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Characteristics of innovators in the building market

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4.4 THE QUESTIONNAIRE

A copy of the questionnaire is reproduced in Appendix 3. Following on the comments and hypotheses above, the questions are self-explanatory. The categorisation of innovativeness according to the definition is done via questions 20 and 23. Opinion leadership is tested in questions 72 to 78. The reduced Sociomonitor questionnaire is reproduced in questions 79 to 102.

In order to speed up the answering time, given the large number of characteristics being tested, all questions were closed-ended, with most responses requiring the marking of a scale. The meanings of responses on these scales were explained as clearly as possible up front in a letter. Some questions (eg. age) required a numeric response.

4.5 LIMITATIONS OF THIS STUDY

This study suffers from all of the limitations of personal perception studies. The responses will be influenced by the individual's subjective understanding of the questions, a tendency to answer "correctly", whatever that may mean to the individual, as opposed to honestly. Many of the questions being asked relate to activities either significantly long ago, or possibly outside the experience of the individual, and the effect of inexperienced replies is difficult to assess.

Some of the limitations in the selection of possible respondents have been noted above. While every effort has been made to select as wide a spectrum of subjects as possible (a questionnaire was sent to every identified potential subject), it is possible that some segment of the population has been missed.

In addition, there is the potential for some selection process to govern the tendency to complete and return the questionnaire. The content of personal questions could heighten this tendency. Three responses were received uncompleted, with specific objection to this.

All of these limitations are generic to studies of this nature [Green and Tull, 1978]. No references could be found as to studies like this in industrial, profession-dominated populations, and so the influence of these factors is difficult to assess. It is the opinion of this author that studies of this

nature will lead to a more complete understanding of industrial buyer behaviour, and industrial marketing in general.

CHAPTER 5

ANALYSIS OF RESULTS

5.1 CATEGORISATION OF THE POPULATION

As noted in the previous chapter, the population has been categorised along three schema: innovators, using the new definition; opinion leaders, using the King and Summers (1970) questions; and personal innovators, using the Sociomonitor questionnaire. In all three cases categorisation was done by ordered quartiles, in other word "innovators" are the 25% of the population most innovative according to the definition. In Chapter 3, it was noted that most studies categorised innovators as the top 16% of the population. In this study it was decided to use quartiles for a number of reasons. Firstly, given the small number of respondents it was felt that a group of only 16 individuals would be less statistically meaningful. Secondly, this study is equally interested in the characteristics of opinion leaders, and there is no general consensus on the categorisation of opinion leaders. Thirdly, from a marketing strategy viewpoint, it may well not be the top group of each schema who are of interest, and the use of equally sized groups would be more easily visualised.

Both the test for opinion leadership and personal innovativeness provide numerical scores, by which categorisation into quartiles is simple. With the test for innovativeness, a two-point sort was

carried out, primary sort on question 20, and secondary sort on question 23. For question 20 ("choose a statement representing your experience with IBS") 8 respondents answered '1' ("We use them often") , and 38 answered '2' ("We have used them on occasion"). The 38 were sorted on question 23 ("how long ago did you first try IBS"), with those who had used them first being categorised into the upper quartile. This system was used in placing respondents into the other quartiles. In this report the following convention will be used for referring to the categories:

I1, I2, I3, I4 - Upper to lower quartiles of innovators, according to the new definition, respectively.

O1, O2, O3, O4 - Upper to lower quartiles of opinion leaders, by self-report.

P1, P2, P3, P4 - Upper to lower quartiles of innovators, according to the Sociomonitor questions.

"Innovators", "Opinion leaders", and "Personal innovators" - I1, O1 and P1 respectively.

5.2 ANALYSIS OF BULK DATA

Appendix 4 contains a full tabulation of frequencies of response to all categorical questions, and means for numerical responses. This chapter will summarise these data. All comments refer to the reported perceptions of the respondents. This sub- chapter provides a picture of the average responses of the population. The next two sub-chapters will explore the differences in perception of the categories.

A. THE DECISION MAKING UNIT

The mean number of people involved in the DMU is 4.6. The mean status occupied in the DMU is 2.7, or somewhere between "normal influence" and "high influence". Average spending is 3.7, or about R5 m per annum.

B. TENDERING BEHAVIOUR

There is a high tendency to always issue closed tenders (tenders accepted only from a limited group of tenderers), and to never negotiate tenders. It must be remembered that most of the respondents are employees of State or semi- State organisations, which have standard tendering procedures, under the jurisdiction of the Tender Board, and so have limited flexibility in both of these areas.

Respondents were neutral in terms of acceptance of alternate tenders (tenders received in building systems other than conventional).

C. POSSIBILITY OF CONTRIBUTION BY IBS

Respondents saw an above neutral potential for contribution by IBS in this market (a mean of 5.23 on a nominal scale of 1 to 7).

The relative potential for contribution in the segments were all above neutral with the exception of self-help housing. Self-help refers to housing schemes in which the majority of the labour is supplied by the final occupier. The relative potential for contribution seen (on a scale 1 = low , 7 = high contribution) was:

	MEAN
Fast projects	5.37
Building on problem soils	5.14
Low cost housing	4.82
Distant projects	4.52
Self-help housing	3.98

The population for this study was purchasers of housing projects: only one response was received from a potential organiser of self help housing schemes, and so the population could possibly be inexperienced in this area, thus distorting this result.

The mean saving required by respondents to consider tenders in IBS was 13%. There were only 16 out of 105 responses to this question, and so the result cannot be regarded as indicative. In discussions following the dispatch of the questionnaire, it was indicated that this question had been poorly phrased, and was

generally misunderstood by respondents.

D. VIEW OF ORGANISATIONAL CULTURE

The mean view of the population of their organisational culture is shown in order of deviation from neutral in the following table. Opposites to the view are shown in brackets. The deviation of the mean [illegible] from the neutral point of 4 (scale was from 1 to 7) are shown [illegible]:

		DEVIATION
Powerful	(Weak)	2.10
Careful	(Careless)	1.84
Structured	(Informal)	1.79
Leading	(Following)	1.11
Established	(Growing)	0.59
Warm	(Cold)	0.57
Modern	(Traditional)	0.15

E. USAGE OF IBS

For question 20, 8 (7.7%) responses were received for category 1 ("we use IBS regularly"). 81 (78%) responses were received for categories 1, 2 or 3 ("we use them often", ".. on occasion", or ".. have used them and may try again"). The level of experience in IBS is relatively high. A low response was received to the question relating to timing of exposure and trial of IBS. Means and responses to the questions were as follows:

	YEARS AGO	RESPONSES OUT OF 105
First heard of IBS	11.5	34
First evaluated IBS	7.5	57
First tried IBS	6.5	47

F. PERCEPTION OF INNOVATIVE PRODUCT CLASS

All of the means of responses regarding the product attributes tested in questions 24 to 31 are relatively neutral (lie between '3' and '5' for a scale '1' to '7').

G. PERSONAL DEMOGRAPHICS

The average age of the respondents is 44.9 years. The median education is a Bachelors degree, held by 65 out of 102 respondents, with 21 respondents holding lower levels of education, with 9 holding Honours degrees, 5 Masters degrees, and 2 Doctorates.

The majority of respondents were Architects (53 out of 101), followed by Engineers (28) and Quantity Surveyors (8).

Average earnings were class 3.7, or about R 40 000 pa.

H. COMMUNICATION BEHAVIOUR

Most of the respondents belong to professional organisations and attend some functions at these organisations:

	RESPONDENTS
Belong to no organisations	11
Belong to one organisation	32
Belong to more than one organisation	64
Do not attend functions	36
Attend once a year	18
Attend 2 to 5 times a year	43
Attend more than 5 times a year	8

A list of all journals relating to the field was given in the questionnaire, and respondents rated each on a scale of '0' to '4' ('0' = never receive it; '3' = see it regularly and find it very informative). It was originally hoped to test receipt and informativeness separately, but this was reduced to a single question to reduce the length of the questionnaire. Each respondent was then given a score for "journal-usage", which was the sum of these scores. For the 26 journals the mean score was 15.2, and 54 respondents scored 15 or less, 46 scored 16 - 30, and 4 scored above 30. Appendix 5 summarises the usages of individual journals.

Questions 32 to 34 tested attitudes on observance of the innovative behaviour of other firms. The following statements were scored on a scale '1' (agree) to '7' (disagree).

	MEAN
We must keep up with new product developments.	1.4
It is very informative to see which other companies are using IBS.	1.8
Other companies may use IBS for reasons which do not occur in my organisation.	1.9

There appears to be support for the notion that individuals do keep a watch on new products, and the innovative behaviour of other firms, but that it is felt that the circumstances in which IBS may be useful are specific, and usage by other companies may not be influential.

I. GATHERING OF INFORMATION

Questions 67 to 71 test the respondent's attitudes to sources of information on IBS. All of these sources were seen as useful with the exception of the general media. The order of importance (on a scale 1 - not useful to 7 - very useful) were:

	MEAN
Other professionals	5.70
Journals	5.16
Trade fairs	5.07
Salesmen	4.23
General media	3.40

This order is significantly different to that shown in the literature, where it is claimed that salesmen were the most important sources of information. This can probably be explained by the fact that most other studies have concentrated on purchasing agents in manufacturing industries. As noted in chapter 3, purchasing agents are not the only influential individuals, and the dominance of professionals in this market may be the factor that has produced a different pattern of information gathering.

J. CONCLUSIONS

The data appear to refute a number of the conclusions in the theory. There is evidence of a network of informal communications in this market. Most respondents belong to professional organisations, and regard other professionals as the most important sources of information, followed by journals, trade fairs and industry salesmen. The general media are not an important source of information.

