TEAM MANAGEMENT PROFILE
Executive Summary **5th Edition**

®

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Team Management Profile Questionnaire: Executive Summary

Development

The Types of Work and Team Management Wheels

Based on their many years of talking with managers about their jobs, Drs. Charles Margerison and Dick McCann developed a model which describes comprehensively the 'types of work' that managers and their team members are required to perform on a day-to-day basis. This model is shown below as Figure 1.

Figure 1.   The Margerison-McCann Types of Work Wheel
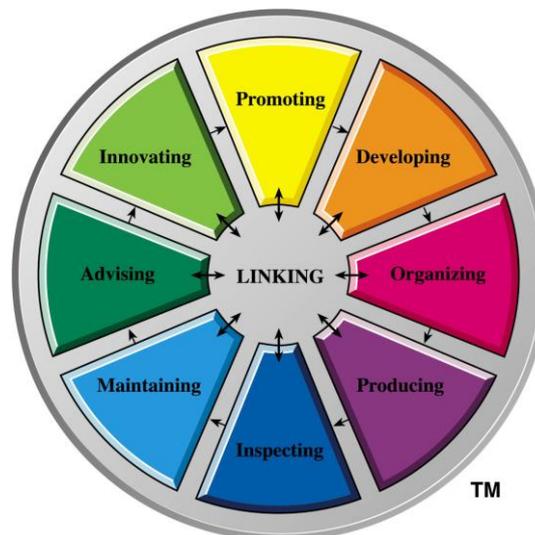
This model identifies eight core work functions that are measured and defined by the Types of Work Profile Questionnaire. Brief descriptions of these functions are:

- Advising - Gathering and reporting information
- Innovating - Creating and experimenting with ideas
- Promoting - Exploring and presenting opportunities
- Developing - Assessing and testing the applicability of new approaches
- Organizing - Establishing and implementing ways of making things work
- Producing - Concluding and delivering outputs
- Inspecting - Controlling and auditing the working of systems
- Maintaining - Upholding and safeguarding standards and processes

The psychometrics of this model are explained in the *Team Management Systems Research Manual 5th Edition: Types of Work Profile Questionnaire* (McCann & Mead, 2018).

Margerison and McCann discovered that people tended to like some Types of Work more than others. They found a way of measuring these 'work preferences' based on four scales (Figure 2).

They were then able to map these work preferences onto the Types of Work Wheel, as shown in Figure 3.

From here, the Team Management Wheel (Figure 4) was created as a simple way of combining behavioral characteristics with key work functions.

Work preferences are measured by the Team Management Profile Questionnaire (TMPQ), which elicits self-report data about an individual's work preferences. A computer program then allocates major and related role preferences based on this data and prints out a narrative-style Profile report.
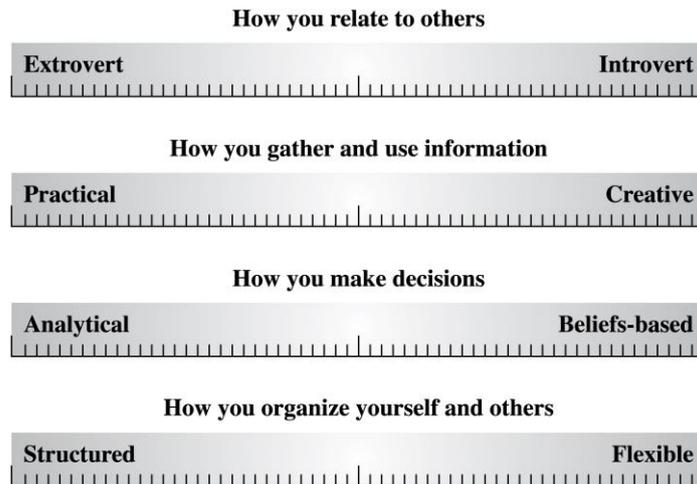
Figure 2.   Work preference measures

