How Should South Africa Redesign Education, Industrial Policy and Fiscal Incentives to Harness AI for Productivity Growth While Limiting Labour Market Disruption?

Category: Postgraduate

Word count: 3371 (including title, tables, and headings; excluding references)

Introduction

Artificial intelligence (AI) has the potential to boost productivity, but South Africa is inadequately positioned to handle the disruption that it may cause. The burden of unemployment is uneven: in the first quarter, degree holders faced a rate of 12.2%, matric-only holders 35.7%, and those without matric 37.6% (The Outlier: 2026). In the second quarter of 2026, unemployment rose from 32.7% to 33.6% (Stats SA: 2026).

The essay argues that of the three levers that are available to policymakers, education, industrial policy and fiscal incentives, education serves as a critical bottleneck deciding if AI integration fuels widespread economic advancement or increases inequality. While industrial policies and fiscal incentives can catalyse technological adoption, their efficacy relies on a labour force capable of integrating and enhancing these innovations. In the absence of such human capital, government subsidies risk incentivising labour-replacing automation rather than labour-augmenting integration.

The argument rests on three kinds of evidence: theoretical (endogenous growth models that treat human capital as central to technological absorption), empirical (South Africa's experience with incentives such as the Employment Tax Incentive, and recent evidence on AI and manufacturing employment) and structural (the scale of the country's foundational learning crisis). The essay examines each lever in turn, then turns to labour market disruption, international experience and the trade-offs involved, before concluding and setting out recommendations.

1. Redesigning Education

1.1 Why education is the binding constraint

Endogenous growth models depart from Solow's neoclassical framework by treating technological progress as something an economy produces through investment in knowledge and human capital. Lucas (1988) showed that human capital accumulation can generate increasing returns at the level of the economy, even when individual firms face diminishing returns. Romer (1990) argued that the stock of human capital devoted to research and adaptation, rather than physical capital or raw labour supply, determines sustained growth.

The productivity gains of AI are fundamentally tied to human capital. Specifically, organisations require skilled employees and managers capable of identifying strategic use cases, restructuring organisational processes, and critically evaluating technological limitations.

AI cannot simply be deployed and left to produce output. General-purpose technologies increase the relative productivity of skilled labour under skill-biased technical change. In contrast to a nation with strong foundational and adaptive capabilities, one that imports AI tools without the human capital to complement them sees more displacement and less productivity gain.

1.2 The South African evidence

Empirical evidence already highlights this barrier: the 2021 PIRLS report revealed that 81% of South African Grade 4 students lack basic reading comprehension in any official language, marking the lowest performance out of 57 surveyed countries and erasing a decade of progress (University of Pretoria CEA: 2023). Since reading comprehension is the foundational prerequisite for advanced digital and AI literacy, students who fail to achieve this benchmark in primary school are highly unlikely to possess the capabilities required for effective human-AI collaboration in the future workforce.

The labour market already prices this gap. Table 1 below shows the unemployment rate in the first quarter of 2026 by highest level of education.

Table 1: Unemployment rate by the highest level of education, South Africa, Q1 2026

Highest level of education	Unemployment rate (%)
Degree	12.2
Matric only	35.7
No Matric	37.6

Source: The Outlier (2026)

Table 1 shows that unemployment is roughly 25 percentage points higher for those without matric than for degree holders, and that a matric on its own offers little more protection than leaving school without one.

AI is likely to widen this gap, since clerical support, basic data processing and first-line customer service are among the occupations most exposed to generative AI (Gmyrek et al.:2025), and these tasks are disproportionately performed by workers with less education.

1.3 What redesign requires

Four reforms follow. First, basic educational foundations must precede specialised AI training. Given systemic constraints including inadequate infrastructure, poor connectivity, scarce resources, and teacher shortages, compounded by a weak digital skills pipeline (World Bank: 2026) upgrading early-grade literacy, mathematics skills, and teaching capacity represents the country's most vital AI strategy.

Second, AI literacy, data literacy and ethics should be integrated across the curriculum from an early stage rather than confined to specialist subjects, so that learners understand how AI systems work and use them responsibly (Miao et al.: 2021).

Third, universities and Technical and Vocational Education and Training (TVET) colleges should embed AI and data skills within existing programmes rather than create separate AI-only qualifications, giving lecturers room to experiment (Fourie: 2026), and should build industry partnerships so that curricula track labour market demand.