It was not tested whether professionals within the respondent's organisation, or outside, were the sources of information. Nevertheless, most respondents reported that they regarded it as important to observe the innovative behaviour of other firms, and to keep up with new product developments.

One of the general conclusions that were confirmed was that most respondents believed that the specific reasons for which other

firms had adopted innovative systems may not be applicable to their organisation. In other words, the simple adoption of innovative systems is not likely to lead to the "ripple-effect" by which normal diffusion takes place. The marketing consequences seem to be that marketers must clearly segment their markets along the lines of the specific relative advantage offered by their product, and not disseminate information regarding the reasons for which their product has been adopted.

5.3 UNIVARIATE ANALYSIS OF INDICATIVE CHARACTERISTICS

While the above analyses and conclusions add to the broader aims of this study, the specific hypotheses of this study relate to the differences between the categories and the rest of the population. This will be examined here, and the next sub-chapter.

A. SUMMARY OF RESULTS

The majority of data are categorical, and while care was taken to make the intervals between responses as equal as possible (by explaining the meaning of each response), the data should still be regarded at nominally-scaled.

Analysis of data was done by reducing the scales (usually 7 - point scales) into sub-groups, and the responses were frequency cross-tabulated into contingency tables, with the sub-groups on one axis, and the category (eg. innovators) and the rest of the population on the other. The significance of the difference was then tested using the chi-square test [Green and Tull, 1978]. An example is shown below:

Q1 - In the making of decisions about building contracts, I usually have the following position : (5 point scale 1 = "able to veto" to 5 = "no involvement")

RESPONSES	1 or 2	3, 4 or 5
Opinion leaders	17 (12.8)	9 (13.1)
Rest of Pop.	35 (39.1)	44 (39.9)

Chi-square 3.14

The figures in brackets are the numbers predicted by no relationship between Q1 responses and opinion leadership. Numbers indicate that more opinion leaders are of high status than would be predicted by this assumption. The chi-square statistic of 3.14 (1 degree of freedom) indicates a significance of about 8%.

The data were cross-tabulated using 3- and 4-group-collections. In no cases were these collections found to be of more significance than the 2-group-collection. All questions are reported on 2 group collections. In each case a decision had to be made as to at which response category to divide the responses. This was done on the following basis: Division was done such that no cell prediction was less than 5 responses (at which point the chi-square statistic becomes unreliable), and so that the division point was as close as possible to the population mean. Where a choice was still possible, the division that produced the most significant results was chosen.

The results may show that the opposite of the hypothesis being tested is true. Table 5.1 summarises the results by posing a statement representative of the hypothesis being tested. All statements take the form of a proposed difference between each of the three categories (innovators, opinion leaders, and personal innovators), and the rest of the respondents. The chi-square statistic produced by the cross-tabulation is then tabulated against these statements. In the case where the results show that the opposite of the statement is true, the chi-square statistic is given a negative sign.

These results are then graphically presented in figures 5.1, 5.2, 5.3 and 5.4. The following comments are pertinent to these figures:

- The same statements have been listed in the left column.
- The chi-square statistic has been plotted for each of the categories: I - innovators; C - opinion leaders; P - personal innovators.
- Where chi-square statistics exceed 4.5 unsigned (ie, where the test is better than 3% significant) bars have been truncated at 4.5 in order to make lower results more visible.
- Vertical lines have been drawn at 5% (3.14) and 10% (2.71) significance levels.

B. INNOVATORS

Innovators are defined as those individuals who perceive their organisations as having adopted innovative building systems earlier than the rest of the population. The data indicate that these individuals differ from the rest of the population in the following ways:

- They see fewer people in the DMU. They are more likely to accept alternate tenders;
- They see IBS as having less to contribute on distant projects and self-help housing;
- They require a smaller saving in order to consider a contract in IBS;

- They see their organisations as more structured, leading and careful;
- They are more likely to have used IBS, heard of, evaluated and tried these systems earlier. This is to be expected, as this is the definition of innovativeness;
- They believe that IBS are more compatible with their organisations, less problematic to implement, better understood, less complicated, easier to test, less risky to attempt, and easier to post-judge (the latter is not significant at the 10% level);
- They are younger, and earn more;
- They regard journals, and the general media, as less useful sources of information. At the same time they make significantly more use of journals.

The above differences indicate that the definition of innovativeness has utility, in that it divides the population in a significant way and proves hypothesis H1: innovators have significantly different characteristics to the rest of the population.

Smaller decision making units probably allow easier decision making when the opportunity for innovation arises. It could be expected that innovators would be more likely to accept tenders in IBS: they would not have become adopters had this not been true. In addition experience with the product class is likely to decrease the risk perception. The same comment can be made as to

the tendency for innovators to require lower savings to consider contracts in IBS.

For the same reasons, as predicted by the literature, the innovator has perceptions of the product class which are likely to facilitate adoption.

Innovators do not have significantly higher contact with professional organisations, but do make more use of journals. At the same time they consider journals as less important sources of information. Most of the journals tested are not professional journals, but advertising vehicles, but innovators do still not show higher usage of the professional journals. It must be concluded that, while there is evidence that an informal communication network does exist, this study has not shown in which way it contributes toward adoption, except that innovators are likely to gather more information.

Organisational culture, or the perception of this, is significant in the innovation process. This will be discussed further in the next sub-chapter.

C. OPINION LEADERS

The way in which opinion leaders differ from the rest of the population are:

- They occupy higher status in the DMU;
- They are more likely to accept tenders in IBS;

- They see their organisations as more modern, growing and leading;
- They are more likely to have used IBS;
- They see IBS as more compatible with their organisations;
- They agree that other companies may use IBS for reasons not pertinent to their firm;
- They find journals to be more useful sources of information.

Once again, opinion leaders are shown to have significantly different characteristics to the rest of the population. They are more open to consider innovation. As could be expected, they occupy higher status in their organisations, and regard the journals as important sources of information.

D. PERSONAL INNOVATORS

Personal innovators, those individuals who display the personality characteristics generally associated with innovation in the broader public, differ from the rest of the population in the following ways:

- They see fewer people in the DMU;
- They are more likely to negotiate contracts, and are less likely to issue closed tenders;
- They see their organisations as more warm;
- They see IBS as less complicated, less dificult to test, and less risky to attempt;

Comparison of Groups with Rest of Population

Groups: (I) Innovators; (O) Opinion Leaders; (P) Personal Innovators
According to respondent's perception, the group or organisation:

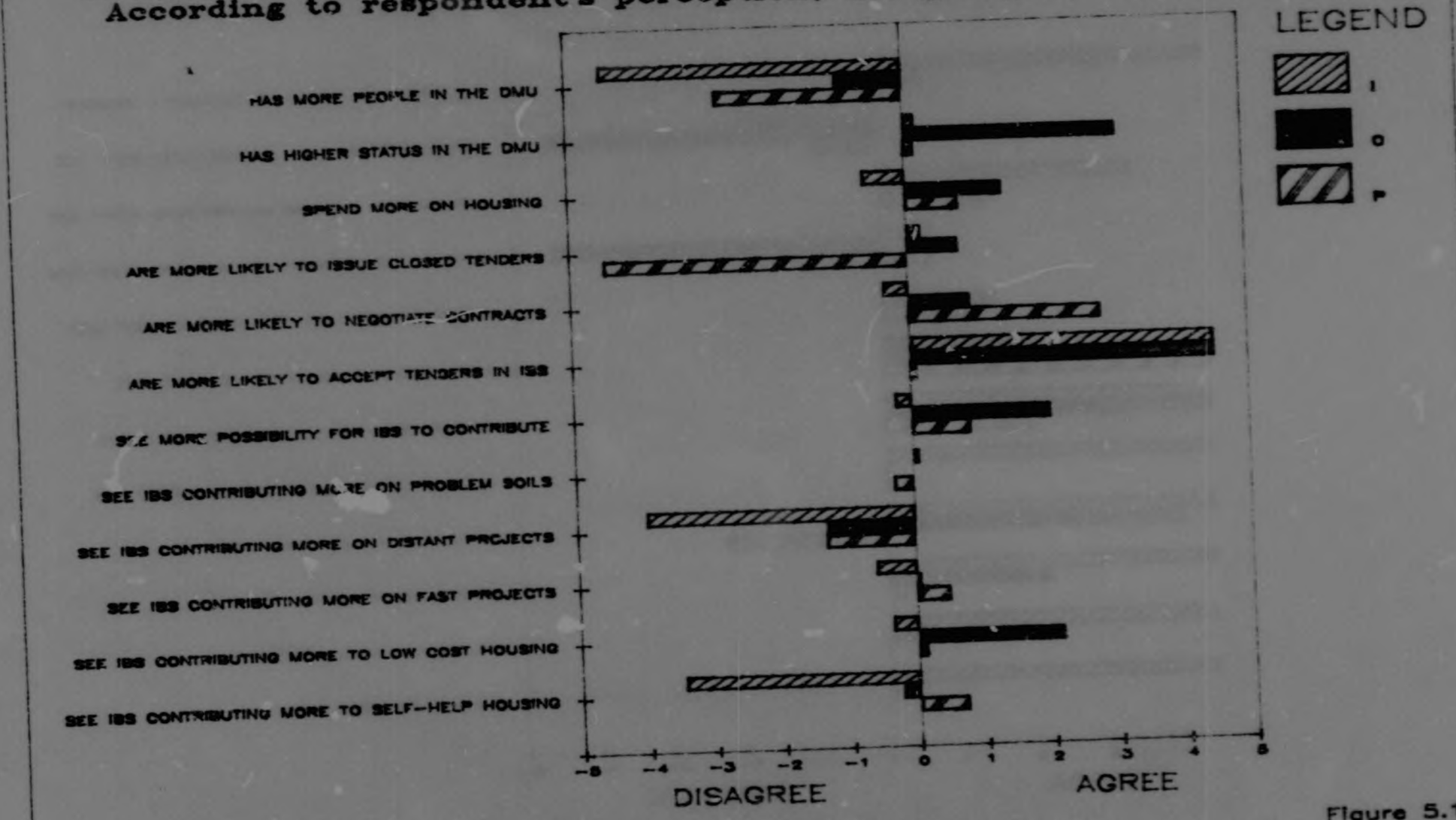


Figure 5.1

Comparison of Groups with Rest of Population

Groups: (I) Innovators; (O) Opinion Leaders; (P) Personal Innovators
According to respondent's perception, the group or organisation:

