

# FUTURE-PROOFING THE MUNICIPAL ELECTRICITY BUSINESS THROUGH GENERATIONAL DIVERSITY



**Authors & Presenters:** L Khanyile BTech Electrical Eng – Electrical Technologist at GLS Consulting and M Nkwana BTech Electrical Eng – Electrical Technologist at GLS Consulting

## 1 INTRODUCTION

The energy sector is undergoing rapid transformation, driven by technological advancements and a global focus on achieving Sustainable Development Goals (SDGs). Among these, SDG 7—established by the United Nations General Assembly—aims to ensure access to affordable, reliable, sustainable, and modern energy for all. This goal is increasingly central to the strategies of electricity utility providers, particularly in South Africa, where energy security and sustainability remain critical challenges.

The role of electricity utilities in the South African context is pivotal, as they are tasked with delivering essential services amid a shifting energy landscape. With the advent of renewable energy, decentralized generation, and evolving regulatory frameworks, utilities must continuously adapt. Many organizations, especially consultants, have stepped up to support these efforts by developing electricity master plans, conducting renewable energy feasibility studies, and performing cost of supply analyses. These efforts help utilities make data-driven decisions to secure their future and improve service delivery.

However, beyond technological and strategic planning, the long-term success of municipal utilities hinges on their ability to adapt to changing workforce dynamics. This paper suggests that integrating generational diversity is a key strategy to future-proofing the municipal electricity utility business. As younger generations will become the future managers, engineers, and decision-makers in the industry, their active involvement in today's planning and operations is critical.

The importance of generational diversity cannot be overstated. By fostering a collaborative environment where both young talent and seasoned professionals can share knowledge, utilities can create a more innovative, resilient, and forward-thinking culture. This paper explores the principles and challenges of generational diversity, providing insights into how utilities can cultivate an inclusive workplace that leverages the strengths of each generation to ensure long-term sustainability.

### 1.1. Background

South Africa's energy sector has seen notable improvements in the performance of Eskom Generation, the national power utility. In recent months, the country has experienced a marked reduction in loadshedding, signalling a positive shift in energy supply reliability. While this progress is commendable, it has placed increased focus on distribution system operators, particularly municipalities, who continue to struggle with power outages. These outages are often the result of load reduction and grid infrastructure challenges, rather than generation capacity shortfalls.

Municipal utilities, in particular, face operational strain due to aging infrastructure, aging experts, low department complements, and underinvestment. The pressure on these utilities has intensified as they work to meet the energy demands of growing populations, all while navigating regulatory and financial constraints. As Eskom stabilizes its operations, the onus now shifts to local distribution systems, which play a critical role in ensuring that the energy delivered to the grid reaches end users reliably and efficiently.

This situation has highlighted the urgent need for municipalities to modernize their grid infrastructure and enhance operational resilience. As part of the broader energy transition, distribution system operators must also adapt to integrate new technologies and renewable energy sources. This growing

complexity underscores the importance of equipping utilities with the right mix of skills and resources, including a workforce that reflects generational diversity, to effectively manage the evolving demands of the energy landscape.

## 1.2. Just Energy Transition and Importance of Electricity Utilities

The concept of a Just Energy Transition (JET) has become a cornerstone of conversations in the global energy sector, especially in South Africa. This transition aims to shift from a reliance on fossil fuels to more sustainable energy sources, while ensuring that the social, economic, and environmental impacts on stakeholders—particularly those dependent on fossil fuel industries—are considered. The questions that arise include what the energy transition is, how such a transition will be implemented, and more importantly, how we ensure that it is truly "just", addressing the needs of communities, industries, and workers tied to coal and other fossil fuels will be central to the success of this transition.

### 1.2.1. Field of Actions

According to the authors of *The Renewable Energy Transition in Africa* report [1], the energy transition can be built on four "Fields of Action" to ensure a fair and sustainable shift.

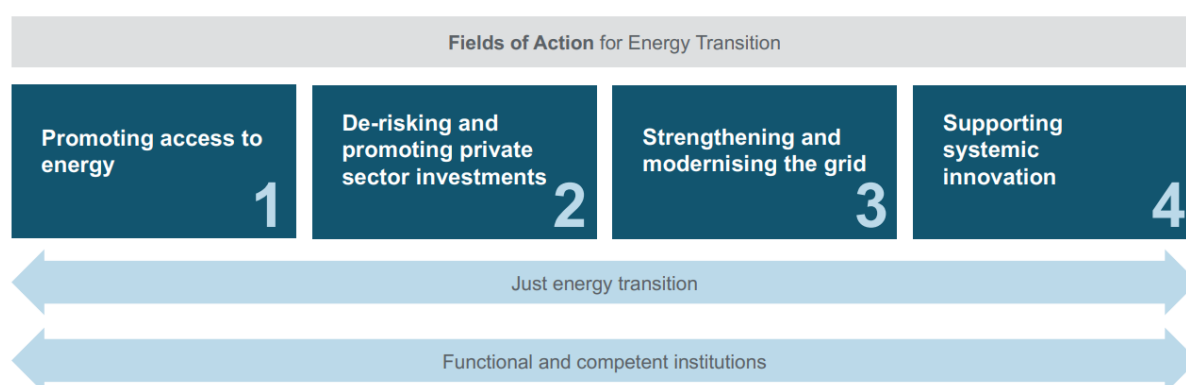


Figure 1: Fields of Action for Energy Transition [1]

#### 1.2.1.1. Promoting access to energy

One of the fundamental pillars supporting the success of the JET is seeking universal access to reliable and sustainable electricity. Efforts to achieve this goal are closely aligned with SDG 7, which aims to provide affordable, reliable, and modern energy services to all. In South Africa, significant strides have been made toward this objective, access to basic electricity is said to be over 90%, according to Statistics South Africa [2].

