# Hendrik Pienaar

1 Glenora Mews, Andulusia Avenue
Monte Sereno
Somerset West 7130
+27 81 353 9441
pienaahj@gmail.com
linkedin.com/in/hendrik-pienaar-93bb703b

*When the winds of change blow, some people build walls and others build windmills. – Chinese proverb*

## Professional Profile

Graduated electronic engineer specialized in telecommunications planning of access network technologies and Geographical Information Systems. Twenty-five years of technical management experience and coordination of large planning and GIS projects, aided by more than a fair share of innovative ability, a can-do attitude and seasoned by respect for others, produces the package that is largely – me. Personal motivation is derived from the belief that there are few problems without solutions and a deep routed personal passion for solving these. I like a challenge. I like to enable others to achieve. I am ever curious.

## Core Competencies

- Management of technology
- GIS project management
- Project coordination of large projects
- Business and people leadership
- Staff management
- Financial management
- Business continuity management
- Health and safety management

## Knowledge & Skills

- Data compilation and manipulation for manage reports
- Detailed project cost estimation
- Budget compilation
- Management and cleaning of very large record sets
- Contractor management
- Function outsourcing
- Wireless Local Loop planning
- Copper line planning
- Fiber planning
- Creative GIS system use
- Right-of-way management
- Site management
- Safety management

## Technical Knowledge

***Management of technology in various parts of telecommunication***

Broad experience in the planning of urban and especially rural telecommunications networks. This includes copper and optic fiber infrastructure and reticulation planning, to wireless backbone and distribution network design. Electronic switches - this varies from maintenance of German EWSD switches to new extensions of German and E10 (French) electronic switches. Experience in procuring right-of-way agreements from property owners and liaison with local authorities and contractors.

Facilitation of Environmental Impact Studies. Management of a variety of contractors, including planners and project managers for site preparation and build.

### *Geographical Information Systems (GIS)*

Extensive knowledge and experience in GIS systems and the hardware and software associated, ranging from personal computer-based Windows systems to Unix (IRIX) platforms. Integration of GIS technology with Web based systems and development of desktop applications. Trained and functional in the ESRI suite of products, Arcview, Arc INFO 8, ArcIMS 3 and ERDAS and bridged to ARCGIS. A member of the pilot implementation team for Telkom SA's NETPLAN (Network Planning Tool and Integrated Network Inventory based on GE SmallWorld GIS).

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# Awards

***Name in Lights, November 2000***

As part of a five-person team, received the highest award for innovation and going the extra mile, annually awarded in Telkom SA. This was received for a suit of applications developed in the GIS sphere for rural customers. The applications addressed sales and maintenance of rural telecommunication customers. See Appendix B for summary.

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# Career Summary

***Outline***

My career focused on the design and management of telecommunications networks in various disciplines. Experience varies from maintenance of electronic switches to design of rural communication networks in optic fiber and radio backbones, to radio and copper distribution networks. Extensive hands-on experience and management of GIS systems, focused on the design of telecommunications networks across hardware and software. Design of data sets and methods for storage of network records. Wide-ranging experience of right-of-way practices, procurement and environmental impact studies for telecommunication networks and installations. Management of contractors (planning and execution) within the telecommunications arena forms part of my skill sets and general management of personnel was added throughout my career. I was responsible for the creation and maintenance of the Telkom Southern Region business continuity management plan for the Plan and Build group and was a section 19 appointee for Health and Safety management in the Plan and Build Complexes in George, East London and Port Elizabeth and was the chairperson for the George safety committee. Computer skills have been a focus point of my career and staying abreast of technological advancement in this field is a prime driver and focus area for my personal development. I have developed a keen interest in programming and have done various development courses and associated projects in web design, Python and Golang programming and database technologies. I have broadened my knowledge to full stack web development, Linux administration and security.