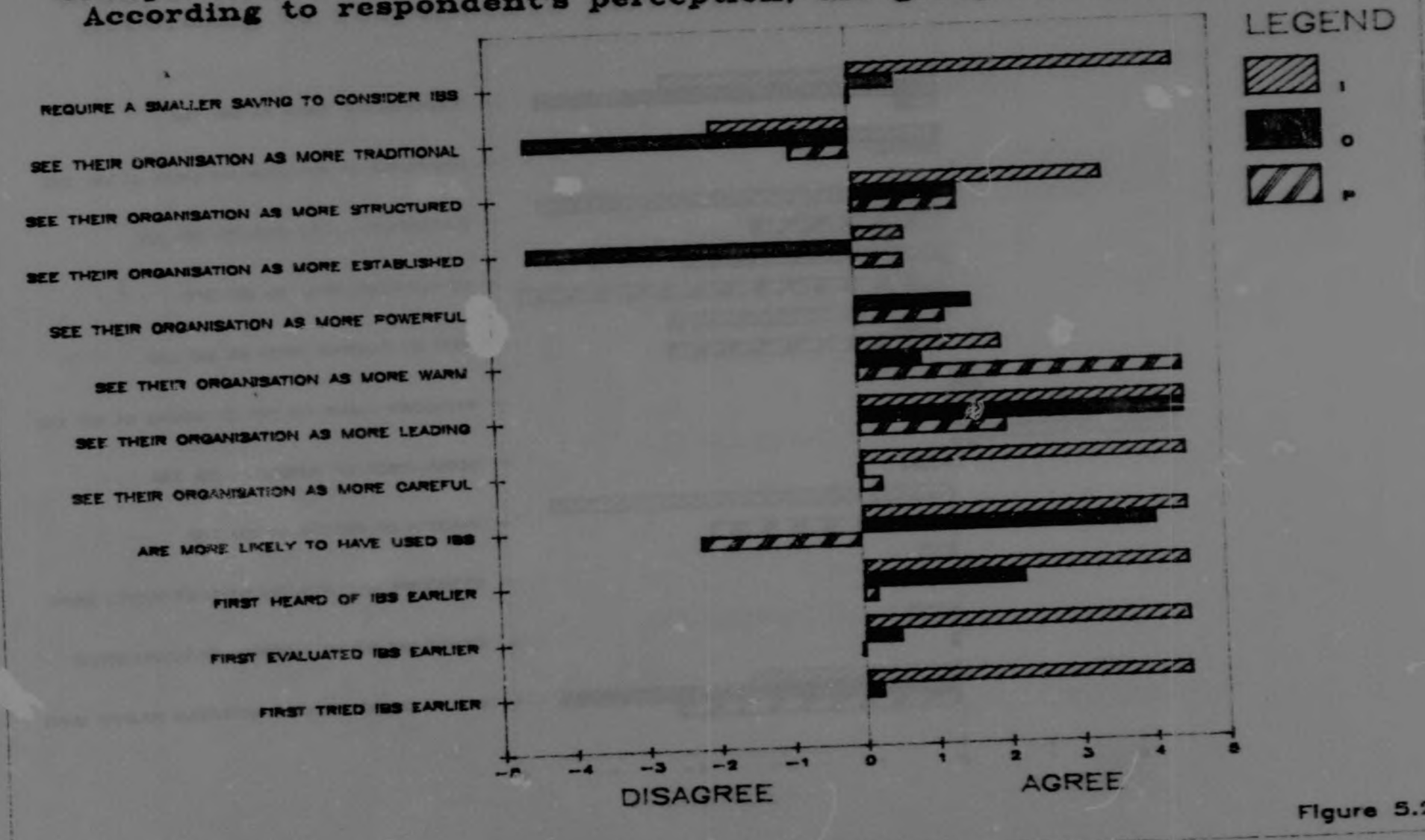


Figure 5.2

Comparison of Groups with Rest of Population

Groups: (I) Innovators; (O) Opinion Leaders; (P) Personal Innovators
According to respondent's perception, the group or organisation:

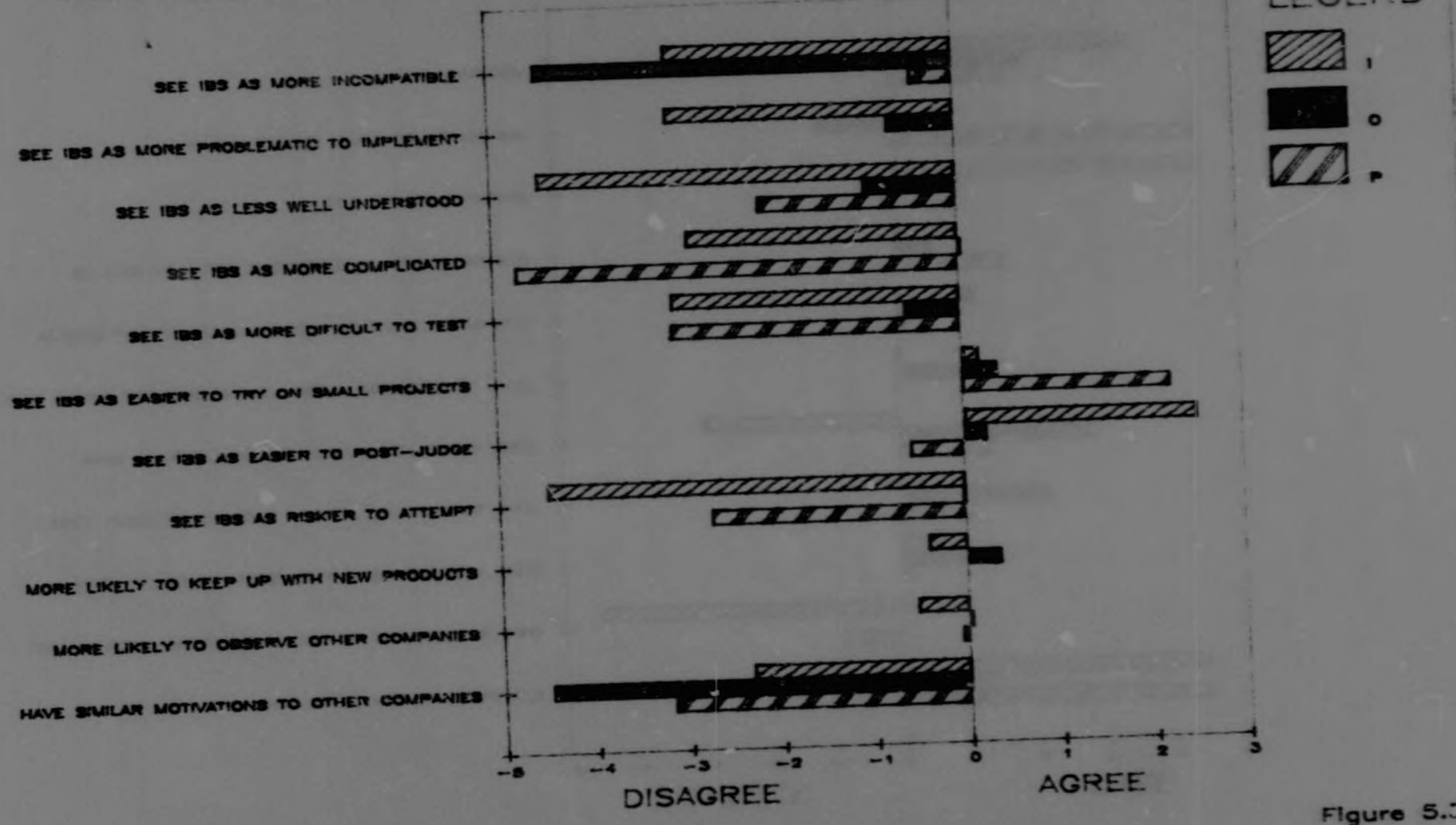


Figure 5.3

Comparison of Groups with Rest of Population

Groups: (I) Innovators; (O) Opinion Leaders; (P) Personal Innovators
According to respondent's perception, the group or organisation:

