

# **Preferred Team Roles of Construction Professionals in the South African Construction Industry**

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## **Abstract**

In the delivery of construction projects, different participants are brought together. The successful delivery of such project depends on the ability of these participants to function as a team. Identifying each individual's preferred team role is crucial for the smooth running of the team and successful delivery of the project. This paper presents the result of an assessment of the team roles of construction professionals in Johannesburg and Ekurhuleni Metropolitan Municipalities, Gauteng, South Africa. The study adopted the Belbin's Theory on teamwork, and a questionnaire was used to gather data from construction professionals. Data gathered were analyzed using appropriate descriptive statistics. The study reveals that the preferred team roles of these professionals are Team-worker and Completer, while the least preferred role are Plant, and Specialist roles. Although the delivery of construction project is team oriented which can be responsible for construction professionals to naturally fall within the "team-worker" role, it should be understood that some workers are bound to fit in better within other team roles as a result of some inherent abilities. Therefore construction leaders should know about these team roles so that they can find out the type of behaviors they have in their teams.

## **Keywords**

Belbin Theory, Construction Team, Self-Perception Inventory, South Africa, Team Roles

## **1. Introduction**

The construction industry is large, dynamic, and complex in nature, and it plays an important role in a nation's economy (Behm, 2008). The industry has been described as a challenging and demanding sector which requires many workers and many trades, and at the same time contributes immensely to the growth of any society (Construction Industry Development Board (CIBD), 2012; Navon, 2005). However, construction organizations find themselves in a constantly competitive environment that requires them to rapidly adapt to changes. Considering the nature of the construction industry, whereby different construction participants come together for the actualization of a project, utilizing the abilities of these participants to stand the constant changes within the construction environment is necessary for the survival of these organizations. Teamwork has therefore been identified as a crucial way of dealing with these changes and achieving positive results. Base on this knowledge, studies on the importance of brilliant teamwork in attaining organizational success have emanated (Batenburg *et al.*, 2013; Glassop, 2002; Kozlowski and Ilgen, 2006).

Smith *et al.* (2000) stated that the essence of team formation is to achieve effectiveness and great performance. However, it was further stressed that the fact that there's a team, does not necessarily mean that the team will perform. Based on this background, studies on the performance of teams in projects have been carried out. Much so, there are also theories such as the Belbin Team role theory, developed to distinguish the types of individuals needed in order to achieve a great team. On several occasions of testing the Belbin Theory, researchers have found the

theory to produce ambiguous results, thus more scientific evaluations and tests have been suggested for the theory (Batenburg *et al.*, 2013). However, Eubanks *et al.* (2016) express that although the theory has received some criticism, it remains the most favoured by academics and organizations. This study also adopts the Belbin Theory in assessing the team roles of construction professionals in South Africa, with a view to providing top management within construction organizations with insight that will help in managing their team effectively.

## **2. Literature Review**

A team is seen as a group of individuals that work collectively in order to achieve a common goal (Burke, 2014; Orbelender, 2014). Edward and Mbohwa (2013) in detail further define a team as a form of group superior to the other groups due to characteristics such as great commitment to achieve common objectives and competency in interdependency and interaction. Cleland and Ireland (2010) believe that effective teams have team members that have trust in one another, remain loyal and true to the purpose established by the team. They can indulge professionally in controversial conversations and disagreements that may possibly occur in the team's operation, and remain comfortable with the interdependence found in being part of a team. A team enables individuals to feel needed in an organization and helps individuals to easily develop themselves with the help of the other team members (Orbelender, 2014)

In construction, a project team plays a crucial role in the actualization of a client's dream. Construction Specifications Institute (2013) noted that the construction of a facility requires the services of a diverse group of individuals with their respective talents, ideas, and expertise. These individuals become the project team formed to accomplish the work awarded by the client. Cleland (2007), Cobb (2012) and the Project Management Institute (2000) define a project team as individuals put to task to carry out the project activities. Orbelender (2014) elaborates that although each team will only work in their respective departments and do what they specialize in, eventually each team must develop and entail an attitude of 'shared ownership' and utilize the teamwork approach within the project, which will create a friendly environment and work execution efficiency.

