



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

**THE DEVELOPMENT OF A COMPREHENSIVE, PRACTICAL AND
INTEGRATED MANAGEMENT METHOD WITH SPECIFIC
REFERENCE TO THE SOUTH AFRICAN MINING INDUSTRY**

**By
JASPER DANIËL STONE**

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE PHILOSOPHIAE DOCTOR (ENGINEERING)
IN THE FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND
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THESIS SUMMARY

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by

JASPER DANIËL STONE

Supervisor: Prof. J. N. van der Merwe: Previous Head of the Department of Mining Engineering

Co – supervisor Prof. Krige Visser: Professor: Engineering and Technology Management
Department: Department of Engineering and Technology Management
UNIVERSITY OF PRETORIA

Degree: Philosophiae Doctor (Engineering)

This research focused on the past to the present theoretical development of the management discipline and the practical application of it in the South African mining industry. The perceived deficiencies of the theoretical and practical management methods were identified and discussed. The role of the mining industry as one of the major contributors to employment, wealth creation, national gross product and national development was discussed. Existing and future challenges were highlighted. A motivation why the existing available theoretical management practices being utilised were inadequate to enable management to manage comprehensively was identified.

The management practices utilised or still being utilised in the South African mining industry were investigated and evaluated. The Mine Manager's Certificate of Competency, as a legally compulsory suitable qualification for a manager to be appointed as a competent person to manage a mine, part of it or works, was also investigated and evaluated.

The ideal management method should, at all times, provide in all the present and future theoretical and practical management needs of the total labour force on all the levels of the organisation. It should enable management to efficiently cope with the demands of rapid change and the efficient management of the future. It should ensure that all activities necessary for the efficient functioning of the organisation are totally integrated and coordinated. This management method should facilitate the optimisation of the collective skills, loyalty and dedication of all the employees on all the levels of the organisation. It should primarily optimise the desired planned results. Such a management method could not be ascertained from the literature and practice.



It was concluded that the South African mining industry is in dire need of a comprehensive, practical and integrated management method that would, at all times, provide in all the present and future theoretical and practical management needs of the total labour force on all the levels of the organisation. A sustainable, comprehensive, practical and integrated management theory and an implementation procedure, suitable to apply the management theory equally efficiently on all the levels of the organisation, was developed, discussed and proposed in this thesis.



SAMEVATTING VAN PROEFSKRIFVERSLAG

DIE ONTWIKKELING VAN 'N OMVATTENDE, PRAKTIESE EN GEÏNTEGREERDE BESTUURSMETODE MET SPESIFIEKE VERWYSING NA DIE SUID AFRIKAANSE MYNBOUBEDRYF

deur

JASPER DANIËL STONE

Leier : Prof J N van der Merwe: Vorige departementshoof van die Departement Mynbou-ingenieurswese

Mede – leier: Prof. Krige Visser: Professor Ingenieurswese en Tegnologie Bestuur

Departement: Departement Ingenieurs- en Tegnologiebestuur
UNIVERSITEIT VAN PRETORIA

Graad: Philosophiae Doctor (Ingenieurswese)

Hierdie navorsing het op die teoretiese ontwikkeling van die bestuurskunde in die verlede en huidige in die Suid Afrikaanse mynboubedryf gefokus. Die waargenome leemtes van die huidige teoretiese en praktiese bestuursmetodes was geïdentifiseer en bespreek. Die rol van die mynboubedryf as een van die belangrikste bydraers tot werk - en welvaartskepping en die nasionale brutoproduk-en ontwikkeling in Suid Afrika was bespreek. Huidige en toekomstige uitdagings in die mynboubedryf was beklemtoon. 'n Motivering hoekom die huidige beskikbare teoretiese bestuurspraktyke huidige in gebruik as onvoldoende beskou was om die bestuur in staat te stel om op 'n omvattende, en geïntegreerde wyse te bestuur was gedefinieer.

Bestuurspraktyke wat in die verlede gebruik was en die wat tans nog gebruik word in die Suid Afrikaanse mynboubedryf was ondersoek en geëvalueer. Omdat die huidige mynbestuurdersertifikaat van bevoegdheid nog 'n geldige wetlike vereiste is om 'n bestuurder te mag aan stel in beheer van 'n myn, gedeeltes daarvan of verbandhoudende werke was dit ook ondersoek en geëvalueer. Die leemtes van die huidige bestuurspraktyke sowel as die van die mynbestuurdersertifikaat van bevoegdheid was geïdentifiseer en bespreek.