However, despite these achievements, challenges remain. Population growth, coupled with persistent electrification backlogs in certain regions, continues to strain local utilities. As more households and industries demand energy, the pressure to expand and modernize infrastructure becomes more acute. Municipal utilities are at the forefront of these efforts, working to improve access to basic electricity for underserved communities while also ensuring the sustainability of their operations. These efforts are critical to the broader goal of equitable energy access, as they contribute to the economic and social development of the country.

Looking ahead, utilities will need to adopt more innovative approaches to electrification, incorporating off-grid solutions, renewable energy sources, and community-centered initiatives to meet the demands of a growing and evolving population. As the energy landscape shifts, promoting access to energy will remain a key field of action, ensuring that no one is left behind in the transition to a cleaner, more resilient energy system.

#### 1.2.1.2. De-risking and promoting private sector investment

A successful JET requires substantial financial investment, much of which will need to come from the private sector. To attract and secure this investment, there is a need to create stable and predictable enabling frameworks that reduce the risks associated with energy projects. De-risking investments involves addressing regulatory, financial, and operational uncertainties that may deter private sector participation.

In South Africa, fostering a conducive environment for private sector involvement is essential for scaling renewable energy projects, modernizing infrastructure, and expanding electricity access. This requires a concerted effort from both government and industry to develop clear policies, transparent regulations, and incentives that encourage private investment in the energy sector.

An additional component of this field of action is identifying a pipeline of viable projects that align with national goals and market needs. By showcasing well-prepared, bankable projects, stakeholders can instil confidence in potential investors and financiers, demonstrating that their investments will contribute to long-term returns and the success of the energy transition. Moreover, collaboration between public and private sectors will be critical in mobilizing the necessary capital and expertise to ensure these projects are implemented efficiently and sustainably.

De-risking and promoting private sector investment will play a pivotal role in accelerating the energy transition, ensuring that South Africa can meet its energy goals while fostering economic growth and innovation in the sector.

#### *1.2.1.3. Strengthening enabling frameworks*

A resilient, modern grid is critical for the success of the energy transition. As South Africa's energy mix shifts towards renewable sources and decentralized generation, the need to strengthen and modernize the national and local grids becomes increasingly urgent. This involves improving the planning, operation, and maintenance of existing infrastructure, while making targeted investments in grid modernization to enhance system flexibility.

Strengthening the grid means addressing both technical and operational challenges that have led to inefficiencies, including aging infrastructure and insufficient maintenance. Municipal utilities, in particular, are grappling with significant grid-related issues such as power outages and technical losses. Enhancing operational capabilities—through better maintenance, real-time monitoring, and more efficient load management—will help utilities improve service reliability and reduce disruptions.

Modernizing the grid also involves upgrading systems to accommodate new technologies, such as smart grids and energy storage, which offer increased flexibility and resilience. These upgrades enable utilities to better integrate renewable energy, optimize energy flows, and support market-driven solutions. By reducing technical and commercial losses, utilities can improve their financial sustainability and enhance the efficiency of electricity distribution.

Incorporating advanced grid technologies will be a key enabler of the energy transition, ensuring that South Africa's electricity system can respond to evolving energy demands, support greater renewable energy penetration, and reduce losses across the system. Strengthening and modernizing the grid will not only improve service delivery but also position the country for long-term energy security and sustainability.

#### *1.2.1.4. Supporting systematic innovation*

To ensure the success of the JET, systematic innovation must be embraced across all levels of the energy sector. This field of action focuses not only on leveraging innovative power generation technologies, but also on integrating enabling technologies like the Internet of Things (IoT), energy storage solutions, and renewable energy mini-grids. By adopting a structured approach to innovation, utilities and policymakers can harness the full potential of these advancements to enhance energy access, reliability, and sustainability.

However, technological innovation alone is not enough. The development of new business models is crucial to ensure that utilities and energy providers can remain financially sustainable in this evolving landscape. Innovative models such as energy-as-a-service, peer-to-peer energy trading, and decentralized ownership structures are beginning to emerge, offering alternative revenue streams and enhanced customer engagement.

Additionally, improved regulatory frameworks and system operation procedures are needed to accommodate these innovations. Regulatory bodies must establish clear guidelines that support the integration of new technologies and business models while ensuring grid stability and protecting consumers. System operators must also evolve, adapting procedures to handle more dynamic and distributed energy flows.

By supporting systematic innovation, South Africa’s energy sector can remain competitive and resilient in the face of global energy shifts. This approach will enable the country to build a more flexible, responsive, and sustainable energy system that meets the needs of both current and future generations.

All of these fields of action must also systematically address two critical crosscutting themes, namely: **Just Energy Transition** – Including social equity, ensuring an equitable participation in the energy sector, labour and social protections, fair sharing of the costs energy transition creates. The other is creating **Functional and competent institutions** – Building capacity to not only develop and implement the energy transition, but to also maintain the service delivery to all after the transition.