Every individual within a project team portrays two types of roles; the Functional Role and the Team Role (Belbin, 1997; Burke, 2014). The reference to the two types is also known as the 'diversity' of a team member (Smith *et al.* 2000). Although this study only concentrates on the team role, it is still imperative to distinguish between the two types of roles. The functional role of an individual is the skills, experience, knowledge and expertise that come with him or her to the team. The team role, on the other hand is an inclination to act, contribute and relate with other team members in a particular way (Belbin, 1997; Belbin, 2016; Burke, 2014; Manning *et al.*, 2006; Smith *et al.*, 2000). Cobb (2012) added that team role are like roles in a 'play'. In other words,, they are behaviors that team members must perform for successful "production" to be attained.

The team role theory was initialized in the late 1960's. Its foundations were laid when Dr. Meredith Belbin was invited to carry out research at the Administrative Staff College at Henley-on-Thames, UK (now Henley Business School), (Belbin, 2016; Bell, 2013). The fact that the research would be on the group and individual behavior, was what interested Dr. Belbin. He believes that "A team is not a bunch of people with job titles, but a congregation of individuals, each of whom has a role which is understood by other members. Members of a team seek out certain roles and they perform most effectively in the ones that are most natural to them" (Belbin, 2016). A research team comprising of his wife, a mathematician and international chess master, an anthropologist, and an occupational psychologist was formed. The task was to take nine years and every year there would be three business games comprising of eight teams. Year in and year out, during and after the meetings, the team observed, categorized and recorded all the contribution made by the team members. From the findings, eight team roles were established, with a ninth role called the Specialist, added in 1988. These team roles are now adopted globally to assess behaviors of team members in the work environment, thus, enabling managers to build teams that embrace and utilizes individual's strengths, whilst mitigating their weaknesses (Belbin, 2016; Bell, 2013; van de Water *et al.*, 2008). Van de Water *et al.* (2008) add that the Team Role theory is one of the most commonly known theories and is broadly used in the development of teams and management.

The nine different team roles needed to be present to form a balanced team, inclusive of their respective contributions (strengths), 'allowable weaknesses' and 'not allowed weaknesses' for each team role are given below. The 'allowable weaknesses' of an individual are found to be no more than their corresponding strengths. Therefore if an individual's 'allowable weakness' is a price that needs to be paid by an individual for his strengths, Belbin

believes that is a fair trade, although it is still very imperative that the individual masters the ability to manage the weakness (Belbin 1993).

#### 1. Plant

This particular individual comes up with ideas and thereafter strategies to help the team achieve the objectives of the team and project at large (Batenburg *et al.*, 2013). The Plant can be very shy at times though, but when given an opportunity to produce input, the Plant has a lot to offer. This term comes from ‘a house plant’, always at the corner, but flourishes in the eyes of an individual that appreciates it. A Plant is said to be one of the team role of an intellect (Rajendran, 2005). Cartwright (2002) stated that the Plant is over more concerned with major issues than with details, thus it has the tendency to ignore details and make careless mistakes. These mistakes, unfortunately, have been termed as an allowable weakness of a Plant within the team.

#### 2. Resource Investigator

Rajendran (2005) and Batenburg *et al.* (2013) states that the Resource Investigator specializes in exploring what happens outside the team that he is part of, in order to attain relevant information, ideas, and resources. This is easy for the Resource Investigator as he is an extrovert and a master of negotiation. Through his networking, he develops contacts that may be of use to the team in the future. The Resource Investigator can sometimes be overoptimistic and loses interest once initial enthusiasm has passed (Cartwright, 2002).

#### 3. Chairman/Coordinator

A Coordinator basically has good management skills. He controls all the activities that take place within the team so as to ensure great coordination. Batenburg *et al.* (2013) express that the Coordinator ensures that the team members have clarity on the objectives of the team and any problems thereof and then delegates work amongst them. It is essential for a Coordinator to encourage the involvement of team members so as to maintain a productive team that can easily achieve the desired objectives and goals. Typically, the Coordinator is in control of the team members in terms of the ‘head of the house’ or head of the table manner’. Just because the Coordinator is in control it does not mean that he is aggressive, this is an individual who can carry himself well, and brings out the best out of his team. The Coordinator has got to be aware of the team member’s weaknesses and strengths thereof (Rajendran, 200). A major allowable weakness of a Coordinator is the fact that sometimes he can appear to be manipulative, have the tendency to offloads his own share of the work on others, and sometimes appear to be lazy (Belbin, 2016).