Die ideale bestuursmetode moet aan al die huidige en toekomstige teoretiese en praktiese bestuursbehoefte van die totale arbeidsmag op all vlakke van die onderneming te alle tye voldoen. Dit moet die bestuur in staat stel om die eise van snelle verandering en die optimisering van die kollektiewe vaardighede, lojaliteit en toewyding van alle werknemers op alle vlakke van die onderneming doeltreffend te bestuur. Dit moet primêr die verlangde resultate lewer en optimiseer. Dit is noodsaaklik



dat alle aktiwiteite, benodig vir die doeltreffende werking van die onderneming, ten volle geïntegreer en gekoördineer word. Die bestaan van 'n sodanige bestuursmetode kon nie vanuit die bestaande bestuursliteratuur en pratyke geïdentifiseer word nie.

Daar word tot die slotsom geraak dat die bestuur in die Suid Afrikaase mynboubedryf 'n wesentlike behoefte het aan 'n omvattende, praktiese en geïntegreerde bestuursmetode wat te alle tye sal voldoen in al die huidige en toekomstige teoretiese en praktiese bestuursbehoefes van die totale werksmag op alle vlakke van die onderneming. Die teorie en prosedure vir die implementering van 'n volhoubare omvattende, praktiese en geïntegreerde bestuursmetode, geskik vir alle vlakke in die onderneming, was in hierdie tesis ontwikkel, bespreek en voorgestel.

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GENDER REFERENCE

In this thesis, unless the text clearly indicates a contrary intention:

- the singular shall include the plural and vice versa,
- a natural person shall include an artificial person and vice versa, and
- any one gender shall include the other genders.

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LIST OF DEFINITIONS

In this thesis the meaning of the following definitions would be applicable:

1. **Accountability:** the manager's expectation that the employee will accept credit or blame for his work (Hellriegel et al, 2005:302).
2. **Anthropology:** the study of humankind in all its aspects, especially human culture or human development.
3. **Approach:** a management approach is a general overall method of management, which aims to enable employees to manage comprehensively.
4. **Applicable:** relevant to a person, group of people or situation.
5. **Attribute:** a quality, property or characteristic of somebody or something.
6. **Authority:** the right to make a decision (Hellriegel et al, 2005:302).
7. **Business:** a company or other organisation that buys and sells goods, produce goods or provides services.
8. **Centralisation:** the concentration of authority at the top of an organisation or department (Hellriegel et al, 2005:304).
9. **Competency:** an ability to do something, especially measured against a standard. A management competency gap is the managerial proficiency difference of an employee between the general proposed management standard and the assessment conducted by an experienced management consultant or manager.
10. **Competitive:** inclined toward wanting to achieve more than others.
11. **Complexity:** the condition of being made up of many interrelated parts.
12. **Comprehensive:** inclusive or covering many things or a wide area. A comprehensive, practical and integrated management method is a management method that enables all employees, on all the levels, of any organisation to comprehensively manage for the achievement of the results required from them in all required aspects at all times.

13. Concept: way of doing or perceiving something, a method, plan or type of product or design.
14. Conceptualise: to arrive at a concept or generalisation as a result of things seen, experienced or believed.
15. Contextualise: to place a word, phrase or idea within a suitable context.
16. Coordinate: to organise a complex enterprise in which numerous people are involved and bring their contributions together to form a coherent whole so that they can act together effectively
17. Decentralization: the delegation of authority to lower level employees or departments (Hellriegel et al, 2005:304).
18. Deficiency: the amount by which performance falls short of a predetermined standard or set of standards.
19. Delegation: the process of giving authority to a person (or group or team) to make decisions in order to deliver the delegated responsibilities (Hellriegel et al, 2005:302).
20. Demarcate: to state in a clear way where something begins and ends.
21. Differentiation: an organisation composed of units that work on specialised tasks using different work methods and requiring employees with unique competencies (Hellriegel et al, 2005:300).
22. Discipline: a subject or field of activity.
23. Division of labour: the work of the organisation is divided into smaller tasks (Hellriegel et al, 2005:300).
24. Effective: causing the desired or intended result or results.
25. Effectiveness: the degree to which the organisation realises a stated objective (daft, 1995:13).
26. Efficient: capable of achieving the desired result with the minimum use of resources, time and effort.
27. Efficiency: the degree to which something is done well or without wasted energy.
28. Enterprise: organised business activities aimed specifically at growth and profit.