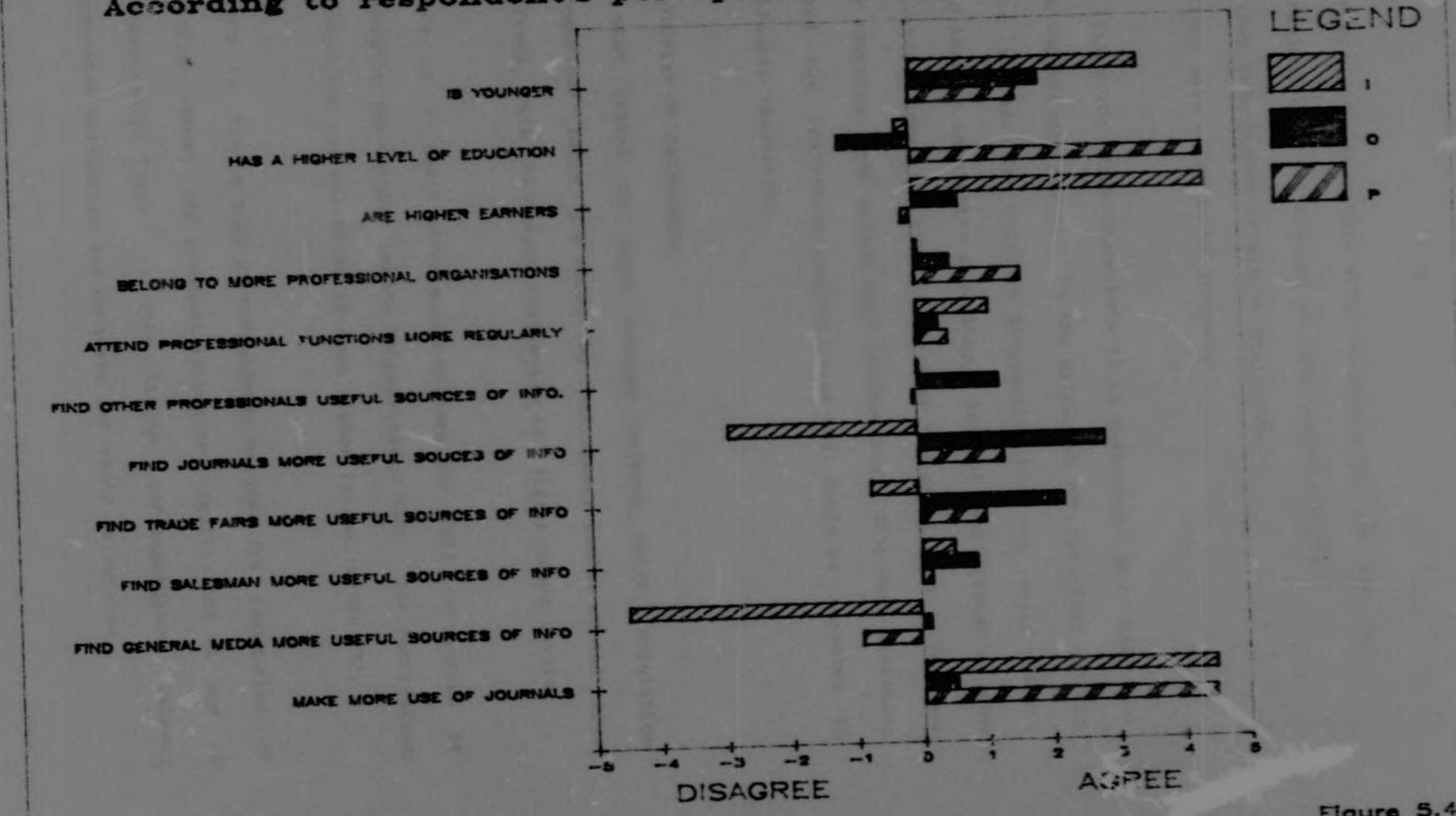


Figure 5.4

- They agree more that other companies may use IBS for reasons that don't occur in their organisations;
- They have higher levels of education;
- They make more use of journals.

The literature does contribute to an understanding of the part these individuals may play in the diffusion process. They are the people who have the personal disposition that one would expect would lead to innovative behaviour, and yet they display no more innovative behaviour than the rest of the population. They are more educated, and gather more information. They have attitudes toward the innovative product class that could be expected to facilitate innovation.

E. OVERLAP OF CATEGORIES

To what extent is their overlap between these population categories? Table 5.2 shows the contingency tables of all three pairings, with chi-square statistics and significance levels.

There is a small correlation between the full categories of innovator and opinion leader (significance 34%). The correlation between the top quartiles is much higher (significance 2%).

There is also a high correspondence between the categories of opinion leader and personal innovator (significance 4% and 2% respectively). There is very little correspondence between innovator categories and personal innovator categories.

CROSSTABULATION - INNOVATOR BY OPINION LEADER

	I1	I2	I3	I4
O1	11	6	5	4
O2	4	7	5	9
O3	5	5	10	6
O4	6	7	6	9

chi-square 10.03 (9DF) significance 34.7%

CROSSTABULATION - INNOVATOR BY PERSONAL INNOVATOR

	I1	I2	I3	I4
P1	6	5	5	10
P2	5	7	8	5
P3	7	6	5	8
P4	8	7	8	5

chi-square 4.99 significance 83.4%

CROSSTABULATION - OPINION LEADER BY PERSONAL INNOVATOR

	P1	P2	P3	P4
O1	11	6	3	4
O2	6	9	6	4
O3	6	7	8	5
O4	3	3	9	13

chi-square 17.85 significance 3.6%

TABLE 5.2 - BETWEEN GROUP CORRELATION

5.4 MULTIVARIATE ANALYSIS OF RESULTS

Three sections of the questionaire were specifically designed in the hope that data reduction techniques could be used to gain a better understanding of the underlying dimensions:

- Organisational culture. The dimensions tested in the questionnaire have no theoretical basis, but were generated in open discussion on possible influential dimensions;
- Perceptions of the innovative product class. The general theory claims that the important dimensions are compatibility, complexibility, divisibility, and communicability. These were broadened into eight questions;
- Importance of information sources. Possible sources tested were other professionals, salesmen, trade shows, journals, and the general media.

The scores for each group were then averaged and reduced using correspondence analysis [Greenacre 1984]. Averaging of scores assumes that this average will have some nominal significance. Given that the scales were clearly explained, and that similar scales were used throughout in testing a population of relatively high, technically based education, it is felt that this assumption is not very limiting.

The correspondence maps from each analysis are shown in Figures 5.5, 5.6 and 5.7.

Correspondence Map : Perceptions of Organisation

KEY: RELATES TO QUESTIONS 13 to 19
GROUPS I - INNOVATORS
O - OPINION LEADERS
P - PERSONAL INNOVATORS
NUMBERS 1 - UPPER QUARTILE
4 - LOWER QUARTILE

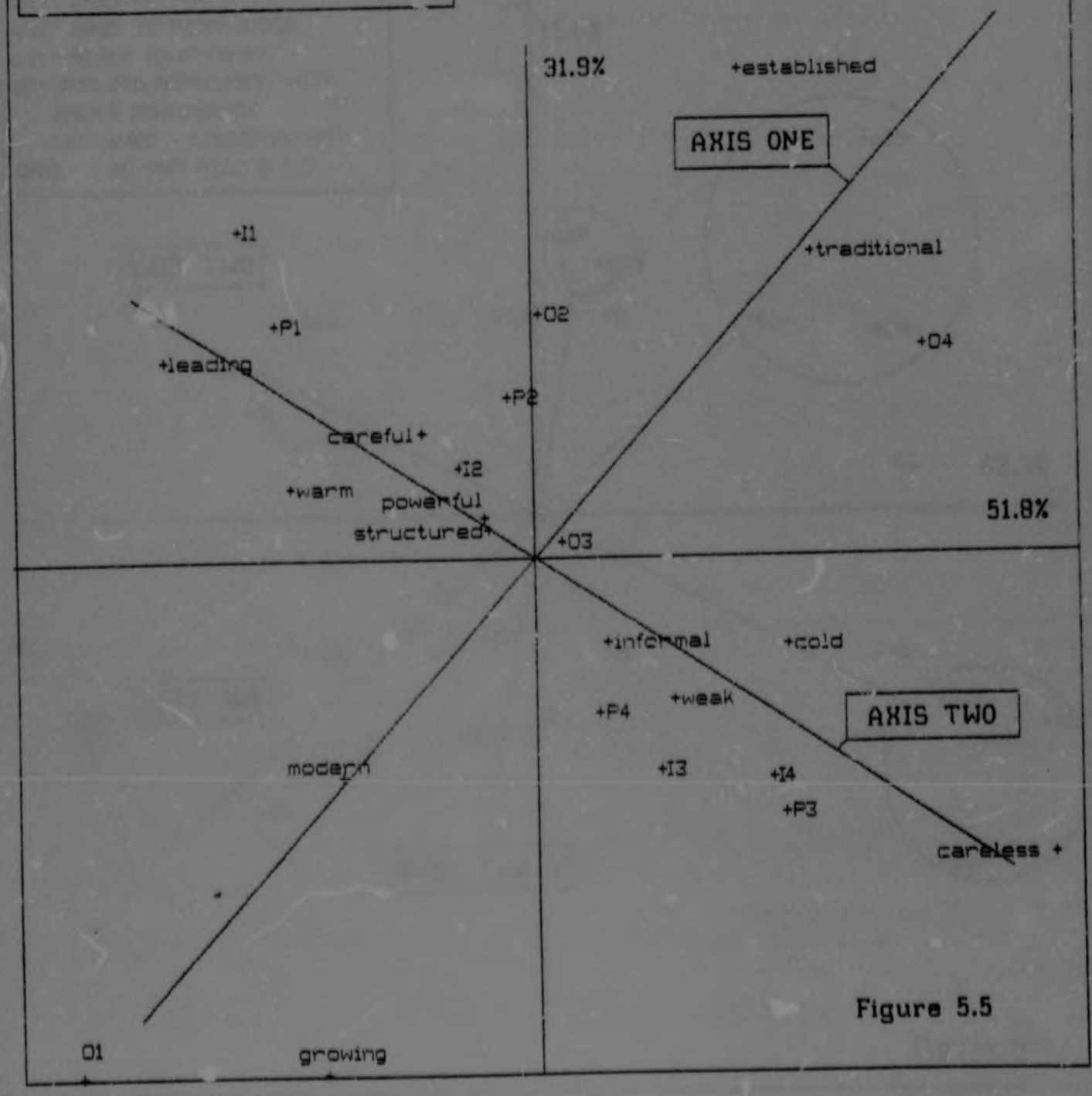


Figure 5.5

Correspondence Map: Perception of Innovative Product Class

KEY: PERCEIVE IBS AS
q24 - INCOMPATIBLE
q25 - PROBLEMATIC TO IMPLEMENT
q26 - NOT WELL UNDERSTOOD
q27 - TOO COMPLICATED
q28 - DIFFICULT TO TEST
q29 - EASY TO TRY
q30 - EASY TO POST-JUDGE
q31 - RISKY TO ATTEMPT
qX - IMPLIES AGREEMENT WITH ABOVE STATEMENTS
UNSIGNED - DISAGREEMENT
GROUPS AS PER FIGURE 5.5

