

## **Is project management a benefit to the Botswana construction industry?**

*Peer review*

### **Abstract**

Project Management has become a popular topic in the construction industry throughout the world. Botswana is no exception and many developers are now insisting that project managers should also be in charge of their development projects. However, as project managers charge a considerable fee for some of the services that were historically handled by architects, some industry role players have expressed their doubts whether project managers are in fact worthwhile.

Project managers claim to do all these services better and faster than the traditional architect but it could be asked whether their involvement generated any tangible benefits to the construction industry to justify their added cost to a building project. The main aim of this article is to answer this question. A quantitative survey was conducted by means of a structured questionnaire involving various role players in the Botswana construction industry. The results were interpreted and the authors would like to present their positive findings that project management is indeed a benefit to the construction industry in Botswana.

Keywords: Botswana, construction industry, project management

### **Abstrak**

Projekbestuur is 'n gewilde onderwerp orals ter wêreld, veral in die konstruksiebedryf. Botswana het nie die tendens vrygespring nie en derhalwe is daar ook baie ontwikkelaars wat daarop aandring dat projekbestuurders in beheer staan van hulle ontwikkelingsprojekte. Daar is egter heelwat skeptici wat wonder of projekbestuur die moeite werd is veral as daar in ag geneem word dat die projekbestuurder aansienlike fooie vir sy dienste vra. 'n Fooi wat tradisioneel in elk geval deur die ontwikkelaar aan die argitek betaal is vir dienste soos kontrakadministrasie, konstruksietoesig en spanleiding.

Hierdie artikel poog om vas te stel of die projekbestuurprofessie werklik enige konkrete verbeterings in die konstruksiebedryf in Botswana teweeggebring het. 'n Kwantitatiewe opname is gedoen deur vraelyste te stuur na verskeie rolspelers

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in die Botswana konstruksiebedryf. Die resultate is geïnterpreteer en die skrywers van hierdie artikel wil graag hul positiewe bevinding dat projekbestuur wel 'n positiewe uitwerking in die konstruksiebedryf in Botswana het, aanbied.

Slutelwoorde: Botswana, konstruksie-industrie, projekbestuur

## **1. Introduction**

Since the dawn of construction the architect has played a leading role in the design and construction of buildings. Finsen (2006: 38) confirms that "traditionally the architect managed the building project and controlled all aspects of its design and construction and in the vast majority of buildings today he still does so."

Finsen (1999: 48) defines an architect as "a person who designs buildings and superintends their erection."

The advent of project management as a profession in the construction industry has changed this order across the globe. It is now commonplace that the developer would rather engage a project manager who, in turn, hires the rest of the construction professionals to execute the technical aspect of the project than engage an architect to be the project leader or manager, as has traditionally been the case.

The project manager is the person responsible for the management of projects within the built environment from conception to completion, including management of related professional services (SACPCMP, 2006: 3).

Project managers have become very important because of the complexity of the development projects. In the early days of construction when projects were few, smaller and less complex, they could more easily be handled by architects or engineers. Today, on a multi-million rand (pula) project, Dr. Tondolo (2007: personal interview) is quoted as saying "you cannot reasonably expect an architect to design and then manage the project to completion within time and within budget and to the required quality." The reason for this statement is that most large construction projects would follow a fast track construction process. Dr. Tondolo further states that "it becomes quite essential that someone trained as a project manager takes over the leadership and hence the coordination of work. In that situation, project management can be used for saving money and time while improving on quality."

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According to Finsen (2006: 38), "the project manager originated in undertakings involving numerous highly specialised professional disciplines and activities in complex projects such as nuclear power stations, chemical processing plants, etc."

A summary of reasons for the development of project management as listed by Kaumba (2004: 28) includes, among others, the following:

- Resolving problems more quickly.
- Resolving future risk before problems arise.
- Improved communication.
- The overrun of the construction period when architects/engineers have been managing the projects.
- The overrun of the construction budgets.
- The compromised quality when in pursuit of either time or cost.
- The complexity of development projects.
- The requirement and demand that building projects be finished faster than ever before.
- The high demand for a quick return on investment.