***Key Responsibilities***

- Planning of technology
- Team leadership
- Staff management
- Financial management
- GIS management
- Right-of-way management
- Record keeping system management
- Telecommunication site management
- Business continuity management
- Health and safety management
- Contract management
- Program management

*Employment History*

**Manager: Access Engineering, Fiber allocation and Engineering Operations, Telkom SA**
**Port Elizabeth, South Africa**
**August 2012 to September 2014**

Managed 75 staff members reporting to eight supervisors, spread over the entire region in Port Elizabeth, George and East London. This included seven diverse work disciplines (access lines planning, regional operations and maintenance co-ordination of cable pair replacement recording, capturing of infrastructure records, GIS regional functions, regional right-of-way functions, radio site management and fiber pair allocations.)
My 2014 Operating budget was mR7.9 and the Capital budget (mR49 CAPEX, mR10 OPEX) to facilitate the financial year's major electronic exchange conversion project to street cabinet exchange units (Fiber to the Cabinet - FTTC) (914 individual projects).
Special tasks:
Development and maintenance of business continuity plans for the Telkom Southern Region (Southern Cape, Eastern Cape and Border areas).

**Manager: Access Engineering and Engineering Operations, Telkom SA**
**Port Elizabeth, South Africa**
**September 2011 to July 2012**

Management of 40 staff members, sections included:

- Building cabling and customer premises facility management.
- Regional operations and maintenance coordination of cable pair replacement recording.
- Capturing of infrastructure records.
- GIS regional functions.
- Regional right-of-way functions.
- Conformance testing.
- Material management.

**Manager: Regional Engineering Operations, Telkom SA**
**Port Elizabeth, South Africa**
**July 2005 to August 2011**

Management of the engineering operation sections consisted of engineering support sections such as: Right-of-way, GIS and the engineering location records sections, building cabling and customer premises facility management for the Southern Region (Eastern Cape, Southern Cape and Border).
As part of the national team responsible for the NETPLAN (GE Smallworld GIS) implementation in Telkom, roles and responsibilities included:

- Revision of planning principles and procedures and spatial information requirements.
- Guidelines of data capturing and management of regional contractor manned capturing teams and targets.

Management of Southern region's portion of NETDATA, a multi-year project, capturing network infrastructure of both physical, logical and equipment connections.
Responsibilities included:

- Capturing program including staffing models and budgets.
- Data capturing targets management.
- Quality management of captured data.
- Control and management of the sourcing and verification of the record infrastructure data, undertaken by in house and contractor-based teams.

The Operations section consisted of 38 staff members. Sections managed:

- Regional operations and maintenance coordination of cable pair replacement recording.
- Capturing of infrastructure records sections.
- GIS regional functions.
- Regional right-of-way functions.
- Material management (checking of estimated material with physical material available).

**Manager: Regional Network Engineering, Telkom SA**
**Port Elizabeth, South Africa**
**July 2000 to June 2005**

Name change, due to restructuring at Telkom with added responsibility for Southern Cape area.

**Manager: Network Planning, Telkom SA**
**Port Elizabeth, South Africa**
**April 1999 to June 2000**

Manager of the Midlands lines planning section responsible for automation of rural farm lines and town planning of fix lines subscribers employing various technologies.
Responsibilities included:

- General management of staff and contractors.
- Liaison with ESCOM and local municipalities.
- Coordinating and contribution to the compilation of national right-of-way documentation for Telkom.

**Senior Engineer, Telkom SA**
**Port Elizabeth, South Africa**
**August 1992 to March 1999**

Senior Engineer Lines Planning (country and rural areas). Registered as professional engineer in 1993.
Heading planning teams in rural areas, involving farm line conversions with various technologies, such as, SOR18, RURTEL and point-to-point radio systems.

This position evolved to the position of Senior Engineer Wireless Local Loop Planning:
As planning team leader and planning project manager, leading teams consisting of in-house planning teams and in sourced planning teams from ESMARTEL, CSIR and ALCATEL, the Wireless conversion and connection of subscribers, spanning the entire Southern Region (greater Eastern Cape, Southern Cape and Ciskei/Transkei area) was planned (108 sites with 20 & 35 meter masts in urban areas 533 and in rural areas). The 1998/99 financial budget to provide 112 000 wireless links was mR350. The tasks coordinated included: Site identification using GIS tools, WWL planning, detail planning, right-of-way procurement, planning acceptance and quality control, footprint verification. In the process, special original, innovative tools were developed to enable rural subscribers to apply for service, installation teams to connect, and maintenance teams to provide point to multi point wireless network services. This was recognized by an innovation award from Telkom (see Key Achievements).

