INGENIOUS PROJECT MANAGEMENT ON TEAMWORK & CULTUREL BARRIERS IN WILLIAM ESTATE CONSTRUCTION (UK)

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ABSTRACT:

Culture has great impact on the organisation at large. It affects the pattern of work and work output, it affects the performance of the organisation in all aspect, but this effect exists not only on the organisational level. It also influences the team performance. Particularly, with the rapidly growing use of teams to achieve several kinds of organisational objectives (Fairfield-Sonn, 2001). Form Annex Associate management wants to improve the performance of its team so as to meet more future challenges that will emerge in nearest future, and will do everything possible so as to maximise its team's performance after careful appraiser of its team performance, the management decided to engage in overall assessment of its design team working performance.

This report is an assessment of the design team. The assessment was divided into three parts. The part one entails the broad description of the structure of organisation and the way the staff functions and interacts. The organisational framework, the organisational capabilities and the strategies used in the implementation of design project. The pattern of communication and information flow between the team member and their integration approach to project was described. Professional nature of the firm was examined so as to know the way it operates. Then there was described the culture of the team that shapes the behaviour of the team over the year and the strategy adopted during the design development.

Also this paper analysis and evaluation of the team performance, which is done by means of the using of the teamwork and cultural model and includes the appraisal of the Williams's estate

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design process used in, carry out the design project. Then the type of team, carrying out the task, is identified. Also, there was done a review of all the team member roles in the design development, their positive and negative attributes discovered within the project. The development of the lifecycle of the design team is used to demonstrate how the team was formed to the adjourning of the team members. The cultural analysis was carried out to know if the national culture affects the team performance in any way, and to identify the kind of culture in which the team functions. Integrated model was used for analysis of the team performance and of the culture. It was discovered that the team needs to improve its performance so as to meet the changing demands of its clients

Key Words: Teamwork, Culture, Performance, Organisational & Project.

1.0 STRUCTURE AND CULTURE OF WILLIAMS'S ESTATE DESIGN TEAM:

1.1 THE FIRM

Form Annex Associates was founded in 1981. An architectural firm based in Nigeria with of 18 staff members, it specialises in different building types ranging from design to successful project completion. Form Annex Associate services are as follows: architecture design, project management and construction. The company's experience includes successful implementation of different types of projects, such as architectural design of private and commercial buildings, institutions, schools, churches, and offices. Its buildings are designed with place, culture, climate, and natural environment in mind. A 27-year experience of the firm is reflected in its projects by incorporating the principles of effective site planning and building design.

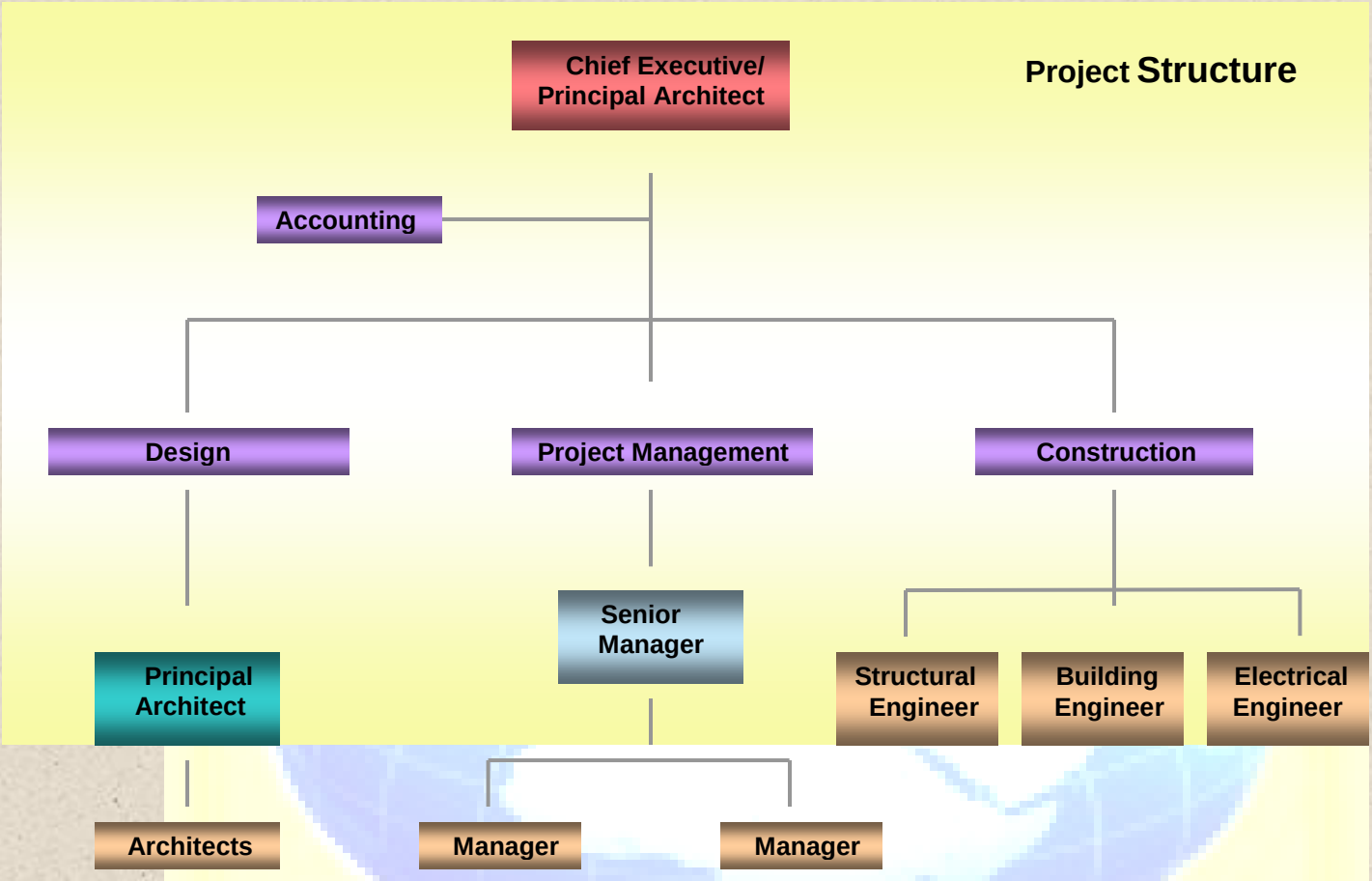

Figure 1.1 Form Annex Associate organisational structures

FAA is a professional organisation, where there is standardisation of services and skills. The corporate strategy is directed towards the meeting of the needs of stakeholders and increasing of the value of different parts of the firm. There exists vertical horizontal decentralisation, so that most of the power rests in the operation core at the bottom of the structure (Lu, 2008)

The organisational principle of FAA is as follows. It is governed by a self-employed principal, who manages and coordinates his business with some architects, project managers and engineers who assist him. The principal architect coordinates the team actions by monitoring the whole range of activities of the teams.

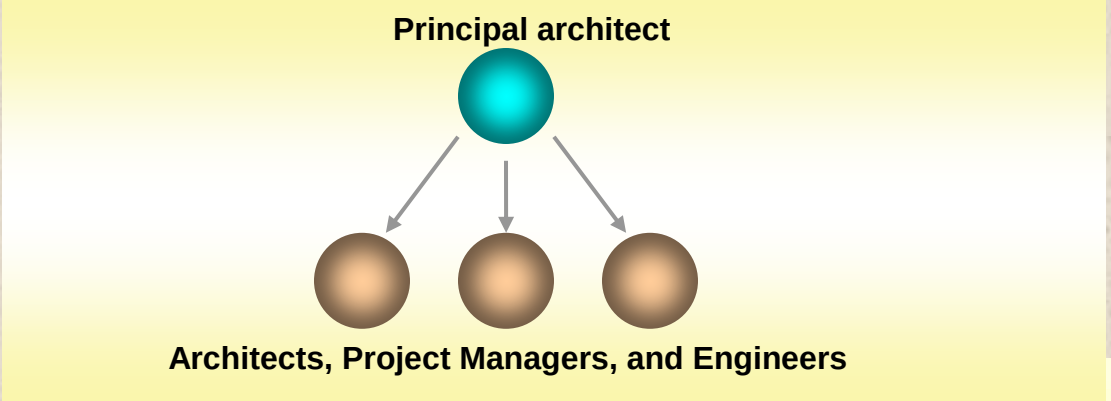

Figure 1.2 Shallow framework adopted from Arthur, 1990

According to Arthur (1990) managing overall organisation and managing at individual basis can be referred to as 'organisational frameworks'. He defined organisational framework as the arrangement or pattern where the total workload of the firm is divided among the team. Some may have to work on their own, but the majority will probably combine their activities and work as a group. At Form annex, majority of the team members' will work on their own, while some will combine their activities-- only when the principal tells them to work together for a particular project.

