

**KEYNOTE ADDRESS BY GAUTENG PREMIER DAVID MAKHURA,
ON THE OCCASION OF THE 28TH SOUTHERN AFRICAN INSTITUTE
FOR INDUSTRIAL ENGINEERING (SAIIE) ANNUAL CONFERENCE.
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Chairperson of this Session, Professor Thomas Tengen;

Prof Gordon Zide, Vice Chancellor of VUT;

President of the Southern African Institute for Industrial Engineering: Mr
Waldo Viljoen;

Academics, Innovators, Engineering professionals and Industry leaders;
Ladies and Gentlemen:

Thank you for inviting me to the 28th Conference of the Southern African
Institute for Industrial Engineering.

As you all know, your profession owes its origin from the First Industrial
Revolution that began in the 1800s, which marked the age of machines
and the rise of the factory system that impacted profoundly on the
volumes and quality of production systems and processes.

Up to this day, industrial engineers are pre-occupied with optimising and
innovating organisational or industrial systems and processes that
eliminate waste of time and resources through continuous productivity
and quality improvements or by shear disruption.

Today, the world is captivated by concepts such as "Fourth Industrial Revolution", "advanced manufacturing" and "Industry 4.0" due to the scientific inventions and industrial innovations of your profession.

Whereas during the First Industrial Revolution the focus was on improving the manufacturing of textile and the steam engine as the primary source of energy, the Fourth Industrial Revolution has occasioned data and knowledge at the centre of not only future production processes and systems, but big data and disruptive technologies have become the fulcrum of human progress and human evolution.

With all the challenges we face with regards to demographic transitions, rapid technological change, increasing rate of urbanisation, the effects of climate change as well as global geo-political/economic conflicts, we look up for answers in the form of new inventions and innovations from Industrial Engineering and other fields of science and technology in how we can protect our planet, improve the human condition and safeguard the survival of the human species.

It is common knowledge that Gauteng is the industrial hub of South Africa and the "manufacturing workshop" of Sub-Saharan Africa. It is for this reason that the manufacturing sector remains a key sector of our provincial economy. Developments and innovations in industrial engineering are of great interest to me because they can provide answers on how we can revitalize manufacturing capacity as part of our programme for Transformation, Modernisation and Re-industrialisation of the Gauteng economy, while at the same time taking a lead in the industrialisation of South Africa and the entire African continent.

South Africa in particular and Africa in general still have to rip the benefits of the achievements of the industrial age by embarking on a full scale new type of industrialization which more ecologically sustainable and technologically advanced.

South Africa has well-developed industrial capabilities, world class research institutions and advanced innovation ecosystems that can help the rest of the continent to leapfrog to the Fourth Industrial Revolution. We have significant advanced manufacturing (Industry 4.0) capacity that needs to be enhanced through deliberate tax incentives. I have seen this in many companies and universities during my regular visits on the Ntirhisano roadshows.

Africa's greatest potential is its growing and urbanising youth population and its rich natural resources. As South Africa, we need to deploy the our industrial capabilities and gear the energies of our universities towards unlocking Africa's full potential by training and skilling Africa's youth and processing the minerals of our continent here in South Africa.

South Africa must place innovation, research and development at the centre of its Industrial Policy and Economic Development. This will require major investments in new industrial infrastructure, R&D and skills development so that we are not at the margins of the new age of the information society and knowledge economy.

As Gauteng province, we have we strive to build a more inclusive and ecologically sustainable economy that is knowledge-based and

innovation-driven. Industrialization is not possible without the requisite Infrastructure and skills.

Through our schools of specialisation and skills partnership with key industry leaders, we are investing in skills for the new economy.

We are also rolling out major infrastructure across the five development corridors of our province in partnership with municipalities and the private sector – water and sanitation; renewable energy; ICT and broadband connectivity; public transport; new cities and mega human settlements; new industrial, science and agricultural parks.

Developing the necessary skills, expertise, industrial capabilities, research institutions, infrastructure and appropriate funding mechanisms which create an ecosystem for innovation-driven and knowledge-based inclusive economies.

Over the past three years, we have invested R30 billion in infrastructure. In the next three years, this amount will increase to R43 billion. Our cities will invest R60 billion in infrastructure. A total of 412 infrastructure projects are on our Infrastructure Project Register and are at various stages of implementation.

We need to ensure that this money goes where it matters most to improve the quality of life. The life blood of any modern economy is good infrastructure.