### 1.2.2. Accelerating Energy Market

As the energy landscape evolves, distribution system operators, including municipal electricity departments, are under increasing pressure to adapt and thrive in this new environment. The shift towards distributed energy resources (DERs) introduces a range of complexities that challenge traditional grid management practices. According to the International Renewable Energy Agency’s 2019 report [3] on the future role of distribution system operators, the responsibilities of these operators are expanding significantly.

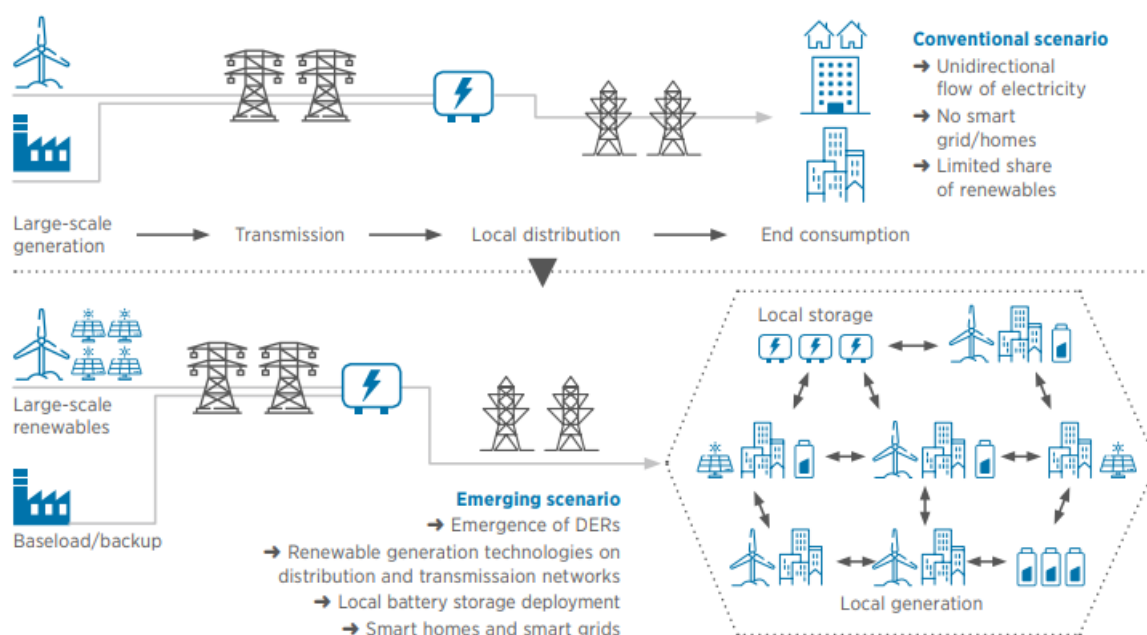


Figure 2: Conventional scenario versus emerging scenario in the power system due to the emergence of distributed energy resources

Historically, municipal utilities managed relatively straightforward electrical reticulation systems characterized by a unidirectional flow of power. These systems operated at various voltage levels with limited technology and involved simple transactions between utilities and customers. However, the rise of renewable energy sources, combined with the proliferation of decentralized generation, is transforming this landscape. Utilities must now navigate a two-way flow of power, where energy is not only distributed from central sources but also generated locally and fed back into the grid.

This shift necessitates the implementation of advanced operational strategies and technologies. DSOs must optimize local generation where feasible, manage the integration of diverse energy sources, and handle complex billing transactions such as wheeling—transferring energy within interconnected systems across different jurisdictions. Additionally, balancing energy consumption and maintaining grid stability are critical tasks as demand patterns become more variable and distributed resources become more prevalent.

Financial health remains a significant concern for municipal utilities. The reliance on revenue from electricity sales to support operations and infrastructure development is increasingly strained by fluctuating consumption patterns and the complexities of integrating decentralized generation. To sustain their operations, utilities must innovate their business models and operational procedures to accommodate these changes while ensuring reliable service delivery.

### 1.2.3. Importance of Electricity Utilities to South African Local Municipalities

The significance of electricity utilities within local municipalities cannot be overstated. For many municipalities, electricity sales represent the largest portion of service-related income, making it a crucial source of revenue as seen in Figure 3. This revenue is essential for the financial health of municipalities, supporting various services and infrastructure beyond electricity itself. The income derived from electricity sales often surpasses that from other sources, such as grants, transfers, and subsidies from government bodies.

