

261 Saint Patricks Road  
Muckleneuk  
Pretoria  
2000

Cel.: 082 652 0604  
E-mail wannenburgjohann@gmail.com

# Johann Wannenburg

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## Personal information

Date of birth: 24 January 1965, Pretoria  
Citizenship: South African  
Marital status: Married to Letitia with 3 children.

## Personal profile

I am a self-driven, motivated individual, with very high work ethics. I have exceptional conceptual, strategic, holistic and problem solving thinking capabilities, matched with significant, recognised, engineering expertise and experience in multiple industries and geographies. I have strong leadership and people skills, with an inspirational, influencing style.

## Education

2007	University of Pretoria	Pretoria
<b>PhD (Mech. Eng.)</b>		
1992	University of Pretoria	Pretoria
<b>M. Eng. (Mech.)</b>		
1986	University of Pretoria	Pretoria
<b>B. Eng. (Mech.)</b>		
▪ <i>AECI award for best first year B.Eng. student.</i>		
1982	Menlopark Hoërskool	Pretoria
<b>Matric</b>		
▪ Six distinctions		

## Employment history

2017 - Present	Collaborit
Pretoria	
<b>Director – Asset Management</b>	
▪ Functions: Business development, consulting in Physical Asset Management. – specialising in business turn-around interventions	
2017 - Present	University of Pretoria
Pretoria	
<b>Associate Professor: Centre for Asset Integrity Management &amp; Chair: Eskom Power Plant Engineering Institute</b>	

- Functions: Leading Research and Post-Graduate Studies in Asset Management and Reliability Engineering..
- Subjects (Post-Grad): Condition Based Maintenance, Maintenance Engineering, Life Cycle Management, Reliability Engineering

2014 - 2017                      Anglo American Platinum  
Johannesburg

**Senior Principal Engineer – Asset Management**

- Functions: Lead the Physical Asset Management function in Anglo American Platinum.

2010 - 2014                      Anglo American                      Johannesburg

**Head of Engineering – Governance**

- Functions: Technical governance, custodian of Asset Management Framework for Group, technology strategy, custodian of Group Technical Standards, large capital projects review, safety and technical risk management, asset optimisation.

2008 - 2010                      Anglo Platinum                      Johannesburg

**Group Mechanical Engineer**

- Functions: Technical governance, technology development, specialized consulting, business improvement.

2003 - 2008                      Anglo Technical Division                      Johannesburg

**Manager: Specialized Engineering**

- Functions: Resource Centre management, technology development, specialized consulting.

2000 - 2003                      Advantech Industrial                      Olifantsfontein

**Director, Acting Managing Director**

- Functions: Factory and financial management, business development.

1995 - 2003                      BKS Advantech                      Pretoria

**Director**

- Functions: Engineering and financial management, business development, design and consulting.

1989 - 1998                      University of Pretoria                      Pretoria

**Senior Lecturer, Department of Mechanical Engineering**

- Subjects: Strength of Materials, Design (pre-graduate), Fracture Mechanics, Fatigue, Structural Integrity (post-graduate).

1987 – 1997                      Laboratory for Advanced Engineering                      Pretoria

**Mechanical Engineer, Consultant**

- Functions: Consultancy, research & development in Structural Mechanics, project management.

**Experience**

- Significant experience in all aspects of engineering, including asset

management, design, procurement, manufacturing, projects, consulting, research and development and education.

**Strategic & management: asset management, safety, operational risk management, specialised engineering**

- Broad experience in company, team and project management and entrepreneurship in the engineering and mining industries
- Leading the Physical Asset Management function in Anglo American Platinum (26 operations, +10 000 employees involved in PAM), including the development of framework material, implementation, change management and training across all aspects of PAM (maintenance strategy, LCC, work management, defect elimination, information management, fleet optimisation etc.)
- Leading development and governance of comprehensive set of group technical standards for global mining company, including asset management, safety and operational risk management standards. Involvement with and coordination of technical standards programme across the mining value chain.
- Managing and leading of multi-disciplined engineering teams (including mechanical, electrical, C&I, civil, industrial and structural)
- Development of comprehensive people performance management system.
- Responsible for technical engagement and governance of global mining industry supply chain initiatives such as strategic supplier relationship management, China sourcing.
- Leading various large capital projects engineering reviews.
- Development of statistical and behavior based safety model for mining industry

**Consulting, business turn-around & change management**

- Facilitation of business improvement and change management initiatives using Rapid Results methodology at operations in mining, processing and power generation industries
- Development of total mining value chain experimental learning tool for senior technical personnel
- Leading innovative transformation initiatives.