1.2 WILLIAMS'S ESTATE DESIGN TEAM STRUCTURE

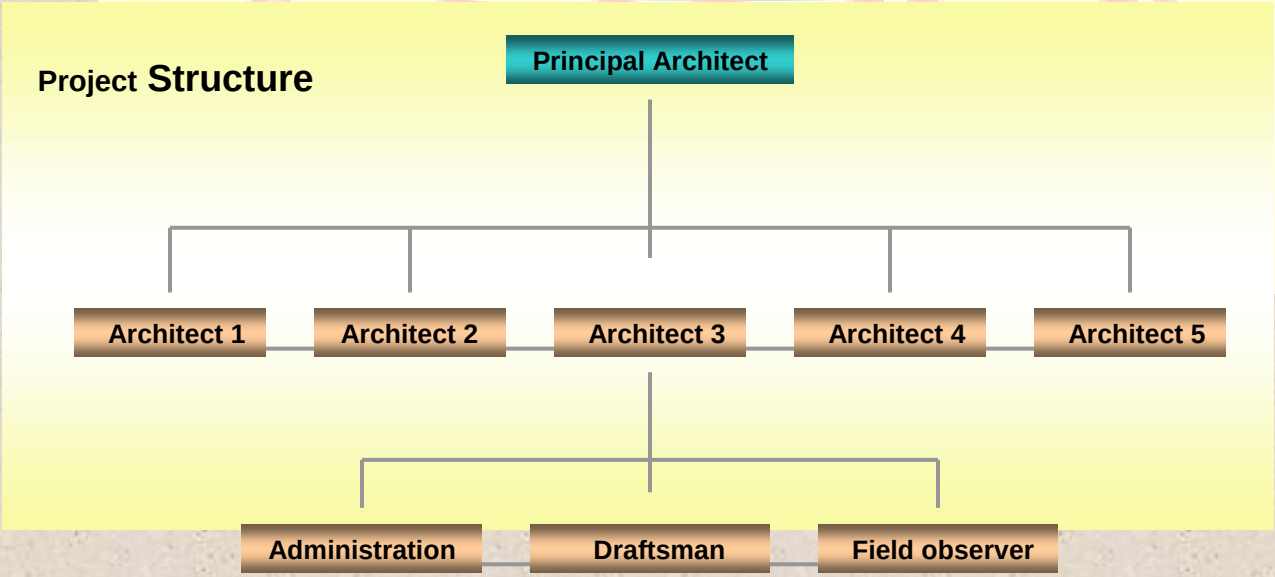

Figure 1.3 Williams's estate design organisation

The structure of an organisation comprises all the arrangements by which its various activities are divided up between its members and effectors' coordinated. (Newcombe et al, 1990). The principal gives task to each member of the team and coordinates the progress of work.

Project is integrated into the firm through the principal project structure. The organisational capability of the firm is a project capability; knowledge, experience and skills necessary to perform; pre-tender, tender, project and post-project activities. All this project capabilities are needed for sustainable competitive advantage. (Lu, 2008)

The CEO functions in the operation core. He is also the principal architect, who oversees the design works at the operation core. In addition, he is a part of the operation core. In the team there is no middle management; the principal manages all the activities of the design process.

The team member at the operating core reports directly to the principal architect for clear instruction and monitoring. The team transforms the client information into design solution for the client.

Mutual adjustment was low in the team, because each team member does little or no communication with each other, while trying to drive concept for the estate design or trying to analyse if the arrangement of spaces is properly defined. The principal architect comes into the design studio to check the progress of work, moves from desk to desk of each team member and make adjustment to the design or corrections.

Basically, due to the professional nature of the firm, the team used standardization of work processes. This in turn reduces the mutual adjustment of each member of the team work, based on that standard. Throughout the design of the estate, the architects work more with this approach and this helps to reduce the involvement of the principal architect in the work process.

The standardization of skills was used in the design process. It was possible because the architect was trained before in the estate design. But the Principal architect still coordinates the design process and the work output by constantly checking every stage of the design process. In the team there was limited horizontal decentralisation – the principal architect shares power with the design team in carrying out the design. See the figure 3.

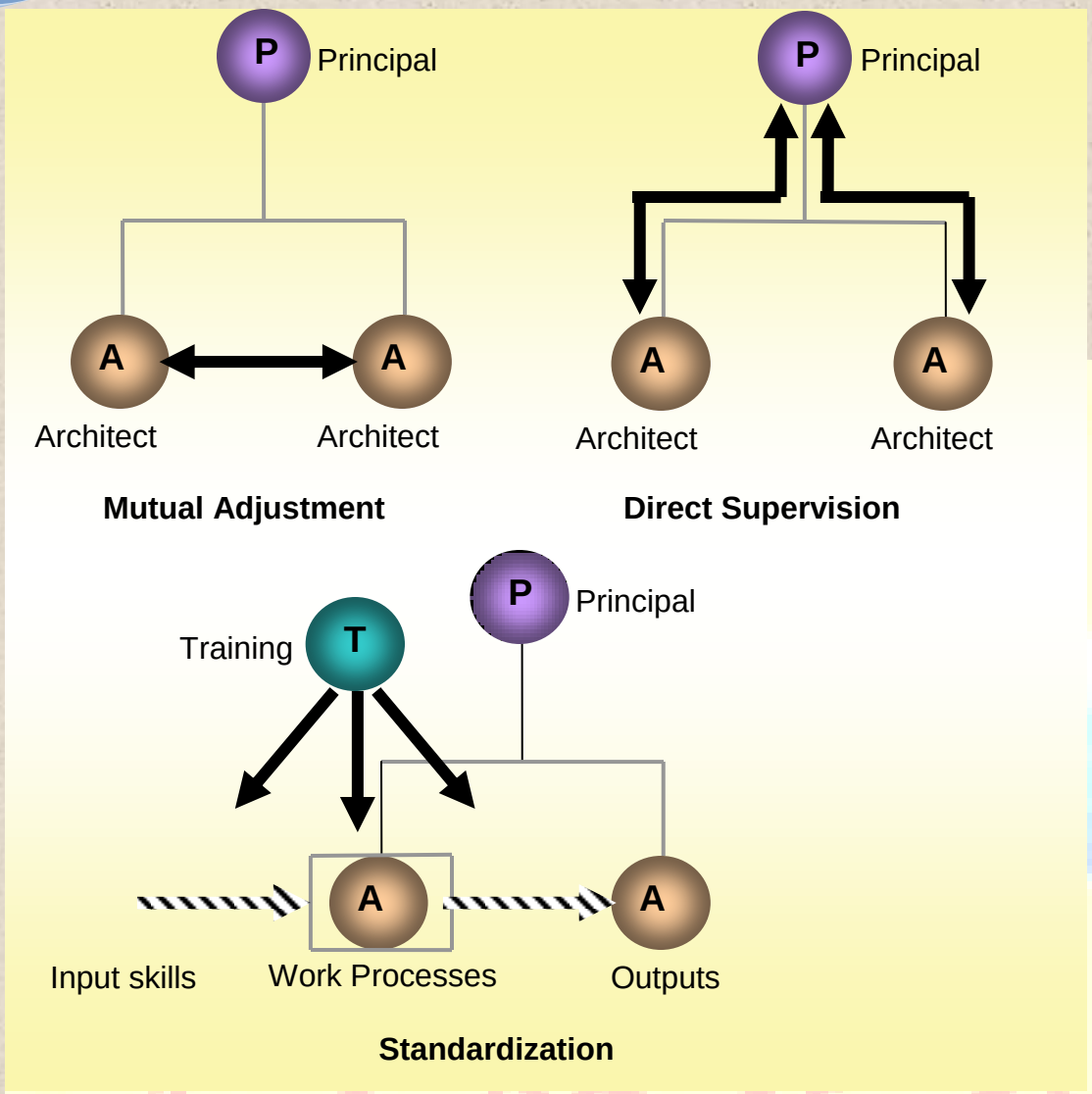

Figure 1.4 Structure element adopted form Mintzberg, (1979)