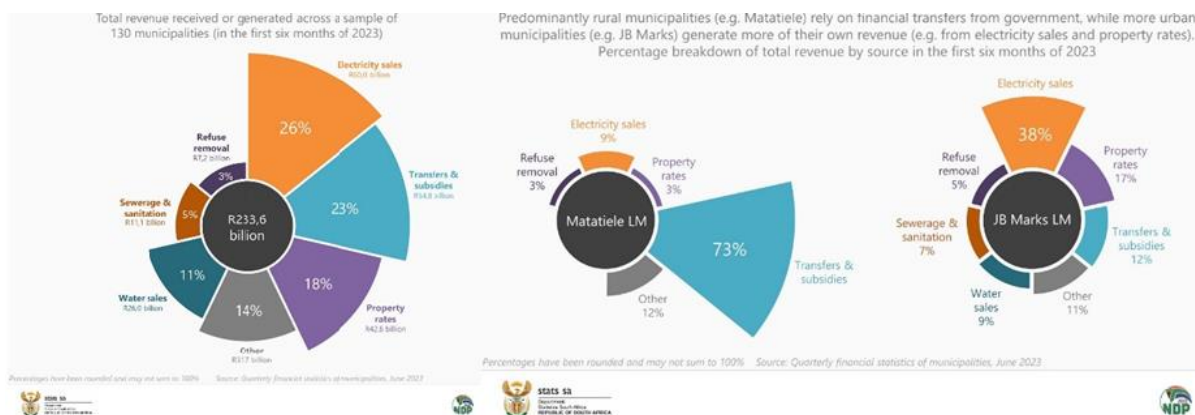


Figure 3: Revenue generated by South African municipalities [4]

Electricity utilities play a vital role in ensuring that municipalities remain financially viable and capable of delivering essential services to their communities. The revenue generated through electricity sales directly impacts the municipality's ability to fund public services, maintain infrastructure, and invest in local development projects. As such, the health of the electricity business is closely tied to the overall financial stability of the municipality.

With the ongoing energy transition and the shift towards more sustainable energy systems, municipalities face a range of new challenges and opportunities. To remain viable and continue providing reliable service, municipal utilities must adapt to changes such as increased integration of renewable energy sources, evolving regulatory requirements, and shifting consumer demands. Failure to keep pace with these changes could jeopardize the financial health of the municipality, potentially leading to unsustainable business practices and a collapse in service delivery.

Therefore, it is imperative for municipalities to prioritize the vitality of their electricity business. This includes investing in modern infrastructure, adopting innovative technologies, and developing strategies to navigate the complexities of the evolving energy landscape. Ensuring the continued success and sustainability of electricity utilities is fundamental to maintaining the financial health and overall well-being of local municipalities.

### 1.2.4. Support within the energy sector

The Association of Municipal Electricity Utilities (AMEU), alongside the South African Local Government Association (SALGA), recognizes the critical need to support municipalities through the ongoing energy transition. AMEU is dedicated to promoting quality of service and management excellence among its members in the electricity sector. The association plays a pivotal role in helping municipalities navigate the technical, economic, and political challenges impacting the energy sector. By providing a platform for dialogue and collaboration, AMEU enables municipalities and their affiliates to come together, share experiences, and develop solutions to address common challenges.



Figure 4: AMEU 70<sup>th</sup> Convention 2024

A key example of AMEU's commitment to supporting municipalities is its annual convention. This year's theme, "Future-proofing the Municipal Electricity Utility Business in South Africa," underscores the association's focus on preparing for the future. The convention serves as a forum for members to contribute through presentations, exhibition stands showcasing the latest technologies, and paper submissions on relevant topics. This year's topics include:

1. Evolving sustainable business models
2. Grid modernization
3. Balanced Just Transition technologies for a stable, reliable, and resilient electricity grid
4. Use of AI and machine learning

While much of the focus is on immediate technical and financial concerns, there is a noticeable gap in discussions about the future leaders and managers of these utilities—the younger generation. Preparing the next generation for leadership roles within these utilities will be crucial for the long-term sustainability of the sector.

The focus on future-proofing the municipal electricity business must also encompass the development and inclusion of young talent. As municipalities continue to evolve, the involvement of the youth becomes increasingly essential. These future leaders will be responsible for implementing and managing the innovations and strategies discussed at conventions like AMEU's. Ensuring that they are equipped with the skills and opportunities to contribute effectively is crucial for the long-term sustainability of municipal utilities.

This realization has led me to reflect on the importance of generational diversity. It is not enough to discuss future technologies and business models without also addressing how we will engage and develop the younger generation who will shape the future of municipal electricity utilities. Integrating young talent into these conversations and planning processes will help ensure that the energy transition is both inclusive and effective.

## 2. GENERATIONAL DIVERSITY

Generational diversity refers to the presence and inclusion of multiple generations within a workplace or organisation. It recognizes that different generations bring varied perspectives, experiences, skills, and values to the table. This diversity can significantly impact how teams' function, communicate, and innovate. Now more than ever diversity in age ranges appears in the typical workforce due to the push back of retirement age because of economic reasons, and the continuous entry of younger workers.