#### 4. Shaper

A Shaper challenges the team and is not afraid to dispute anything that he disagrees with. Although he may come across as impatient and easily frustrated, his aim is to achieve the objectives of the team, project, and win. Although the SH cannot be a good leader, he usually has great insight. The SH’s aim is to push team members to comply and be effective. A shaper has a strong character and may come across as very competitive (Rajendran, 2005; Batenburg *et al.*, 2013). According to Cartwright (2002), the shaper is prone to provocation, offends people’s feelings because of getting easily frustrated and irritated.

#### 5. Monitor-Evaluator

The Monitor-Evaluator is the individual who is good at analyzing. He ensures that the ideas and any proposal that the team has considered are feasible and valuable for the team to meet their objectives (Batenburg *et al.*, 2013). Therefore he contributes to the team with constructive criticism that will help the team to move forward in the right direction. The Monitor-Evaluator is very smart too. According to Rajendran (2005) the Monitor ensures that all alternatives are evaluated before the team can make drastic decisions. The Monitor-Evaluator has the tendency to be overly critical and can sometimes appear to lack drive, and ability to inspire others (Cartwright, 2002).

#### 6. Team Worker (TW)

This is the guy that everyone in the team enjoys working with. He is naturally an individual that communicates effectively, supportive and has a warm heart that is able to assist team members to overcome conflicts (Batenburg *et al.*, 2013). A Team Worker encourages a great team spirit and helps maintain that spirit. The Team Worker and the Resource Investigator are almost the same, the difference is that one facilitates inside the project team and the latter outside (Rajendran, 2005). The Team Worker can be indecisive in critical situations and avoids confrontation (Cartwright, 2002).

#### 7. Company Worker / Implementer

The Implementer is concerned with a reasonable interpretation and utilization of ideas and arrangements created by the members of the team. He remains very calm with great perseverance when the team faces difficulties. The Implementer ensures that everything goes according to plan and does not like to deviate from it. The Implementer gains pleasure in doing everything according to the book (Batenburg *et al.*, 2013; Rajendran, 2005). Cartwright (2002) observed that the Implementer can sometimes be rigid, and his response to new possibilities can be slow.

#### 8. Completer / Finisher

The Completer pushes the team to stay efficient and ensures that their hard work pays off at the end of the day. According to Batenburg *et al.* (2013), the Completer searches for mistakes, in order to be able to fix them whilst there is still time and maintain a smooth journey till the end. Rajendran (2005) refers to this individual as a perfectionist to some extent. Cartwright (2002) however noted that a Completer can sometimes be inclined to worry unduly, reluctant to delegate and spread the workload.

#### 9. Specialist

The Specialist was added later on amongst the team roles. This role was added after it was realized that there is also a great need for an individual with technical expertise in a team (Partington and Harris, 1999). Therefore the Specialist ensures that there is an in-depth understanding of the work. According to Aritzeta *et al.* (2007), a Specialist is an expert, a defendant, has little interest in others, serious, self-disciplined and efficient. According to Cartwright (2002), he is single-minded, knowledgeable in his field but his contribution is narrow

### **3. Research Methodology**

The study assessed the team roles of construction professionals within the South African construction industry. The study was conducted among construction companies in the City of Johannesburg and Ekurhuleni Metropolitan Municipalities, Gauteng Province of South Africa. A quantitative approach using a structured questionnaire administered to construction participants within these companies was adopted. These participants were Architects, Construction Project Managers, Construction Managers, Contract Managers, Civil Engineers, Quantity Surveyors, Quality Assurance Clerks, Health and Safety Officers. The selection of the participants was based on their involvement with construction-related activities in a minimum of two years. A total of 74 construction participants took part in the study.

