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# The development and assessment of an integrated skills development model for emerging construction contractors

*Peer reviewed*


## Abstract

Many strategies for emerging contractor development that are based on instruments such as targeted procurement have generally failed to empower emerging contractors because they are implemented without well-defined skills transfer frameworks. The sector continues to be regarded by construction clients and suppliers as a high commercial risk and this presents further barriers to meaningful development. Related to this is the lack of clear policy targets against which to measure the effectiveness of contractor support programmes.

Furthermore, the majority of current support initiatives lack an integrated programme strategy. Interventions tend to be characterised by inadequate preparations, poor needs assessments and an inadequate understanding of the development needs of emerging contractors. This is evident by discontinuances, unstructured training approaches, ad-hoc mentorship, inadequate monitoring and evaluation that promote unsustainable skills transfer.

The Eastern Cape Development Corporation (ECDC) has put in place a training and mentoring programme that would result in the development of emerging contractors into sustainable business enterprises. The impact of the programme may be measured to determine the overall effectives of the programme in delivering developed and sustainable contractors to the construction industry.

The above mentioned factors identified lead to the following problem that is addressed by the research:

The problem statement addressed by the study is how to develop a holistic approach towards integrated skills development for emerging construction contractors, leading to a model that can be managed with quantitative and measurable outcomes.


Keywords: total quality management, project management, integrated, emerging contractor, mentorship, training, empowerment

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## Abstrak

Verskeie strategieë ter ontwikkeling van opkomende kontrakteurs, gebaseer op maatstawwe soos byvoorbeeld doelgerigte verkryging, het oor die algemeen nie daarin geslaag om opkomende kontrakteurs behoorlik toe te rus nie, aangesien sodanige maatreëls geïmplementeer is sonder goed gedefinieërde vaardigheidsoordrag raamwerke. Diè sektor word steeds deur kliënte en verskaffers in die konstruksiebedryf beskou as 'n hoë kommersiële risiko en dit op sigself verhinder betekenisvolle ontwikkeling. Gepaardgaande hiermee is die gebrek aan duidelike beleidsdoelwitte waarteen doeltreffendheid van kontrakteurs-ondersteuningsprogramme gemeet kan word.

Daarbenewens toon die meerderheid van ondersteunings-inisiatiewe 'n gebrek aan geïntegreerde programstrategie. Sodanige inisiatiewe toon verder kenmerkende tekens van ondoeltreffende voorbereiding, ontoereikende behoeftebepalings en gebrek aan begrip vir die ontwikkelingsbehoeftes van opkomende kontrakteurs. Dit blyk duidelik uit die aantal afleggings, ongestruktureerde opleidingsbenadering, ad-hoc mentorskap, asook ontoereikende monitering en evaluering wat tot gebrekkige vaardigheidsbemagtiging aanleiding gee.

Die Oos-Kaapse Ontwikkelingskorporasie (OKOK) het 'n opleidings- en moniterings program daargestel wat sal sorg dat die ontwikkeling van opkomende kontrakteurs tot lewensvatbare besigheidsondernemings sal lei. Die inslag van sodanige programme is meetbaar om die algehele doeltreffendheid van die programme te meet ten opsigte van die lewering van ontwikkelde en lewensvatbare kontrakteurs in die konstruksiebedryf.

Bogenoemde geïdentifiseerde faktore gee aanleiding tot die volgende probleem wat aangespreek word deur die navorsing:

Die probleem stelling wat aangespreek word deur die studie, is hoe om 'n holistiese benadering te ontwikkeling m.b.t. geïntegreerde vaardigheidsontwikkeling vir opkomende konstruksie kontrakteurs, wat sal lei tot 'n skaalmodel wat bestuur kan word deur middel van kwantitatief meetbare uitsette.


Sleutelwoorde: totaal kwalitateitsbestuur, projekbestuur; geïntegreerd, opkomende kontrakteur, mentorskap, opleiding, bemagtiging

## 1. Introduction

An important principle that has to be accepted when launching a development programme is that it is in essence a training programme with the objective of creating a sustainable construction business and to empower emerging contractors. Training has a price tag and satisfactory results will not be achieved in under funded programmes relying on half measures. The programme has to be rigorously managed and cannot be expected to produce results automatically after introduction. This requires that a competent project manager and management team be appointed to manage the programme on a day-to-day basis.