How you relate to others

Extrovert   Introvert

How you gather and use information

Practical   Creative

How you make decisions

Analytical   Beliefs-based

How you organize yourself and others

Structured   Flexible

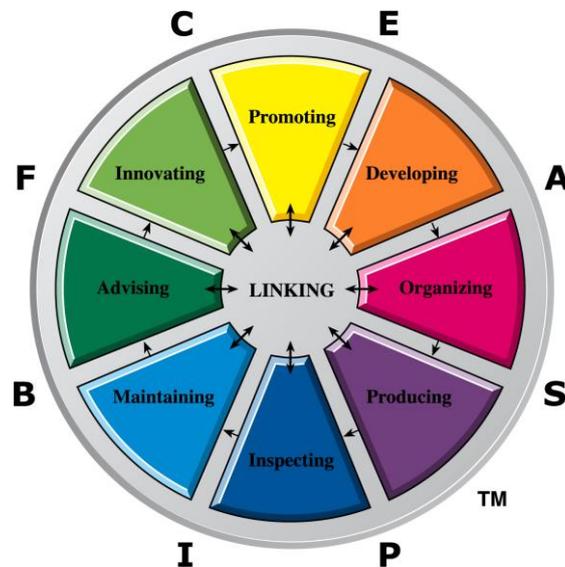Figure 3.   Mapping of work preferences onto Types of Work Wheel
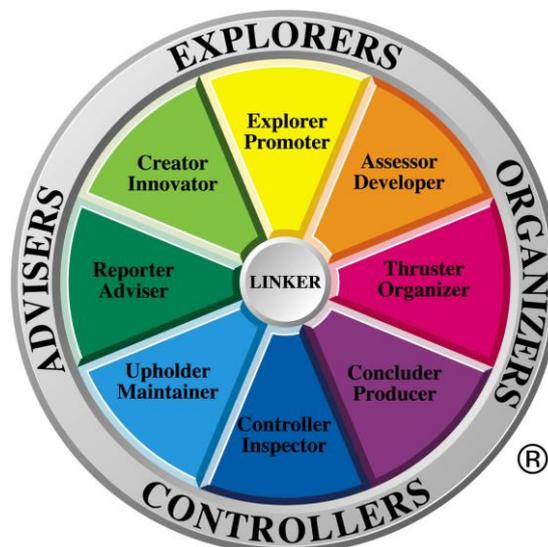

Figure 4.   The Margerison-McCann Team Management Wheel

Development Samples

An initial sample of 275 respondents completed the TMPQ and their results were used to examine the characteristics of the scales. This was later followed by another analysis on a random sample of 623 respondents and on a matched sample with 16 respondents for each of the 8 sectors on the Team Management Wheel. The results of these analyses are summarized in Tables 1 to 3.

Table 1.   Cronbach alpha reliabilities of the TMPQ Version 2 scales

	Development sample* (Version 1) (n=275)	Matched sample (Version 2) (n=128)	Random sample (Version 2) (n=623)
E-I	0.83	0.80	0.82
P-C	0.85	0.85	0.84
A-B	0.86	0.86	0.82
S-F	0.80	0.75	0.74

* (Davies, 1988)

Table 2.   Minimum, maximum, mean and standard deviations for the matched sample (n=128)

	Min	Max	Mean	SD
E-I	-22	28	0.77	11.45
P-C	-25	24	0.17	11.73
A-B	-27	28	2.51	12.02
S-F	-28	20	-0.08	10.20

Table 3.   Matched sample intercorrelations (n=128)

	E-I	P-C	A-B	S-F
E-I		-0.28 (-0.34)	-0.08 (-0.22)	-0.06 (-0.13)
P-C			0.04 (0.32)	0.22 (0.32)
A-B				0.32 (0.32)
S-F				

NOTE: The values in brackets are those from the development sample of Version 1 (n=275).

Further studies on the Team Management E-Profile Questionnaire and Version 3 of the profile questionnaire (n=1760) are given in the *TMPQ: Development* section of this manual.

Reliability

Internal Consistency

Psychometric scales are measured by a number of items that define each scale. These items should be related to some extent, otherwise errors become unacceptable. Too much correlation accurately defines a scale that is so narrow to be of limited use; too little correlation means that the scale is so broad that that it measures nothing. A reliable scale must have an adequate degree of *internal consistency* and this can be measured using a statistic known as the Cronbach alpha coefficient. Values below 0.70 indicate that the scale is becoming too broad; values over 0.90 indicate the scale is becoming too narrow. An ideal range is 0.75-0.85. Table 1 (above) indicates adequate Cronbach alpha coefficients for the development samples and this has been replicated many times with other samples.