The questionnaire for the study was designed in two sections with the first section designed to harness biographical information from the respondents. The second section harnessed information on the team roles of the respondents using the Self Perception Inventory (SPI) questions. The SPI is a questionnaire that Belbin established which is similar to the psychometric test (Rajendran, 2005). This study only adopted questions from the questionnaire and not necessarily Belbin's method of collecting and analyzing the data entailed. Hardcopies and electronic copies of the questionnaire were distributed to the participants. Out of the 74 questionnaires distributed, 47 were received and usable, which resulted in a response rate of 64%, which was deemed adequate for analyses. Data analyses were done using percentage in analyzing the background information, while Mean Item Score (MIS) was used to rank the different variables in the SPI. The internal consistency of the questionnaire used was tested using the Cronbach's alpha test whose values ranges between 0 and 1, and the higher value, the higher degree of internal consistency. The Cronbach's alpha value of 0.897 was derived for the construction professionals' team roles, and this implies that the questionnaire used is reliable since the derived value is closer to 1.0.

### **4. Results and Discussions**

#### **4.1 Biographical Data**

The result on the biographical data of the respondents showed 46.8% female and 53.2% male. In terms of their ethnicity result revealed that 70.2% of the respondents were African, 21.3% were White, 4.3% were Coloured respondents and 4.3% Indian or Asian. Furthermore, the highest educational qualification obtained by the respondents revealed that 44.7% respondents have Degrees, 42.6% had National Diplomas, 10.6% had Higher Certificates only, and 2.1% owned a Master Degree. The professional status of the respondents revealed that 36% of were Quantity Surveyors, 24% Civil Engineers, 12% Construction Project Managers, 10% Construction Managers,

8% Civil Engineers, 4% Quality Assurance Clerks, 4% Contract Managers, and 2% Safety Officers. All the respondents selected have a working experience of above 2 years since this was the criteria set for selecting respondents. It is therefore believed that considering the academic background and period of working within the construction industry, these professionals have the capability to give reasonable answers to the questions of this study.

#### **4.2 Preferred Team Roles of Construction Professionals in South Africa**

Result in Table 1 shows how the respondents have ranked the adopted Belbin Self-Perception Inventory (SPI) questions. The utilization of the SPI assisted in determining the preferred team roles of construction professionals in South Africa. For each identified team role, seven SPI questions were asked. This gives a uniform basis for comparing the team roles as adopted by the professionals. Following the analysis of the data gathered, result in the table has been arranged according to the team roles with the highest overall mean. Thus, it is evident that under the Team Worker, all the 7 assessed variables have a mean value of well above the average of 3.0. However, the most significant of them are, having interest in getting to know people better (Mean = 4.06, SD = 0.791), and responding positively to my colleagues and their initiatives (Mean = 4.00, SD = 1.063). For the Completer / Finisher, the three most significant variables are seen to have the same mean value of 3.94. They include; endeavoring to notice slips and omissions that others fail to see, always have the feeling of areas of work that requires maximum attention and concentration and being observant of areas where difficulty may arise.

In terms of the Implementer, the top variables are being reliable when it comes to organizing for the needed job (Mean = 4.21, SD = 0.657), always wanting to know that the task and objectives are not vague (Mean = 4.15, SD = 0.807), and having a knack for sorting out important steps needed for a job base on a broad brief (Mean = 4.04, SD = 0.884) were ranked top. I can be assertive when needed just to get other people involved, and I can work with all kinds of the individual as long as they have something reasonable to contribute, are top under the Coordinator team role with a mean value of 4.02 and 4.00 respectively. For the Resource Investigator, being keen to find out the latest ideas and developments (Mean = 4.02, SD = 0.848), and check around for ideas and openings (Mean = 4.00, SD = 0.909) ranked top. For the Monitor / Evaluator, the topped ranked variables are, considering every suggestion carefully before choosing (Mean = 3.96, SD = 0.999), and though my judgment may take time, it is usually correct (Mean = 3.94, SD = 1.051). I am not hesitant in emphasizing my view in meetings (Mean = 4.06, SD = 0.791), and I am always ready to take the lead when action is needed (Mean = 4.04, SD = 0.955) are the top-ranked variables under the Shaper team role. In terms of the Plant, the topped ranked variable is being able to visualize the use of ideas and techniques in new relationships (Mean = 3.87, SD = 0.866), while for the Specialist team role, the top-ranked variable is being ready to help with my knowledge and expertise (Mean = 4.11, SD = 0.961).