**Engineer, Telkom SA**
**Port Elizabeth, South Africa**
**January 1989 to July 1992**

Engineer EWSD (German Electronic Switches) and later Engineer Electronic Exchanges (EWSD and E10 (French Electronic Switches). This entailed operations and maintenance of all electronic exchanges in the Eastern Cape region.

# Education, Vocational Qualifications & Training

1985
Bachelor of Engineering: Electrical Engineering (Light Current), Stellenbosch (B.Ing 4 yr.)

1980
Senior Certificate, Academical, with mathematics & science and distinction, Strand High School.

For detail list of training please refer to appendix A.

# Computer Literacy

- Basic Computer skills (Desktop, Intra/Internet, Office etc.)
- Advanced Computer skills (MS Windows, Linux (Rasbian, Ubuntu, Kali, MX, Mint), MacOS, networking)
- GIS related skills (ARC View, Arc Info, Arc GIS, ERDAS, PathFinder (GPS))
- Database design (relational, geo spatial)
- Programming skills (Golang, Python, JavaScript, VueJS, NodeJS, SQL, HTML, CSS)

# References

J.J Scheun
email: scheunjj@telkomsa.net Cell: +27 81 318 9335

N.F. Whitehead
email: whitefn@telkom.co.za Cell: +27 81 355 2434

Appendix A

# Course list

## Udemy, Web based training 2018 – 2021

### *Completed:*

- Go (Golang) The complete bootcamp.
- Learn how to code Google's Go (Golang) Programming Language.
- Web Development with Google's Go (Golang) Programming Language.
- Complete Guide to Protocol Buffers 3 [Java, Golang, Python].
- gRPC [Golang] Master Class: Build Modern API & Microservices.
- Master Go (Golang) Programming: The Complete Go Bootcamp 2020.
- Web Authentication, Encryption, JWT, HMAC, & OAuth With Go.
- The Ultimate MYSQL bootcamp.
- The Complete Python bootcamp.
- 100 Python exercises: Evaluate and improve your skills.
- NLP – Natural Language Processing with Python.
- Elasticsearch 7 and the Elastic Stack - In Depth & Hands On.
- Ethical Hacking and Network Security from Scratch 2021.
- Linux Administration: The Complete Linux Bootcamp 2021.
- Agile Crash Course: Agile Project Management; Agile Delivery

### *Registered courses (in progress):*

- The Web developer bootcamp.
- Learning Python for Data analysis and visualization.
- The Python Mega course: Build 10 real world applications.
- Machine Learning A-Z: Hands-on Python and R in Data Science.
- Python for Computer Vision with Open CV and Deep Learning.
- Learn SQL for Beginners: The Comprehensive Hands-on Bootcamp.
- Python & Machine Learning for Financial Analysis.
- Modern Artificial Intelligence Masterclass: Build 6 Projects.
- Machine Learning & Data Science Foundations Masterclass.

## GIS related training, 2006 & IST, 2001

ARCGIS related courses. GE Small World Systems Course

## GIMS, GIS related training, 2000

Unix for Users - Administration of GEO Database - ARCINFO 8

## INCUSDATA

Intro to Java2 programming

## Maurice Kerrigan, 2009

Influential business communication.