Based on the reasons given above, Kaumba (2004: 29) states that it can be said that "professional project managers are very useful and helpful to catch the flying 'fleeing' time and hold down the escalating costs without quality compromises that disadvantage the developer."

The question of the benefits of project management arises from the fact that project managers charge a fee for their services. The question then is, "is the cost benefit trade off to pay an additional fee for a project manager to ensure the project is completed on time and within budget worthwhile for the developer?"

As mentioned by Basson (2007: 7) that matter becomes complicated when considering architects' claim that the main cause of cost and time overruns is changes in scope. These changes are called for by the developer in nearly all projects. Many architects claim that if developers made no changes after the approval of the final design, the projects could be finalised on time and within budget.

As deduced from discussions by this researcher, some architects argue that when project managers join a project from an early stage, the developer's freedom to make alterations is greatly limited. Whenever the client wants to introduce scope changes, the project manager will object and argue a case against the changes to try and keep time and cost increases in check. Architects then

ask whether this is a positive action worth paying for or is it ultimately a loss on the part of the developer who may fail to get what s/he wanted. It is also argued that in cases where the project manager has allowed changes, the budget had to be revised and the time extended in any case. It can then be asked what the difference is between this and the architects' approach?

On the other hand, project managers have argued that if scope change should be introduced, it should be a scenario where if the proposed changes are not affected, the loss will exceed the gain. With that in mind, project managers insist that the 'developer' must have his brief in order before the work starts and the design by the consultants must be as clear as possible so that they need not change anything when work commences. According to Basson (2007: 10), project managers maintain that this is where they are needed most – at the development stage of the project. If project scope development is done with their full input, their consultancy fee should be a worthwhile investment for the developer.

When asked to comment on the fees charged by project managers in comparison to the acclaimed savings, Dr. Tondolo (2007: personal interview) suggested that, given the complexity of projects and the inadequacy in the training of architects for project management, the professionally trained project managers are worth their fees.

However, Tondolo added that "if architectural firms could specifically employ architects specialising in project management and site supervision, experience over time would make such firms and persons more useful than a qualified project manager who may not have enough background knowledge of construction development." He also indicated that because of such a lack of background knowledge, project managers often adhere to time and budget to the detriment of the project in the long run by omitting things that will cause serious maintenance problems. Such action will in coming years outweigh any current acclaimed savings.

This article does not aim to discredit project management but rather to ascertain whether or not project management as developed in Western countries is being used optimally in Botswana. Wheatley (2006: 28), quoting Stephen Clark of East Thames London UK, states: "Project managers ... would typically simultaneously manage between one and one and a half construction projects each", any more than that he says, "it becomes complicated to keep track of multiple projects."

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At their office in London, Stephen Clark indicates that with the development of management software at best each project manager can only handle up to 3 projects at a time. Suffice it to say, Carl Pritchard, quoted by Wheatley (2006: 28), mentioned that "people are at their most efficient when they are focused. [...] it is a simple fact that someone spending a quarter of their time on each of the four projects won't be as efficient as someone focusing on one project."

## 1.1 Problem statement

Construction projects have in general been headed or coordinated by the architect or engineer depending on the type of project. The architect in previous building contracts was the lead consultant or principal agent.

Currently, project managers are taking on the role of coordinating the construction professional consultants. In the construction hierarchy chart, the architect is now slotted underneath this 'new person' who has claimed that his/her involvement is critical for the ultimate benefit of the client. The purpose of this article is to determine whether this 'new' position has really benefited the client as it is claimed, given the fact that the project manager him/herself claims payment for his/her services from the client in addition to the fees the client has been paying the consultants when led by an architect.