Fourth, continuous education and professional reskilling must be prioritised nationally, ensuring workers in jobs exposed to automation have clear pathways into emerging sectors. To address the dual crisis of high unemployment and a deficit in digital competencies, structural reforms must bridge the divide between current educational outcomes and real labour demand.

2. Industrial Policy

2.1 Sector targeting

Industrial policy serves as the primary mechanism governing the path and widespread distribution of AI-induced productivity gains. Without deliberate state direction, market forces will concentrate technological integration within data rich, well capitalised industries like finance and telecom. Because these sectors cannot absorb large volumes of surplus labour, an unguided transition will mirror South Africa's past economic structural flaws: concentrating modern gains within a small core while ignoring employment-heavy industries.

Policy should instead prioritise agro-processing, mining beneficiation, logistics and renewable energy, which pair AI’s productivity potential with real labour-absorption capacity. In these sectors AI tends to complement workers: applications such as precision agriculture, asset inspection and route optimisation (Deloitte: 2026) raise the productivity of existing staff, and stronger linkages to the wider economy make it more likely that gains spread rather than stay within one firm.

Industrial policy should also promote human-centred adoption, using AI to augment accountants, engineers, health professionals and teachers by automating repetitive tasks.

Institutional design matters. Makumbirofa (2024) documents coordination failures among agencies such as the Department of Science and Innovation, the CSIR, the Technology Innovation Agency and the Industrial Development Corporation. The priority is therefore clear mandates and funding coordination for existing bodies, rather than new ones, consistent with Fourie’s (2026) call to rationalise AI institutions.

2.2 SME diffusion, not just large-firm adoption

A structural risk is that AI-linked incentives will replicate the concentration of the Special Economic Zone (SEZ) programme. Three zones (Coega, East London and the Tshwane Automotive SEZ) account for about 74% of its private investment (GIBS/GIDZ, 2025), and by mid-2026 the 13 zones and 224 companies had created 28 821 direct jobs (SAnews: 2026), against a labour force of about 25 million (Stats SA: 2026).

Small and medium enterprises (SMEs), which employ most South Africans, face more basic barriers. They cite insufficient funding, limited technical know-how and the high cost of technology (Takawira and Pooe: 2025).

These are digital-readiness gaps that decide whether SMEs can use AI at all. Industrial policy therefore needs an explicit diffusion mechanism: technical support embedded in existing small-business agencies, shared AI tools and infrastructure for SME clusters, and SEZ-style incentives that measure success by employment intensity and SME linkages rather than investment value alone.

2.3 Infrastructure: data centres, energy and connectivity

Well-targeted sector and SME policies will fail if the underlying infrastructure cannot support them. Data centre capacity is growing from a small base: Africa accounts for only about 1% of the world's data centres (Le Roux: 2026), but South Africa is attracting hyperscale investment, including R20 billion already spent by Microsoft on cloud infrastructure and a further R5.4 billion commitment (TechCabal: 2026). Without deliberate direction, this capacity will cluster around Johannesburg and Cape Town and reinforce the urban-rural divide already visible in labour market and educational outcomes.

The power sector has recovered markedly, with state utility Eskom recording 343 consecutive days of uninterrupted supply by April 2026 (Eskom: 2026) and its Energy Availability Factor rising from around 55% in 2023/24 to over 65% in 2025/26 (Engineering News: 2026). Successful AI adoption is contingent upon robust infrastructure, meaning that any resurgence of electricity supply interruptions would derail any AI adoption strategy. Concurrently, the intensive power consumption profile of new data centres necessitates synchronised utility planning to avoid creating

tension between high-tech industrial expansion and the basic energy needs of citizens and traditional sectors (Colmer: 2025).

Connectivity most directly limits diffusion. Although 82.1% of households have internet access, only 17.4% have a fixed-line connection at home (Stats SA: 2025). Most access is therefore mobile, which is a poor substitute for the reliable, high-bandwidth connections commercial AI use typically requires.

3. Fiscal Incentives

3.1 Working within the fiscal envelope

New incentives must fit South Africa's narrow but improving fiscal space. Gross debt, which peaked at 78.9% of GDP in 2025-2026, is expected to drop to roughly 76.5% of GDP by 2028/29 fiscal year, while the consolidated deficit is expected to drop from 4.5% of GDP in 2025-2026 to 3.1% in 2028-2029 (National Treasury, 2026; Kathrada: 2026). Over one in five rand of main budget revenue is still consumed by debt-service expenses (Kathrada: 2026). The realistic route is to reform and redirect existing instruments rather than assume large new spending.