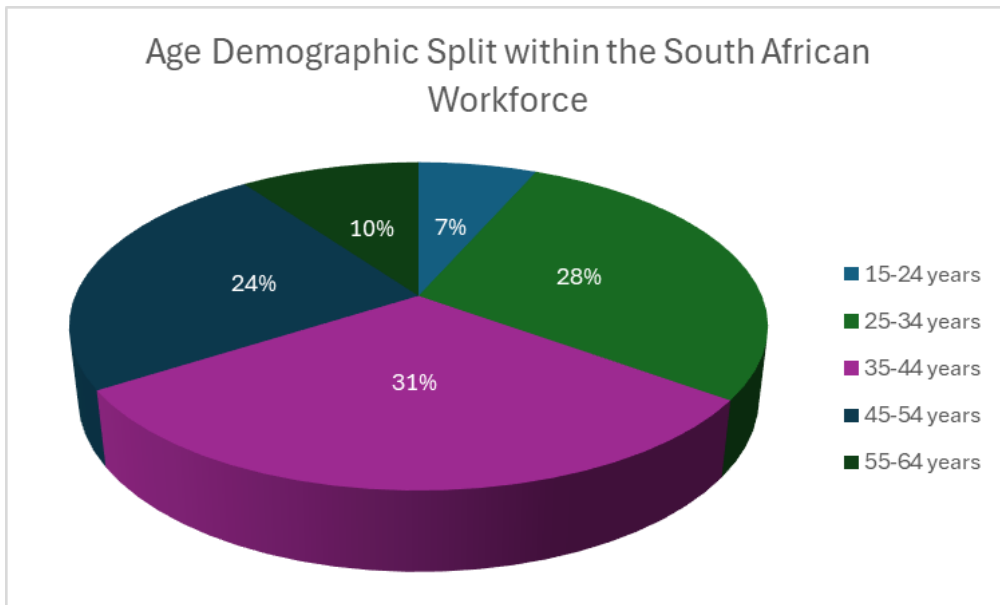


Figure 5: Quarter One 2024 Labour Force Survey Results [5]

In the South Africa context, based on statistics extracted from Statistics South Africa quarterly labour force survey [5], the workforce as at March 2024 is predominantly made up of persons born between 1980 and 1989, this is typically called the Millennials. The two next highest age presence in the workforce is persons born between 1990 and 1999 (Millennials) and the those born between 1970 and 1979 (Generation X).

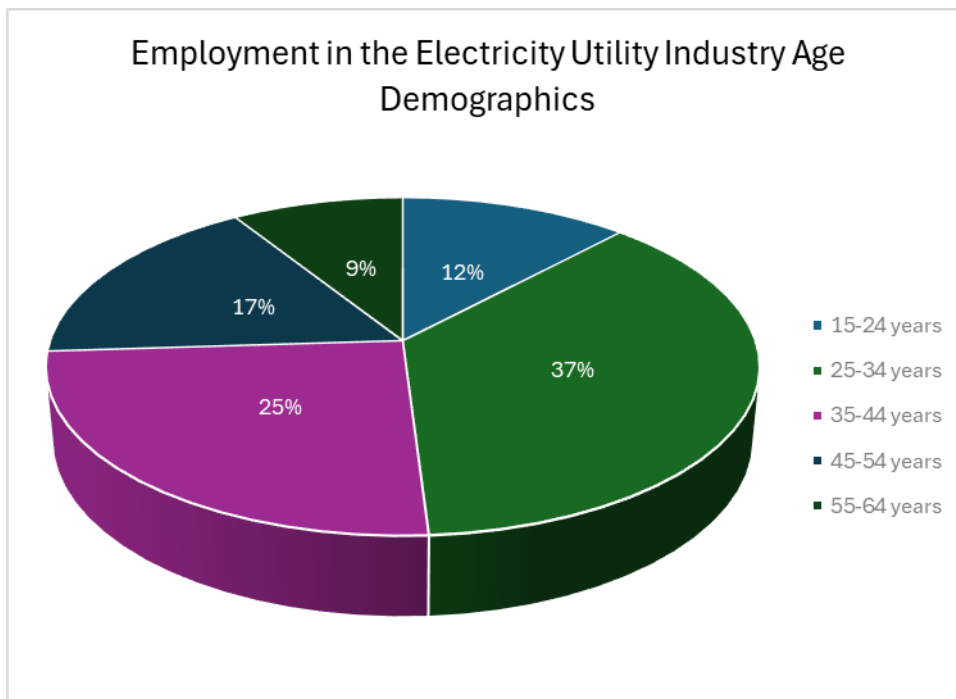


Figure 6: Employment in the electricity utility age demographic statistics [6]

The age demographics within the electricity utility space shows some deviations in comparison to the overall national employment age demographics. The age demographics for persons born between 1980 and 1989 is less than the national proportions by 6%, while the presence of persons born between 1990 and 1999 is 9% higher. Despite the proportion split difference, the top three age ranges appearing within the electricity utility statistics mirror that of the national statistics, persons aged between 25-54 years old (three age ranges) remain the majority.

There are currently four distinct generations present in the workforce based on the data presented, each bringing unique values, workstyles, and technological exposure. Based on national statistics in

Figure 5, Baby Boomers and Generation Z together represent 17% of the overall workforce, with this figure slightly higher at 21% in the electricity utility sector, as shown in Figure 6. The majority, however, consists of Millennials and Generation X. A breakdown of the typical characteristics of these generations is detailed below:

Baby Boomers, born in the post-World War II era, are known for their strong work ethic and loyalty to employers. Their experiences have been shaped by traditional work environments, and while they've adapted to technological changes, many maintain a preference for personal interaction and stability.

Generation X, often characterized by their independent and anti-establishment tendencies, matured during a time of significant social and economic change. Known for a pragmatic approach to work, they tend to value work-life balance and are comfortable challenging authority. Their adaptability has allowed them to bridge the gap between the analogue and digital worlds.

Millennials, the generation that came of age with the rise of the internet and digitization, are highly tech-savvy and thrive in fast-paced, collaborative work environments. Their openness to change and innovative approaches to problem-solving often set them apart. They also value purpose-driven work and are known for embracing flexible working conditions.