In short, this article addresses the following problem: "Have project managers benefited the client in Botswana's construction industry or not?" The answer will be found by examining savings in terms of time and cost that have been effected by the project manager when taking over project leadership from the architect. The following questions will also be investigated:

- What value in terms of meeting that project's objectives is added by the appointment of a project manager?
- How can project management provide an improved service to the Botswana construction industry?
- The study was based on the following hypotheses:
- Project management has been of great benefit to the construction industry in Botswana since it has saved considerably in cost and time overruns.
- Much can still be done for project management to deliver the best possible results and convince developers that it is an indispensable aspect of modern-day construction

development irrespective of whether the project is complex or simple. The involvement of project managers is critical to monitor scope changes that cause time and cost overruns.

## **2. Literature review**

Due to the fact that project management is new to Botswana, little has been documented regarding their performance in either the public or private sectors of the construction industry in Botswana.

The available reference literature was mainly from past treatises written on topics in the same field such as the effects of delayed project completion and the different training curricula of architects, quantity surveyors and engineers as project managers versus the training curriculum of persons studying project management as a profession. Other resources included literature written from the perspective of the South African, British, American and a few other developed countries' construction industries, where project management has already been practised for a considerable time. Another noteworthy aspect regarding training is that the majority of the project management courses in Southern Africa are more inclined towards the information technology and engineering fields than to the building construction industry as was the emphasis of this study.

Adlowa (2002: 17) alluded to the fact that many government construction projects have failed. As the cost of materials increases and the project is delayed even further, inflation also needs to be taken into consideration. These are generally signs of poor project management. A good project manager looks at a project more holistically including all aspects of the project management body of knowledge.

Morris & Pinto (2007: 247) indicate that when aspects such as procurement are not managed, a project manager will be managing "... 50% of less of the project as a whole." This could be a major reason why many projects in the Botswana construction industry are subject to delays. These less qualified project managers do not know the number of issues that must be project managed or that constitute components critical for success.

The authors believe that as more qualified project managers are appointed to represent the developer, and as more project managers are employed by contractors to coordinate their internal affairs, a great deal will be achieved to improve the situation. Morris & Pinto (2007: 198) also state that "organisations achieve superior

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project performance through effective technological knowledge available to them." This is where the knowledge of qualified project managers plays a vital role.

Based on the information provided during various structured interviews, it became evident that Botswana is realising the need for strong project management throughout its different departments. To that effect, the University of Botswana is developing an advanced course in project management and procurement methods. This is done in collaboration with Professor Dean Kashiwagi, PhD PE, Director of the performance-based studies research group at Arizona State University (ASU).

At present (2008-2009), institutions such as the Bank of Botswana (BOB), the US Embassy in Botswana, the University of Botswana IT groups, the Botswana Department of Buildings and Engineering Services (DBES) and the Botswana Development Cooperation (BDC) are training personnel to use the new project management and procurement model. Kashiwagi (2008: online) mentioned that there is a "tremendous interest in the changing paradigm of project delivery from reactive to more proactive."

Although it is generally recognised that project managers are needed and important, government departments such as the Department of Building and Engineering Services (DBES) do not yet have professional provisions for such positions, and the industry in general does not know where to place or fit in the project manager, and his/her fees are not yet provided for in the standard approved Department of Building and Engineering Services' fee structure. As a result, project managers interpolate their professional fees from other consultants' agreed standard fees.

Another important source of information was the responses to the questionnaires. These were sent out to members of the construction industry, including architects, quantity surveyors, project managers and engineers. The questionnaires included various issues from cost, quality and time management to leadership, coordination and communication skills of the architect and project manager.

## **2.1 The construction industry in Botswana**

The construction industry in Botswana is considered important and has an impact on the overall performance of the economy. For this reason the government has tried many different schemes and

strategies aimed at helping the industry grow. The government has also implemented many schemes in particular to help the local enterprises to improve their companies.

Adlowa (2002: 24-30) listed the following initiatives developed to help the local contractors:

- The 1995 presidential directive to bail out failing contractors on a 'case by case' basis (cab 37/85).
- The 50-million pula bail out fund for citizen contractors of 1998.
- The 30% reservation policy on projects over P1.8 million for local contractors.
- The 100% reservation for all projects below P1.8 million.
- The price preference during tendering.
- The waiving of performance bonds.