3.2 Incentives conditional on complementary hiring and reskilling

Most capital-investment incentives are blind to labour outcomes: a firm receives the same accelerated deduction whether its AI investment displaces workers or complements them. Instead of a general AI capital allowance, the allowance should be tiered, with the full amount available where a firm demonstrates net employment growth or a documented reskilling commitment for affected staff, and a reduced amount where it does not.

The Employment Tax Incentive (ETI) is both warning and precedent. A UNU-WIDER study using SARS administrative data found no statistically significant average effect on youth employment, with a positive effect only among firms with fewer than 200 employees (Ebrahim, Leibbrandt and Ranchhod: 2017), while other evaluations found gains of about two percentage points alongside deadweight loss (Moeletsi: 2017). The lesson is that incentives work best when targeted by firm size and conditioned on outcomes, not distributed broadly.

3.3 Research and development incentives

Section 11D of the Income Tax Act already allows a 150% deduction for qualifying research and development (R&D) expenditure and has supported more than R50 billion of activity (du Raan: 2021). It is a workable base, but National Treasury's own evaluation found design and impact problems serious enough to prompt a re-evaluation of its definitions and scope (National Treasury and Department of Science and Innovation: 2021).

For AI the incentive should be refined, not just expanded, with eligibility weighted towards R&D on distinctively South African problems, such as natural language processing across the twelve official languages, agricultural AI and logistics applications. Without a local-problem requirement, the credit risks subsidising R&D by multinational subsidiaries that would have occurred anyway, the deadweight-loss problem seen in the ETI.

3.4 Procurement and funding sources

The market is shaped by public procurement without additional expenditure. Instead of only rewarding headcount reduction, procurement regulations can mandate human-in-the-loop design for AI utilised in public services like health triage, social grant administration, and Home Affairs processing. Firms seeking state contracts would then build for augmentation, at no additional fiscal cost. Reskilling can also draw on existing sources: a designated portion of the Skills Development Levy, which businesses already pay, could fund AI-linked reskilling vouchers without new taxation.

4. Limiting Labour Market Disruption

The disruption risk is real in South Africa. Using quarterly data for 2014 to 2024, Giwa and Ho (2026) find that a positive AI shock produces an immediate and statistically significant contraction in manufacturing employment, with AI shocks accounting for nearly 30% of the forecast-error variance in manufacturing employment over ten quarters. The same study finds that education shocks have a strong positive effect on employment, which supports the ordering argued here: human capital is the main buffer against displacement.

This sits uneasily with the International Labour Organization's finding that generative AI is more likely to transform jobs by automating tasks than to eliminate occupations (Gmyrek et al.: 2025). The two can be reconciled. Task transformation still destroys jobs when exposed workers cannot move into the new tasks, and weak reallocation capacity makes this more likely in South Africa.

Fourie (2026) argues that labour laws raising the cost of hiring and adjusting staff, exchange controls that penalise software intellectual property transactions and shallow venture capital all impede the reallocation through which productivity gains become broad welfare gains, and that compliance costs designed around large firms weigh most heavily on small ones. Reducing these frictions is part of any disruption strategy.

Where displacement occurs, support should be targeted and fiscally conservative. Transition funds should provide retraining, career transition assistance and temporary income support, delivered through existing channels such as the Presidential Employment Stimulus and the Unemployment Insurance Fund rather than new institutions.

A ring-fenced share of AI-linked corporate tax revenue could finance these top-ups, making the commitment self-limiting: it activates only when that revenue is received, rather than requiring upfront spending against uncertain growth. Conditional incentives (Section 3) also pace adoption to the economy's capacity to adapt, which addresses sequencing without restricting AI itself.

5. International Experience

Other countries show how education and skills policy can be organised, and also the limits of transfer. Finland's Elements of AI initiative integrates AI literacy and ethics into education and promotes lifelong learning, and the University of Helsinki's course has reached hundreds of thousands of learners worldwide. Singapore's AI for Everyone programme builds public understanding of AI and embeds ethical learning across its education system, and Germany and Singapore both integrate digital and AI skills into dual vocational education models (Oyetade and Zuva: 2025).

Three lessons apply. Public AI literacy can be delivered at scale and low marginal cost, which suits South Africa's fiscal constraints. Vocational pathways are central to skilling workers for industry, supporting the TVET reforms proposed above. But Finland and Singapore build on strong foundational schooling, which South Africa lacks (Section 1.2). Importing their AI-literacy programmes without first fixing foundational learning would build advanced content on a weak base.