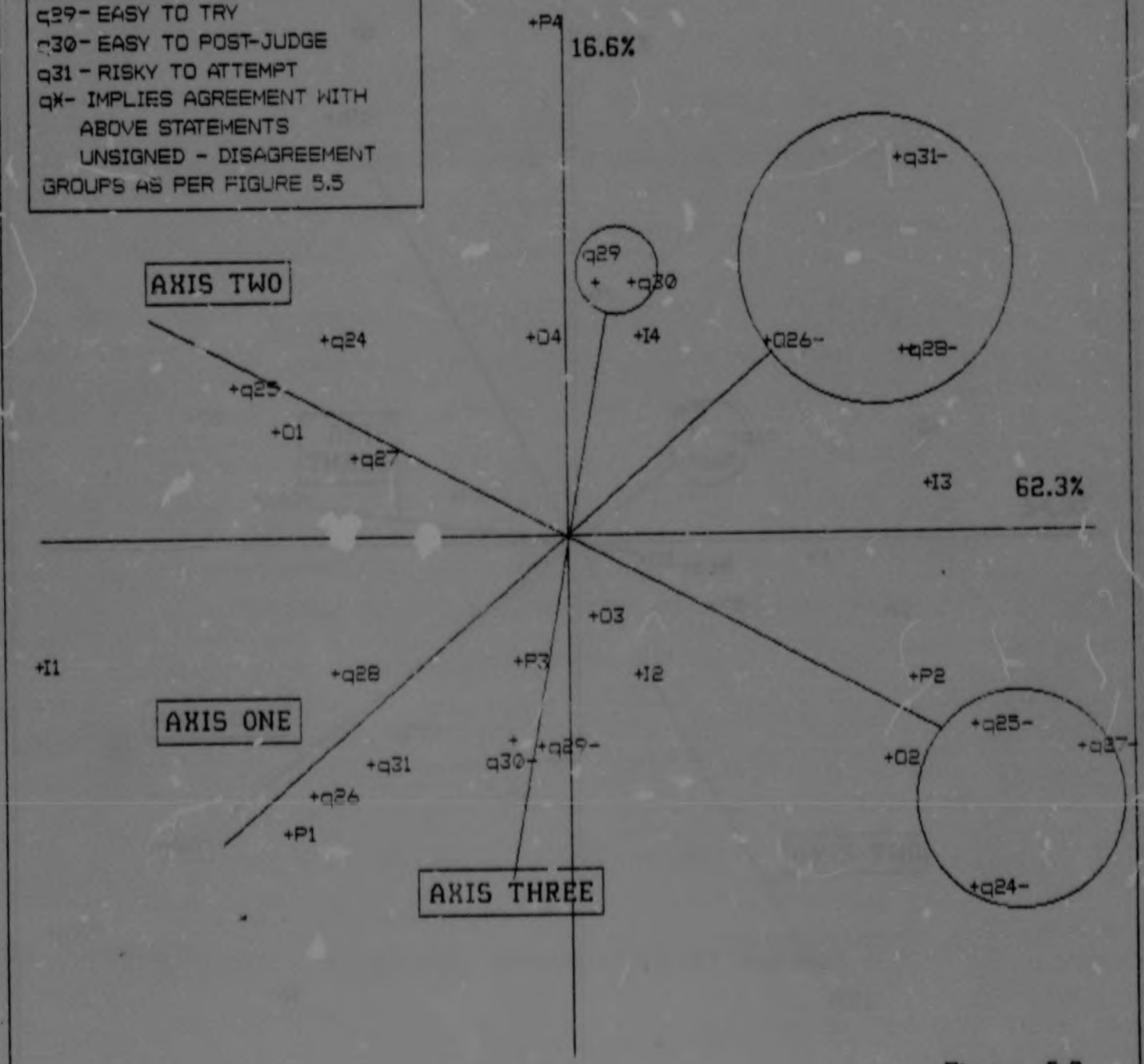


Figure 5.6

Correspondence Map : Importance of Information Sources

KEY : RELATIVE IMPORTANCE AS SOURCES OF INFORMATION
- q67 OTHER PROFESSIONALS
- q68 JOURNALS
- q69 TRADE FAIRS
- q70 SALESMEN
- q71 GENERAL MEDIA

UNSIGNED - HIGH IMPORTANCE

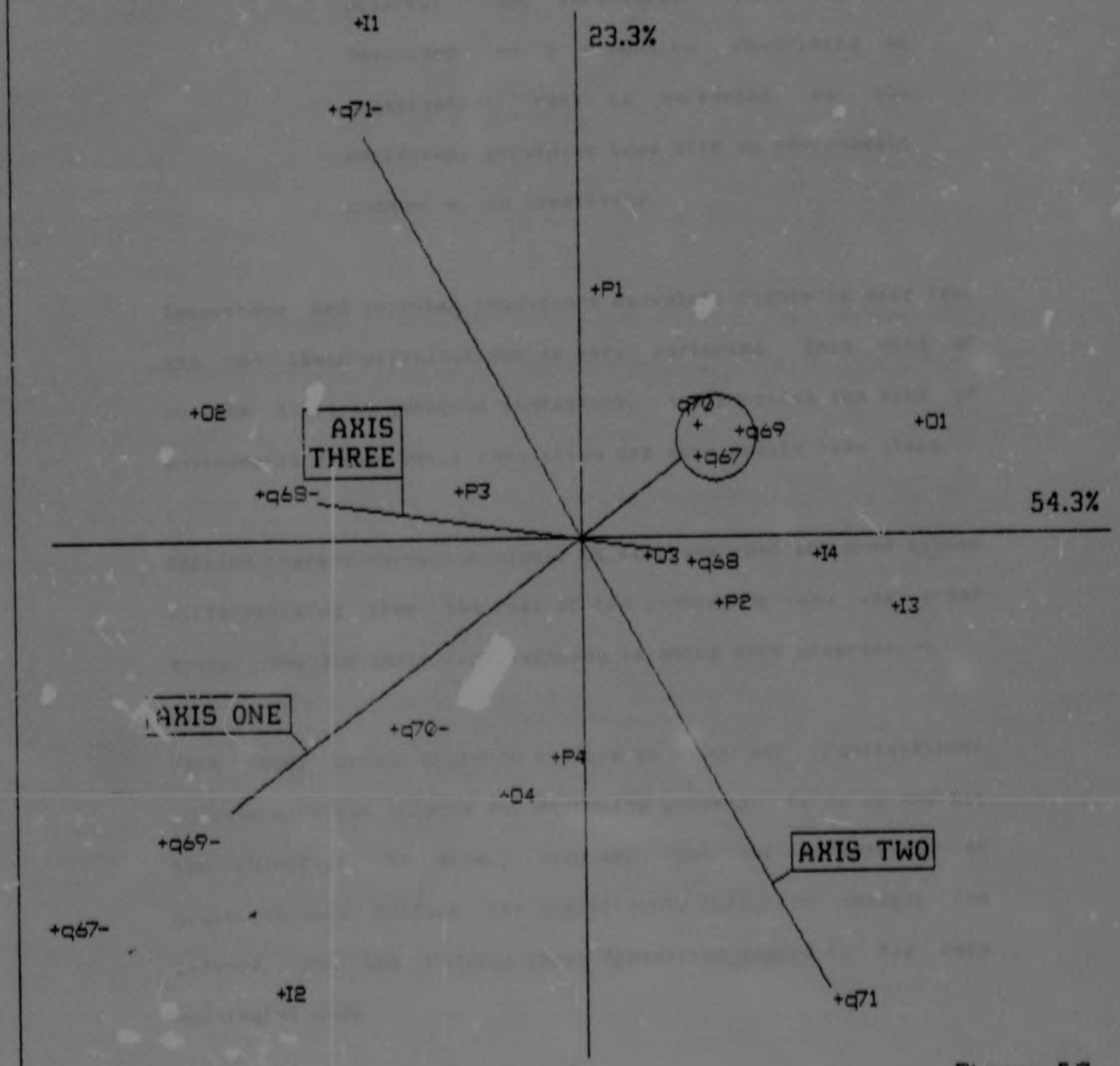


Figure 5.7

A. PERCEPTION OF THE ORGANISATION

The perceptions tested reduced to two clear dimensions:

AXIS ONE - Modern and growing. Perceptions of an organisation that is progressive and forward thinking.