Unfortunately, despite these good intentions, the government has not yet realised the best results. Adlowa (2002: 17), quoting Radujkovic, states "that only 16% of building construction projects were regarded as successfully completed." Simply too many projects have failed, many more are greatly delayed, and budgets have escalated by 100%. There are many other such problems.

Burgess & White (1979: 19) list the following among the many problems causing poor project delivery:

- Inefficient site management.
- Bad planning and programming.
- Poor site management support systems.
- Poor interpretation of specified quality requirements.

Both the findings in this article and the writers' general experience in the Botswana construction industry show that the general tendency to delay projects occurs from the smallest to the largest projects. However, the economic impact is felt much more on bigger projects rather than on smaller ones. In general, the problem could be that the smaller contractors, even with poor performances, are upgraded to a higher grading once they finish a few projects. Aspects such as whether or not they finished those projects in time and within budget are not taken into account. No assessment is done regarding the difficulties encountered during the projects in order to determine the justification of upgrading the contractor to the next level.



## **2.2 The role of the architect in the construction team**

According to Finsen (2006: 38), the architect has traditionally been looked upon as the project manager, which means that he must ensure that all the coordination is done while simultaneously designing the building and inspecting the work of other team members for compliance with his design. The issues of budget, scheduling and quality-control are also the responsibility of the architect's office.

This has generally led to the architects' claiming the title of project manager. Muchengwa (2006: 12-15) shows that this leads to many delays and project cost overruns and often to compromised quality. However, Muchengwa (2006: 14) observes that projects led by architects were completed to a higher quality simply because their background in construction allows them to work more closely with the contractor to achieve quality workmanship. The architect knows and can easily see quality work, s/he is more inclined to forego money and time if s/he can convince the client or developer that quality must be achieved at any cost. Smith (2008: personal interview) mentions that "the pain of poor quality you will live with for the rest of the building's life, while the cost of quality will be forgotten soon after you start enjoying the returns of a quality building."

## **2.3 The role of the project manager**

Abrahamse (2002: 9) defines the project manager as an individual with characteristics such as:

- Broad knowledge and experience in his/her profession.
- Design and solution orientation.
- Ability to evaluate against a given broad background.
- Overall sight over such items as time, cost, quality, contractual requirements, stakeholder involvement, early warning signs, noting and acting, total project control.
- Good human relations.
- Ability to manage across disciplines.
- More behavioural rather than quantitative orientation.
- Command respect because of seniority, experience and knowledge.
- Right attitude, view and open-mindedness with sufficient flexibility and gentleness but decisive and firm.

The question concerning the role of the project manager has been raised many times. The general answer is that a project manager's role is to deliver a project on time, to the required quality and within the given budget.

Taking the above into account, the project manager is supposed to be the controlling power. S/He must control the developer's expectations so that the developer does not expect the impossible. S/He must also control the progress of work by the consultants so that the constraints are met. Overall, s/he must control the scope so that time, cost and quality are achieved in the best possible way.

Kerzner (2006: 4) defines project management as "the planning organising, directing, and controlling of company resources for a relative short-term objective that has been established to complete specific goals and objectives."

A project manager is often a client representative who must determine and implement the exact needs of the client, based on knowledge of the firm they are representing. The ability to adapt to the various internal procedures of the contracting party and to form close links with the nominated representatives is essential in ensuring that the key issues of cost, time, quality and above all, client satisfaction, can be realised.

The project manager simply has to harness a team to work with him/her in order to achieve that. Leadership, communication and motivation skills are very important character traits.

Theoretically, the project manager should lead a team to a well-delivered project and thereby indicate how important and perhaps indispensable the project manager is in any developmental project.

### **3. Research methodology**

Valuable information was obtained from the interviews and questionnaire survey. Much learning was deduced from the interviews and industry survey. However, as stated previously, not much has been written directly or indirectly on the architects' and project managers' performances on construction projects in Botswana.