6. Comparative Assessment and Trade-offs

6.1 Necessary condition or multiplier

These three economic interventions operate hierarchically rather than equivalently. Education establishes the baseline threshold for an economy's capacity to absorb AI and distribute its wealth. State-led industrial frameworks and tax incentives can influence the pace and sectoral path of technology integration, but their success depends on a labour supply whose skills are largely determined before these targeted programmes take effect.

An AI-linked SEZ cannot produce technicians for AI-augmented equipment if the local labour pool lacks basic digital literacy, and an R&D credit cannot generate local applications without researchers. This does not make the other levers unimportant; it is a claim about sequencing.

Once that base exists, industrial policy and fiscal incentives act as multipliers: they decide how quickly and how widely the gains spread, so the same stock of skills yields a larger dividend under strong policy than under weak policy. Education is necessary but not sufficient, and a well-educated workforce under weak policy is likely to capture more of the AI dividend than a poorly educated one under strong policy, though less than its full potential.

6.2 Growth, disruption and control

The three levers also serve different purposes and give government different degrees of control. Industrial policy fiscal and incentives mainly drive growth, whereas education and retraining protect workers from disruption. Government can change the curriculum or its own procurement rules directly, but tax incentives work only through

the decisions of private firms, which is why they must carry conditions. Table 2 below summarises these differences.

Table 2: Comparison between the three levers

Lever	Main role	Time to take effect	Government control
Education and reskilling	Builds capacity to absorb AI; buffers workers against displacement	Long (a decade or more for schooling)	High: curriculum, teacher training
Industrial policy	Directs where adoption happens and how widely gains spread	Medium	Moderate: depends on firm and agency response
Fiscal Incentives and procurement	Sets the pace of adoption and rewards labour-complementing investment	Short	Low for tax incentives; high for procurement rules

Source: Author's own compilation

Table 2 shows that education, the lever government controls most directly, is also the slowest to take effect, while fiscal incentives act quickly but depend on private behaviour. Conditional incentives and transition support are therefore needed to cover the years before education reform pays off.

6.3 Trade-offs and risks

First, timing: conditional incentives and transition support must close the gap between the adoption of AI and school reform, which takes ten years or more to pay off. Second, concentration: unless access to infrastructure and training is purposefully expanded, AI may increase the gap between people with sophisticated digital abilities and everyone else, as well as between major enterprises and SMEs (OECD: 2024). Third, fiscal constraints: extensive subsidies would strain public finance, which favours reforming existing instruments.

A human-centred approach emphasises ethics, inclusion, and human development in addition to productivity, therefore policy should refrain from viewing AI only as an economic issue (Miao et al.: 2021). Yet failing to adopt AI at all would erode

competitiveness, just as mismanaged adoption would worsen inequality and unemployment. The challenge is therefore balanced adoption, not avoidance.

Conclusion

This essay set out to establish how South Africa should redesign education, industrial policy and fiscal incentives so that AI raises productivity without deepening unemployment. It did so through a literature study that combined endogenous growth theory with South African evidence on learning outcomes, unemployment by level of education, the Employment Tax Incentive, Special Economic Zones and the effect of AI on manufacturing employment, together with international experience from Finland, Singapore and Germany.

The research indicates a distinct hierarchy among the three policy instruments. The structural baseline is set by the education system, which dictates whether subsequent industrial and financial interventions generate inclusive growth or simply fast track automation. Where an adaptable labour pool exists, targeted industrial strategies and fiscal measures serve to dictate the trajectory and velocity of technological integration. Given that systemic educational reform involves an extended timeline, these interventions must be rolled out in parallel, relying on immediate conditional incentives and active workforce retraining programmes as vital bridge mechanisms.

Recommendations

1. Treat foundational learning as South Africa’s main AI strategy. Early-grade reading and mathematics, teacher preparation and school connectivity should be funded ahead of specialised AI programmes, with AI and data literacy then built into the school curriculum, TVET colleges and universities.
2. Replace any blanket AI capital allowance with a tiered allowance. The full allowance should require net employment growth over two to three years, verified against SARS payroll data, or a documented reskilling commitment, with a claw-back if employment falls.
3. Refocus the Section 11D incentive on local problems, such as natural language processing in South Africa’s official languages, agricultural AI and logistics.

4. Give industrial policy an SME diffusion mechanism through existing small-business agencies, and judge Special Economic Zones by employment intensity and SME linkages rather than investment value.
5. Use procurement rules to require human-in-the-loop design in public services, and a designated share of the Skills Development Levy to fund reskilling vouchers.
6. Fund transition support for displaced workers from a ring-fenced share of AI-linked corporate tax revenue, delivered through the Unemployment Insurance Fund and the Presidential Employment Stimulus.