1.3 WILLIAMS'S ESTATE DESIGN TEAM CULTURE

Team culture is the unspoken, implicit aspect of the team that is not discussed in a formal way but nevertheless shapes behaviour of the team. It is the personality of a team; the way the team thinks and behaves by means of the influence of appropriate culture. (Thompson, 2008)

The way the communication flows in the organisation will determine the output of the team. The team communication is basically formal.

The design studio is an open office environment. The principal architect believes that more solutions come when work is organised on a team basis. But team members do not believe that this is the case in all circumstances. They believe that architects are equipped with unique design methods and approaches, so they do not need collaboration to elaborate solution to any design issue, they believe in their innate ability and creativity.

The team approach to design is more to the aesthetics than cost. They believe in the use of Huge Doric column (pertaining to Doric kind of style to architecture) for the elevation of the buildings and use external wall finishing plates for the wall of buildings, with high roofing design. This has been their culture over the years.

The architects' work more individually. Even the principal architect encourages each architect to be able to handle a design successfully with little or no supervision. The team members' work based on individual approach to design project. But during the estate design the principal architects instructed the architects to work as a team, and the team functioned more formally in every project.

The principal architect believes in collaborative approach to project just like the case of the welcome hotel design. He integrates team member to design solution but the team does not want to integrate.

Outside the work environment, the team members believe in getting together at holiday and they encourage team socializing. There is one major event at the end of each year, usually concluding with a holiday party. A formal meeting is held at the end of the year, to get awareness of the situation of the firm and to discuss any issues, currently affecting the work process.

1.4 STRATEGIES

The strategy management that is implementing in the team is the market-based view strategy management where the team's success is the result of the team's ability to respond to the threats and the opportunities existing in the business environment in which it operates. (Lu, 2008)

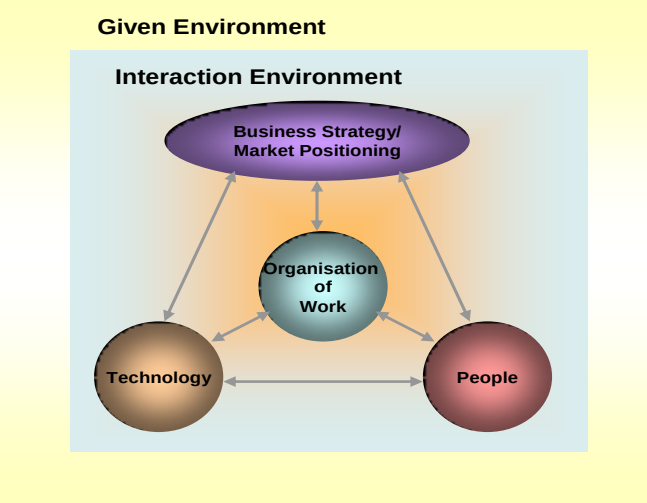

Figure 1.5 Organisational factors of innovation model, Sexton and Barrett (2003)

The generic company level strategy is the analyser, operate in two types of product market; there is emphasis on watching other pattern of design, there approach to design and always making promising ideas.

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The strategies used for market positioning so as to achieve sustainable profitability during the Williams 's estate design are highlighted below;

- The principal architect introduced 3D design for presentation, (design shown in 3 Dimensional model) a more realistic approach to design presentation so as to make estate design look interesting and convincing.
- Another strategy that was adopted, during the design of the design was to build relationship with client. To collaborate with the client from the initial stage of the project, to the completion of the project. They said this approach will strengthen their relationships with the client.

Strategic drift

The architects design were becoming to expensive, not meeting the requirement of the client, the cost and maintenance of the building were too expensive for clients. The client were not accepting the design, they needed a design that will have whole life running cost not just aesthetics. The strategic drift was overcome through the appraisal of the design, the principal architect have to seat with the design team, to analysis and evaluate the strategy that will be employed in other to achieve designs that will fully meet the need of the client, and the environment at large. After careful consideration of these factors, new strategies were introduced. Some of the strategies were executed in the estate design. During the design of the estate, the cost consultation produced analysis of the cost of the estate buildings

2.0 ANALYSIS AND EVALUATION OF THE TEAM PERFORMANCE:

2.1 WILLIAMS'S ESTATE DESIGN LIFE CYCLE

The principal architect, who is also the leader of the design team, collaborated with the client so as to achieve design that will meet the client's need in a way that is sustainable and environmental sound. The process can be broken down into phases which are;

- **Building program**

The client was asked to bring his briefs. This brief gives information about the need of the client, what the estate requirement should entails. Then, the principal architect presented the brief to the design team to start thinking and brainstorming on solution to the design.

- **Pre-design**

The estate proposed site was visited by the field observer and two architects in the team so as to know, and to evaluate the site conditions. The topography, solar access, wind, vegetation and access road.

- **Schematic designs**

At this phase, the architects started with the sketch of the proposed design and the elevation. At this stage, the team representative did not meet with the local planning authority to ensure the entire planning and building requirement was met.

- **Design development**

In this phase, the design that emerged out of the schematic phase gets refined and the structure of the building evolutes. It was during this phase, that building materials, window/door selection and appliances were specified. At the end of the estate design development all the basic parameter of the buildings were established in plan, elevation and section.

- **Construction drawing**

The construction drawings, also know as the working drawings were produced in details and specifications for the construction contractor. At this phase, the client was helped to select engineers and other consultants who are needed to complete the plans and integrate their work into the drawing as necessary. After the construction drawings were finalized the client was helped in reviewing contractor bids and making final selection.

- **Construction administration**

At this phase, the team acted as the client representative at the construction site to ensure that the estate design is executed as intended and to review the progress and quality of the building work, coordinate the plans with general contractor providing support with sketches on site.

2.2 SUMMARY

The table below shows the problem with the team, during the development of the estate design, from the inception of the briefing from the client to the completion of the detailed design.

Problems	Justification
• Lack of advice to the client in evaluating and prioritize design option so as to choice the best that suitable for the client based on the need and the budget.	• It was only a design that was produced. There was no other design option for the client so as to choice the best. The team imposing the design.
• Lack of collaboration effectively based on the kind of mindset some of the design team members carried.	• The team believed that architect are self develop with unique design method, so those not need collaboration to give solution to deign issues
• Lack of team relying on team brainstorming to analysis difficult design problems.	• Each team member faces his desk trying to analysis the task on his own.
• During the schematic design phase, the design team did not coordinate with local jurisdictions planning to ensure all planning and building requirement are fully met.	• Due to the culture of the team, they started design first, when time comes to approve the design, the team started make adjustment to design so as to meet the requirement.
• Lack of feedback with the client throughout the process so as to guarantees that the project's objectives are being fully met.	• The client was only involved when the sketches were been produce.
• Since there is no further communication, issues such as the windows/ doors types or the kitchen layout or the arrangement of furniture were not seriously put into consideration.	• After the design, the team selected the doors and window for the design.
• Lack of bringing in contractor like quantity surveyor early in the design development so as to help asses' costs and allow adjustment early while design is still being developed.	• The consultant were introduced into the design after the design has be produced in detailed

2.3 TEAM PERFORMANCE EVALUATION AND ANALYSIS

The analysis is done based on knowing the type of team, evaluate if it is a balance team, and by considering in detail their performance during the design process, in order to discover the team strength and weakness.