In analysing the projects, the following will be considered in each case:

- The initial project duration.
- The final project duration.

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- The initial cost estimate.
- The final account.

This study was based on the assumption that project management is benefiting the Botswana construction industry. This position was taken in view of the fact that many success stories have been written about project management in other parts of the world and in other sectors such as Information Technology. Therefore, if it has performed well in so many places, why should it not also benefit the construction industry in Botswana?

A non-experimental quantitative research method, as explained by Leedy & Ormrod (2001: 101), was used. This qualitative study was also used to generate new and different ideas from the target population. The subsequent quantitative method of data gathering used the design, pre-testing and administration of a structured questionnaire. The target group included architects, quantity surveyors, engineers, construction managers and project managers based in Gaborone and Francistown, Botswana's two largest urban centres. The purpose of choosing these two cities was because 90% of the consulting firms are based in the two cities and in general only run small branch offices in towns such as Maun, Ghanzi, Serowe, Selebi Phikwe and a few smaller ones.

The data was collected by issuing 45 questionnaires and conducting eight semi-structured interviews. One third of the questionnaires was issued to architects, a third to project managers and a third to other professionals in the construction industry.

The response was fairly good with 65% of the questionnaires being completed and returned. This is adequate for the analysis from the questionnaires to give a valid reflection of the prevailing situation. The one-on-one interviews were split as follows: two each with architects, project managers, engineers and quantity surveyors. These interviews supported the findings from the questionnaires and brought new dimensions that could be helpful in improving the project manager's performance.

#### **4. Analysis and evaluation of research data**

The questionnaires were distributed by email and by hand. The completed questionnaires were either collected by hand or received by fax, email, or post.

65% of the questionnaires were fully answered and returned. Of the remaining 35%, some were either partially filled in or never returned, while a few telephonic responses and/or discussions were also received.

#### **4.1 Summary of results**

For ease of analysis and detailed comparison, the projects were divided into the following three categories:

- Projects below Pula 100 million.
- Projects between Pula 101 million and Pula 200 million, and
- Projects above Pula 200 million.

Generally, the responses showed that there were increases in the project time and cost from the initial tenders to the final project duration and final budget account. The purpose of this article is not to determine the exact causes of this increase. It was simply assumed that they were due to scope changes or scope creep. This assumption was based on the fact that neither would have occurred if planning was thorough right from the inception of the project and several gate points had been utilised along the design development process. It was also assumed that the increase was irrespective of whether the team leader was an architect or a project manager.

The time analysis was divided into pre-contract design and tender documentation and post-contract construction period. The overall time taken for the pre-construction contract documentation was not convincingly shortened by the project manager although there was improvement where the project manager had been involved.

The responses also show that there is no clear differentiation of roles between the architect and the project manager. It appears that some respondents (as well as one or two project managers) did not know what the project managers' roles entailed.

The most predominant opinion from the face-to-face interviews was that the architect is better at leading and coordinating construction consultant teams and coordinating construction projects. Responses from the questionnaires, on the other hand, reflected the opinion that project managers were better coordinators. It should be noted that the responses came from both the architects and the project managers in equal proportion. The decisive responses were received from quantity surveyors and other professionals in the construction industry who had been allocated one third of the questionnaires.

## 4.2 Time and cost analysis

As stated earlier, the projects were divided into three categories based on project budget.