The feasibility of these interventions rests on the reallocation of existing policy instruments rather than the creation of new fiscal burdens or bureaucratic structures, an essential consideration given that debt-service obligations currently consume over twenty percent of state revenue. Primary execution risks involve administrative capacity, specifically the South African Revenue Service's (SARS) ability to audit and verify employment outcomes for conditional incentives-and the prolonged structural lag inherent in educational reform.

Therefore, rather than delaying intervention until foundational skills improve, policymakers must deploy transitional labour programmes and conditional incentives simultaneously. Pursuing these reforms in parallel offers a realistic path to capture AI's economic dividends while mitigating structural unemployment risks.

References

Colmer, P. (2025) The AI data centre conundrum: South Africa's infrastructure puzzle. WAPA, 30 October. Available at: https://wapa.org.za/node/4064 (Accessed: 17 October 2026).

Deloitte (2026) AI goes physical: how intelligent machines could reshape Africa's economy. Deloitte South Africa, Tech Trends 2026. Available at: https://www.deloitte.com/za/en/Industries/technology/research/tech-trends-2026.html (Accessed: 17 October 2026).

du Raan, K. (2021) South African businesses should apply for a section 11D tax incentive today. GoLegal, 3 February. Available at: https://www.golegal.co.za/11d-tax-incentive/ (Accessed: 17 October 2026).

Ebrahim, A., Leibbrandt, M. and Ranchhod, V. (2017) The effects of the Employment Tax Incentive on South African employment. WIDER Working Paper 2017/5. Helsinki: UNU-WIDER. Available at: https://www3.wider.unu.edu/sites/default/files/wp2017-5.pdf (Accessed: 17 October 2026).

Engineering News (2026) How often are Eskom's power plants ready to generate electricity? Creamer Media, 15 April. Available at: https://engineeringnews.co.za/article/how-often-are-eskoms-power-plants-ready-to-generate-electricity-2026-04-15 (Accessed: 17 October 2026).

Eskom (2026) Stable power system performance reinforced by operational and cost efficiencies; Winter Outlook projecting no loadshedding. Media statement, 24 April. Available at: https://www.eskom.co.za/stable-power-system-performance-reinforced-by-operational-and-cost-efficiencies-winter-outlook-projecting-no-loadshedding/ (Accessed: 17 October 2026).

Fourie, J. (2026) Putting AI to work for South Africans: what South Africa's next AI policy should say. Research Note, 4 May. Stellenbosch: Bureau for Economic Research, Impumelelo Growth Lab. Available at: https://www.ber.ac.za/Documents/ViewMode/61c0cd4d-2f71-4e3e-9cbf-2e1ee911490b (Accessed: 17 October 2026).

GIBS/GIDZ (2025) South Africa's Special Economic Zones: rethinking, reimagining, and reviving SEZs to unlock their full potential. Johannesburg: Gordon Institute of Business Science. Available at: https://content.gibs.co.za/cmscontent/media/4otjdrbu/gibs-gidz-sezs-report-final.pdf (Accessed: 17 October 2026).

Giwa, F. and Ho, S.-Y. (2026) Artificial intelligence shock in manufacturing: a threat or an opportunity for South Africa's labour market? Journal of Open Innovation: Technology, Market, and Complexity, 12, 100696. Available at: https://www.sciencedirect.com/science/article/pii/S2199853125002318 (Accessed: 17 October 2026).

Gmyrek, P., Berg, J., Kaminski, K., Konopczynski, F., Ladna, A., Nafradi, B., Roslaniec, K. and Troszynski, M. (2025) Generative AI and jobs: a refined global index of occupational exposure. ILO Working Paper 140. Geneva: International Labour Organization. https://doi.org/10.54394/HETP0387 (Accessed: 17 October 2026).

Kathrada, H. (2026) Budget: debt peaks but growth lags. Mail & Guardian, 27 February. Available at: https://mg.co.za/business/2026-02-26-budget-debt-peaks-but-growth-lags/ (Accessed: 17 October 2026).

Le Roux, K. (2026) South Africa tipped for AI data centre boom as billions flow into new projects. EWN, 8 July. Available at: https://www.ewn.co.za/2026/07/08/south-africa-tipped-for-ai-data-centre-boom-as-billions-flow-into-new-projects (Accessed: 17 October 2026).