- *What type of team designed Williams's estate?*

Williams's estate design team is a heavyweight type of team; the team collocated with principal architect. Figure 2.1 shows the flow of team member in the design. The principal architect, who was the design project architect, has the final authority over the design, and the selection of the architect that worked in the design of the Williams's estate. During the design process, some temporary members from the construction team of the firm were introduced into to the team, but the core team members' functions fully in all the design process. But the temporary members where consultant to give advise on the engineering aspect of the design. The figure 2.1 shows the heavyweight and figure 2.2 shows functional team that were involved in the design.

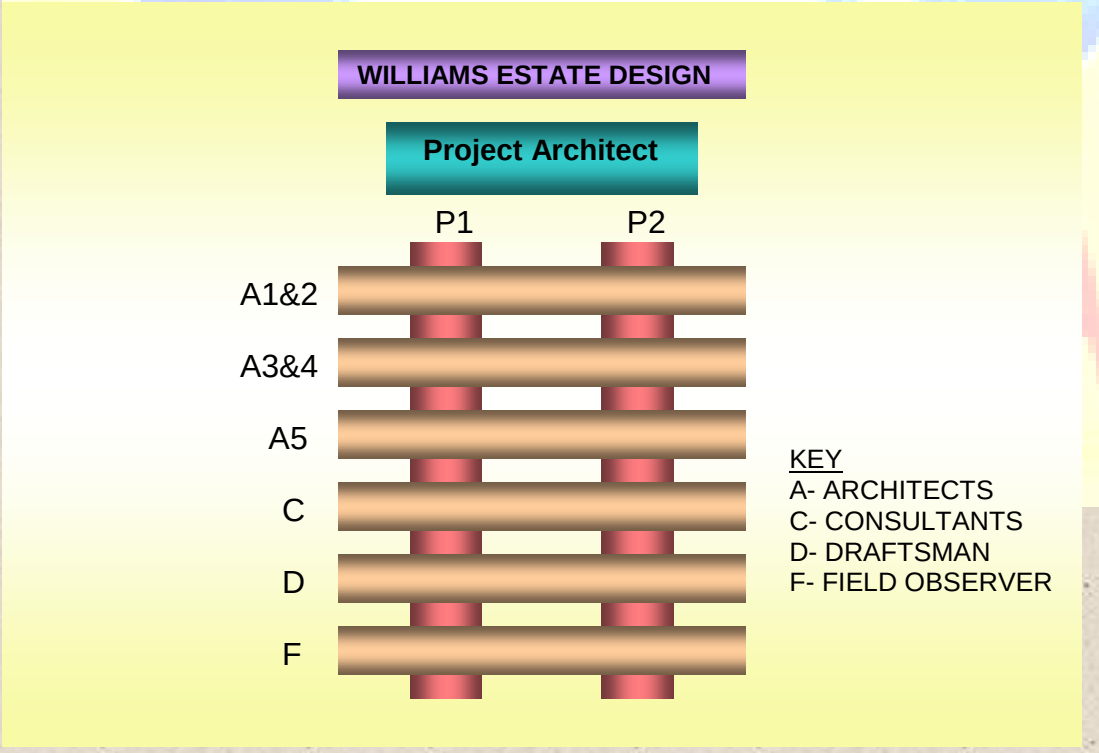

Figure 2.1 Heavyweight team

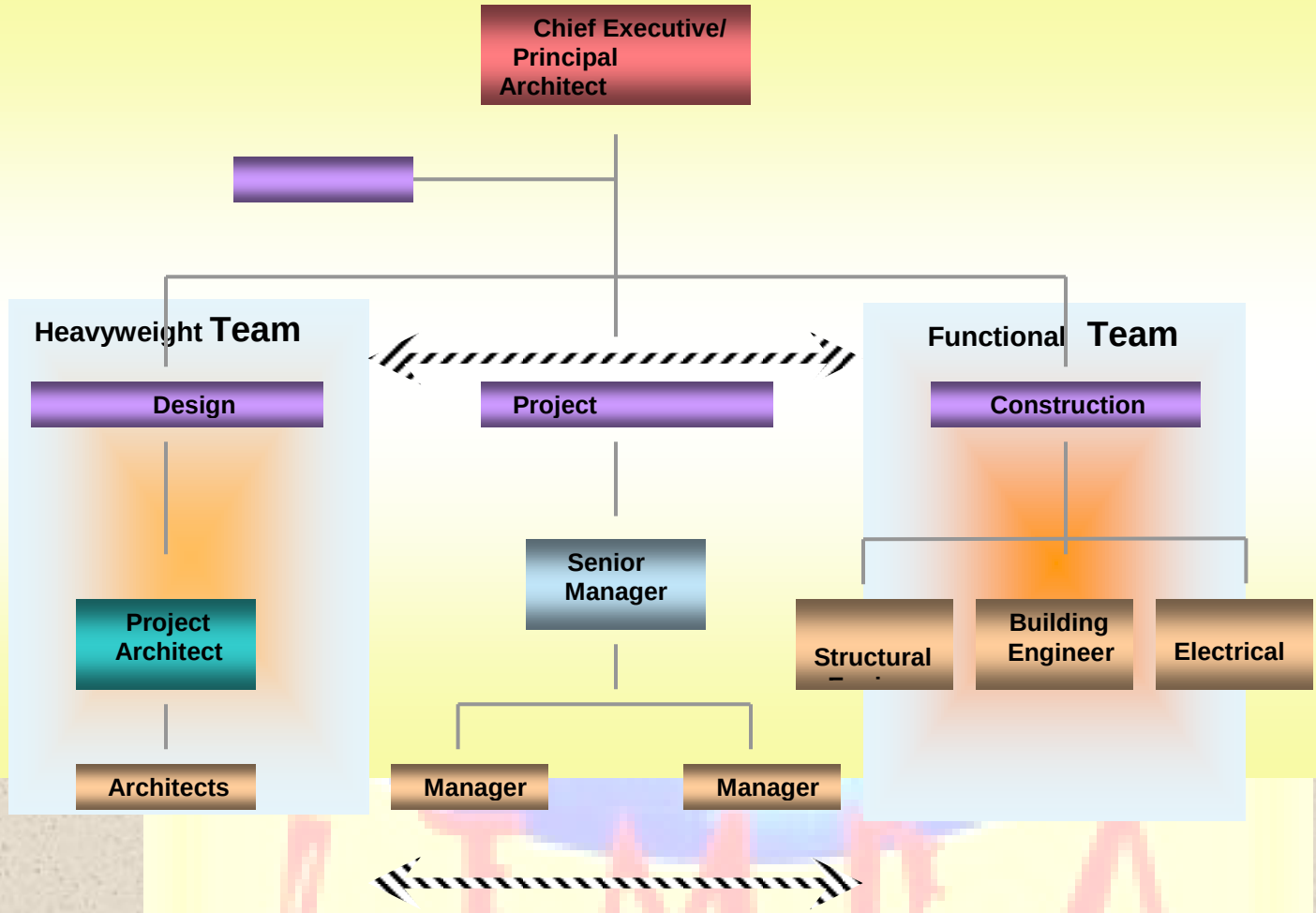

Figure 2.2 Heavyweight and function team

2.4 BALANCE TEAM

- *Was the team a balance team?*

Lu (2008) suggested that team work best in a project when there is balance of role between the team members; there was team role during the design process from the inception to the completion of the design but due to the team members' norm and value, each team members did not fully function as balance team. The tables below show the analysis of the team, each team member role their positive and negative attributes during the design process.

Leading roles

Team role	Positive attributes	Negative attributes
Principal Architect ***Co-ordinator***	Good co-ordination of the design, mature personality, collaborated with the client.	Excessive changing of design, delay information communication, Low delegation of responsibility.