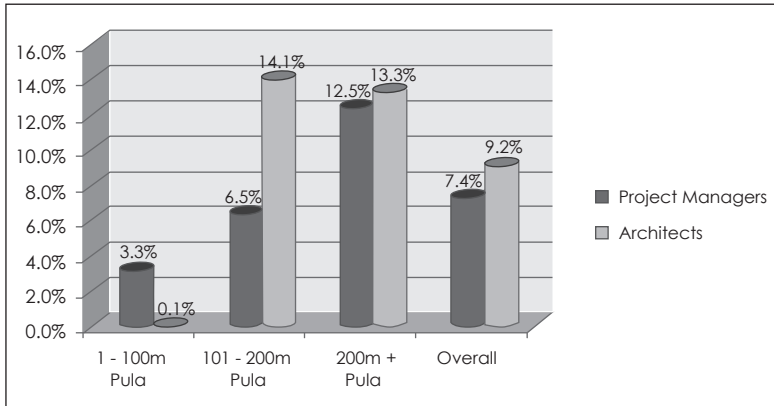


Figure 1: Comparison of Overall Project Time Overruns

Figure 1 shows an overall time overruns comparison and from the graph it can be seen that generally project managers had a 7% time overrun on the projects they handled while the architects had a 9% time overrun on theirs. As mentioned, this article does not detail the cause of these overruns. However, it is noted that for projects below Pula 100 million, the project managers had high overruns at 3.3% compared to the architects at only 0.1%. The reason for this could be that projects at this level are not very complex and that the architect could easily balance the cost, time and quality of the project while the project manager could have felt that the project is small and does not warrant his full attention.

For projects between Pula 101 million and Pula 200 million the architect had very high overruns. In this category projects become increasingly complex and it is possible that the architect may still be using the same approach as for smaller projects.

There is a small difference in the last category between the project manager and the architect's performance. The possible reason for this could be that the architect was more careful and more consultative regarding time management.

Considering the findings from a time perspective, it can be concluded that project managers saved approximately 2% in time

overruns in the Botswana construction industry. This is not statistically insignificant but for this article, it suffices to say that project managers appear to be performing better and should have an even greater influence in the future.

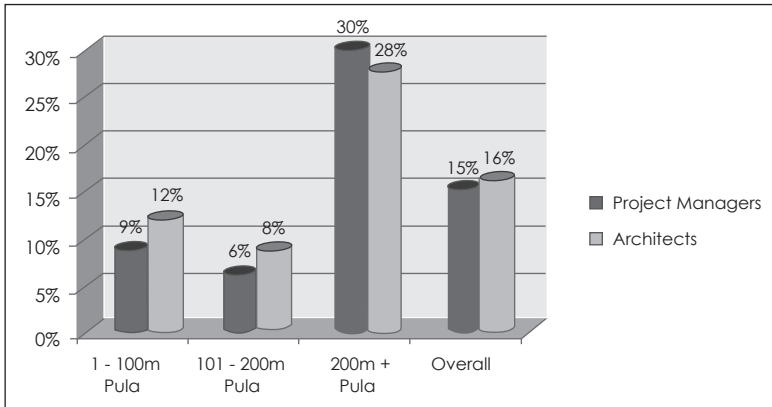


Figure 2: Combined Comparisons of Project Cost Overruns

Figure 2 indicates that cost overruns show little variation between the different project categories. The overall performance provides confirmation that project management is being regarded as having some benefit to the construction industry in Botswana. For projects below Pula 100 million the project managers effected cost savings of 12% compared to the 9% cost saving by architects. In the last category the project managers saved 2% less than the architects. This article did not investigate the reasons for this. On the whole, it appears that project management saves the developer approximately 1% in construction costs. This confirms that project managers are doing better, though the difference is not overly convincing.

### 4.3 Leadership and management skills

The questions relating to leadership and management skills, in particular team coordination and communication within the team circles and with the client or developer were analysed and interpreted using the arithmetical mean method. Figure 3 shows who was considered to be the better coordinator.

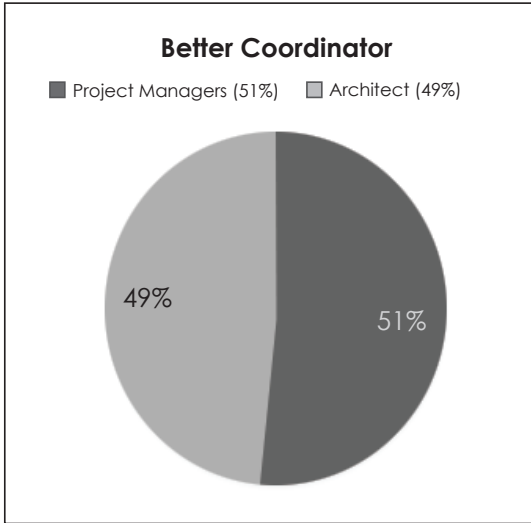


Figure 3: The Better Coordinator?