Generation Z, the youngest in the workforce, grew up in an era of rapid technological advancement, with digital devices being an intrinsic part of their lives. They place great emphasis on diversity, equity, and inclusion, and are adept at integrating technology seamlessly into their workflows. Having experienced global connectivity from a young age, they bring fresh perspectives on how to utilize technology and data for innovation.

While Generation Alpha is not yet a significant part of the workforce, they have already demonstrated an uncanny ability to grasp technology, often mastering smartphones and other devices before traditional skills like writing with a pen. Their eventual entry into the workforce will likely further drive the digital transformation.

## **2.1. Key Principles of Generational Diversity**

Generational diversity is crucial for fostering a resilient and forward-thinking organization. Key principles of generational diversity include:

### **2.1.1. Capacity Building**

Capacity building involves the development and strengthening of skills, abilities, processes, and resources necessary for organizational survival. It focuses on enhancing the workforce's capabilities, ensuring that both current and future employees are well-equipped to handle evolving challenges. This principle supports organizational longevity by embedding a culture of continuous learning and adaptability.

### **2.1.2. Organizational Adaptation**

Adapting to market changes requires strategic adjustments to meet long-term goals. Fostering a culture of innovation is vital, where employees across generations are encouraged to contribute ideas and engage in best practices. This adaptability helps organizations stay relevant and competitive, leveraging diverse perspectives to drive innovation and strategic growth.

### **2.1.3. Succession Planning**

Succession planning involves identifying crucial positions within an organization and developing a talent pipeline for these roles. By preparing for future leadership needs, organizations ensure a smooth transition of responsibilities, reducing disruptions and maintaining operational stability.

### **2.1.4. Innovation**

Innovation is not merely about generating new ideas but also about implementing new ways of thinking and doing things. A diverse workforce brings a range of perspectives and experiences that can spark creative solutions and drive significant advancements, making innovation a key benefit of generational diversity.

### 2.1.5. Exchange of Experience

Documenting and transferring knowledge is essential for maintaining operational continuity. This includes digitizing network schematics, creating detailed models of systems, and ensuring that valuable insights and skills from experienced personnel are passed on to younger team members. This practice helps in preserving institutional knowledge and guiding future staff members effectively.

These principles all-in-all promotes longevity and sustainability within an organisation by leveraging the benefits of skills development, talent acquisition and retention, development of forward-thinking strategies, innovation presented by varying views/experiences and putting in place the necessary policies and procedures that support all staff, and future staff members. These start to sound like principles that support future-proofing an organisation.

## 2.2. Challenges with Generational Diversity

Generational diversity often brings varying approaches to how work is done. Older generations might prefer a more hierarchical, structured way of operating, having been accustomed to certain procedures over the years. In contrast, younger generations may value flexibility, collaboration, and faster decision-making processes, which can cause friction in daily operations.

Another significant challenge is the varying degrees of technological exposure and adaptability. Younger generations, having grown up with rapid technological advancements, are often more open to adopting new tools, software, and data-driven systems. In contrast, older generations may prefer tried-and-tested methods for managing grid operations, seeing new technology as unproven or disruptive. This can lead to reluctance to embrace innovations like smart grids or AI-driven maintenance systems.

Older professionals, have spent years managing the grid using traditional systems, often have valuable experience in handling crises or making long-term decisions. However, they may resist new, unfamiliar systems that could, in their view, introduce unnecessary risks. Their reluctance to switch from proven practices—sometimes without adequately explaining the reasoning behind them—can create a disconnect with younger staff who are eager to modernize.

Different generations might not share the same workplace experiences or professional references, leading to communication challenges. What older workers see as 'common knowledge' may be completely unknown to newer employees, making it harder for teams to align on goals, processes, or even language.

Older employees may possess a wealth of practical knowledge that has not been formally documented. This lack of documentation creates a knowledge gap, especially as more seasoned employees retire without passing on critical information. When processes and decisions are not recorded, younger generations are left without clear guidance, creating operational risks.

### 2.2.1. Leveraging Generational Diversity for Future Success

While these challenges are real, they can be mitigated by implementing the key principles of generational diversity, turning potential friction into collaboration:

- **Cross-Generational Mentorship:** Encouraging cross-generational mentoring relationships can bridge the work style gap, allowing younger generations to learn from older generations' deep knowledge, while the latter can adopt fresh perspectives and new technologies.
- **Technological Training Programs:** Regular training and upskilling programs can help integrate new technologies without alienating older generations. By focusing on practical benefits and offering hands-on support, organizations can ensure a smoother technological transition.
- **Fostering Open Dialogue:** Creating forums for discussion between generations fosters understanding. Older staff can share why certain methods are still valuable, while younger employees can explain the merits of innovation. This transparency can lead to hybrid approaches that balance the best of both worlds.
- **Standardising Documentation:** Establishing protocols for documenting procedures, decision-making processes, and critical knowledge can prevent loss of expertise. This ensures continuity, even as the workforce evolves.

By embracing these principles, electricity utilities can unlock the full potential of generational diversity, ensuring a forward-looking organization that can adapt to the challenges of the future.