Table 1: Team Roles of Construction Professionals

TR	Self-Perception Inventory	Mean	SD	Rank
Team Worker	I have interest in getting to know people better.	4.06	0.791	1
	I respond positively to the initiatives of my colleagues.	4.00	1.063	2
	I am ready to help whenever I can.	3.91	1.060	3
	I am concerned with the problems of my colleagues.	3.87	0.900	4
	I get along with my team members and work hard for the team.	3.83	1.090	5
	I always support good suggestions that bring about a solution to problems.	3.83	1.028	5
	I believe my personal skills are appropriate in achieving agreement.	3.79	1.122	6
Completer-Finisher	I endeavor to notice slips and omissions that others fail to see.	3.94	0.734	1
	I always have the feeling within me of areas of work that requires maximum attention and concentration.	3.94	0.791	1
	I am observant of areas where difficulty may arise.	3.94	0.952	1
	Being busy gives me real satisfaction.	3.91	1.063	4
	I have a natural sense of urgency.	3.85	1.007	5
	I am concerned about the finishing and perfection of a job right from the beginning.	3.83	1.061	6
Implementer	I have a strong passion for getting details of a job correctly.	3.70	0.895	7
	I am reliable when it comes to organizing for the needed job.	4.21	0.657	1
	I always like to know that my task and objectives are not vague.	4.15	0.807	2
	I believe I have a knack for sorting out important steps needed for a job base on a broad brief.	4.04	0.884	3
	I strive to build up an effective structure.	3.79	1.020	4

	I always keep to a steady systematic approach, no matter the pressures.	3.70	0.931	5
	I find it difficult to be part of a job that has undefined goals.	3.70	1.020	5
	I think sometimes working in a group frustrates my imagination.	3.32	1.416	7
Coordinator	I can be assertive when needed just to get other people involved.	4.02	0.989	1
	I can work with all kinds of individuals as long as they have something reasonable to contribute.	4.00	0.956	2
	I can coordinate and put individual's abilities and talents into productive use.	3.96	0.884	3
	I view problems from different angles and ensure I take decision acceptable to all.	3.89	0.914	4
	I have a skill for organizing people.	3.77	0.865	5
	I enjoy reconciling different points of view.	3.72	1.136	6
	I am comfortable working with people irrespective of their personality and outlook.	3.60	1.116	7
Resource Investigator	I am keen to find out the latest ideas and developments.	4.02	0.847	1
	I check around for ideas and openings.	4.00	0.909	2
	I like to explore possible ideas with wider application than in the immediate task.	3.91	1.039	3
	I ensure that I follow up interesting ideas and/or people.	3.87	1.035	4
	I keep a broad range of personal contacts as this is crucial to my style of working.	3.85	0.884	5
	I particularly enjoy exploring different views and techniques.	3.74	1.073	6
	I know the right set of people with the specialist knowledge needed for every job.	3.34	1.185	7
Monitor-Evaluator	I consider every suggestion carefully before choosing.	3.96	0.999	1
	Although my judgment may take time, it is usually correct.	3.94	1.051	2
	I handle problems in a careful analytical way.	3.83	1.028	3
	I critically evaluate the pros and cons of people's ideas	3.74	0.966	4
	I can usually find the argument to refute unsound propositions.	3.72	0.994	5
	I believe my feelings seldom interfere with my judgment.	3.51	1.019	6
	I like to make critical discrimination between alternatives.	3.38	1.134	7
Shaper	I am not hesitant in emphasizing my view in meetings.	4.06	0.791	1
	I am always ready to take the lead when action is needed.	4.04	0.955	2
	I like having considerable influence on decisions.	3.91	0.929	3
	I try to make my mark in group meetings.	3.83	0.916	4
	I react strongly when track of the main objective of meetings is lost.	3.64	1.092	5
	I have no problem making my personal views known forcefully if necessary.	3.38	1.095	6
	I have no problem being unpopular among the team in getting my views across, if it will lead to the success of the group.	3.38	1.190	6
Plant	I can visualize the use of ideas and techniques in new relationships.	3.89	0.866	1
	I have the ability assess situations independently and innovatively.	3.72	0.994	2
	I produce original suggestions.	3.68	0.837	3
	I produce fresh approaches to long existing problems.	3.68	0.887	3
	I tend to have a creative approach to problem-solving.	3.53	1.158	5
	I have the tendency of seeing patterns where others would see items as unconnected.	3.51	1.101	6
	I envisage the possible use of new ideas and techniques.	3.89	0.866	7
Specialist	I am ready to help with my knowledge and expertise.	4.11	0.961	1
	I ensure that I know the technicalities of the job.	3.89	1.005	2
	I do not mind undertaking the task with the support of the team.	3.85	1.142	3
	I am happy and see that as an opportunity to present my extensive knowledge.	3.81	1.035	4
	I am very single-minded.	3.34	1.434	5
	I provide my services without any interest in other people's work.	3.34	1.356	5
	I shy away because I am not really good with social interactions.	2.64	1.223	7
<i>Cronbach's Alpha = 0.897</i>				