Item Analysis

Some items do a better job of measuring a particular preference than others. One way of measuring how well an item does this is to estimate the association between the item and the total scale score. To the extent that high scores on a particular item are associated with high scores on the scale and low scores are associated with low scores on the scale, we can say there is a degree of association between the item

and the scale. Such a statistic is Spearman's rank-order coefficient (*rho*). Values for *rho* can vary between -1 to 0 to +1, with 0 representing no association, and -1 indicating a perfect negative association. Another useful statistic in analyzing the dichotomous nature of the scales is the Mann-Whitney *U* test. Data on both of these tests is reported in the *TMPQ: Reliability* section of this manual.

Test-Retest Reliability

Test-retest reliability measures the temporal stability of a measure. Time intervals vary from short-term reliabilities, usually involving two-to-four-week intervals, and long-term reliability utilizing longer periods. Choice of time interval hinges on the type of instrument being assessed and the task that it is expected to achieve, as well as administrative constraints. Short-term reliabilities are susceptible to memory effects, artificially inflating coefficients, while long-term reliabilities are susceptible to the fact that 'real' changes may occur in that time-scale, therefore overestimating the random error component. Long-term estimates also pose an administrative problem of subject attrition.

One study of 100 respondents over a period of 1 to 6 years is described in this Executive Summary. The sample of participants consisted of 56 males and 44 females. All participants were Australian.

The time period between testing was:

- 1 year   4%
- 2 years   39%
- 3 years   20%

- 4 years   23%
- 5 years   13%
- 6 years   1%

Table 4 below represents the correlations of the individual scales for both administrations of the profile questionnaire. As can be seen all correlations are above the acceptable level of 0.70 to 0.75, indicating that test-retest reliability is adequate.

Table 4.   Correlation table of Administration 1 and Administration 2: Individual scales

	Administration #1			
Administration #2	E-I	P-C	A-B	S-F
E-I	0.850			
P-C		0.871		
A-B			0.776	
S-F				0.762

Table 5 shows how major role preferences have changed over the one to six year period. As can be seen, 64% of participants returned the same overall Profile. Only 9% returned two or more changes in their preferences, demonstrating strong stability of TMPQ role preferences over this time.

Table 5.   Stability of role preferences over one to six years

	n	%
No change in overall Profile	64	64
No change in E-I preference	92	92
No change in P-C preference	89	89
No change in A-B preference	86	86
No change in S-F preference	87	87
One preference change	27	27
Two preference changes	8	8
Three preference changes	1	1
Four preference changes	0	0

Validity

Two questions that are often asked when assessing the adequacy of a profile questionnaire are 'How well does it minimize error in measurement?' and 'How well does the score measure what it has been

designed to measure?' The first question is that of *reliability*, the second is that of *validity*. Important concepts of validity are face validity, structural validity, predictive validity, construct validity and criterion-related validity.

Concurrent validity is another term often used to establish the ability of a scale to relate to other scales or measures that are taken at the same time. Criterion-related and construct validity are frequently examples of concurrent validity, provided simultaneous administration of the tests is undertaken.

Face Validity

Face validity is the extent to which a scale or group of scales 'makes sense' to observers and test users. As far as the Team Management Profile Questionnaire is concerned, people like to be convinced that a profile questionnaire is 'sensible' before they complete it. Of more importance though, is the extent to which the feedback report – the Team Management Profile – is acceptable to the test respondent. In management development it is critical that any feedback based on an instrument has high face validity otherwise the data will be rejected and the instrument denounced, even though it may have high reliability and even predictive validity.

Much care was taken to ensure high face validity was obtained on both the Team Management Profile Questionnaire and the Profile itself. This was achieved through an iterative process with many focus groups.

A confirmatory face validity study was undertaken in 2009 with an international sampling of Team Management Systems (TMS) network members. Results from this study show a mean face validity figure in excess of 91% for all the Profile reports (109,843) covered by this study. The results of the study are discussed in detail in the *TMPQ Studies: Face Validity Study* section of this manual.

Structural Validity

Structural validity is a form of validity that relates to the development of models or their scales and subscales. In the case of the Team Management Profile Questionnaire it is concerned with establishing the relationship between the four work preference scales (E-I, P-C, A-B, S-F) and the Types of Work Wheel, which results in the Team Management Wheel. Two studies on structural validity are summarized below.