Lucas, R.E. (1988) On the mechanics of economic development. Journal of Monetary Economics, 22(1), 3-42. https://doi.org/10.1016/0304-3932(88)90168-7 (Accessed: 17 October 2026).

Makumbirofa, S. (2024) Reflections on South Africa's AI industrial policy. In: AI Nationalism(s): Global Industrial Policy Approaches to AI, Chapter 6. New York: AI Now Institute. Available at: https://ainowinstitute.org/wp-content/uploads/2024/03/AI-Nationalisms-Chapter-6.pdf (Accessed: 17 October 2026).

Miao, F., Holmes, W., Huang, R. and Zhang, H. (2021) AI and education: guidance for policy-makers. Paris: UNESCO. Available at: https://discovery.ucl.ac.uk/10130180/ (Accessed: 17 October 2026).

Moeletsi, W.T. (2017) South Africa's youth unemployment and the employment tax incentive: an empirical re-evaluation. MCom research report. Johannesburg: University of the Witwatersrand. Available at: https://wiredspace.wits.ac.za/items/763e97ea-4e70-4561-bdaa-36882888c0c3 (Accessed: 17 October 2026).

National Treasury (2026) Budget Review 2026. Pretoria: National Treasury. Available at: https://www.treasury.gov.za/documents/National%20Budget/2026/review/FullBR.pdf (Accessed: 17 October 2026).

National Treasury and Department of Science and Innovation (2021) Discussion document: research and development tax incentive. Pretoria: National Treasury, December. Available at: https://www.treasury.gov.za/comm_media/press/2021/TaxPolicyDiscussion/2021121501%20Discussion%20Document%20-%20Research%20and%20Development%20Tax%20Incentive.pdf (Accessed: 17 October 2026).

OECD (2024) The impact of artificial intelligence on productivity, distribution and growth. OECD Artificial Intelligence Papers. Paris: OECD Publishing. https://doi.org/10.1787/8d900037-en (Accessed: 17 October 2026).

Oyetade, K. and Zuva, T. (2025) Rethinking education for a more inclusive and future-ready AI era. African Journal of Inter/Multidisciplinary Studies, 7(2), 1-13. Available at: https://ojs.sabinet.co.za/index.php/ajims/article/view/2707 (Accessed: 17 October 2026).

Romer, P.M. (1990) Endogenous technological change. Journal of Political Economy, 98(5), S71-S102. https://doi.org/10.1086/261725 (Accessed: 17 October 2026).

SAnews (2026) SEZs attract R31.7 billion in investment, create nearly 29 000 jobs. 17 July. Available at: https://www.sanews.gov.za/south-africa/sezs-attract-r317-billion-investment-create-nearly-29-000-jobs (Accessed: 17 October 2026).

Stats SA (2025) General Household Survey 2024: media release. Pretoria: Statistics South Africa, 27 May. Available at: https://www.statssa.gov.za/publications/P0318/MEDIA%20RELEASE%20-%20%20GHS%202024.pdf (Accessed: 17 October 2026).

Stats SA (2026) Quarterly Labour Force Survey, Quarter 2: 2026. Pretoria: Statistics South Africa. Available at: https://www.statssa.gov.za/publications/P0211/Presentation%20QLFS%20Q2%202026.pdf (Accessed: 17 October 2026).

Takawira, B. and Pooe, D. (2025) SME readiness for Industry 5.0: a systematic literature review. Southern African Journal of Entrepreneurship and Small Business Management, 17(1), a946. https://doi.org/10.4102/sajesbm.v17i1.946 (Accessed: 17 October 2026).

TechCabal (2026) South Africa plans incentives as data centres gain 'critical' status. February. Available at: https://techcabal.com/2026/02/25/south-africa-eyes-data-centre-boom/ (Accessed: 17 October 2026).

The Outlier (2026) Your education level is the difference between a 30% and a 78% chance of employment. May. Available at: https://theoutlier.co.za/features/unemployment-education (Accessed: 17 October 2026).

University of Pretoria Centre for Evaluation and Assessment (2023) PIRLS 2021 South Africa. Pretoria: University of Pretoria. Available at: https://www.up.ac.za/centre-for-evaluation-and-assessment/node/6420 (Accessed: 17 October 2026).

World Bank (2026) From demand to delivery: strengthening South Africa's digital skills pipeline. Washington, DC: World Bank. Available at: https://www.worldbank.org/en/news/feature/2026/08/14/from-demand-to-delivery-strengthening-south-africas-digital-skills (Accessed: 17 October 2026).