**Project management, manufacturing & production**

- Project manager on design and supply of  $\phi$  24 m dome,  $\phi$  11 m mirror truss and 50 t structure for South African Large Telescope. *Project was awarded 2003 South African Institute of Steel Construction Joint Overall Winner and Hi-tech Category Winner.*
- Production management on road-rail overhead line maintenance vehicles.
- Design, analyses, dynamic simulation, industrialization of rail vehicle structures.
- Multi-national project contractual negotiations.
- Performing project work in Columbia, Chile, USA, Europe, Taiwan, Malaysia and Africa.

**Technical: reliability, condition monitoring, modelling, design,**

- Development of comprehensive techno-economic and RAM models for mining, processing and power generation industries
- Leading process control optimisation projects in metallurgical, chemical industries.

**technology  
development,  
energy, process  
control optimisation**

- Development of comprehensive energy consumption model for major mining company and management of energy savings projects on e.g. compressed air, electric drilling.
- Development of specialized web-based asset management systems, e.g. Shaft Inspection & Maintenance Management System.
- Extensive technical engagement and collaboration with mining and transportation industry OEM companies on design, technology development, reliability improvement, failure analysis and implementation of equipment and products including:
  - Haul truck frames and dump bodies (e.g. significant involvement with the design of light weight dump bodies with DT Hi-load, VRN)
  - Longwall systems (e.g. establishing cutting forces acting on shearer and chocks with JOY)
  - ISO tank containers (technical partner for product development for largest international tank container manufacturer)
  - Mills and crushers
  - Load Haul Dumpers ((e.g. establishing new metal fatigue design criteria for design of LHDs with Sandvik, Atlas Copco)
  - Ultra-low profile, electrical hard-rock mining equipment (technology development with Dok-Ing)
  - Hard-rock continuous miners (e.g. JOY rock cutter)
  - Electric drills (e.g. Hilti)
  - Trains (e.g. design and manufacturing with Dorbyl, Hyundai)
- Management of design and development of UG mining equipment, e.g. specialized mechanized mining equipment, skips, box fronts.
- Development of Health & Usage Monitoring Systems for mining equipment.
- Investigation into risk of accidental detachment due to falling objects of detachment hooks in mine shafts.
- Techno-economic & reliability modelling of mining & transport industry processes.
- Establishment of fatigue usage profiles for vehicles using probabilistic methods.
- Design and finite element analysis on tanker trailers and ISO tank containers..
- Strain gauge measurement and fatigue analysis projects for petro-chemical, mining and vehicle industries.
- Design projects on vehicle (heavy and commercial) structures, including usage of finite element techniques.
- Laboratory testing projects on mining and vehicle structures, including up to five axes servo-hydraulic test rigs.
- Fracture mechanics analysis on hydro-electric power station pipeline.

**Other experience**

- Member of University Advisory Boards
- Chairman of Secondary School Governing Board (Hoërskool Menlopark)

**Publications**

- Energy and economic analysis of evaporate vacuum easy desalination

system with brine tank, Journal of Thermal Analysis and Calorimetry, November 2019.\*