Multi-Dimensional Scaling: Structural Validity of the Types of Work Wheel Study 1987

In this study 16 MBA students were asked to rank 16 types of managerial work in terms of their similarity: Advertising, Customer Service, Sales, Marketing, Promotions, Training, R&D, Project Management, Production, Operations, Information Records, Administration, Auditing, Safety Standards, Quality Control and Purchasing. These similarity ratings were then analyzed using a multi-dimensional scaling technique (MDS) which reduces such ratings to a dimensional space. Stress values indicated that the two-dimensional configuration was the most appropriate for the data set and the resultant map bears some similarity to the Types of Work Wheel. Indeed when we overlay the elements as mapped by the MDS program onto the Types of Work Wheel, the meaning of the relationships between the job titles becomes clearer.

There are interesting relationships between the job titles and the Types of Work Wheel functions indicating a reasonable level of criterion-related validity. A study such as this helps confirm the structural validity of the Types of Work model. Refer to the *TMPQ: Validity* section of this manual for further details.

Team Management Profile Questionnaire Scores Compared with Preferred and Actual Work Areas: Structural Validity Study 1988

Figure 3 shows how the four work preference measures map onto the Types of Work Wheel. The aim of this study was to test whether the hypotheses arising from that Wheel could be confirmed empirically. Are people who prefer Promoting work really more Extroverted and Creative than others in reality? To take another hypothesis, are people who prefer Inspecting work more Introverted and Practical?

In order to test the hypotheses, 281 full-time managers attending management education courses run by the Queensland Combined Schools or enrolled part-time in the MBA course at the University of Queensland, were asked to complete the Team Management Profile Questionnaire. They were then

required to fill out a questionnaire that asked them first to rank the eight types of work from 1 to 8 in terms of their preferences. They were then asked to do the same thing again, but this time to reflect on the types of work they engaged in during their normal working day. Each subscale of the Team Management Profile Questionnaire was tested in its ability to discriminate between respondents' first major work preference and major work activity using analysis of variance. The results are presented in Table 6.

Table 6.   *F* Scores resulting from analysis of variance of work preference and activity by Team Management Profile Questionnaire scales

Scale	Work preference	Work activity
Extrovert-Introvert	4.24**	1.58
Practical-Creative	12.80**	4.80**
Analytical-Beliefs	2.85*	1.90
Structured-Flexible	4.92**	3.78**

*NOTE: * *p*<0.01; ** *p*<0.001; All other *F* values not significant

As can be seen, there is a definite relationship between work preferences and all Team Management Profile Questionnaire scales.   The *F* values range from a low of 2.85 (Analytical-Beliefs) to 12.80 (Practical-Creative). These results suggest that each of the four subscales are measuring something that relates to the type of work managers prefer.

To determine which scales contributed most to the explanatory power for each work area, the total sample was divided according to subjects' first work area preference and subjects' major work activity. Mean scores were then computed for each of the TMPQ scales (E-I, P-C, A-B and S-F) for each type of work. Mean scores were tested for significant differences using the post-hoc Newman-Keuls test.

The results are presented in the *TMPQ: Validity* section of this manual. They confirm that the E-I and P-C scales are able to discriminate between work preferences at the northern part of the Types of Work Wheel (Promoting and Innovating) and those at the southern part (Producing and Inspecting). A significant Newman-Keuls test result was also returned for the difference between Developing and Maintaining, indicating that the A-B measure maps across these sectors. Similarly the study showed that the S-F measure mapped across the Organizing-Advising sectors.

Predictive Validity

Predictive validity is the ability of a measure to predict future criteria. This form of validity is important when a test is used for selection purposes. Predictive validity studies are difficult to administer as they involve a long-term research design, which comes with concomitant problems such as locating subjects at different times in the future. The TMPQ was not designed as a predictive instrument and no claims are made about its predictive validity.   The instrument is designed primarily for personal and team development purposes.

Construct Validity

Construct validity is a particular case of criterion-related validity and measures the extent to which a test or scale relates to other theoretical concepts (i.e. constructs) which have been proved by other studies to be valid. By studying the relationships of a test to many others, researchers can get a better feel for the 'real' meaning of a scale. To the extent that one construct is related to another that it should be related to, and not to others that it should not be related to, we can say that the test has good construct validity.