All elements of the programme have to be quality assured and managed each step of the way in order to ensure that corrective action is taken timely and that the programme initiator receives regular progress reports, based primarily on quantitative data, supported by qualitative data.

Investigations into the effectiveness of development models has identified the following key elements generally over looked in emerging construction contractor development models these are:

- Structuring an integrated emerging contractor development model that will satisfy the developmental needs of emerging contractors;
- The creation of quality assurance and management mechanisms to enhance the elements of the development model in order to *inter alia* satisfy the objectives of the model; and
- An analysis and evaluation of the qualitative and quantitative results gathered from the development model.

## 2. Problems facing emerging contractors

Significant research has been conducted, internationally and locally, on the problems facing emerging contractors. Ofori (1995), in a report prepared for the United Nations Centre for Human Settlements (UNCHS) on policies and measures for small contractor development identified a range of problems confronting SMME's.

Dlungwana & Rwelamila (2003) states that contractors can be distinguished from each other by variables such as the size of annual

turnover, capacity and capability. The challenges facing small and medium-sized contractors can be distinguished between those that affect small-scale contractors and those that affect medium-sized contractors. Some key features of small-scale contractors are that they are largely unregistered, operate in the informal sector of the economy and have very little formal business systems. The small-scale sector comprises the largest percentage of total contractors, although they employ very few permanent staff, usually less than ten employees. The conditions in developing countries present additional challenges, which include, amongst others, the lack of resources for training contractors, such as funds, poor construction procurement systems and lack of management capacity and resources to equip managers to operate their business enterprises effectively and efficiently. Contractors have to meet the traditional project measures of cost, time and quality. In addition to these measures, sustainability issues, such as environment and social responsibilities, have recently come to the fore.

Several researchers have analysed problems confronting emerging contractors such as Atkins & Milne (1996) and Hodgson & Gwqagwa (1997). The most recent undertaken was by the affected sector, represented by the Black Construction Industry (BCI).

## 3. Integrated Emerging Contractor Development Model (IECDM)

The IECDM is based on the Emerging Contractor Development Model (ECDM) developed by the CSIR, Dlungwana *et al*. (2004). The ECDM being a best practice tool aimed at assisting implementing agents to facilitate the implementation of an emerging contractor development programme. The ECDM helps focus on the quality and effectiveness of development programmes by ensuring more effective and comprehensive development of contractors' capability and capacity. Central to the ECDM is the implementation of a business plan with clear contractor development outcomes. The IECDM therefore embraces the concepts of the ECDM with the added elements of project management and Total Quality Management (TQM).

Emerging Contractors on the IECDM programme participate in a Construction Education Training Authority (CETA) NQF level 2 learnership programme combined with the services of a nationally accredited construction mentor.

## 3.1 Integrated training and mentorship of protégés

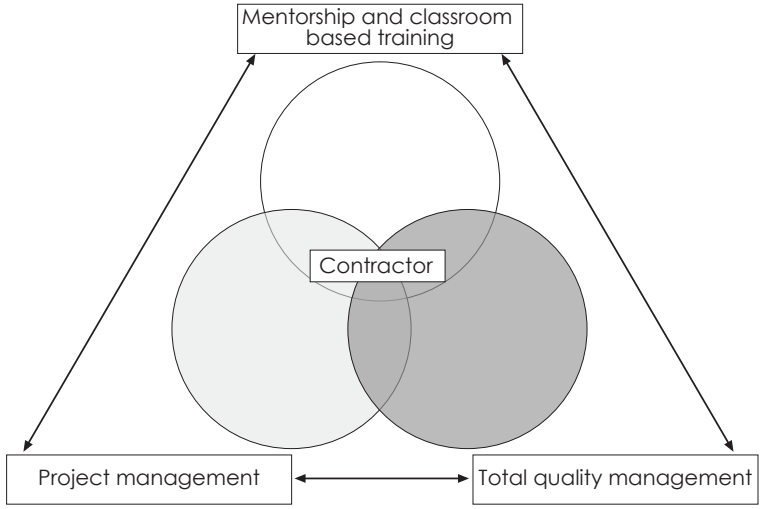


Figure 1: Integrated training and mentorship
Source: Lazarus, 2006: own diagram

Figure 1 describes the integrated approach of the mentorship model; Mentorship cannot function on its own. It has to form part of a holistic programme that is project management and quality assured. The focal point remains the contractor around which the model is structured. All three elements of Project Management, Total Quality Management, mentorship and classroom based training need to be inter-linked in developing an emerging contractor.

