.2 | 2.2 | 1.1 | 2.2 | 1.0 |
| h. | Planning role | 2.0 | 1.0 | 2.2 | 0.9 | 1.9 | 0.9 | 1.8 | 1.0 |
| i. | Information users | 1.9 | 1.0 | 2.3 | 1.1 | 1.7 | 0.8 | 1.8 | 1.0 |
| j. | Quality assurance | 2.5 | 1.2 | 2.9 | 1.3 | 2.4 | 1.2 | 2.2 | 1.0 |
| k. | Changing business processes | 2.0 | 1.0 | 2.3 | 1.0 | 1.8 | 0.9 | 1.9 | 1.0 |

Table 5. Ratings by Group using one way ANOVA and Bonferroni test. **(N=116)**

| Multiple Bonferroni Test .05 | | ANOVA F Factor | LSD F Prob sig < .05 | Levene Test 2 tail Sig. | range sig < | sig < .05 |
|---|---|---|---|---|---|---|
| Skill | Organisational Skills | | | | | |
| a. | Emerging systems | 0.8 | .44 | .245 | ns | nss |
| b. | Liaison role | 1.1 | .31 | .297 | ns | nss |
| c. | Informal flow of information | 0.9 | .39 | .319 | ns | nss |
| d. | Strategic value of information | 1.6 | .21 | .454 | ns | nss |

| | | | | | |
|---|---|---|---|---|---|
| e.<br>nss | Integration | 1.9 | .15 | .363 | ns |
| f.<br>nss | Cross organisation flow | 1.3 | .26 | .258 | ns |
| g.<br>nss | Change agent | 2.1 | .13 | .512 | ns |
| h.<br>nss | Planning role | 1.4 | .32 | .958 | ns |
| i.<br>(1,2) | Information users | 3.5 | .03 | .522 | (1,2) |
| j.<br>nss | Quality assurance | 3.0 | .05 | .713 | (1,3) |
| k.<br>nss | Changing business<br>processes | 1.9 | .15 | .652 | ns |

Table 4 gives the raw ratings for the importance of the eleven skill sets. The organisational skill considered most important was the *Understand the strategic value of information* (1.8, 1.0). This was more important with the information services and the management groups. A group of organisational skills were then ranked: *Being involved with information users; Understanding the importance of the integration of information; Aware of the importance of informal information and the Importance of acting in a liaison role*. Two additional findings illustrate the difference between the groupings. The information systems group (2.1, 1.0) ranked *Importance of emerging systems* more important than both the services (2.5, 1.1) and management (2.4, 1.1) groups. This can be viewed as the systems group being at the forefront of the development of emerging technologies. This can be explained by the technology bias of the systems group. The management group (2.1, 1.0) ranked *Cross organisational information flows* as more important than the services (2.4, 1.2) and the systems (2.6, 1.2) groups. This can be explained through the business bias in this grouping. Similar results are obtained for the *Quality assurance* skills.

**Differences between tribal groupings**

Analysis of variation (one way ANOVA), Levene test and Bonferroni test were performed between the three groupings and are presented in Table 5. The F prob for the *Information users*(F=.03) and *Quality assurance*(F=.05) skills sets allow us to state that these are the only two skill sets where we can state that the population means are probably not equal. Using multiple range comparison procedures we see there are two groupings that have significant (p<.05) differences in mean ratings. The groupings that

differ significantly are the systems and services respondents over the *Information users* and the systems and management respondents over the *Quality assurance* skill set.

Note:

      1. Information Systems
      2. Information Services
      3. Management
      ns No two groups are significantly different at the .05 level (Multiple range test)
      nss No two groups are significantly different at the .01 level (Bonferroni)

Once the Bonferroni test is applied to remove comparison variations there is one group that is significantly different: *Be actively involved with users from diverse areas of the organisation*. In this case the systems respondents viewed this organisational skill as less important than the services respondents. This could be interpreted as systems personnel having a focus that relates to the development of the systems and not concerned with the users of the system. The services professional by nature has a customer focus. Another possible explanation is the systems professional not having the interpersonal skills necessary to deal with users in organisations. Of the possible 33 matches in skill sets only two showed significant difference.

## CONCLUSION

The need for this project stems from the growing recognition that organisations and their information systems are evolving rapidly. Technology is under constant change and informational professionals are being asked to cope with change on several different fronts. Against this scenario our survey endeavours to map the organisational skill sets of the information professional within a range of commercial areas. There is evidence presented above that the three traditional information professional groupings do have organisational skill sets that overlap and that the divide between technical and business boundaries is blurring. The results show that there are two areas where there is significant difference between the organisational skill sets of the three information professional groupings. These results could have significance in the development of education courses for the three groupings, perhaps a move towards the hybrid information professional.

**REFERENCES** (available on request)