## 2.3. Future-Ready Organisations

The McKinsey article "This is How to Future-Proof Your Company" identifies nine organizational imperatives that distinguish future-ready businesses [7]. These organizations continuously adapt, enhance internal resources, and innovate in response to changing market dynamics and technological advancements. A common thread in these imperatives is their alignment with the key principles of generational diversity, which highlight the importance of leveraging diverse perspectives for organizational growth and sustainability.

**Nine organizational imperatives will separate future-ready companies from the pack.**

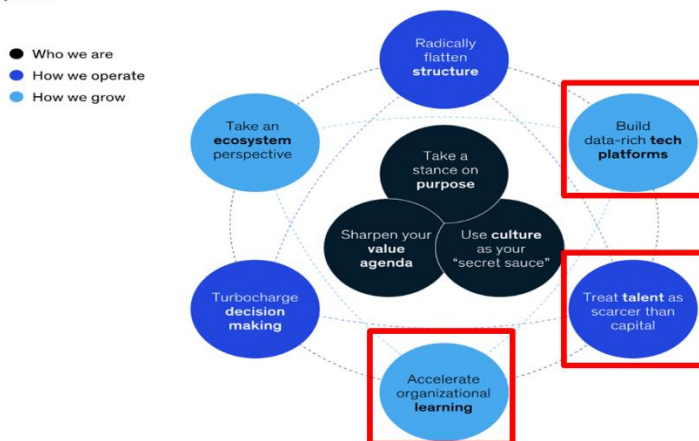


Figure 7: This is How to Future-Proof your Company by McKinsley [7]

The most future-proof businesses are those that continuously adapt, bolster internal resources and innovate in response to changing market dynamics, technological advancements, and address consumer needs. Now linking the imperatives to generational diversity principles:

### 2.3.1. Accelerating Learning in an Organization

This imperative directly correlates with the principle of **Capacity Building** from generational diversity. Just as accelerating learning equips employees with necessary skills and knowledge, capacity building strengthens the overall competencies within an organization. By fostering a culture of continuous learning and development, organizations can ensure that both new and experienced employees contribute effectively, enhancing their adaptability and the organization's resilience.

### 2.3.2. Treating Talent as Scarcer than Capital

This aligns with the principle of **Succession Planning**. Treating talent as a critical resource emphasizes the need for nurturing and retaining skilled individuals, similar to how succession planning identifies and prepares talent for crucial roles. Involving younger employees in meaningful ways and providing them opportunities to learn and grow ensures a steady pipeline of talent, supporting long-term organizational success.

### 2.3.3. Building Data-Rich Tech Platforms

This imperative relates to the principle of **Innovation**. Just as data-rich platforms drive innovation by leveraging technology and insights, generational diversity fosters innovation through the integration of diverse perspectives and ideas. By utilizing advanced data platforms, organizations can harness the collective knowledge of their workforce, including younger employees who are adept with technology, to drive new solutions and improve services.

Electricity utilities that embrace these imperatives in conjunction with generational diversity principles can create a more competent and future-proof institution. By promoting continuous learning and skill development, integrating, valuing and retaining young talent, and leveraging data-driven innovation, utilities can enhance their operational efficiency and adaptability. This approach not only prepares them

to meet current challenges but also equips them to anticipate and respond to future demands, ensuring their long-term success and sustainability.

## 2.4. So Why Integrate Young People?

Integrating young people into the planning and development of utilities is essential for ensuring their long-term sustainability and effectiveness. The inclusion of youth brings fresh perspectives, innovative ideas, and a commitment to addressing the challenges faced by the sector. The following points outline the critical reasons for integrating young professionals:

- **Combats the Impact of the “Brain Drain”:**  
By providing opportunities for young professionals, utilities can mitigate the effects of skilled individuals leaving the country or the sector, retaining talent within the industry.
- **Address the Shortage of Technical Skills:**  
Young people can help fill the critical shortage of technical skills in South Africa’s public sector, including engineers and technologists, thereby strengthening the technical capacity of utilities.
- **Reducing the Age Gap in the Engineering Field:**  
Integrating younger professionals helps bridge the age gap in the engineering field, ensuring a more balanced and diverse workforce.
- **Promote the Intentional Development of Quality Professionals:**  
Intentional efforts to develop young talent leads to the cultivation of highly skilled and knowledgeable professionals who are well-prepared to take on leadership roles in the future.
- **Create a Pipeline of Technical Talent:**  
Establishing a structured pipeline for technical talent ensures a continuous flow of qualified individuals into the sector, supporting its growth and adaptation.
- **Fill the Skills Gap:**  
Engaging young people in the sector directly addresses the existing skills gap, ensuring that utilities have the expertise needed to tackle current and future challenges.
- **Contributes to Organizational Longevity:**  
By integrating youth into the workforce, utilities can enhance their resilience and sustainability, ensuring long-term organizational success and stability.

An industry that consists of young professionals that are passionate about the energy sector and committed to the sustainability and advancement of engineering and built environment professions is essential. For this vision to be realized, young professionals must be included in the planning and decision-making processes, with senior professionals actively investing in their development. This approach will foster a dynamic and innovative workforce capable of driving the industry forward.

## 3. CASE STUDY: GENERATIONAL DIVERSITY MANAGED RIGHT

George Local Municipality (GLM) has taken significant strides toward embracing generational diversity within its workforce. Two young professionals, identified as key players in the municipality’s future success, participated in secondments, commonly known as job rotations with consultants. This initiative allows employees to temporarily work in different teams, both within and outside the organization, providing them with diverse work experiences.