Doing roles

Team role	Positive attributes	Negative attributes
Field observer ***Starter*** *(Site inspector)*	Knowledge of the site analysis, good Site description.	Unwilling to take responsibility out side its own task.
Architect 1 & 2 ***Implementer*** *(Conceptual and designers)*	Skilled in use of 3D software's, can work on pressure, several concept where produced. Turn idea to building design.	Slow to respond to new changes that where corrected in the design, little collaboration in design process.
Architect 3 & 4 ***Implementer*** *(Interior designers)*	Experienced in design of furniture's, great knowledge of 3D interior design software.	Unwilling to share knowledge with team members, Overconfident in design solution
Architect 5 ***Implementer*** *(Landscape designer)*	Good communication skills, Wide knowledge of landscape.	Too rigid, little collaboration in design process.
Draftsman ***Completer*** *(Drawer)*	Painstaking, search for errors and omissions, and delivers on time.	Lack of knowledge of 3D design software, quick to worry.

Thinking / problem-solving roles

Team role	Positive attributes	Negative attributes
Principal architect ***Monitor*** *(Project architect)*	See the big picture of the estate design, thinking carefully so that the design meets the requirement.	Think more on aesthetics in the design than cost.
Architect 1, 2, 3 & 4 ***Plant*** *(Designers)*	Use creative ideals to derive the concept and design, creative use of forms to follow function of spaces.	Poor mindset, sometimes lack motivations, little collaboration,
Architect 5 ***Specialist*** *(Designer)*	Skilful in the use light and colour in interior design, self motivated and dedicated.	Poor mindset, believes architect is self equipped thus need little collaboration
Field observer ***Analyser*** *(Site inspector)*	Advised about the orientation of the buildings, creative thinking in integration of building with the natural features on proposed site.	Contributed only on the site analysis. Unwilling to learn new things
Draftsman ***Apprentice*** *(Drawer)*	Fast with the use of AutoCAD software, worked under pressure busy drafting.	Slow to learning new technique of drafting, think narrowly.

Socialising / people roles

Team role	Positive attributes	Negative attributes
Architect ***Resources Investigator***	Concerned with the social environment and the physical work environment, excitement in the studio, music played while drawing.	When the design task became more demanding enthusiasm was lost due to the pressure.
Architects ***Team worker***	The team resolved conflict between the team members. Assist each other when in need.	Due to low collaboration in the team, members lack effective communication.

2.5 TEAM DEVELOPMENT LIFE-CYCLE

The team worked so hard in other to meet the client requirement; the whole team members have to put their best in the design, so has to meet the stipulate time and with good quality design that will last the demand of the environment at large. The team went through a developmental life-cycle. The developmental life-cycle can be broken down as follows;

Stage 1	Description	Consideration
• **Forming**	The collection of architects, field observer and draftsman. Each member was given his own task based on their experience in past project. At this stage team members where selected.	Key theme • *Knowledge* Team was selected based on their knowledge and creative ideals. Key issues • *Inclusion* Team worked individually and sometime as group in the design formation. Key task outcome • *Commitment* Members where committed to the task assigned. Ideal relationship outcome • *Acceptance*

Stage 2	Description	Consideration
• **Storming**	This was the most challenging stage due to the team member mindset, collaboration was challenging. Team assigned to different role in the design formation. Working method was defined. The innovators and specialist were brainstorming about with their design.	Key theme • *Conflict* Argument on what the buildings should look like, the aesthetics. Key issue • *Control* The team finally agreed on a particular style, principal architect gave some sketches. Key task outcome • *Clarification* The progress became faster, each team member now know what to do. Ideal relationship outcome • *Belonging*

Stage 3	Description	Consideration
• **Norming**	At this time, the team began to see the design more interesting, the team were friendly. They tried to exchange ideals, creativity and concept. Conflicts were reduced and some level of collaboration.	Key theme • *Cooperation* Some level of joint operation but innovators in the team wanted there ideals to be established. Key issue • *Cohesion* A common spirit and sense of purpose between members can be seen. Key task outcome • *Involvement* More time and energy was devoted to the task, all members' participated. Ideal relationship outcome • *Support*

Stage 4	Description	Consideration
• **Performing**	In this stage, team members were all settled down to the task. More focused on the detailed drawings. Members carrying out their different task so as to meet the delivery time, collaboration became more visible, willing to share ideas and try others ideals.	Key theme • *Productivity* The team was able to be productive, but there were some setback that caused delayed, team members not having a clearer understanding of how to inculcate design to meet budget. Key issue • *Innovation* Consultant was introduced to produce three dimensional drawing of the buildings. Key task outcome • *Achievement* Design looked very realistic than past design project, and was accepted. Ideal relationship outcome • *Pride*

Stage 5	Description	Consideration
• **Adjourning**	The team completed the design, the team reflected on their project. Part-time members of the team withdrew while full-time commence another design.	Key theme • *Separation* Part-time member withdrew from the team. Key issue • *Completion* The whole design was completed. Key task outcome • *Recognition* Each member acknowledged their effort. Ideal relationship outcome • *Satisfaction*

2.6 TEAM CULTURE ANALYSIS

The design studio is an open office environment; the principal architect believes solutions come more when working as a team, but the team members did little collaboration. Members focus more on their desk brain storming on the task given.

The culture of the team is suppose to be clan culture where the team members are friendly, a place anyone one will enjoy working, the members share a lot of themselves when the task of any project arises. (Lu, 2008)

This approach allows the team members to utilize the unique skills and talents of each other, gives more exposure to every details of design for each team members. And this will cause each member to contribute to the design and ensure all team members have input on the project. But, this was not the approach that was initially used during the design formation of the Williams's estate design, though they tried working as a team, but due to the kind of mindset some of the design team members carried, they believe that architects are self equipped with unique imagination and creativity so thus not need collaboration to give solution to any design issue.

The design team at FAA believe in the culture of the firm and this affect the way they execute design project. For example, in the design of the Williams's estate the drafting method was relatively low, to the level at which design drafting technique is changing in a fast growing technology improving world. The principal architect does not consistently move with technology, this as become a culture; the team still design with the old AutoCAD 1998 software. This software package is too slow for design, in a firm where design project are demanded to meet a stimulate time.

- *Does national culture have influence on the team performance?*

Power distance was operational in the team, the principal architect must be seen as superior, what ever he says is final, he cannot be questioned; has extremely unequal power in the team. High uncertainty avoidance; there was strong belief in skills, knowledge and more formalised procedures and take less risk, by hasten designing process so as to meet the stipulated time. The team was more of individualism than collectivism. The architects worked more individually, even the principal architect believes each architect should be able to handle a design

successfully, with little or no supervision. But, during the performing stage of design, the principal architect instructed the architects to work as a team, these helped to hasten the design solution. Due to way the society value power and achievement, team members were trying to give authoritative corrections to design, so as to be the leading team member but this caused members to ignore corrections. Male and female worked in the design there was no segregation of roles, the skills was more important than the sex. The figure 2.3 shows the ranking of the team based on the influence of national culture.