AXIS TWO - Leading, careful, warm and to a lesser extent powerful and structured. This can be described as a dimension describing an organisation that is nurturing to its employees, providing them with an environment conducive to creativity.

Innovators and personal innovators correlate highly on axis two, and see their organisations as very nurturing. This kind of culture attracts personal innovators, and provides the kind of environment within which innovation can more easily take place.

Opinion leaders correlate highly on axis one, and are more highly differentiated from the rest of the population than any other group. They see their organisations as being more progressive.

This study cannot claim to explain in which way organisational culture directly affects the diffusion process: to do so was not its objective. It shows, however, that the perceptions of organisational culture are significanly different amongst the players, and has reduced those dimensions tested to two more meaningful ones.

B. PERCEPTION OF INNOVATIVE PRODUCT CLASS

Perception of the product class reduced to three dimensions:

AXIS ONE - Product class is understood, not difficult to test, and not risky to attempt. This axis relates mainly to low risk in using IBS.

AXIS TWO - Product class is compatible, not problematic to implement, and not too complicated. This axis is a combination of compatibility and low complexity.

AXIS THREE - Product is easy to try and post-judge. This axis relates to ease of use.

Opinion leaders correlate highly with axis two, seeing the product class as compatible and uncomplicated.

Personal innovators correlate highly with axis one and three. They see the product class as easy to use and of low risk. This group could be expected to accept risk more easily.

Innovators correlate with both axes one and two.

Product perceptions seem to have contributed to the innovation process, as predicted by the theory. Compatibility and complexity are undifferentiated from each other in this market, and are a high indicator of innovation, followed by a perception of the risk of innovation.

C. IMPORTANCE OF INFORMATION SOURCES

Perceptions of the importance of information sources reduce to the following dimensions:

AXIS ONE - Other professsionals, trade fairs, and salesmen.

AXIS TWO - The general media.

AXIS THREE - Journals.

In the multivariate analysis, innovators are differentiated from the rest of the population only in that they find the general media of less importance. The univariate correlation with the importance of journals is shown to not be of much importance.

Opinion leaders correlate with axes one and three. They find other professionals, trade fairs, salesmen and journals of more importance as sources of information.

Personal innovators correlate lowly with axes one and two. They find other professionals, trade fairs and salesmen of more importance than the rest of the population, and find the rest of the general media of less importance than the rest of the population.

D. SUMMARY

All of the group categories are found to have different characteristics to the rest of the population. Opinion leaders are found to be likely to be both innovators and personal innovators. There is little correlation between innovators and

personal innovators.

Innovators saw fewer people in the DMU of their organisations, and are likely to be younger and earn more. They have more favourable perceptions of the innovative product class. They make more use of journals, but do not regard them as a more important source of information.

Opinion leaders have higher status in the firm, and are positively orientated, both toward the acceptance of alternate tenders, and the product class. They find journals more important sources of information. They are more likely to believe that the reasons for the usage of IBS are not necessarily pertinent to their organisation.

Both groups have significantly different perceptions of the organisations in which they work. While the meaning of these perceptions is not clear, they could be summarised as nurturing and progressive.

CHAPTER 6

CONCLUSION

This study has succeeded in its primary aim: it has demonstrated that innovators, as categorised by a new definition, are distinct from the rest of the population. They are younger, and earn more. They see their organisations as having fewer members of the decision making unit. They have different perceptions of the innovative product class, and their organisational culture. They gather more information via journals, although they do not perceive this information as having any more utility than do the rest of the population. They are more likely to be opinion leaders.

The opinion leaders, those individuals who could influence the rest of the population, also have different characteristics. They occupy higher status in the decision making process, and are more positively oriented toward entertaining tenders in innovative systems. Their attitudes toward the innovative product class are more likely to facilitate adoption. Their perceptions of the product class are more positive.

This study has also shown that a mechanism does exist by which informal communication can take place. The respondents make use of professional organisations, and place other professionals as the most important source of information about the product class.

The broader aim of this study was to gain some evidence that some process of diffusion does take place, and that adoption is not independent of the actions of other members of the system. It is recognised that a single study of this kind is not likely to demonstrate this, and so any conclusions must be tentative, to be confirmed or refuted by further study. No reports of other studies of this nature were found.

Evidence was found that individuals do observe the innovative behaviour of other firms, but that it was felt that the circumstances under which adoption may take place in other firms are probably specific to those firms, and may not be applicable to the observer. For the marketer this has strategy consequences: segmentation of industrial markets is important, and information must be distributed to serve these segments.

The process by which information and influence flow between the members of this system is not investigated, and this is suggested as an area for further study. The same can be said about the influence of organisational culture on the diffusion process.

A number of factors have been found which appear to influence the rate of adoption in this market. Small decision making units accelerate the rate of adoption. Positive perceptions of the product class would speed adoption. Products which are seen as uncomplicated and compatible to the purchaser's organisation will diffuse faster. Risk is related to information about the product: the more a purchaser understands the product, the less risky it

will appear, and the faster it will be adopted. Sources of information which could be used to effect are: the journals; trade shows; and the spread of information by professionals involved in the market, especially the opinion leaders.

In conclusion, while this study has not produced a clear model of the diffusion process in industrial markets, it has shown some evidence that such a process does take place. Many of the influencing factors shown elsewhere to be indicative in consumer markets have been shown to be indicative in industrial markets. In addition, the hierarchy of importance of information sources for this market has been demonstrated, and perceptions of organisational culture have been shown to be influential.

APPENDIX 1

SOCIOMONITOR

Sociomonitor is a syndicated study conducted biannually by Market Research Africa, which aims to divide the South African population into a series of value groups. It is conducted on a randomised group of 1500 respondents country wide. Since 1976 the white population has reduced to four clear value groups as follows:

INNOVATIVES

Characterised by a fundamental dissatisfaction with traditional values and with the prevailing social structure. Hence they tend to have liberal racial, sexual and political attitudes and a measure of reforming zeal. They tend to live for today, their affluence, confidence and flexibility leads them to welcome change and look for new and exciting opportunities. They will be willing to experiment with new products and ideas, but being early adopters, tend to move on to the next "new" idea.

RESPONSIBLES

Strongly entrenched in tradition - place high value on family, country, church and security. Pride in SA translates into pride in local products and achievements. Activities have a strong family orientation, and a fierce consumerism is a manifestation of wanting the best for their families and to win approval. They tend to stick to brands they know - for reasons of economy as

well as a reluctance to experiment and take risks.

BRANDEDS

Characterized by their need for esteem and belonging, and by their outer-directedness. Status and materialism are the strongest motivating forces. Brandeds want to be looked up to, and try to achieve status through their possessions, the branded goods they choose, and by the image they try to project. They are the ultimate "conspicuous consumers", Linked to image is a need to belong and be accepted by the "right" people.

SELF-MOTIVATEDS

A secure comfortable and somewhat complacent group has the insight and the income to pursue self-expression, personal and psychological growth. Aware of their own abilities and potential and prepared to make the most of them - expect a meaningful and satisfying life. self-indulgent - prepared to spend time, money and effort on improving themselves intellectually, culturally and physically.

These groupings are reduced to placings on two axes: innovative - responsible; and branded - self motivated. The majority of the population tested in this study were of the self-motivated grouping. The score used for the clasification of personal innovativeness was the innovative - responsible score. Group averages of this score are shown in Table A1.1 (I/R AVE).

Amongst the opinion leader and innovator categories, the population were distributed between the various value groups as shown in table A1.1. (U/C - Unclassified)

DISTRIBUTION OF VALUE GROUPS (ALL NUMBERS - %)

OPINION LEADERSHIP GROUPINGS

	I/R AVE	I	R	B	S	U/C
01	3259	11.5	11.5	0.0	76.9	0.0
02	2931	23.1	3.8	3.8	65.4	3.8
03	2920	50.0	7.7	0.0	34.6	7.7
04	1535	34.6	19.2	7.7	30.5	3.8
TOTAL SAMPLE		29.5	10.5	2.9	53.3	3.0

INNOVATOR GROUPINGS

	I/R AVE	I	R	B	S	U/C
I1	2513	23.1	7.7	3.8	53.8	11.5
I2	2682	38.5	7.7	3.8	50.0	0.0
I3	2503	23.1	15.4	0.0	57.7	3.8
I4	2895	34.6	11.5	3.8	53.8	0.0

TABLE A1.1

As can be seen from the above table, the group are predominately self-motivateds. Opinion leaders show an even higher tendency to be self motivateds. Amongst the innovators there is no differentiation between the groups.

The placement of individuals on the two axes is done via the MRA abridged questionnaire (24 questions). This is reproduced in questions 79 to 102. The analysis scheme was provided by Ms Penny Hoets of MRA.

APPENDIX 2

ORGANISATIONS

The following is a list of organisations, and the numbers of their members to whom questionnaires were sent.