## 4. Structure and functioning of the IECDM

### 4.1 Process on outcomes of the IECDM

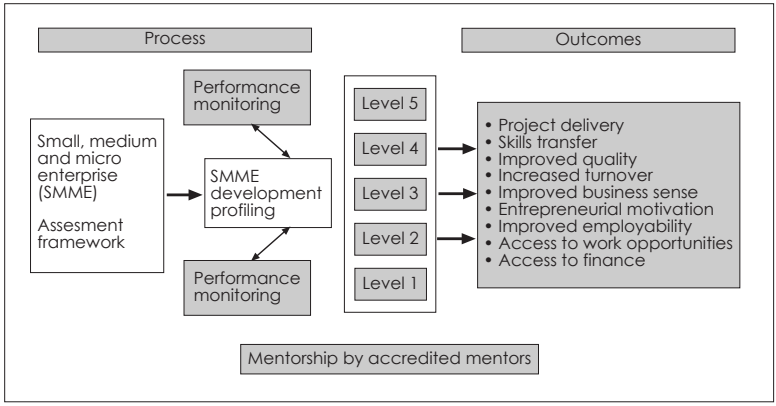


Figure 2: Process and outcomes of the mentorship model
Source: Lazarus, 2006: own diagram

Figure 2 above describes the basic process and outcomes of the mentorship model; the mentor based training promotes the growth of the contractor's. The process comprises analysing and assessing each contractor in order to create a developmental profile around which the mentor based training will be based. The principle of process and outcomes analysis is founded on typical South African Excellence Foundation modeling.

## 4.2 Functioning of the IECDM

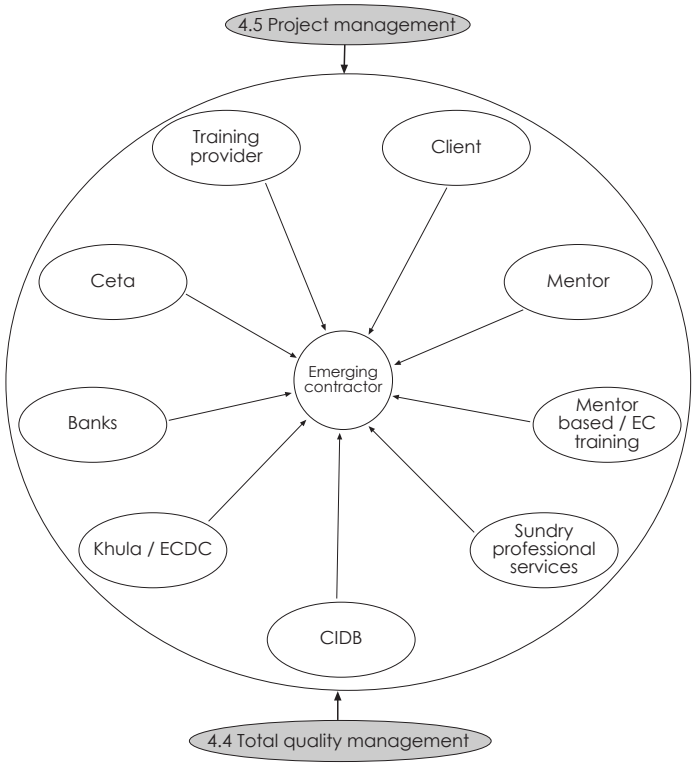


Figure 3: Integrated Emerging Contractor Development Model
Source: Hauptfleisch, 2006: 5

Figure 3 is a diagrammatic presentation of the Integrated Emerging Contractor Development Model that depicts all the identified role players required in order to maximise the development of emerging contractors. The key elements of the model are Project Management and Quality Management.