## PE Technicon, Unigis, 1999

### Telkom SA Centre for Learning, In house courses 1996 – 2014

**Technical:**

EWSD Introduction & Systems Course - E10 introduction - Project Scheduling Tool (PST) - PNR and Estimator

**Management and people skills:**

Scenario/Systems Thinking - Effective handling of Discipline - Total Quality Management - Management & Administrative Procedures - Labor Relations Kit -Employee Relations for Managers - Performance evaluation: Technical - Coaching - Effective handling of discipline - Engaging the Manager - Full Range Leadership (The Leading Manager - The Coaching Manager - The Empowering Manager - The Team Enabling Manager) - Financial Management for Line Managers - Customer Relationship: Ambassador Program - Ethics - Capital Investment Decision Making Tool - What Every Employee Should Know About HS - Introduction to BCM for Management Level - Management PCA evaluation

**Occupational Safety:**

H&S Seminar (HASSEM) - Management of Occupational Safety: MOOS - SHE for Managers and Supervisors

**IT:**

Basic and End User - Groupwise: Basic - BPM - Introduction to the System, Intro to Simplified Processes

### Deloitte & Touche, MS Power Point, 1996

PowerPoint presentation skills basis and advanced.

### Stratec, Technology Leadership Program, 1994

A yearlong part time program on management of engineering skills throughout the engineering spectrum of South Africa. Thesis was done on the Internet.

Appendix B

# Providing the "missing link" for rural service provision. *(By Bevin Rudolph, project member.)*

(Please read as history facts, fixed line-look-a-like applies, correct at the time of development.)

It is perhaps a subconscious human weakness that we are inclined to automatically assume that the parameters upon which our lives revolve is the norm for all. In South Africa, the vast majority, effectively the decision-makers, who are fortunate enough to have formal employment, have a conventionally identifiable residential address, that is to say, a street number in a suburb in a town. It may come as something of a shock to some, but in a developing country, like South Africa, this is not the norm for most of the people.

The provision of telecommunication services is believed to enable development[1]. Ironically then it is the very areas where the provision of telecommunications services will have the greatest development impact also have the greatest obstacle to the provision and servicing of these development drivers, namely no uniquely identifiable conventional address. It also comes as something of a shock, although understandable considering where they were developed, to realize that both the current and our future customer service databases do not support the requirements of no (street/town type) residential address. This however remains our most crucial development area, where most of our new services need to be rolled out.

To speed up delivery in line with service activation goals, it is vital that the process be automated. Remembering that the only unique virtual address available now, or in the foreseeable future for the vast numbers of these individual households located in myriads of rural villages, is a geo-spatial co-ordinate, it can be appreciated that this constitutes what can be described as a challenge of considerable proportions. In order to effectively address all the areas of service provision, it proved necessary to develop a suite of tools that have at their core a database containing the coverage areas of all the various technologies employed, as well as the capacities and current customers. Ideally this database should form an integral part of our main customer service database.

The tools forming the suite and their focus areas are:
1.) **PRESTO - P**hotographic **R**ecognition **E**nabling **S**patial data **T**abulation on **O**rder.
The focus area of this tool is point of sale. To enable the sales staff to determine the customers co-ordinate electronically and remotely by means of the customer recognizing the image of his/her house from the ortho-photos. GUI type interface is provided to assist the operator in locating the customer's village to speed up the process. The result is that orders are made virtually instantly feasible, the result being to greatly reduce order to installation time, especially with WLL (Wireless Local Loop).

2.) **CLANS - C**ustomer **L**ocation **A**nd **N**avigation **S**ystem.
This tool is to enable the maintenance sections to easily locate faulty services, thus saving time and money. The circuit number is the search criteria, and as the application is web based on Telkom's intranet, it is available from any point on our network. All that is required is an Internet browser.

3.) **SEASAS - S**patially **E**nabled **A**utomated **S**ervice **A**ctivation **S**ystem.
As the definition says, service activation is this tool's focus. Because of the challenging targets, this tool has to date received the lion's share of the development work. Its impact on output has also given it a very high profile. Local consensus is that without it we would have been "belly up."

Collectively we call this suite of products our **PCS** suite, which incidentally is another pertinent acronym: **P**rovided **C**ustomer **S**ervice.

The product suit was in operation for many years, until the DECT product line was discontinued.

[1] THE IMPORTANCE OF TELECOMMUNICATIONS ( HTTPS://WWW.NAP.EDU/READ/11711/CHAPTER/3#8 )