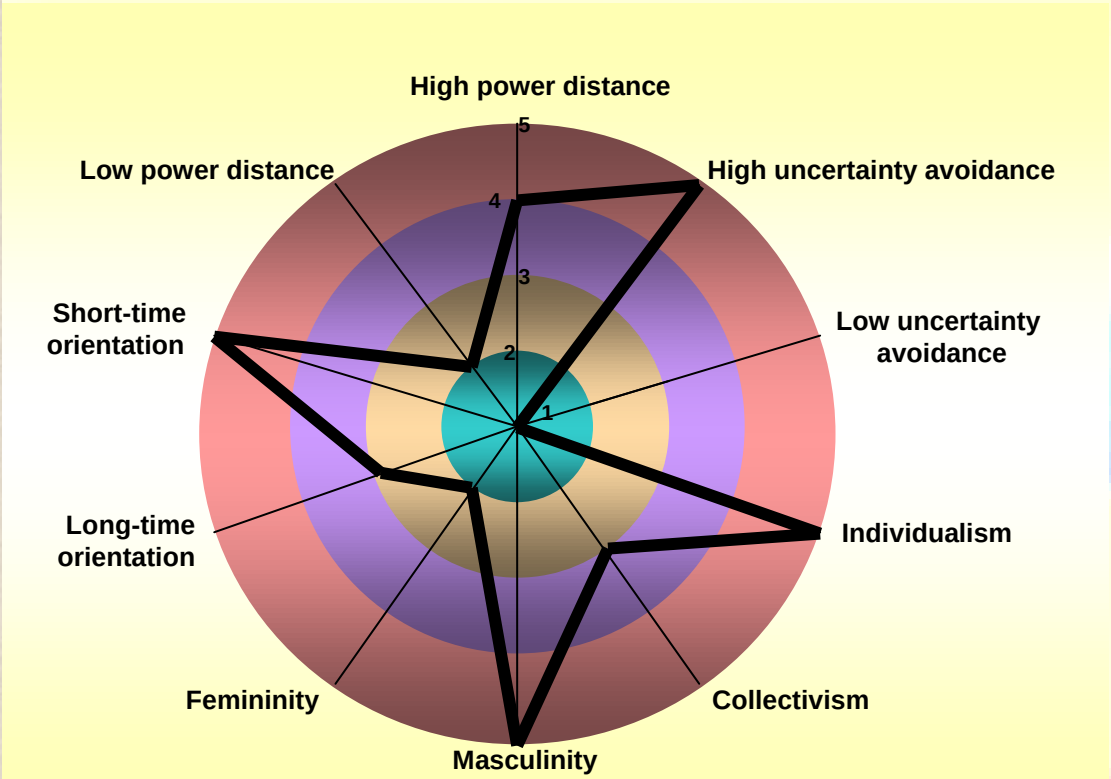

Figure 2.3 Ranking model, Wood (2008)

- *Does the team exhibit all of the type of company culture?*

The team exhibit hybrid company culture. Some level of all of company culture - the clan, hierarchy, adhocracy, and market culture exhibited. The team at the performing stage of the design shared themselves to each other so as to increase efficiency, during the norming process team member where been formal to design solution, this caused the norming stage to be long.

However, there were laid down set sequence of steps to adopt in developing the design; first from the building program, to pre-design, schematic design, design development, construction drawing and finally construction administration this helped to prioritise task. The team where very creative in the design development, members used their creative imagination to generate buildings that are aesthetically pleasant and realistic. Team focus their mind on the task so that design could be develop on time to meet the need of the client, members were result oriented and trying to get the job done to meet the demand. The figure 2.4 shows the ranking of the team approach in the characteristics of the four kind of company culture.

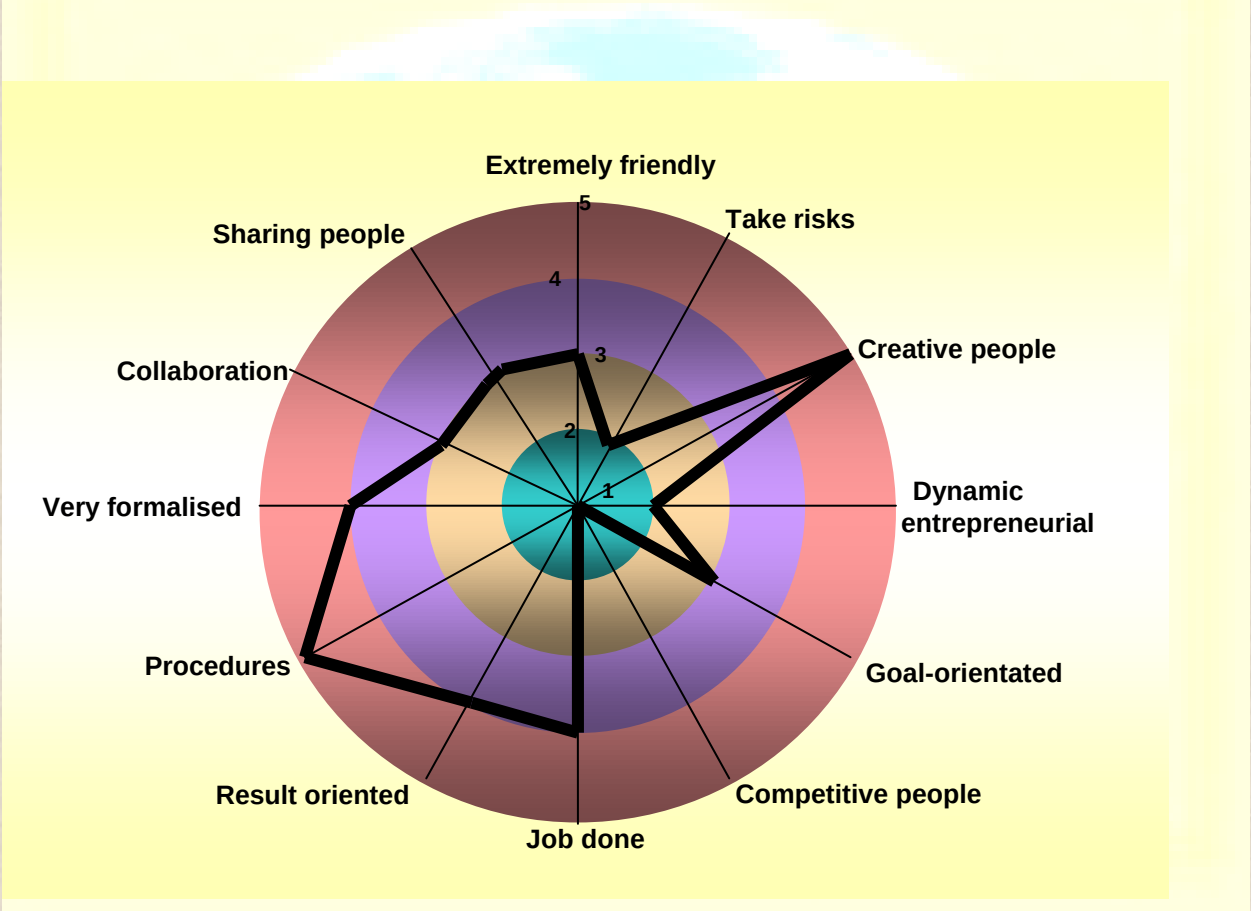

Figure 2.4 Ranking Model, Wood (2008)

2.7 INTEGRATED MODEL OF TEAMWOK

Team performance is the process of evaluating the performance of the team. Their success or their failure based on their effort. Thompson (2008) identified four key criteria in his model use to evaluate and analysis team performance which are; Productivity, Cohesion, Learning and Integration.