29. Environment: all the external and internal factors influencing the life and activities of people, plants and animals.
30. Expert: somebody with a great deal of knowledge about, or skill, training or experience in a particular field or activity.
31. Expertise: the skill, knowledge or opinion possessed by an expert
32. Factor: something that contributes or has an influence on the outcome of something.
33. Globalise: to become international or to start operating at the international level.
34. Hierarchy: the pyramid showing relationships among levels in an organisation (Hellriegel et al, 2005:301).
35. Holistic: The theory that certain wholes, are greater than the sum of their parts (Oxford Dictionary:1998).
36. Inductive: generalising to produce a universal claim or principle from observed instances.
37. Inspection: the task of physically measuring, evaluating and correcting deviations from actual results to the stated standards.
38. Integrate: to join two or more objects to make something part of a larger whole.
39. Integration: the various units in the organisation being put back together so that work is coordinated (Hellriegel et al, 2005:300).
40. Leader: somebody who guides or directs others.
41. Leading: guiding or directing others.
42. Manage: the work a person performs in order to realise selected objectives through people in the most efficient manner.
43. Management: the total of the managers in a company, also the work of planning, organising, leading, and controlling the allocation of human, material, financial, and informational resources in pursuit of an organisation's objectives.

44. Management approach: a general overall method/style of management, which encompasses all of the functions of management work.
45. Management intervention: a deliberate effort/input of relative short duration, introduced with the aim to introduce, update or improve specific management performances and techniques such as safety, cost, production, improved human relations, zero based budgeting, activity based costing, linear programming etc.
46. Management programme: a programme, which is directed at the introduction or improvement of a specific management function or skill such as communication skills, negotiation skills, motivation skills etc.
47. Manager: a manager is a person who plans, organises, leads, and controls the allocation of human, material, financial, and informational resources in pursuit of the organisation's objectives.
48. Method: a way of doing something or carrying something out.
49. Model: a simplified version of something complex used in analysing and solving problems or making predictions.
50. Objective: a future planned target aimed for.
51. Optimise: to make something function at its best or most effective or to use something to its best advantage.
52. Organisation: a social entity that is goal directed and deliberately structured (Daft, 1995:13).
53. Organisation design: development of the organisation and structure scientifically and logically to most efficiently realise the objectives of the organisation.
54. Performance: the way, in which something or somebody functions, operates or behaves.
55. Perspective: a measured or objective assessment of a situation.
56. Practical: concerned with actual facts and real life and experience and not theory.
57. Practices: management practices are methods of managing, developed by managers over a long period, utilising available approaches, programs, techniques, interventions and own self-developed management means and preferences.

58. Practitioner: somebody who practises a profession.
59. Profession: the management profession is the application of the management work of planning, organising, leading and controlling with the intention of achieving predetermined desired results in the most efficient manner.
60. Program: a management program is a program, which is directed at the introduction or improvement of a specific management function or skills, such as communication skills, negotiation skills, motivation skills or other.
61. Reductive: seeking to explain complex things in terms of simple structures and systems.
62. Responsibility: an employee's duty to perform the assigned task (Hellriegel et al, 2005:302).
63. Result: an objective realised.
64. Scheduling: the establishing of the time sequence and logical arrangement of tasks for the achievement of the determined tasks for each alternative method in the most efficient manner.
65. Shortcoming: a deficiency as measured against preset standards of performance.
66. Span of control: the number of employees directly reporting to a person (Hellriegel et al, 2005:301).
67. Supervision: the management task of overseeing a task or tasks carried out by subordinates to ensure that it is performed according to or comply with the planned performance standards. It would normally consist of direct and over-supervision.
68. Styles: preferred ways of managing by some managers not necessarily comprehensive and based on proven management practices.
69. System: a combination of related parts organised into a complex whole.
70. Task and resources analysis: the determination of all the resources required to perform each task in order to achieve the most probable achievable results in the most efficient manner.
71. Technique: a deliberate effort or input of relative short duration, introduced with the aim to either introduce, update or improve specific management performances such as safety, cost, human relations, zero based budgeting, activity based management,



72. The organisation chart: a diagram that illustrates the reporting lines between units and people within the organisation (Hellriegel et al, 2005:299).
73. Trigger: a stimulus that sets off an action, process or a series of events.
74. Work: the mental and technical work performed in order to realise one or more planned objectives.
75. Work flow: developing the logical sequential development of the necessary tasks to realise an objective in the most efficient manner.