Several studies have been undertaken comparing the constructs of the Team Management Profile Questionnaire with other instruments. The results of these studies are discussed in the following sections of this manual:

- *Comparative Studies: TMP & the MBTI®[1] assessment*
- *Comparative Studies: TMP & Belbin®*
- *Comparative Studies: TMP & 16pf®*
- *Comparative Studies: TMP & Emotional Intelligence*

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[1] MBTI, Myers-Briggs, and Myers-Briggs Type Indicator are trademarks or registered trademarks of the Myers-Briggs Type Indicator Trust in the United States and other countries.

- *Comparative Studies: Relationship to Work Aspect Preferences*
- *Comparative Studies: TMP & Learning Styles*
- *Comparative Studies: TMP & the Learning Styles Questionnaire*

It is also useful to carry out a construct validity comparison between the scales of the Team Management Profile Questionnaire and other instruments within the TMS suite of products. The results of these studies are discussed in the following sections of this manual:

- *Comparative Studies: Linking Skills & Work Preferences*
- *Comparative Studies: QO_2™ & Work Preferences*
- *Comparative Studies: WoWV & Work Preferences*

These 10 construct validity studies confirm that the Team Management Profile Questionnaire has good construct validity.

Criterion-Related Validity

Criterion-related validity is the extent to which an instrument is related to external criteria. One example of this is the role preferences functional area analysis where role preferences are compared with functional job areas. If we have defined a role as say, Concluder-Producer and indicated that people with this preference enjoy working in a practical way producing results according to a plan, then we would expect there to be a high number of people with these characteristics working in production jobs. This would be an example of criterion-related validity. Other examples might be the relationship between the instrument and personal appraisal results or peer ratings of the same concepts.

Role Preference Functional Area Concurrent Validity Study 1988

The role preferences of respondents in a sample of 3737 respondents were analyzed for a project on workplace role preferences. Of these 43% were tested in Great Britain, 46% in Australia and 4% in Asia. A substantial number of respondents were able to be placed into discrete categories and occupational profiles were developed. These are presented in the *TMPQ: Validity* section of this manual. To test whether these percentages differed significantly from the total percentages, simple chi-squared tests were used.

According to the theory of the Team Management Wheel, respondents with various role preferences should be attracted to different functional areas. It would be reasonable to expect, for instance, that Explorer-Promoters are more likely to be working in the more entrepreneurial and high-profile activities of corporate planning and marketing than in 'controlling' type areas such as administration or finance and accounting. Similarly, Reporter-Advisers should be more prevalent in jobs where information is of prime concern than in jobs which involve fast action and decision, often based on minimal information. These latter types of activities would be more sought after by Thruster-Organizers and Concluder-Producers.

This hypothesis is confirmed when we look at each role preference in turn, starting from the Creator-Innovator sector and moving clockwise around the Team Management Wheel.

- Creator-Innovators (Creative and Flexible)
  Predictably, managers working in design or research & development (17%) and management consultants (18%) predominate in this role.

- Explorer-Promoters (Extrovert and Creative)
  13% of corporate planning and development managers and 17% of those involved in design and research & development returned this role preference.

- Assessor-Developers (Extrovert and Analytical)
  A recurring role preference for chairpersons, directors and proprietors (27%); consultants (23%) and sales and marketing managers (26%).

- Thruster-Organizers (Analytical and Structured)
  No single functional area predominates, but it includes many chairpersons, directors and proprietors as well as managers from personnel and training, sales and marketing, and production, construction and control areas.

- Concluder-Producers (Practical and Structured)
  This is a characteristic role of managers involved in production, construction and control (41%), administration (34%) and finance and accounting (33%).

- Controller-Inspectors (Introvert and Practical)
  Managers working in administration (8%) and finance/accounting (10%) often return this role.

- Upholder-Maintainers (Introvert and Beliefs-based)
  Only 2% of the sample were Upholder-Maintainers; of these, managers occupying administrative roles (5%) are the only significant group.

- Reporter-Advisers (Beliefs-based and Flexible)
  This role is mostly preferred by those involved in consultancy (6%). Again, another under-represented role within this sample.