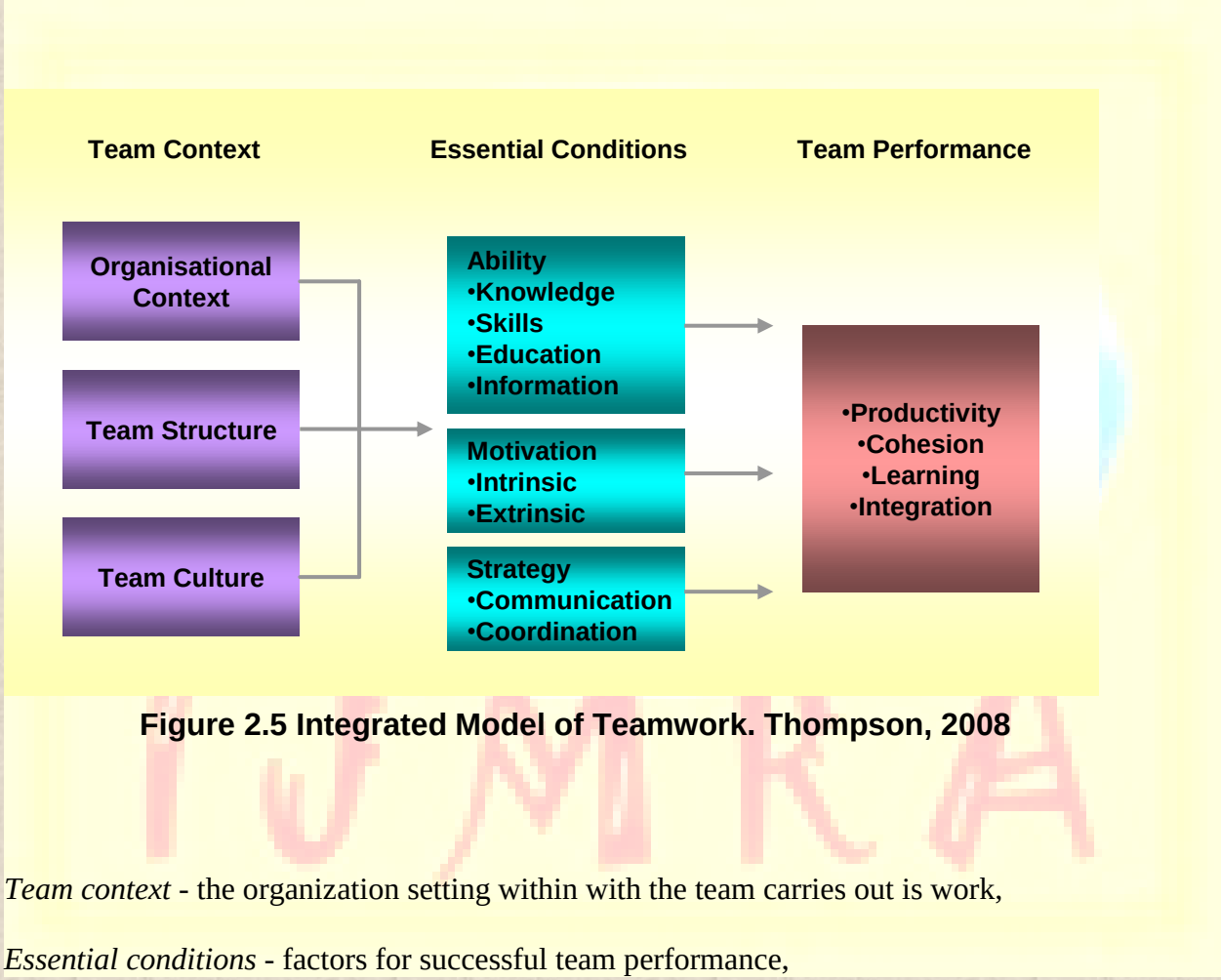

Figure 2.5 Integrated Model of Teamwork. Thompson, 2008

Team context - the organization setting within with the team carries out is work,

Essential conditions - factors for successful team performance,

Team performance- the criteria for performing

The four criteria was used to analyser the team performance, each criteria covers questions, that must be answered before knowing how to plan for future effectiveness of team performance.

Productivity	Justification
• *Does the team have a clear goal?* • *What could prevent team members from working together in future?* • *Does the team's output meet the client?*	The principal architect established a clear goal; team members followed after the goal, but due to workload some members of the team deviated from the goal without knowing. Mindset of the team members, if not change may affect productivity. However, the team tried to meet the client need by creating the design that meet the requirement of the client. The output of the design met the end users. Some designs were not accepted by the client due on the cost of building, and maintenance was too high and some due to the height and complexity of the roof.

Cohesion	Justification
• *Do the team members enjoy working together through collaboration?* • *Do they work like a team or group?* • *What was the condition of their relationship?*	The design team does not work together as a team, members of the team glue to desk trying to make his own design without collaborating with other team member, some cases the principal architect have to come to the design studio to inform the team to collaborate during in the design. The design team work like a group, in future if proper means is not derived to make the team work as a team it may affect the work out put of the team. Though, the design team meet their goals by satisfying the requirement of the client, but relationship suffered and has not been dealt with in a way that will allow team members to work in the future productively.

Learning	Justification
• *Do the individual team members grow and develop as a result of the team experience?* • *Do team members have a chance to improve their skills or affirm themselves?* • *What block personal growth?*	The design team teach the new recruit on there kind design, the way they render there building and why they use high roof and wall treatment for their building design , the way they go about with there design detailing and presentation. But there are some times that, the principal architect blocked individual member from developing his skills or knowledge when trying further education. For example, the draftsman in the studio wanted to go for further education, but the principal architect did not release him for studying thinking that once he go he may not come back or may get better offer of job elsewhere. There has been situation were architects wanted to develop new skills in the use of design software package but principal architect does not really encourage the team members, he employs the services of other architect and pay them to carry out design. He believes when team members go to acquirer more knowledge or skills outside the office, members will want increase in their wages and if not given may want to resign so as to seek employment elsewhere with better pay.

Integration	Justification
• *How does the team benefit the firm?* • *What other department are affected by the team?* • *Does the culture of the team affect team integrating?*	The firm got more contracts from other clients, as a result of the effort of the team, in the design of the estate. The construction team were also consulted, during the design development which help to improve the construction team skills and competent. The culture of the team has a long way in affecting the integration of the team, which return affect the productivity of the team. However, the principal architect told the team to work together in other to derive best solution to the design or try to do more in lesser time. The team members did not look at what will be best for the team as a whole but what will be best for the team members individually while dealing on the design.

3.0 RECOMMENDATIONS TO MAXIMISE TEAM PERFORMANCE:

3.1 BENEFIT OF USING EFFECTIVE TEAMWORK

A team are individuals which have a common aim and in which the jobs and the skills of each member fit in with those of other, an effective team is a team that achieve is aim in the most efficient way and is then ready to take on more challenging tasks if so required.(Adair, 1986)

A team must have a come purpose and goals, them must be agreed upon by all team members. (Yeung, 2000) He augured further that team when working effectively together can achieve

- "Achieve a better result than the individuals working alone - the whole is greater the sum of its parts.
- Get more done in less time than individual alone.
- Work to share the strengths of individuals while compensating for the weaknesses of others.
- Split the work up amongst members of the team and make a task seems less daunting".

According to Yeung (2000) team is especially needed when in the following situations;

- When no one person has the skills, creativity, ideas, concept, experience, or time needed to tackle a particular problem, task, issue or design.
- When time is short- for example when a client need a design at very short time duration.
- When group of individual need to collaborate closely in order to get things done.

3.2 PROPOSED RECOMMENDATION

The design team of FAA will maximise team performance through teamwork and interrelationships between their people, structure and technological factors. Figure 3.1 show the relationship.

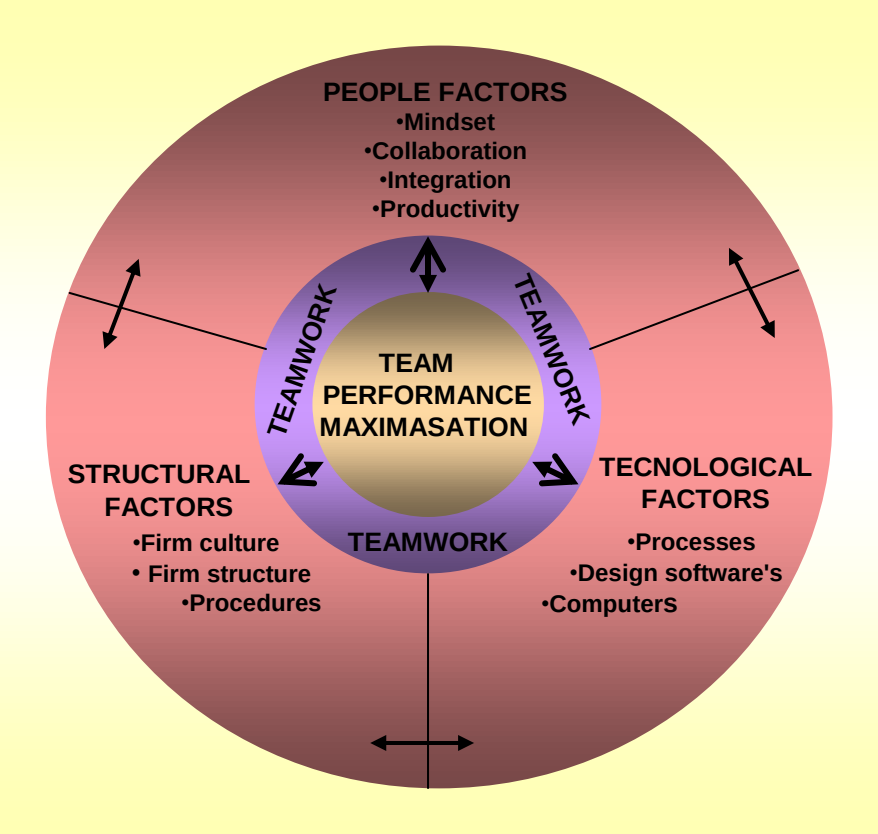

Figure 3.1 Interrelationship between people, structural and technological factors. Verma, (1997)