## 4.3 Methodology of the IECDM

The methodology to be followed in developing the contractors is illustrated in Figure 3. Figure 4 is a flow process of the project methodology.


Figure 4: Methodology for contractor development
Source: Dlungwana *et al*., 2004: 36

## 4.4 Total Quality Management

With reference to figure 3: Hauptfleisch (2006: 8) found that independent quality management has to take place throughout the programme. This function is executed on all the elements of the programme and reported to all concerned, typically in a statistical diagrammatic format. Practically it is executed by visiting the contractors and their mentors monthly, with a quarterly meeting with all concerned present. Monthly progress reports from mentors, contractors, training providers, quality managers and the project manager are the main input documents used to provide the client with comprehensive feedback regarding the programme. The TQM approach therefore incorporates the following as described below:

### 4.4.1 Emerging Contractor Development Assessment

The emerging contractor assessment tool has been developed to assess the emerging contractor's construction industry experience, management experience, level of development and access to skilled resources. The tool assesses contractors on 45 basic business development skills identified as key to running and managing a successful construction company, these range from developing a business plan to the ability to generate cash flow and estimating and tendering. The assessment is completed on a monthly basis by the mentor and allows the project team to assess the contractor developmental growth, the tool serves as an early warning system to alert the project team to areas of weakness experienced by the contractor and allows for early intervention and corrective measures.

Mentors have been equipped with a mentorship implementation guideline document based on the Master Builders of South Africa (MBSA) Manual for Smaller Builders[1]; the manual has been revised and utilized as a working document with information continuously updated. The assessment tools therefore correspond to the items in the manual; the manual covers the 45 basic business development skills in which contractors are assessed in.

### 4.4.2 Emerging Contractor satisfaction survey

The end user of the IECDM is the emerging contractor and a report system has been designed for the contractor to convey their opinions and satisfaction with the programme mentor and project team.

### 4.4.3 Emerging Contractor Risk profiling

A contractor risk-profiling tool has been developed in order to inform the project team and client of the financial risk exposure of the emerging contractor, this provides an early warning to detect potential financial difficulties experienced by the contractor and allows for corrective measures to be implemented.

[1] Permission received from Master Builders South Africa to utilise and revise the manual at a royalty cost of ZAR 20.00 per document reproduced.

### 4.4.4 Total Quality Management (TQM) Assessments

Each mentor with their allocated contractor is interviewed on a monthly basis and every third month regional workshops are conducted where the feedback over the preceding three months are presented by all stakeholders specifically allowing contractor and mentors to evaluate their progress made based on their input through the reporting tools developed.

### 4.4.5 Total Quality Management (TQM), reporting and corrective measure controls.

The client is presented with a TQM report, analysing the programme performance, conducting a SWOT analysis and presenting findings via the assessment tools designed for the programme.

### 4.4.6 Mentorship programme analytical assessment

As designed for the construction mentorship programme the client will receive an analytical assessment detailing the contractor's development as a result of the mentorship model implemented.

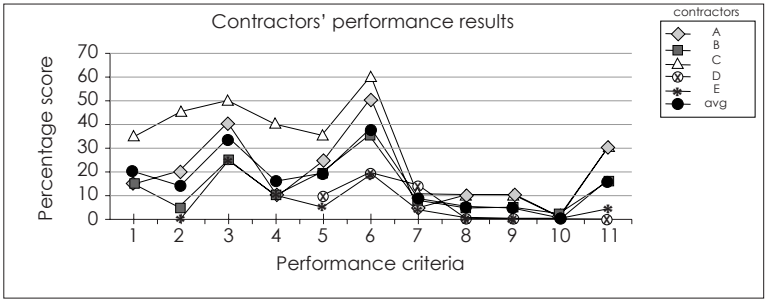


Figure 5: A sample of the data to be gathered and presented on the contractor model

Figure 5 represents a sample graph of how the data gathered can be interpreted, with the horizontal axis numbered 1-11 representing 11 of the 45 performance criteria the contractors are measured against with the vertical axis representing the score as per the mentors assessment of the contractor.