Over the past 10 years our government has invested strongly on public transport systems. To date the estimated costs on Bus Rapid Transit

systems in the three metropolitan municipalities in our province is over R10 billion; the public-private partnership investment in the Gautrain is R30 billion and the current modernisation of Metrorail is estimated at over R10 billion.

In the next few months, plans to acquire 12 new trains (48 coaches) for Gautrain will be finalised. A feasibility study for the expansion of the Gautrain system has also been completed.

Since 2014 we have spent over R3 billion undertaking heavy and light rehabilitation of our roads network and this year alone we will be spending R 1.9 billion on improving transport infrastructure.

In partnership with the private sector and municipalities we are well on track towards achieving 100% broadband connectivity across Gauteng by 2030. Since 2014, we have rolled out more than 1 500 kilometres of network fibre, connected 8 core sites and more than 800 access sites to the Gauteng Broadband Network.

Ladies and Gentlemen, I am raising all of this because as I stated earlier Industrial Engineers are a valuable source that can help us as government deliver on our vision to re-industrialise Gauteng and contribute towards the industrialisation of Africa. You will also help us realize especially on our mega infrastructure projects, including complex projects on time, on budget and according to scale. You can help us deliver infrastructure efficiently so that we can derive the maximum benefits that it brings – such as increased mobility and connectivity,

better quality of life for citizens, increased trade and investment and ultimately inclusive growth and prosperity.

Yours is a profession that can help us eliminate waste, in time, money and materials, person hours, machine time, energy and other resources in the implementation of projects. You can help us improve our execution!

We therefore consider the close to 4 000 registered members of SAIIIE as an invaluable resource we can certainly rely on as we implement our massive social and economic infrastructure programme aimed at the modernization and re-industrialisation of the Gauteng economy.

We appreciate your interest in working with us. For many years the private sector has derived major benefits from the use of the Industrial Engineering profession. We too, in government, would like to benefit from associating with and the greater use of the profession's skills and capabilities.

Programme Director, it is heartening to learn that following its long evolution process the Industrial Engineering profession today boasts an increasing number of women scholars and professionals in its ranks, drawing inspiration from pioneers such as Prof Susan Adendorff, the first woman to hold a Ph.D. in Industrial Engineering in South Africa.

We also note with appreciation that the University of Pretoria, based in our province of Gauteng, introduced the first industrial engineering graduate course in 1961 and produced the first industrial engineering

graduates in 1964. To date the University of Pretoria produces the largest number of graduate industrial engineers in Africa.

Equally important is that the University of the Witwatersrand, also located in our province, produced the first Black African industrial engineering graduate in 1984.

We also know that the University of Johannesburg, Tshwane University of Technology and North-West University also have advanced manufacturing and industrial engineering capabilities that are impacting positively on industry in our country.

Earlier this year I visited Vaal University of Technology and was amazed about the work being done here on innovation and technology transfer, especially with regard to agro-processing, leather and shoe-making and the deployment 3-D technology in advanced manufacturing.

I would like to visit all universities, research institutes and innovation centres in a Gauteng. Engaging with the knowledge institutions and industry leaders is very important.

Gauteng is the knowledge and innovation hub of Southern Africa. We have some of Africa's best universities and R&D institutions. We also have a cluster of global corporations that are investing hugely in R&D innovations for the global markets. We have a pool of talent and expertise that make our province quite competitive. We have good Infrastructure. We have great universities. We have great weather.

Accordingly, the provincial government has just concluded a Memorandum of Agreement with all Vice Chancellors of Gauteng-based universities so that we can collaborate on knowledge production, skills development, investment in public infrastructure, innovation, research and development.

I therefore wish extend an invitation to Southern African Institute of Industrial Engineering to partner with us as we work with key industry leaders to revitalize manufacturing and position Gauteng province as the leading hub of the Fourth Industrial Revolution in our continent.

We need to work we the you and the private sector to revitalize areas like the West Rand, the Vaal Triangle and Ekurhuleni which have suffered from de-industrialization caused partly by the collapse of the steel industry and the decline of mining.

International experience confirms the view that it is only through mutually beneficial partnership that we can revitalize manufacturing. Disruptive technologies offer both a challenge and new opportunities. We need you to seize these opportunities and navigate the challenges of automation.

In the same vein we applaud the work done by SAIIE to form partnerships and collaboration with like-minded Institutes and Universities in other parts of the globe. This will go a long way in ensuring that we share knowledge and are able to implement best international practice in the delivery of infrastructure projects.

I wish your 28th Conference tremendous success and will keenly await the outcomes.

I am looking forward to an enduring partnership with the Industrial Engineering profession

Thank you.