- Forecasting spare parts demand using condition monitoring information, Journal of Quality in Maintenance Engineering, September 2019.\*
- An overview of numerical methodologies for durability assessment of vehicle and transport structures, International Journal of Vehicle Systems Modeling and Testing, v 5, n 1, p 72-101, June 2010.\*
- Application of a fatigue equivalent static load methodology for the numerical durability assessment of heavy vehicle structures, International Journal of Fatigue, v 31, n 10, p 1541-1549, October 2009.\*
- The derivation of structural usage profiles for vehicles from failure statistics, International Journal of Vehicle Design, v 47, n 1-4, p 269-289, October 2008.\*
- A study of fatigue loading on automotive and transport structures. Doctorate Thesis, University of Pretoria, 2007.
- Statistical Investigation Of The Risk Of Accidental Impact Opening Of Mine Shaft Detaching Hooks, Hoist and Haul 2005 Conference Proceedings, 5 - 7 September 2005 in Perth, WA.\*
- A Fatigue Equivalent Static Load Methodology for the Fatigue Life Estimation of Load Haul Dumpers, Hoist and Haul 2005 Conference Proceedings, 5 - 7 September 2005 in Perth, WA.\*
- Structural Design of South African Large Telescope, Proceedings of SPIE - The International Society for Optical Engineering, v 4837, n 1, 2002.\*
- The Effect of a Long Post Weld Heat Treatment on the Integrity of a Welded Joint in a Pressure Vessel Steel, International Journal of Pressure Vessels and Piping, 1997 \*
- Remaining Life Analysis for a Pressure Vessel subjected to Cyclic Loads based on Fracture Mechanics, International Journal of Fatigue, 1995\*
- The Determination of Cost-effective NDE Inspection Schedules for Structures containing Defects based on Probabilistic Fracture Mechanics, International Journal of Pressure Vessels and Piping, 1994
- Probabilistic Establishment of Vehicle Durability Test Requirements based on Field Failure Data, Environmental Engineering, 1993
- A Fracture Mechanics Methodology for the Integrity Assessment of Welded Structures, Masters in Engineering Thesis, University of Pretoria, 1992.
- The Use of Probability Theory in Fracture Mechanics - A Case Study, International Journal of Pressure Vessels and Piping, 1992\*

\* Co-author

## **Research Supervised**

- Investigation into the Efficiency and Effectiveness of Risk Based Inspection (RBI), Masters, Siphon Makhabela, (University of Pretoria, 2020)
- Operational Readiness Assessment of New Build Power Plant Equipment, Masters, Thokozani Nkosi, (University of Pretoria, 2020)
- Maintenance optimisation in a capital-constrained environment, Masters, Iain Marsden, (University of Pretoria, 2019) \*
- Impact Of Coal Quality On Equipment Lifetime At Coal-Fired Power Stations, Masters, Bernard Cornelius van der Westhuizen, (University of

Pretoria, 2019)

- Exploring The Measurement Of Maintenance Productivity Using The Törnqvist Index Number Approach, Masters, Browne, Richard (University of Pretoria, 2018) \*
- The effect of a reverse shoe and polystyrene padding on the biomechanics of the front hoof of the horse, Masters, Mostert, Henning Jonathan (University of Pretoria, 2009-09-04)
- Fatigue equivalent static load: Methodology for the design of vehicle structures, Masters, Prinsloo, Etienne Pieter Willem (University of Pretoria, 2003)
- Forecasting spare parts demand using condition monitoring information, Masters, Lelo, Nzita Alain (University of Pretoria, 2018)
- A predictive method that allows a condition-based maintenance implementation based on failure statistics and partial knowledge of failure mechanisms, Masters, Van Zyl, J.G. (University of Pretoria, 2018)

\*Co-supervisor

### **Languages**

Understand, speak, read and write: Afrikaans, English, German

Read: Spanish

### **References**

- Prof. Stephan Heyns Professor

Mechanical & Aeronautical Engineering, University of Pretoria

- Dr. Gordon Smith Technical Director: Anglo American Platinum

Tel.no.: 011 373 6334, 083 457 2420

- Vitesh Maharaj Senior Vice-President  
Technical: Anglo Gold Ashanti

Tel no.: 076 062 8941

- Louis Taljaard Managing Director (retired):  
Union Carriage & Wagon

Tel. no.: 082 900 7645

### **Interests and activities**

Sailing, chess, open water swimming, hiking, tennis, reading.