The gathering of data via the assessment tools designed for the programme allow the project team to:

- Track and monitor the contractors' development on the programme;

- Areas of weakness can be identified and corrective measured instituted; and
- The effect of the TQM can be measured.

## 4.5 Project Management

With reference to figure 3: Hauptfleisch (2006: 8) found that as the IECDM is applied as a project within a project management programme (on a repetitive group bases) it is imperative that it should be managed as individual projects within an overall programme. Observation of other 'programmes' where the approach has largely been to allocate resources to development initiatives without strong project management thereof supports the observed mediocre outcomes of such programmes. If a programme is not project managed overall, the outcome is predictably poor.

A best practice development model for contractors requires effective project management by a project manager and a project team that are skilled in the design, coordination and implementation of a project of this nature. Lazarus (2005: 87) found that to effectively implement an emerging contractor development model, there must be a project champion who will drive and promote the programme. Project team members need to understand their roles and responsibilities as project managers, as well as the risk and permutations of any one project.

## 4.6 Findings of the IECDM

Over an assessment period of 12 months it was found that of the 54 contractors identified via the CSIR (Dlungwana *et al*., 2004) assessment process:

### 4.6.1 Emerging Contractor Development Assessment

Contractor's development assessment remained on average consistently between 41%-43% (average) over the 45 areas of development assessed. The two key areas of weakness identified were financial management and planning and programming of project activities. Contractors who were assessed in the range of 41%-43% were able to complete construction projects of up to R2M successfully during the assessment period. Contractors were scored consistently in the range of 50%-60% were able to complete projects of up to R5M successfully during the assessment period.

### 4.6.2 Emerging Contractor satisfaction survey

Emerging contractors conveyed a high level of satisfaction with the IECDM programme and the management there off. The contractors on average scored the mentors 65%, service providers at 75% and the project management team at 70%.

### 4.6.3 Emerging Contractor Risk profiling

Emerging contractors remain a high risk factor for financial institutions, the risk profiling ranged from 40% low risk to 80% high risk. The intervention of the IECDM has reduced the risk exposure of the emerging contractors to financial institutions by an average of 30%.

### 4.6.4 Total Quality Management (TQM) Assessments

The TQM has concluded the following in order to develop a holistic approach towards integrated skills development for emerging construction contractors:

- The TQM assessment provided a monthly SWOT analysis of all elements of the programme and recommend corrective measures, the TQM implemented ensured the programme ran efficiently and effectively with all stakeholders;
- The programme must be Project and Quality managed at all times;
- All stakeholders must adopt an integrated and holistic approach to emerging contractor development;
- Contractors performance must be measured and qualified appropriately;
- Two years in training for emerging contractors has been identified as a shortcoming of the programme;
- An appropriate exit strategy for the contractors must be designed an implemented covering a span of 3 additional years;
- A bar chart of activities must be implemented between mentor and contractor in relation to the mentorship implementation guideline document; and

- Mentorship is the key development driver and hence all developmental programmes targeting emerging contractors must be mentorship based.

## 4.7 Comparison to a mentor only based programme

To test the IECDM effectiveness and theory that mentorship is the key development driver, the results of the assessment were compared to twenty contractors who underwent mentorship only as compared to the IECDM contractor who participated in a CETA learnership qualification. The same assessment tools were used and both programmes where subjected to TQM and Project management.

Both groups assessed:

- Scored consistently between 40%-45% on the developmental assessment by their respective mentors;
- Were able to complete construction projects successfully within the respective limitation as per item 4.6.1.3 and 4.6.1.4 above; and
- Displayed the same weakness of not understanding financial management planning and programming of project activities.

## 5. Summary

The IECDM although complex and introducing additional elements to development has proved that a holistic approach towards integrated skills development for emerging construction contractors, leading to a model that can be managed with quantitative and measurable outcomes can be developed implemented and managed. TQM plays a crucial role in the management and implementation of developmental programmes to achieve the desired objectives. The elements of the model are not unique and certain elements are present in various developmental models, the IECDM brings together these elements into one manageable programme that has proven results as displayed by the ECDC programme.

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