Career Direction Study

A criterion-related validity study was included as part of a career longitudinal study on the Team Management Systems concepts. The results of this study are discussed in the *Comparative Studies: Longitudinal Study* section of this manual.

Work Preferences: Concurrent Validity Study 1988

This study examined the correspondence between subjects' Team Management Profile Questionnaire scores as one measure of work preferences and subjects' self-ratings and descriptions of their work behavior as one set of criteria. Additionally, associates of these subjects were also asked to rate and describe their colleagues' behavior. These were used as further criteria. As a second focus of the study, information was obtained from subjects and their associates regarding preferred work areas. This qualitative study shows good relationships between the Team Management Wheel concepts and external criteria elicited from subjects' and associates' comments.

Other Studies

A number of other validity studies have been carried out by external researchers. Eleven of these are summarized in the *TMPQ: Further Research & Validity Studies* section of this manual.

British Psychological Society Review

The British Psychological Society (BPS) has recognized the Team Management Profile as an important instrument to review. Only a small proportion of tests are reviewed and we are happy that the ratings for the instrument are on a par with other older and more established psychometric tests. Our aim in developing the Team Management Profile Questionnaire was always to provide a tool that first and foremost had practical utility to trainers and managers. In fact, we do not use the term 'personality' in describing the instrument as we feel that the Team Management Profile Questionnaire is less an indicator of personality, but of work and team preference. However, the BPS decided to place the Team Management Profile Questionnaire into their 'Personality' category.

In their 2003 updated review[2] of the of the Team Management Profile, the British Psychological Society concluded that,

> "*The strength of the test, from a practitioner viewpoint, is that the Team Management Profile has a high face validity with managers, the narrative Profile is easy to read and understand, and the documentation and feedback material is excellent. … The technical quality of the information and the overall presentation of the material are very good. The instrument has a wide range of applications: career counseling, training and personal development, project management, team building, and so on. It is likely to be particularly useful in the context of team building as a basis for group discussion to identify the strengths, weaknesses and complementary skills of the team.*"

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[2] A copy of the review can be found online at ptc.bps.org.uk.

Their ratings for the instrument are reproduced below.

Characteristics	Evaluation
Quality of documentation	★★★★
Quality of materials	★★★★★
Norms and reference groups	★★★★
Construct validity	★★★★★
Criterion-related validity	★★★
Reliability - overall	★★★

This table shows adequate to excellent ratings for all BPS evaluation categories.

Norm Data

The worldwide TMPQ database as of 2018 consists of 519303 completed profile questionnaires in 25 languages. Respondents are from 81 industries and 295 professions spanning across 202 countries.

Figure 5.   Major role preference distribution for total worldwide database (n=519303)
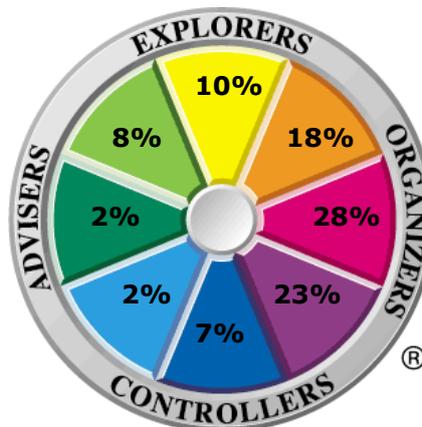
Work preference score and role preference distributions for 298 major norm groups from the worldwide database are given in the *TMPQ: Worldwide Database* sections of this manual. These cover age group, gender, organizational level, functional area, profession, industry, country, language and regional area. Percentile norms for all major norm groups are also available in the *TMPQ: Worldwide Database Percentile Norms* section of this manual.

Please note that the sample size of the major worldwide database cannot be taken as an indicator of the number of profile questionnaires completed worldwide. Due to the enormity of the task, the Institute of Team Management Studies is restricted in the amount of data that can be collated for analysis. More than 1.5 million Team Management Profile Questionnaires have been completed worldwide.

References

British Psychological Society, (2003), Team Management Profile Questionnaire (TMPQ), **Psychological Testing Center Test Reviews**.

Davies, R.V., (1988/89), 'The Margerison-McCann Team Management System: Research Manual 1988/89', Graduate School of Management, University of Queensland.

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TEAM MANAGEMENT SYSTEMS

Margerison-McCann

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