ORGANISATION	MEMBERS
JHB CITY COUNCIL	15
PRETORIA STREEK BEHUISING	4
RAND WATER BOARD	5
SMALL BUSINESS DEV CORP	2
S A PERMANENT BLD SOC DEV CORP	3
S A TRANSPORT SERVICES	15
S A T S GEOTECHNICAL SECTION	6
S A T S REEF CONSTRUCTION	5
S A T S REGIONAL ARCHITECT	3
SOWETO CITY COUNCIL	4
URBAN FOUNDATION	4
ANGLO AMERICAN CORP	16
ANGLO VAAL	7
GENCOR	16
GOLDFIELDS OF S A	11
J C I	11
RAND MINES	7
ALTERTON MUNICIPALITY	7
ZENONI MUNICIPALITY	4
BOKSBURG MUNICIPALITY	3
BONAIERO PARK PTY LTD	4
BRAKPAN MUNICIPALITY	4
BRITS MUNICIPALITY	3
EASTRAND ADMIN BOARD	8
GERMISTON MUNICIPALITY	3
KRUGERSDORP MUNICIPALITY	4
ROODEPOORT MUNICIPALITY	5
SPRINGS MUNCIPALITY	4
ADMINISTRATION, HOUSE OF ASSEMBLY	6
DEPT PUBLIC WORKS & LAND AFFAIRS	7
ISCOR	8
PRETORIA CITY COUNCIL	11
TRANSVAAL PERI URBAN	3
TRANSVAAL DEPT OF WORKS	11
COMIAT	3
ALLIED DEVELOPMENT CORP.	2
GALLIC CONSTRUCTION	4
VISTA HOMES	1
HABITECH	4
AECI	5
DEPT. COMMUNITY DEVELOPMENT	3
DEVELOPMENT BANK OF SA	4
DOBSONVILLE COUNCIL	2
ESCOM	17
TOTAL	274

APPENDIX 3

THE QUESTIONNAIRE

The next 8 pages contain copies of the front page and questionnaire sent to all respondents.

INSTRUCTIONS

This questionnaire askes a number of questions about how you see the function of making decisions in the housing market in your organisation. None of the questions involve any strategic information.

There are a series of questions about yourself. I understand that many people may be reluctant to answer these questions, or may doubt the reasons for asking them. Firstly I must assure you that these answers will be kept strictly confidential. The number of questionnaires being issued is too large for the information to be used in anything but a Global way. Secondly this research is the input for my Master's Degree, and the information is essential for academic reasons. I appeal to you to answer all of the questions, and please return the questionnaire as soon as possible, as I have very little time to complete this project.

The questions have three forms.

1. Simple input. A number or name etc. Please do not look up numbers, if this will delay return of the questionnaire. This questionnaire is about YOUR impressions.

2. "Tick the Box." Please be careful to note when you are asked to tick <u>one</u> or <u>more than one box</u>.

3. A seven point scale between two words. Please think carefully about where you choose your answer. The followings examples show the specific meaning of two examples.

Always	1.	In ALL cases without exception.
	2.	In the majority of cases.
	3.	More than average.
	4.	50% of the time.
	5.	Less than average.
	6.	In very few cases.
Never	7.	NEVER.

Agree	1.	I am in FULL agreement with the statement.
	2.	I strongly agree with the statement.
	3.	I somewhat agree with the statement.
	4.	I am neutral about the statement.
	5.	I somewhat disagree with the statement.
	6.	I strongly disagree with the statement.
Disagree	7.	I FULLY disagree with the statement.

From the above examples a similar scale can be set between any two opposite words.

THANK YOU FOR YOUR ASSISTANCE, it is appreciated.

QUESTIONNAIRE

NAME .....

ORGANISATION .....

SECTION A

The first section deales with the procedure of deciding between a number of potential contracts. This can mean the choice amongst tenders or merely choosing which contractors to deal with.

When making decisions about building contracts how many people in your organisation are usually involved? .....

Q1 In the making of this decision I usually have the followins position :

Able to Veto the decision	1	
High Influence	2	) RING THE NUMBER
Normal influence	3	) NEXT TO YOUR CHOICE
Inputting useful information	4	(ONE ONLY)
No involvement	5	

Q2. Each year my organisation spends, on Housing

Less than R100 000	1	
R100 000 - R1 m	2	)
R 1 m - R 5 m	3	) RING THE NUMBER
R 5 m - R 10 m	4	) NEXT TO YOUR CHOICE
R 10 m - R 50 m	5	) (ONE ONLY)
R 50 m - R 100 m	6	)
More than R 100 m	7	

In the following Questions choose an answer on the scale between Always and Never as described on the front page:

	ALWAYS						NEVER
Q3 We issue closed tenders	1	2	3	4	5	6	7
Q4 We negotiate contracts	1	2	3	4	5	6	7
Q5 We accept tenders in Innovative Building Systems	1	2	3	4	5	6	7

In a similar way answer the following questions on the scale between "A Little" and "A Lot".

	A LITTLE						A LOT
Q6 In the building market there is a POSSIBILITY for Innovative Building systems to contribute	1	2	3	4	5	6	7

The contribution in the following areas will be :

	A LITTLE						A LOT
Q7 Building on Problem Soils	1	2	3	4	5	6	7

		A LITTLE						A LOT
Q8	Buildins far from cities or towns	1	2	3	4	5	6	7
Q9	Fast projects	1	2	3	4	5	6	7
Q10	Low cost housins	1	2	3	4	5	6	7
Q11	Self Help Housins	1	2	3	4	5	6	7

Q12 In order for us to CONSIDER a contract in an Innovative Building System the saving must be at least ..... %

SECTION B

The next section concerns YOUR IMPRESSION of the organisation in which you work. Choose a point on the 7 point scale which you think describes the organisation. 1 means COMPLETE agreement with the statement on the left; 4 means neautral ; 7 means complete agreement with the statement on the right.

Q13	Traditional	1	2	3	4	5	6	7	Modern
Q14	Structured	1	2	3	4	5	6	7	Informal
Q15	Established	1	2	3	4	5	6	7	Growing
Q16	Powerful	1	2	3	4	5	6	7	Weak
Q17	Warm	1	2	3	4	5	6	7	Cold
Q18	Leading	1	2	3	4	5	6	7	Following
Q19	Careful	1	2	3	4	5	6	7	Careless

SECTION C

Q20 Choose ONE of the following statements which best describes your experience with Innovative Building Systems. Write the number of the statement in the box below.

1. We use them often.
2. We have used them on occasion.
3. We have tried them, wern't completely happy, but may try again.
4. We have tried them and will never try them again.
5. We have heard of them and never tried them.
6. We have heard of them, and may try them someday.
7. We have heard of them and will never try them.
8. We have never heard of them.

Q20 YOUR CHOICE [ ]

Q21 I first heard of these Systems ..... years ago.

Q22 I first evaluated these Systems ..... years ago.

Q23 We first tried them ..... years ago (0 for never)

SECTION D
Choose a point between "Agree" and "Disagree" for the following statements, according to the scale on the first page. "IBS" means Innovative Building Systems. Circle your choice.

	AGREE						DISAGREE
Q24 IBS don't fit in with the way we do business	1	2	3	4	5	6	7
Q25 IBS Cause many problems to implement	1	2	3	4	5	6	7
Q26 IBS are not yet well understood	1	2	3	4	5	6	7
Q27 IBS are too complicated	1	2	3	4	5	6	7
Q28 IBS are difficult to test	1	2	3	4	5	6	7
Q29 It is easy to try out IBS on small projects	1	2	3	4	5	6	7
Q30 It is easy to JUDGE an IBS project afterwards	1	2	3	4	5	6	7
Q31 It is very risky to attempt IBS projects	1	2	3	4	5	6	7
Q32 We MUST keep up with new product developments	1	2	3	4	5	6	7
Q33 It is very informative to see which other organisations are using IBS.	1	2	3	4	5	6	7
Q34 Other companies may use IBS for reasons which don't occur in my organisation	1	2	3	4	5	6	7

SECTION E
This section involves questions about you personally. Please be assured that these answers will be held in complete confidence, and are necessary to complete the academic side of this research. The answers will only be used in a global form and never related back to individuals.

Q35 Age ..... yrs

Q36 Formal Education level

Use equivalent if not on this list

Pre Matric	1	
Matric	2	
Tech matric	3	)
Tech diploma	4	) RING THE NUMBER
Bachelor's Degree	5	) NEXT TO YOUR
Honours Degree	6	) CHOICE
Masters Degree	7	(ONE ONLY)
Doctorate	8	

Q37 Profession

Architectural	1	
Engineering	2	
Q S	3	)
Financial	4	) RING THE NUMBER
Building/Const	5	) NEXT TO YOUR CHOICE
Marketing	6	) (ONE ONLY)
Administrative	7	
Other	8	State .....

Q38 Earnings

Below R20 000 pa	1	
R20 001 - R30 000 pa	2	)
R30 001 - R40 000 pa	3	) RING THE NUMBER
R40 001 - R50 000 pa	4	) NEXT TO YOUR CHOICE
More than R50 000 pa	5	(ONE ONLY)

Q39 Of how many professional organisations are you a member (eg. SACPE, NAHB)

.....

Q40 How many times a year do you attend functions at these organisations?

.....

In the following list of journals please rate each one in the box on the left as follows:

0 - I don't receive it (or just leave blank)
1 - I see it sometimes. I don't find it too interesting.
2 - I get it regularly.
3 - I get it regularly and find it VERY informative.

41	☐	Building
42	☐	Planning & Building Developments
43	☐	Architect and Builder
44	☐	Architecture SA
45	☐	Building Equipment and Materials
46	☐	Building Product News
47	☐	Construction and Planning Today / Interior Design
48	☐	The Developer
49	☐	Housing in SA / Behuising in SA
50	☐	Maintenance
51	☐	The Professional Builder
52	☐	Property Maintenance
53	☐	SA Builder
54	☐	Specifile
55	☐	Development Magazine
56	☐	The Civil Engineering Contractor
57	☐	The Civil Engineer in South Africa
58	☐	Concrete / Beton
59	☐	Construction Industry International
60	☐	Geotechnics
61	☐	New Construction News
62	☐	SA Construction World
63	☐	Muncipal Engineer / Muncipale Ingenour
64	☐	Muncipale & Openbare Dienste
65	☐	Juta's SA Journal of Property
66	☐	Daily Tender Bulletin

When getting information on IBS I believe the following sources are

		NOT USEFUL						VERY USEFUL
Q67	Other professionals	1	2	3	4	5	6	7
Q68	Journals	1	2	3	4	5	6	7
Q69	Trade fairs	1	2	3	4	5	6	7
Q70	Salesmen	1	2	3	4	5	6	7
Q71	TV, Radio, Newspapers etc	1	2	3	4	5	6	7

The next section involves statements about yourself and your beliefs. Circle each one on the Agree - Disagree scale.