In people factors, the area that will be needed to modify is the collaboration, team mindset, team integration and their productivity;

The structural factors are team role and modify structure so has to befit collaboration and integration needs;

The technological factors are the modification of the processes of design, design software packages and equipment use to facilitate design output.

3.2.1 PEOPLE FACTORS

Mindset

The team will need to change their mindset, in other to be able to collaborate effectively with other members of the team; architects are skilled people with unique skills and talent. In a constantly changing world of innovation and technology, there will be increase in demand for more complex design. Clients seeking more innovative building, which is often more complex and will require specialisation. The fastest way of acquiring the specialised skills is through collaboration with other members of the team so as to share ideal because two head is better than one. The principal will have to employ consultant from outside of the firm, specialist that will educate and inspirer the team in other to change their mindset, this will actually take time it may require training to be done at intervals.

Integration

The principal architect should ensure that, the overall goals of the team are agreed by the entire team member, then the project goals. This will enable each team member to have the same goal and function effectively.

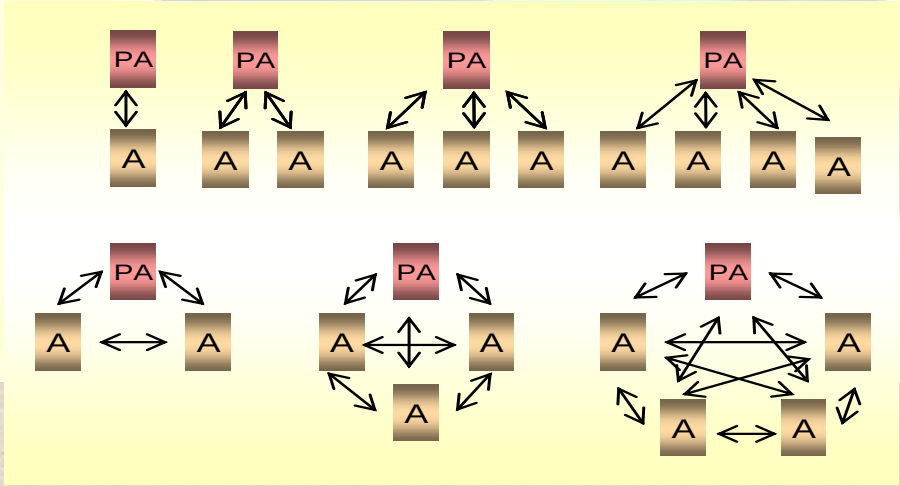

Figure 3.2 Communication links in teamwork adopted from Gray and Hughes (2001)

Figure 3.2 show that a self managed by the principal, with all members reporting to the principal architect mean that each extra adds a smaller proportion to the whole(a fourth person increases the number of the links by a quarter , a fifth). The team will be more effective if all members communicate with each other, this will reduce the demand on the principal architect, but increase reliance on each of the team members. (Gray & Hughes, 2001)

Learning

In order to maximise team performance, the team members must be encourage to develop skills and knowledge, the principal should not put any barrier by try to stop members from asking for leave for further education or trying to learn new design package. The team should be encourage to take design software package lesson, so as to improve their design skills and presentation skills this in return make the design more convincing and acceptable by the clients, it will also eliminate the expenses of having to consult other skilled architect to produce three-dimensional drawings, if this expenses is given as bonus to the team it will motivate the team and inreturn increase efficiency thereby increasing productivity.

Collaboration

Design solution can comes more, when there is collaboration between the team members. The principal architect should ensure that there are no barriers that will stop collaboration between members. Team members energize each other and will generate more design solution with lesser errors compare to the individual approach to design solution. Team goals become individual goals and the team problems becomes individual problem, member contribute their best the design because now they know they have a personal stake in doing so. (Madddux & Wingfield, 2003)

Productivity

In the starting of any design project the team should be involve in setting goal and problem solving. When new task arrive, the goals be priorities so as to do more demanding design first

before venturing into another design, team should be allow to give suggestion about the design output, the impact of the design to the environment, how it enhance life or discomfort life, this will help to make improvement design in other to meet the need of clients and the environment the buildings will interact with. Team can be encourage, by introducing job title on team, and increase in wages, it will motivate team members and inreturn will increase efficiency and productivity will automatically increase.

3.2.2 STRUCTURAL FACTORS

Firm culture

According to Hofstede (1991) power distance is defined as the extent to which the less powerful member of the firm within the country expects and accepts that power is distributed unequally. Some of the team members, based on there performance should be encouraged by delegating responsibility to them, inreturn will motivate them and will want to put there best into every task, this will also motivate other team members to contribute more in the team so as to increase in level and authority.

Hofstede (1991) suggested further that team member with individualism culture work according to their interest, and work should be organized in such a way that this self-interest team member and the principal architect interest coincide. individualism culture of the team, should be modify by inculcating team to carry out project together so as to enhance collectivism culture which will actually take time for the change to be fully implanted in the individual.

Firm structure

The principal architect should employ a senior architect, who will take the role of the as project architect who stand in gap between the principal architect and the team. This will enable information get to team members on time without delay. His main responsibility will be to manage every design project, since the principal architect, also need to coordinate the activities of the project management team and the construction team, this will solve the problem of team members having to wait for the principal architect to arrive from meeting or appointment before correct can be make on task or information delivery, this was one of the reason for delay in

design completion. The project architect will help reduce the pressure on the principal architect, since the whole team members have to look to the principal on every problem. Due to the structure of the firm, the operating core should be review by educating and motivating team members to function more through mutual adjustment and collective interaction and joint decision making, this can be effectively achieve through team cohesion.

Thompson (2008) suggested that, cohesion members focus more attention on one another; show sign of mutual adjustment, cohesive team are more to serve team rather than individual interest. He pointed out way to build cohesion in a team which are;

- Help to build identity, the more the team stay glue together the more cohesion they become, they start get to know each other more.
- The team will focus on similarities among team members, rather than their differences.
- Make it easy for the team to be close together, hereby sharing perceived strength and weakness.
- Put positive spin on team's performance, team are more cohesive when they succeed rather than fail.
- Challenge the team, more responsibility and reward for team performance will also increase cohesion.

The principal architect can adopt this so as to build cohesion in the team this will inreturn build mutual adjustment and collective interaction in the team.

3.2.3 TECHNOLOGICAL FACTORS

The rapid changing of information technology required constant change of the outdated system used, so as to upgrade to more sophisticated systems this will enhance efficiency and increase productivity. The principal architect will need to upgrade all the computers in the design studio, the old Pentium three is of low capability to carry new computer-aided design software packages. Design software are constantly emerging to easy the techniques of drafting in the area of graphics, desktop publishing, multimedia presentation techniques and easy production of three-dimensional with improved quality of presentation and transfer of information. All this, is

to enhance work process and increase productivity in lesser time and with high quality presentation.

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