51% of the respondents stated that they experienced better coordination and communication under the project manager as compared to 49% for the same response under the traditional leadership of the architect; again a statistical insignificant number but a 2% advantage in favour of project managers.

In the responses, those actively in support of project management gave the following reasons for their support of project managers:

- They create savings in terms of time and money and they ensure better construction quality.
- They level the consultants' playing field. The architect cannot blame anyone when s/he is delaying the project. In the traditional setting, the architect never delayed anything; the blame was always directed somewhere else.
- They foresee disputes and help avoid or solve them before they become crises.
- They provide an independent checking mechanism for the consulting team. Any underperforming consultant is noticed and dealt with fairly and timeously.
- There are fewer requests for information on projects that have been coordinated by project managers from inception.
- They emphasise value for money for the developer.

Respondents opposed to project management gave the following reasons:

- The long process of engaging them into the construction process.
- The extra professional fees the developers have to pay over and above what they paid the architect for doing both design and coordination work.
- The majority of them do not have a clear understanding of how to coordinate drawings, and they have limited understanding of design issues.
- They do not resolve problems but rather simply pass on a problem from one consultant to the next and/or from the contractor to the consultant. In the process, the communication is delayed and or diluted. Neither the client nor the contractor gets first-hand information.
- Clarity of information then depends on the competency of the individual project manager.
- Their overall role is unclear and there is general confusion concerning the architect's role.
- They compromise on quality as they override the architect when s/he insists on quality delivery. They want to save time and money but often ignore quality.

## **5. Conclusions and recommendations**

This article focused on establishing whether or not project managers are benefiting the construction industry in Botswana. The problem of project cost escalations are clearly a cause for concern in both government and the private sector.

Although there is no institution yet that recognises or governs project managers in Botswana, such as for engineers, quantity surveyors and architects, there is an increasing call for more project managers' participation in the industry.

It should be noted that the involvement of project managers is a fairly recent activity, and the conclusions in this article may thus change over time as the field gains more ground and is better understood. This change may be either positive or negative. As is evident from the statistical analysis, the differences in each category were not significant.



## **5.1 Conclusions**

It can be concluded from the discussion that project management is having an impact on the construction industry in Botswana. The positive impact is measured in the range of 1% in cost savings, 2% in time savings, while 2% of the correspondents were of the opinion that project managers provided better coordination and effective communication. These low percentages do not justify the drawing of a strong conclusion but it goes a long way in showing that project management has already gained a foothold in the market and may be here to stay. As the profession reaches maturity these figures could be expected to change, probably in favour of the project manager.

The fact that the government of Botswana through the Public Procurement and Asset Disposal Board (PPADB) and the Department of Buildings and Engineering Services (DBES) is consistently asking for the involvement of project managers is also a good sign that will make this discipline an industrial necessity.

However, a major identified problem is the fact that there is no governing body in Botswana that actively promotes project management and regulates its ethical conduct. This allows unqualified individuals to call themselves project managers who then fail to deliver and thereby tarnish the good image of project management.

The hypotheses upon which this study was based have been validated. It can be stated that project management has indeed benefited the construction industry in Botswana, albeit on a very small scale.

## **5.2 Recommendations**

This article would like to make the following recommendations:

- A repeat of this study in a few years' time to show whether any improvements have been made as the awareness and use of project managers increase.
- Government should engage more project managers in projects but should check that they are academically qualified and have the necessary experience.
- Experience should also be seriously considered when allocating jobs. Those with fewer years should learn from smaller projects, and so forth.

- The architect's role and that of the project manager should be clearly defined to avoid confusion that can lead to project delays.
- The remuneration should also be related to the input. It must be standardised like the architects' professional fees.

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