		AGREE						DISAGREE
Q72	I generally discuss IBS with my colleagues	1	2	3	4	5	6	7
Q73	I give a great deal of information to my colleagues and other professionals.	1	2	3	4	5	6	7
Q74	During the past six months I have often discussed IBS.	1	2	3	4	5	6	7
Q75	In my circle of professionals I am the person most likely to be asked for advice.	1	2	3	4	5	6	7
Q76	When discussing Contracts at work I prefer to convince the others of my ideas.	1	2	3	4	5	6	7
Q77	I generally bring up the subject of Building Systems at work.	1	2	3	4	5	6	7
Q78	The people I work with regard me as a useful source of information.	1	2	3	4	5	6	7

The final section is a standard Consumer questionnaire as used by Market Research Africa. The scales used are different from the above, so please read the instructions carefully.

Place a circle around the mark, showing whether you agree or disagree with the following statements. The meaning of the marks are :

Completely Agree 1	Partly Agree 2	Partly Disagree 3	Completely Disagree 4

Q79	I think I would feel uncomfortable if I went to a restaurant that served people of all race groups	1	2	3	4
Q80	It would mean a great deal to me if I could increase my social standing over the next few years	1	2	3	4

		AGREE			DISAGREE
Q81	I believe manufacturers could make a better product if they were willing to make a smaller profit.	1	2	3	4
Q82	Prices keep rising because companies want to make bigger profits.	1	2	3	4
Q83	I am not particularly interested in how other race groups live	1	2	3	4
Q84	Products these days don't last as long as they used to	1	2	3	4

How important are the following things to you? Use a four point scale as follows:

VERY IMPORTANT 1	FAIRLY IMPORTANT 2	NOT SO IMPORTANT 3	NOT AT ALL IMPORTANT 4

		VERY			NOT
Q85	Having better clothes, posesions and a better place to live than other people	1	2	3	4
Q86	Having things in the house made by myself personally	1	2	3	4
Q87	Taking pride in our traditions and our heritage	1	2	3	4
Q88	Using certain products, going to certain shops, driving a particular kind of car in order to have other people see me as I see myself	1	2	3	4
Q89	Making a future for myself and my family in South Africa	1	2	3	4
Q90	Having really valuable posesions	1	2	3	4

The next two questions ask you to choose between two alternatives. Then in the right hand column tick whether or not you hesitated.

	I WOULD CHOOSE	I DID'T HESITATE	I HESITATED
Q91 A manufacturer has some money to spare. Do you think he should :			
Try to improve the quality of his brand	☐	☐	☐
Improve the pack and advertising of his brand	☐		
Q92 On public holidays, I prefer to organise an outing:			
With my friends	☐	☐	☐
With my family	☐		

How similar do you feel to the following people? Use a four point scale as folows : (Draw a circle around your choice)

VERY SIMILAR 1	FAIRLY SIMILAR 2	RATHER DIFFERENT 3	VERY DIFFERENT 4

Q93 People who are willing to make sacrifices for the good of their country 1 2 3 4

Q94 People who are thinking of leaving South Africa to live in another country 1 2 3 4

How well do the following statements fit in with your ideas and feelings? Draw a circle around your choice on a 4 point scale as follows :

COMPLETELY 1	QUITE WELL 2	A LITTLE 3	NOT AT ALL 4

	YES			NO
Q95 Companies are no longer concerned about quality	1	2	3	4
Q96 In South Africa, Black and White must go their seperate ways - they can never really exist together	1	2	3	4
Q97 The man's place is at work; the woman's place is in the home	1	2	3	4
Q98 I feel that FEW products live up to the claims of their advertisers	1	2	3	4
Q99 I think that thing made long ago are so much more beautiful to look at than things made today	1	2	3	4
100 I feel I need something to calm my nerves	1	2	3	4
101 Things are getting harder and harder than they ever were before	1	2	3	4

THINKING ABOUT THE FUTURE .....

In 5 years time I see see myself as ... .

Still living in South Africa 1) RING THE
Possibly living in another country 2) NUMBER NEXT TO
Don't know 3) YOUR CHOICE

THA RY MUCH FOR YOUR HELP
IT APPRECIATED

APPENDIX 4

FREQUENCIES OF RESPONSE

The following tables list the frequencies of responses for all the questions in the questionnaire, with the exception of questions 41 to 66 which are summarised in the following appendix, and the oppinion leadership and MRA questions.

QUESTION	q0	q1	q2	q3	q4	q5	q6	q7
RESPONSE								
1	1	6	4	31	5	13	0	2
2	7	46	12	48	2	8	2	10
3	18	24	28	1	4	17	12	7
4	15	18	18	2	7	16	18	9
5	19	9	22	5	20	12	24	23
6	7	0	9	5	46	32	25	32
7	1	0	6	11	18	4	24	22
8	0	0	0	0	0	0	0	0
NO RESPONSE	18	2	6	2	3	3	0	0
MEAN	12.5	2.6	4.3	2.5	4.8	4.0	3.9	3.9

QUESTION	q8	q9	q10	q11	q12	q13	q14	q15
RESPONSE								
1	3	1	5	14	6	9	33	31
2	11	3	5	17	0	15	42	18
3	17	5	13	17	0	12	14	5
4	22	21	20	17	1	21	7	15
5	18	13	19	12	8	20	8	11
6	17	41	23	15	0	19	1	13
7	17	21	20	13	1	9	0	12
8	0	0	0	0	0	0	0	0
NO RESPONSE	0	0	0	0	20	0	0	0
MEAN	3.5	4.0	3.6	2.9	32.1	2.9	1.7	2.3

QUESTION	q16	q17	q18	q19	q20	q21	q22	q23
RESPONSE								
1	45	7	20	33	8	1	3	5
2	40	19	29	39	38	3	9	7
3	9	26	24	21	35	2	5	6
4	8	34	17	9	1	5	13	7
5	2	12	7	2	9	12	14	10
6	1	7	5	0	12	6	9	7
7	0	0	3	1	0	5	4	5
8	0	0	0	0	0	0	0	0
NO RESPONSE	0	0	0	0	3	3	3	3
MEAN	1.4	2.7	2.3	1.6	3.0	26.2	17.4	19.3

QUESTION	q24	q25	q26	q27	q28	q29	q30	q31
RESPONSE								
1	5	9	19	0	8	24	20	2
2	15	14	22	7	12	31	28	11
3	14	25	31	10	19	14	23	21
4	14	16	14	22	21	8	10	24
5	27	24	7	23	17	10	11	16
6	15	11	5	25	16	9	10	17
7	15	6	7	18	12	9	3	14
8	0	0	0	0	0	0	0	0
NO RESPONSE	0	0	0	0	0	0	0	0
MEAN	3.1	2.8	2.3	3.7	3.1	2.3	2.3	3.3

QUESTION	q32	q33	q34	q35	q36	q37	q38	q67
RESPONSE								
1	56	37	27		0	53	0	4
2	33	30	31		0	28	5	1
3	7	18	17		1	8	35	10
4	3	14	15		20	1	35	23
5	3	3	4		65	3	27	36
6	0	1	7		9	1	0	31
7	3	2	4		7	7	0	0
8	0	0	0		2	4	0	0
NO RESPONSE	0	0	0		1	0	3	0
MEAN	1.4	1.8	1.9	49.5	4.6	2.7	3.5	4.2

QUESTION	q68	q69	q70	q71
RESPONSE				
1	1	1	7	18
2	1	3	12	17
3	5	3	13	13
4	18	30	27	30
5	41	28	21	18
6	26	23	13	6
7	13	17	12	3
8	0	0	0	0
NO RESPONSE	0	0	0	0
MEAN	3.8	3.8	3.1	2.5

APPENDIX 5

USAGE OF JOURNALS

The following table shows the usages of the journals tested.

Usage refers to the frequency of responses.

JOURNAL	USAGE 0	1	2	3
Building	51	15	25	14
Planning & Building Developments	53	17	27	8
Architect and Builder	34	15	33	23
Architecture SA	38	7	30	30
Building Equipment and Materials	43	14	30	18
Building Product News	46	10	30	19
Const and Planning Today / Int. Design	67	21	12	5
The Developer	89	8	8	0
Housing in SA / Behuising in SA	47	16	18	24
Maintenance	89	10	4	2
The Professional Builder	85	12	6	2
Property Maintenance	98	5	1	1
S A Builder	41	28	25	10
Specifile	39	14	28	24
Development Magazine	99	2	4	0
The Civil Engineering Contractor	71	9	17	8
The Civil Engineer in South Africa	68	8	14	15
Concrete / Beton	86	5	10	4
Construction Industry International	92	6	5	2
Geotechnics	103	2	0	0
New Construction News	82	15	6	2
SA Construction World	80	14	7	4
Muncipal Engineer / Muncipale Ingeneur	75	11	12	7
Muncipale & Openbare Dienste	90	6	5	4
Juta's SA Journal of Property	97	4	4	0
Daily Tender Bulletin	93	9	3	0

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