Result in Table 2 shows the overall ranking of the various team roles of construction professionals. From the table, it can be deduced that there is a considerable amount of consistency in the view of the different construction professionals assessed as regards their various preferred team role, as a Standard Deviation (SD) of below 1.0 was derived for all the approaches assessed. This implies that these professionals are to a considerable extent in agreement with the selection of their preferred team role on construction projects. From the table, result shows that the team-worker, and completer/finisher role is the most preferred by construction professionals as it is ranked the highest among other team roles. However, the role of a plant and specialist is the least preferred. The role of a team-worker has been described as one that tends to promote and maintain team spirit in the attainment of the team goals (Rajendran, 2005). Considering the fact that construction projects involve the coming together of people of the diverse profession, it is not surprising to see construction professionals falling within the team worker role easily

than other team roles. This role is more like a traditional role for most construction participants with the desire to achieve positive construction projects. The Completer, on the other hand, pushes the team to stay efficient and searches for mistakes, in order to be able to fix them whilst there is still time and maintain a smooth journey till the end (Batenburg *et al.*, 2013). This role is common among project managers and construction supervisors, who are saddled with the responsibility of achieving a smooth construction process and successful project delivery. This study agrees with Rajendran (2015) which observed that the role of the plant at times may be the least preferred team role among workers. This could be as a result of the fact that the role of a plant in a team comes with high intellect and ability to come up with innovative ideas, which at times can be rather challenging (Batenburg *et al.*, 2013).

Table 2: Summary of the Team Role of Construction Professionals

Team Roles	Mean	SD	Rank
Team Worker	3.90	0.099	1
Completer /Finisher	3.87	0.089	2
Implementer	3.86	0.291	3
Coordinator	3.85	0.159	4
Resource Investigator	3.82	0.231	5
Monitor / Evaluator	3.75	0.215	6
Shaper	3.73	0.288	7
Plant	3.62	0.183	8
Specialist	3.57	0.500	9

*Cronbach's Alpha = 0.897*

## 5. Conclusion

This study assessed the team roles of construction professionals within the South African construction industry. Using the Belbin theory on teamwork, a survey was conducted to identify the preferred team roles among construction professionals within in the City of Johannesburg and Ekurhuleni Metropolitan Municipalities, Gauteng, South Africa. Base on the finding, the study concludes that the preferred team roles of these professionals are team-worker, and completer, while the least preferred role are plant and specialist. The delivery of successful construction projects involves teamwork; hence it is not surprising to see construction professionals falling suitably into the role of a team-worker. However, this does not negate the fact that there are some workers, who as a result of their inherent ability, tend to perform better in other team roles, than just being a team-worker. It is therefore recommended that construction leaders know about these team roles so that they can find out the type of behaviors they have in their teams. Also if each individual team member knows exactly the type of team role the other team member play, it will be easier for them to understand and work effectively with them. Thus, construction participants on a project need to be enlightened on the different team roles and how they can fit in well with the established team for the project.

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## **Biographies**

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