GLS Consulting was engaged by GLM to develop high voltage and medium voltage electricity master plans for the municipality’s electricity services. This project involved creating a geospatial model of the electricity network for simulation purposes and conducting a comprehensive demand forecast aligned with the municipality’s Spatial Development Framework (SDF). These efforts support the municipality’s strategy to enhance energy resilience and complement ongoing energy studies and renewable energy projects.

The Electrotechnical Department at GLM benefits from a diverse mix of age groups, reflecting generational diversity. Recognizing the value of this diversity, the municipality identified the need for capacity building through secondments. While George works with external service providers to gain technical expertise for its planning department, it also focuses on the professional development of its younger staff members.

To facilitate skills transfer, young professionals are seconded to external service providers, where they are exposed to advanced technical expertise and gain a deeper understanding of specialized work. Upon returning to the municipality, these employees are able to share their knowledge with colleagues, contributing to the overall development of the team and promoting a culture of knowledge exchange.

Through this approach, GLM is effectively leveraging generational diversity to build a resilient, future-ready workforce, prepared to meet the evolving challenges of the energy sector.

### 3.1. Aphiwe Matiwane: A future leader in GLM's Planning Team

Aphiwe Matiwane, a planning engineering technologist at GLM, has been an integral part of the municipality's efforts to embrace generational diversity. During his secondment with GLS Consulting in 2023, Aphiwe worked closely with energy consultants on the development of the municipality's medium voltage master plan and geospatial network model. His role has since expanded to include involvement in the renewable energy feasibility study project, which aims to assess grid capacity and explore the viability of additional renewable energy projects within the municipality.

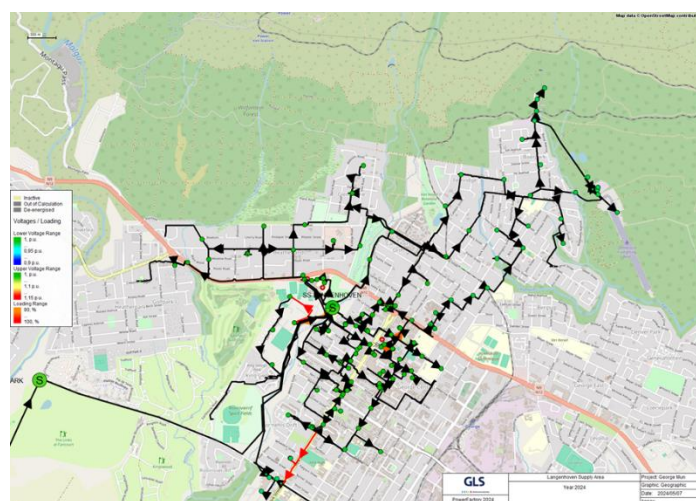


Figure 8: George Local Municipality PowerFactory Geospatial Model

In discussing his experiences, Aphiwe provided valuable insights into how GLM has effectively integrated young professionals into the long-term planning of its electricity system. According to him, the municipality goes beyond the secondment program by implementing policies that support staff development and learning, including offering bursaries to further staff education.

From these efforts, it is evident that GLM is committed to future-proofing its operations by placing young members of its workforce at the centre of its planning initiatives, empowering them to take on leadership roles in shaping the municipality's energy future.

### 3.2. Thabo Yiga: Driving renewable energy projects at GLM

Thabo Yiga, the Infrastructure Project Manager at GLM, is another young professional making significant strides within the organization. Working closely with the planning and design department, Thabo has been instrumental in the successful implementation of several renewable energy projects across the municipality. His leadership and collaboration with the team have been critical to advancing these initiatives.

Thabo was also seconded to GLS Consulting during the development of George's high voltage master plan. This experience provided him with deeper insights into the technical aspects of electricity planning and allowed him to apply this knowledge to the municipality's renewable energy efforts. His growth within the organization has been notable and having observed the operations of the Electrotechnical Planning and Design Department firsthand, it is clear that the future of GLM's electricity business is in capable hands.



Figure 9: GLM Officials and consultants at the Gwaiing WWTW 500kWp site [8]

## 4. CONCLUSION

The energy sector is undergoing rapid transformation, and for municipalities to stay ahead, they must continuously adapt. This calls for a strategic focus on succession planning, capacity building, and organizational adaptation—principles that can be effectively harnessed through generational diversity. An exchange of experience between different age groups and a commitment to fostering innovation are key to preparing the municipal electricity business for the future.

Generational diversity offers municipalities a unique opportunity to blend the wisdom of experienced staff with the fresh perspectives of younger professionals. By facilitating this exchange of ideas, municipalities like GLM are not only preparing for current challenges but are also building the foundation for a more resilient and adaptable energy system.

Crucially, no conversation about future-proofing the municipal electricity business is complete without integrating the youth. Young people bring innovative thinking and technological savvy to the table, and their involvement is critical to navigating the complexities of an evolving energy landscape.

As Mitch Lomazov aptly stated, “We, as leaders, can build bridges with what appeared to be chasms across generations, and with those bridges create a pathway for experience and knowledge to go down, and for innovation, new technology, and new ideas to be brought up, so we can truly empower our rising leaders to build on and carry the legacy we are building today!”

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